

# 3010



THE UNIVERSITY OF  
MELBOURNE

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**melbourne university magazine**

## **EBOLA** **THE LAB REPORT**

On call with the scientists  
guarding against the world's  
most alarming disease

**ARCHITECTURE** BUILDING ON A TRADITION



**100%**





## EDUCATION

## Lessons from the high-tech classroom



A world-first high-tech classroom launched at the University will help researchers to better understand how learning takes place in the brain and to improve teaching.

Structured like a conventional school classroom, the revolutionary facility allows researchers to observe the class behind a large one-way observation mirror and record and analyse student and teacher actions and interactions without disruption.

"The conventional classroom is enormously complex and our understanding of learning as a social activity is fairly limited," says Professor David Clarke (BSc(Hons) 1973, GDipEd 1974, MSc 1979) from the Melbourne Graduate School of Education, a chief investigator on the project.

"The visible presence of tripods in the classroom and the number of necessary personnel can be distracting.

"Lessons given in our state-of-the-art classroom can be recorded through up to 16 high-definition video cameras and up to 32 fixed and portable microphones, which can

be controlled by a technical team to capture everything the researchers need."

The experimental facility will provide an essential research link for education, neuroscience and psychology experts to unpack the new area of educational neuroscience and how it might inform classroom learning.

"We can try innovative new teaching and learning approaches and technologies and study every aspect of the students' responses," explains Professor Clarke (pictured above).

"We can also live-stream this to anywhere in the world. We will build a rich database of classroom interactions that will be an enduring research resource and evidence base."

The classroom is part of the Science of Learning Research Centre, which comprises 25 chief investigators from nine research institutions across Australia and is supported by \$16 million of Commonwealth funding from the Australian Research Council and additional support from a range of organisations.

## WINNER

Congratulations to Maria Paget (BA 1978) who won a \$250 book voucher for opting to receive 3010 by email in future. If you would prefer to have the magazine delivered to your inbox, sign up for the digital version at [unimelb.edu.au/3010](http://unimelb.edu.au/3010)

## APPOINTMENT

## First woman governor

Alumna The Hon Linda Dessau AM will shortly become the first woman to be appointed Governor of Victoria.

Ms Dessau will be the 10th member of the University's alumni community to hold office as Victoria's head of state.

She served as a Judge of the Family Court from 1995 to 2013. Prior to that, she was a magistrate in the Children's Court, Coroner's Court and the Melbourne Magistrates' Court, a barrister at the Victorian Bar, and Senior Crown Counsel in Hong Kong. She has also served as an AFL Commissioner since 2008.

Ms Dessau (LLB(Hons) 1973) will take over from His Excellency The Hon Alex Chernov AC QC (BCom 1962, LLB(Hons) 1967, LLD 2012) on July 1. Other alumni who have held the role are Sir George Ferguson Bowen GCMG (MA 1874, LLD 1876), Major General Sir Rohan Delacombe KCMG KCVO KBE CB DSO (LLD 1967), The Hon Sir Henry Winneke AC KCMG KCVO OBE (LLB 1929, LLM 1945, LLD 1978), The Rev Dr J Davis McCaughey AC (MA 1962, LLD 1982, Ormond College), The Hon Richard E McGarvie AC QC (LLB(Hons) 1951, BCom 1971, LLD 1990), The Hon Sir James Augustine Gobbo AC CVO KStJ QC (BA(Hons) 1952, LLD 2000, Newman College), John Landy AC CVO MBE (BAgrSc 1954, LLD 2003) and Professor David de Kretser AC (MB BS 1962, LLD 2012).

**Victoria's Governor-Designate, The Hon Linda Dessau AM, has had a distinguished legal career.**



## CLIMATE CHANGE

## Climate change on your plate

Tasteless carrots, bad pizza dough and poor-quality steak are some of the impacts we can expect from Australia's changing climate, according to a new report prepared by leading climate scientists David Karoly and Richard Eckard at the University of Melbourne.

From wheat, seafood and dairy products to poultry, meat, grains, and fruit and vegetables, the effects of global warming on a list of 55 household food items has been compiled for the very first time in the report *Appetite for Change*.

"It's definitely a wake-up call when you hear that the toast and raspberry jam you have for breakfast, for example, might not be as readily available in 50 years' time," says Associate Professor Eckard. "Or that there may be changes to the cost and taste of food items we love and take for granted like avocado and Vegemite, spaghetti bolognese and even beer, wine and chocolate.

"It makes you appreciate that global warming is not a distant phenomenon but a very real occurrence that is already affecting the things we enjoy in our everyday lives, including the most common of foods we eat for breakfast, lunch and dinner."

Professor Karoly says that of all the impacts global warming is having on Australian farms, increases in heatwaves and bushfires pose the biggest threat to Australia's agricultural regions.

Key report findings include predictions that temperature changes will adversely affect root crops, wheat and fruit and nut production and will increase heat stress in cattle and chickens.

"Global warming is increasing the frequency and intensity of heatwaves and bushfires affecting farms across southern and eastern Australia, and this will get much worse in the future if we don't act," he says. "It's a daunting thought when you consider that Australian farms produce 93 per cent of the food we eat."

[sustainable.unimelb.edu.au/planettoplate](http://sustainable.unimelb.edu.au/planettoplate)

## ALUMNI FACTS

13,705

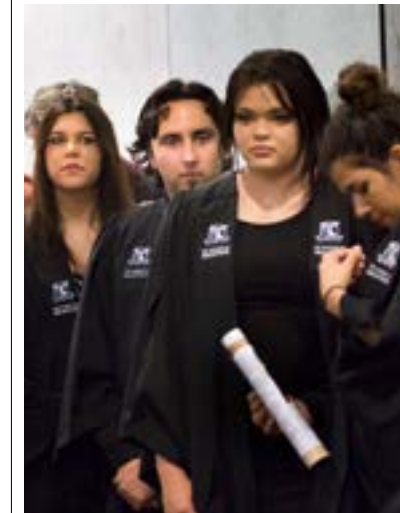
Number of people who attended University of Melbourne alumni events during 2014.

15,181

Number of new graduates who, in 2014, joined the ranks of nearly 338,000 University of Melbourne alumni across the globe.

## RECONCILIATION

## Indigenous plan aims for parity



The University has undertaken to raise the number of Indigenous students and staff on campus, with a commitment to population parity a key feature of its 2015 Reconciliation Action Plan (RAP).

The first RAP announced in 2010 focused on building the knowledge and processes to support Indigenous development and contribute to Indigenous well-being.

Extending that commitment and taking greater steps towards setting hard targets to achieve population parity, the University will look to recruit and retain more Aboriginal and Torres Strait Islander students.

The University will also actively grow its Indigenous Australian academic and professional workforce.

University of Melbourne Indigenous students have one of the highest success rates in Australia, but Professor Ian Anderson, Pro-Vice Chancellor (Engagement) (MB BS 1989, DMedSc 2012), says there is still much to be done.

"We have set ourselves some long goals and targets," he says. "For Indigenous staff we aim for parity by 2020. For Indigenous students we are looking towards 2050.

"While a long way off, the figures for students are based on analysis of current Indigenous populations in the school system and projections on how many might come to undertake tertiary study."

## CAMPAIGN

## Believe gift a boost to health

*Believe – the Campaign for the University of Melbourne* has reached the significant milestone of \$400 million thanks to a major donation that will transform healthcare.

The \$5 million gift from Leigh Clifford AO, Sue Clifford and their family will endow the Clifford Chair in Neural Engineering in the University's Centre for Neural Engineering (CfNE).

The CfNE is a cross-disciplinary research and development centre with a focus on the convergence of the engineering, physical and life sciences. It is developing potential treatments for conditions such as epilepsy and Parkinson's disease and spinal injuries.

The new Chair will help facilitate the development of new portable diagnostic tools for faster, more reliable diagnoses and better patient management, especially in Indigenous and rural communities. The next generation of bionic devices and implants will also be delivered.

Professor Iven Mareels, Dean of the Melbourne School of Engineering, says the gift will transform this crucial area of research.

"Being able to understand the brain better from an engineering point of view will help us to develop devices in support of better mental healthcare," he says.

"Equally, and from an engineering point of view perhaps even more important, unlocking the foundations of the computational power of the brain will allow us to produce small, low-power, portable devices that have the capacity of today's supercomputers."

Mr Clifford (BE 1968, MEngSc 1971, International House), Chairman of Qantas and former CEO of Rio Tinto, is deputy chairman of *Believe – the Campaign for the University of Melbourne*. The Campaign aims to raise \$500 million by the end of 2017 to support key research, scholarship and engagement goals.

Watch an interview with Professor Stan Skafidas of CfNE at [unimelb.edu.au/3010](http://unimelb.edu.au/3010)



# Heart of darkness

**A gold mine in western Victoria has become the unlikely setting for a mission to resolve one of science's great mysteries: what holds the universe together?**

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

**D**r Matteo Volpi is on his way to work, heading deep into the earth down a steep, curving tunnel known as "The Decline". He's aboard a four-wheel drive on the main access road to the Stawell Gold Mine, in western Victoria, winding initially through ochre-coloured alluvial rock and then the harder, blue-grey volcanic variety. Every so often his vehicle has to duck into a holding bay to let a truck carrying up to 60 tonnes of rock crawl by.

Volpi, a post-doctoral fellow in the University's School of Physics, is travelling to a workshop 729 metres underground. Here he is taking initial measurements for a study that could determine what holds the universe together. It may seem bizarre, but to find out why the stars are in their places in the sky, we need to go almost as far from them as we can easily reach on Earth.

A kilometre underground in the mine's dank, dark environment, in a cavity surrounded by basalt, physicists from the University of Melbourne and several other Australian universities, collaborating with Princeton University in the US, the Australian

Nuclear Science and Technology Organisation (ANSTO) and the Italian Institute for Nuclear Physics, plan to construct a \$3.5 million laboratory to try to detect the elusive cosmic glue known as dark matter (see page 9).

Understanding the nature of dark matter is regarded as one of the most important questions of modern particle physics.

"If we nail it, it's a Nobel Prize-winning experiment," says the leader of the effort, University of Melbourne Professor of Physics Elisabetta Barberio, a chief investigator of the Australian Research Council (ARC) Centre of Excellence for Particle Physics at the Terascale (CoEPP).

But it could mean a whole lot more for the people of the Stawell region, most of whom are being confronted by the concept of dark matter for the first time. They are hoping that the lab can provide employment and investment, technology transfer and a stimulus to local industry, a source of education, possibly even a tourist attraction, and most certainly endless fascination.

CONTINUED PAGE 8



**Dr Matteo Volpi at the 1025-metre depth of the Stawell Gold Mine.**

PICTURE: STEVE MCKENZIE





**Taking initial readings in the underground workshop, a precursor to a full-scale experiment; (right) part of the tunnel.** PICTURES: MICHAEL SLEZAK (ABOVE) AND STEVE MCKENZIE

FROM PAGE 7

“This is a pretty big punt for us, but it’s a good one,” says Murray Emerson, mayor of Northern Grampians Shire, which has applied for regional development funding to develop the lab. “In the long term, it can really be beneficial for our community. We’re right at the start of something pretty exciting.”

The Victorian government thinks so too. In mid-February, Premier Daniel Andrews toured the gold mine and pledged \$1.75 million to kick-start construction of the laboratory, a project he says could generate up to 215 local jobs. He called on the federal government to provide matching funding.

The Crocodile Gold Corporation, which operates the mine, sees the project as a way of putting something back into the community and providing continuing employment for its staff and their hard-won expertise, according to general manager Troy Cole. As long as the mine is operating, Crocodile Gold is prepared to provide the lab with in-kind support in the form of access, technical advice and services such as ventilation, water and power.

Dark matter is so-called because it does not interact with light – or any other radiation for that matter. More than dark, it is invisible. And, because of its lack of interaction, it will penetrate almost anything, including Earth itself.

But dark matter is responsible for 85 per cent of the gravity that holds the universe together, so it must have mass. If a particle of dark matter directly bumps into an atomic nucleus “the nucleus gets excited”, says Professor Barberio. “It’s pushed away and the recoil is seen as light.”

And that is exactly how dark matter particles are detected; by setting up a nuclear target – in this case, a very pure

crystal of the salt sodium iodide provided by researchers from Princeton – and checking to see what light is emitted.

But the sodium iodide can also react in a similar way if hit by other particles or radiation. So the detector needs to be located as far as possible from any sources of these, such as sunlight or cosmic rays or radioactivity.

And that is where the muted environment of the Stawell Gold Mine shines. Not only does it provide suitable sites deep underground surrounded by low-radiation basalt, it has another huge advantage – access. Because it is a modern “decline” mine, the laboratory can easily be serviced by trucks, ventilation, electricity and even the internet.

What’s more, while there are at least 15 such underground laboratories in the northern hemisphere, this would be the first south of the equator. That’s important, because its initial job would be to duplicate a northern hemisphere experiment that has provided some of

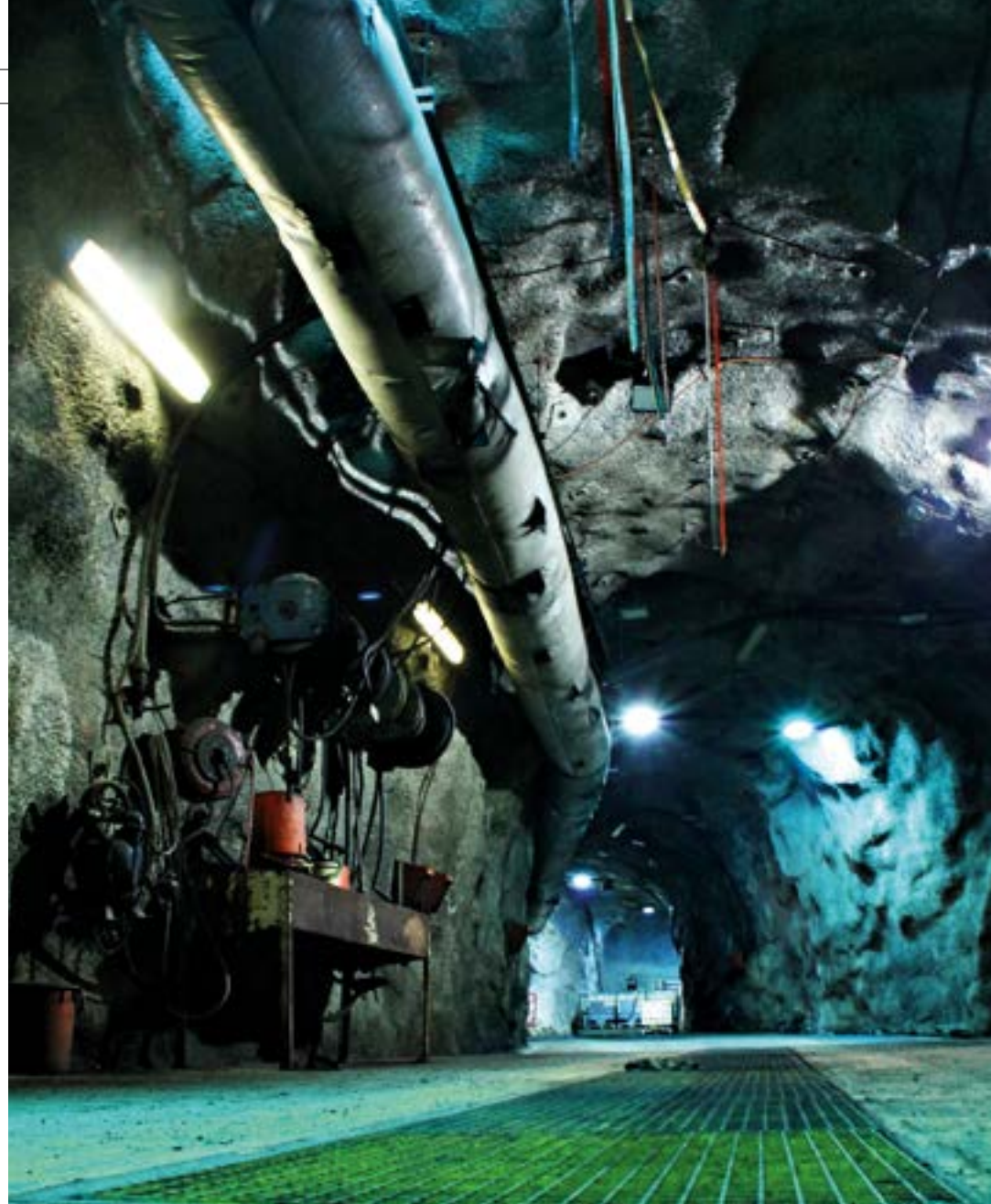
### “We’re right at the start of something pretty exciting.”

**MURRAY EMERSON**

MAYOR, NORTHERN GRAMPIANS SHIRE

the only credible direct evidence of dark matter. It was undertaken at the world’s largest underground particle physics laboratory, 1400 metres below Gran Sasso near L’Aquila, about 120 kilometres north-east of Rome.

The Italian physicists reasoned that, as the sun moves around the centre of our galaxy, it passes through a soup of dark matter particles at about 200 kilometres a second. Earth, orbiting the sun, swims with this current of particles for half a year



and against it for the other half. So, you would expect that in one half of the year a dark matter detector would encounter more particles than in the other. And, over several annual cycles, that’s exactly what was found at Gran Sasso.

But critics of the study suggest that it might simply be a seasonal thing. Perhaps more particles are detected in warmer weather than cold, they say, or when the sun is nearer. So the Gran Sasso researchers were keen to help establish an underground laboratory in the southern hemisphere that could run the same experiment simultaneously to eliminate those seasonal possibilities.

Barberio and her colleagues at CoEPP heard their call. She is a highly respected experimental particle physicist who was a key player in the discovery of the Higgs boson, the so-called “God particle”.

“There is a lot of excitement internationally about this particular dark matter experiment because we are in the southern hemisphere,” she says. “The University of Melbourne has the strongest

experimental particle physics group in Australia. We can compete at the international level. So the Americans and Italians are willing to work with us while we are learning about new techniques.”

Yet dark matter could be the just tip of the research iceberg for the laboratory, according to Barberio. A lot of useful nuclear physics research is conducted in a low-radiation environment, she says. And then there’s biology. “Already there are researchers from Australian universities at Gran Sasso studying the effect of low radioactivity on cells, particularly cancer cells. Then there are studies on general relativity, on underground micro-organisms and on chemistry and materials science.”

There seems real confidence at the mine and in the local community that the laboratory will go ahead. Things are already gearing up. Matteo Volpi’s initial job is to monitor the environmental background radiation, to check that it conforms to the Gran Sasso protocol. A kilometre down, there



**Professor Elisabetta Barberio says the experiment is creating international excitement.**

PICTURE: CASAMENTO PHOTOGRAPHY

are two potential sources of radiation – local radioactivity and the occasional intruding cosmic ray. Both have to be taken into account in the design and shielding of the new laboratory.

Volpi has visited each week or fortnight to take measurements underground. In his orange overalls, goggles and gumboots, he could be taken for any other miner, if it weren’t for the metre-long dreadlocks cascading down his back. He’s clearly made an impression on the mine workers. Recently, courtesy of an equipment malfunction, he had to take a few weeks’ break. When he returned, they greeted him like a colleague back from holiday. They are incessantly interested in what he is doing.

What would secure the project is a federal grant to match what the Victorian government has already promised. So Mayor Murray Emerson is off to Canberra to plead the case. He has become an enthusiast, to the extent that he has even been talking to Year 7 pupils at the local secondary college about the opportunities brought by the project. “We hope one day that some of our local kids will end up as professors,” he says. “At the very least, it may encourage them to stay at school and consider doing science.”

And he’s also impressed by the possibility of the laboratory becoming a tourist drawcard. About 8000 people a year visit Gran Sasso. “It turns over \$1.5 million annually in tourism alone,” he says. “People ring up and book three years in advance to go there.”

He’s already aware how much the project has captured the imagination of his colleagues in local government. Rarely does he go to a meeting of mayors these days without someone sidling up to him and asking: “How’s that underground lab coming along?”

## In search of the missing link

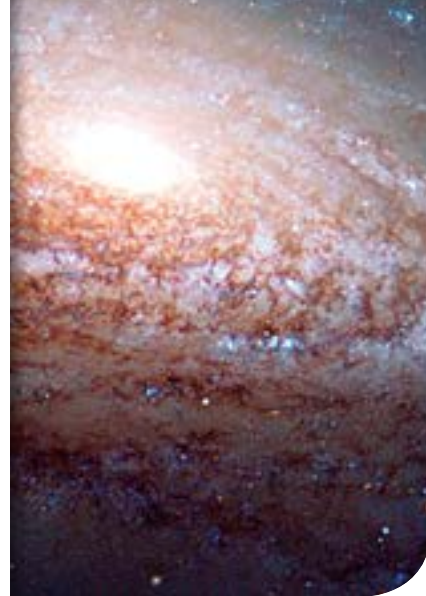
We all know what gravity is. It’s the force that keeps us grounded to Earth. It also keeps Earth tethered to the sun and the sun part of the Milky Way galaxy instead of careering off into space. Gravity is a property of mass or matter.

In the 1930s several astronomers contemplating the heavens noticed something was missing. In fact, a lot was missing. They recognised that all the matter they could see – the galaxies, stars, planets, dust clouds and comets – did not have enough gravitational pull to hold the universe together.

It took until the 1970s for the American astronomer Vera Rubin to accumulate enough solid evidence from studying how the galaxies move in space to suggest the existence of another form of matter that is invisible to us. And it isn’t just a small amount. It accounts for about 85 per cent of all matter in the universe. Because it does not interact with light, it was dubbed dark matter.

Since then the hunt has been on for particles of dark matter. Pretty well the only thing we know about them is that they must have gravity, so they can bump into and move things, and we can detect them through that action. The physicists proposing the underground laboratory at Stawell are hoping that dark matter particles will reveal themselves by causing nuclei in sodium iodide crystals to absorb energy and recoil.

PICTURE: ESO/HO





He's a former IT specialist; she's an eminent psychiatrist. Now Graeme Simsion and Anne Buist are a literary couple, parlaying their original careers into second lives as novelists.

BY GARY TIPPET

**A**s they sit side by side on a fat, black leather lounge in their Fitzroy home, discussing books and the art and mechanics of writing, you realise what a gift Graeme Simsion and Anne Buist have been to the PR team at Text Publishing.

They are the true and perfect fit to the old publishing cliché: "Husband-and-wife literary double act."

Simsion (PhD 2006) and Buist (MMed 1992, MD 1999), married for 25 years, seem a couple almost symmetrically in sync: both high achievers academically and professionally, with an easy, open affection and a pride and excitement in each other's passions and projects, they are even close physical matches. He is boyish and built like a flyweight, with the same sharp alertness; she tiny and willow-thin.

Now in second – or for her part, dual – careers as novelists, they are keen collaborators, inspiring, bouncing ideas off each other and swapping projects. They even write side by side, literally, at their cottage at Lancefield.

"No, we don't get on each other's nerves," Simsion says. "I think there's recognition on both our parts that the other can offer something constructive to the process. I value what Anne brings to my writing. She's very good with plot and characters: 'What would a woman do under these circumstances?'"

"And she's my first reader: as I was writing *The Rosie Effect* I'd read out sections to see if she laughed."

"He's my *last* reader before it gets to the editor," Buist says. "But before we get to that bit, it's helping me plot and edit."

It seems to be working. Simsion, 58, is already an Australian publishing phenomenon, a former IT consultant



specialising in database modelling whose first novel, *The Rosie Project*, became an international bestseller with a subsequent movie deal. Buist, 55, is a prominent perinatal psychiatrist and Professor of Women's Mental Health at the University of Melbourne, whose own novel, a smart, sometimes dark thriller called *Medea's Curse*, has just been published.

They say write what you know and there's more than a little of Buist and Simsion – and their areas of expertise – in each of the books. *The Rosie Project* tells of the socially inept – don't mention Asperger's – Don Tillman, professor of genetics, list maker, timetable obsessive and wife seeker. He finds himself searching for the biological father of Rosie, a fiery, single-minded bartender, and against all his rules, falling in love with her.

*Medea's Curse*, inspired by Buist's work with Victoria Police and with more than a little nod to 1997's Jaidyn Leskie case, features Dr Natalie King, a bipolar, Ducati-riding forensic psychiatrist and sometime cover band singer caught up in a series of deaths and disappearances of children.

Simsion came late to fiction, with

*Rosie* published in 2013, but it struck an immediate chord here and overseas, with Text selling the rights to more than 30 countries for about \$1.8 million. It went to five reprints that year and four more in 2014. Buist has been writing stories since she was eight, most just a paragraph or two. "But then I finished one at 15 and it's still sitting upstairs, handwritten. I was still writing in my 20s."

Simsion admits: "I had a desire to write a novel in the way that probably half the population does – 'One of these days I'm gonna write a book' – and saw that as the pinnacle of artistic achievement ... but I didn't do anything about it. Fair to say I wasn't really serious about it."

Simsion had completed his undergraduate degree at Monash, collecting "a bunch of other qualifications" before a PhD at the University of Melbourne. He built a successful data modelling consultancy with more than 60 employees and offices in Melbourne, Sydney and Canberra. Data modelling, he explains, is database specification with the modeller as the conduit or middleman between client and technician.

Buist can't help but giggle and nod as he makes an admission: as a child and teenager he was something of a nerd. "Oh yeah, I think so..." he says. "I was good at maths and science, in the radio club, I was a ham radio operator, all that sort of stuff." In the prototypical nerdy trajectory, the New Zealand-born town planner's son was at university at only 16.

The daughter of a pathologist, Buist studied medicine at Monash but did her Masters and Doctorate at the University of Melbourne. Her MD thesis was on childhood trauma as a risk factor for postnatal depression and after she qualified she worked in the mother and baby unit at a psychiatric hospital.

For all that, there was still the tug of writing. "On our first wedding anniversary we said to each other: 'What do you want to do in the next five years?' and I said: 'I'd like to write a novel'. Then at the next one he said: 'Am I going to keep hearing it for the rest of our days?'"

Simsion told his wife: "Just one page ... if you only write one page a day, in a year you'll have a novel."

Of course it wasn't that easy. She'd

just had a baby and was going back to work – and, she says, she had a fear of rejection. But she remembered a study in a retirement home in which residents were asked their greatest regret: "Not one of them said they wished they'd spent more time at work. It was all about not taking risks."

"I thought I don't want to get to 80 and regret that I never put that novel in. So I thought dammit, I'm going to do it, and I did – and got rejected."

**B**ut she forged on. In 2010, while on a sabbatical at Yale, she began filling in the two-hour train commute between there and New York by writing erotic fiction as Simone Sinna, a "porn star" anagram of her married name. Erotica publisher Siren Bookstrand snapped up her first attempt, *Embedded*, and two more.

"It gave me a great opportunity to practise story," she says. "Lots of sex too – if you can't write about sex as a psychiatrist, who can – but I found it really restricting. It's actually not erotic

**As in their novels, the lives of Anne Buist and Graeme Simsion have taken a twist.**

PICTURE: SIMON SCHLUTER

at all; it's very naughty Mills & Boon."

Meanwhile the two had collaborated on an ultra-low-budget movie based on one of Buist's rejected novels and Simsion – author of two books on data modelling – had caught the screenwriting bug. He sold his business and enrolled in a screenwriting course at RMIT. *The Rosie Project* began life as a screenplay that eventually won an Australian Writers' Guild award for Best Romantic Comedy.

The birth of the novel was less than straightforward. On a New Zealand holiday with their son, Simsion and Buist began kicking around an idea, inspired by a friend "who was not a hundred miles from Don Tillman in personality". They workshopped it as a romantic drama, but Simsion soon found it worked better as a "laugh-out-loud rom-com".

Buist, meanwhile, had an unsubmitted manuscript – "143,000 words, and just garbage" – from an idea Simsion had given her years earlier about someone searching for their biological father through surreptitious DNA testing. Simsion, now enrolled in a professional writing course, reclaimed the idea, but threw out his original plot, keeping only the main character of Don.

"I always knew the heart of the story was the Don Tillman character," he says. "Laugh-out-loud comedy comes out of character and very few novelists have been gifted even one such character in a lifetime. You've got Bridget Jones, you've got Rumpole of the Bailey, and perhaps you've got Don Tillman."

The US sports writer Red Smith used to say writing is easy – you just sit down at a keyboard and open a vein. Simsion disagrees. He carefully plans his stories, storyboarding and laying out scene by scene in a literal pack of cards, before he begins writing. It's a process.

"That means," he says, "I can concentrate on telling the story rather than what the story is."

"That writing is very pleasurable ... writers who talk about the agony of creation, OK it's a personal experience but as a job being a full-time writer is not the toughest gig in the world."

"It's very tough trying to fit it around your day job." He looks at his wife and smiles. "My heart goes out to you if you're trying to be a psychiatrist by day and a fiction writer by night."





**CHRISTINE KENNEALLY** (BA(Hons) 1990)  
AUTHOR OF *THE INVISIBLE HISTORY OF THE HUMAN RACE*

# Our genetic awakening brings benefits and risks

A few years ago, CeCe Moore, an ex-TV-producer-turned-blogger, invented a new type of career. In the early days of genetic genealogy, when companies offered to read a small part of someone's genome so they could trace family, Moore researched and blogged about DNA, eventually becoming a little obsessive-compulsive about it.

Today, she's a genetic detective and she is regularly asked for help. "I get emails from people literally every day who found out they're not who they thought they were genetically."

The questions begin, Moore explained, when clients get their DNA tested and "they come out as a half-sibling to their sibling, who they thought was their full sibling." In the past few years Moore has helped half a dozen individuals who were abandoned as newborns, some found in dumpsters.

The fact that any one of us can take even the first step in this process – send off a sample and get back roughly a million bits of personal genetic information for about \$100 – is extraordinary, and to say that it has gone somewhat unremarked upon is an understatement. The personal genome revolution grew out of the Human Genome Project (HGP), a multi-million-dollar endeavour in which hundreds of scientists participated, but ironically the fact that so few people know much about their own genome can at least partly be explained by way the project was received.

Although the first draft of the human genome, published in 2001, was issued with much fanfare, it was followed by years of deflating expectations and cynical commentary, most of which can be summed up like this: it was supposed to change everything but it changed nothing! The legacy was a deep scepticism among scientists about the value of genomic research, an attitude not helped by the media's tendency to announce that the

gene for something – red hair, or personality or intelligence – had been found. At the same time, the genome was not embraced much by the humanities, which had always been suspicious about attempts to find connections between an individual's identity or traits and their biology.

Yet despite the fact that the first draft of the human genome was not something that could be immediately acted upon, the future has crept up on us anyway. Now as individuals, as well as a culture, we can access huge amounts of knowledge from the genome, some of it previously unimaginable. In addition to digging up our family's recent and distant past, the genome can teach us about the long-ago past of our species, the movements of populations, the choices made by ancestors and our own possible futures as well. The personal and cultural enlightenment on offer is tremendous, but it doesn't come

for free. With large data come large responsibilities, too.

How can we sensibly manage this unprecedented amount of personal data? If we are not going to make the same mistake as the HGP, we must humbly acknowledge that we are at the beginning of the personal genome revolution and the answer is not yet clear. But even though there is no obvious and comforting path to follow, we'll never find it if we don't learn a few new, but basic, principles about our genomic selves. For example, we can't hope to protect our data if we don't know how the genome gets broken apart and shuffled over generations, how it connects us all in a great big network and what we can learn from those connections. In addition, when it comes to the genome, it's important to know that many of the individual gains come via the collective.

## FAMILY

Moore typically finds families by using genetic genealogy databases to identify distant cousins with the segments of DNA that people have in common. Then she tracks back through the family histories of the cousins to find a common ancestor among them. After that she works her way down again from the common ancestor, looking for an individual's parents. "You build the tree up and then you build the tree down," she told me. Sometimes she has found a direct match, where it is quite obvious from the amount of DNA that two people have in common across many chromosomes that they are siblings or parent and child. Twenty years ago, there was no way to identify many of the people Moore helps. Family relationships could be proved by comparing the DNA of two people, a father, say, and his illegitimate child, but it's a wholly new thing to be able to send off a sample of DNA to a genetic genealogy company and have it matched

against the samples sent in by complete strangers.

Moore's approach is not just a clever way of helping people repair some of the information gaps in their lives, it underscores the fact that new information is created when a lot of people put their genomes together. For Moore's clients, it allows them to work around governments that deny them basic information about themselves. In Australia, because government archives are underfunded and unsupported, many wards of the state who grew up in the orphanages of the 20th century struggle to find out basic facts about themselves, like who their parents were. In the US, many adoptees are not even legally allowed to be told who their parents were.

Such discoveries would not be possible without the modern marriage of science and business; individuals can look at their

genomes only because companies can profit by making everyone's data available for matching. There is an inevitable tension here. It is entirely reasonable for businesses to make a profit, and it's also sensible for their clients to worry about whose interests they have at heart. Because these are pioneering days in the business, as well as the science, of the genome, it's essential to consider the privacy issues that can arise.

In 2010 I had my DNA analysed by the Icelandic company deCODEme, the first company to offer an in-depth personal DNA analysis over the web. In 2013 deCODEme's parent company was taken over by one of the world's biggest biopharmaceutical companies, but I received no information about the change of their service or their new owners. Do they still have my data? I don't know. And if they do, what will happen to it in a few years, in 10 years, in 100 years?

Most of the big genetic genealogy companies take privacy seriously, but different companies make different commitments to their users. It is sensible to read the fine print before sending in a sample. It's also important to consider that no matter what is said now, while any company can be shut down, your DNA sample may live on and it will point to you forever.

## ANCESTRY

Sometimes Moore's clients don't get the ancestral result they expect. They assume they are Irish, but the test says their DNA is more like that of a Russian Jew. "This is just my experience," Moore said. "It could be that people are drawn to testing who always felt like they didn't fit in or always had a question in their mind, but the numbers are very high." Sometimes all that Moore can find out about a client is her general ancestry: a recent client discovered she was Mexican, which she had no idea was the case.

In fact, many people are dismissive of the idea of exploring ethnic ancestry in the genome. There's a fear that modern scientists, like the eugenicists of the early 20th century, are really looking for race in the genome and that it will be used against people. In fact, our collective DNA can help us correct the racist ideas that make people fear the biology of ancestry. Considering one's own personal genome and the genome of friends and family makes it stupendously obvious that race is an imprecise and ultimately unhelpful notion in biology.

Everyone's genome has been flavoured by the events of the past; some segments may be identifiably associated with certain populations, like the Y chromosomes that are typical of central Asia or the autosomal chunks that tend to occur in Africans or Australians. Indeed, examining the way the genome moves through

time and family trees makes it clear that there are no predetermined genetic or other physical divisions into which different human groups throughout space and time can be discretely assigned. Modern-day racists may wish to believe some DNA is more privileged than others, but nothing in the human genome can be explained by the age-old foils of racism, such as platonic intelligence or beauty or purity.

## HEALTH

The genome doesn't just tell us about history, it can tell us about our possible futures as well. We can learn about our risk for conditions that are affected by lifestyle, like Type 2 diabetes. People who find they are at greater risk for the disease may choose to build a lifestyle that lowers the risk. When my husband and I had our genomes read, he found that he had a significantly higher than average risk for prostate cancer. You can't lower the risk for prostate cancer in the same way you can for Type 2 diabetes, nevertheless the new piece of information opened his eyes.

Now, whenever he comes across a newspaper article about prostate cancer, instead of flicking past, he reads it. Slowly but steadily, he's building a personal bank of knowledge about the disease. If he does end up having to deal with it, he'll be much better equipped.

More and more, findings like these will come from genome wide association studies, where thousands of genomes are compared to one another and association between segments of DNA and health or conditions like autism spectrum disorder are found. Here, too, there is power in our collective genomes, and the more genomes that are in any one study, the wider the benefits.

Of course, pharmaceutical companies realise this. The databases that genetic genealogy companies use to connect

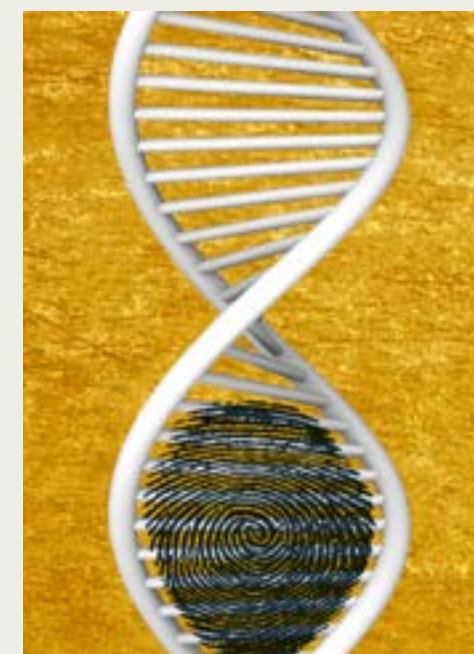
their clients with one another have lately become very valuable, and companies are opening them up to medical research or conducting that research themselves. Likewise, many governments have funded big projects to collect genomic data so as to illuminate the common genetic origins of disease. It seems that now is a good time to catch up on the genome and the benefits and risks of using its data.

Fortunately, there is no better way to teach some of these basic principles and ideas about risk and the connections between a single human node and the larger networks they belong to than through the ever-fascinating prisms of ourselves.

This essay includes modified excerpts from *The Invisible History of the Human Race*.



**"We can access huge amounts of knowledge from the genome, some of it previously unimaginable."**



**"Databases that genetic genealogy companies use to connect their clients with one another have become very valuable."**



# “It’s very scary when a disease like Ebola gets into a country with a very fragile healthcare system that can’t effectively block transmission.”

## A laboratory in Parkville is playing a key role in protecting Australia against the world’s deadliest infectious diseases.

BY KATE STANTON

**D**r Mike Catton is chopping vegetables for Sunday dinner when the phone rings. A man in another state has a fever; more disturbingly, he has just returned from Guinea, one of the epicentres of an unfolding Ebola outbreak. Catton ends the call, puts down the knife and begins contacting colleagues. He knows just what to do.

“It’s like a fire station, we’ve got to be in constant readiness,” says Catton, the head of the Victorian Infectious Diseases Reference Laboratory (VIDRL), which is based at the Peter Doherty Institute for Infection and Immunity in the heart of Melbourne’s biomedical research community. “The pressure is on us.”

The laboratory must work fast to identify a virus so hospital staff and health authorities can act rapidly to contain it. In this case, dinner must wait as he arranges for a sample to be shipped to Melbourne.

Catton and his team play a key role in protecting Australia and the region against some of the world’s most notorious germs. They monitor and test for a range of infectious diseases, such as HIV, influenza and measles, but as the national reference laboratory for viral haemorrhagic fevers, they are especially equipped to handle Ebola, the rare and deadly virus that has alarmed the world.

The laboratory is Australia’s best resource for containing a disease that has killed nearly 10,000 people in the past year, more than any previous Ebola outbreak. Most of the toll is confined to West Africa, but the nature of the epidemic has sparked doubts about the world’s ability to manage dangerous viruses.

“Even though Ebola’s been around since 1976,” Catton observes, “it became real for people in 2014.” In the past year, the laboratory has tested 14 specimens for Ebola, all proving negative.

The disease is relatively difficult to contract. Unlike influenza or measles, which spread through the air, Ebola is contracted through contact with the bodily fluids of an infected person. And they have to be showing symptoms to be contagious.

Yet the visceral and dramatic nature

of Ebola’s advanced symptoms – bleeding from the eyes, bruising, severe weight loss and organ failure – make it particularly unnerving. The virus’s high fatality rate also contributes to its fearsome reputation. The most recent strain kills about half its victims.

Senior scientist Dr Julian Druce says staff at the Doherty never stopped watching out for Ebola and had prepared for any new incarnations of the virus.

“We were always ready for it,” he says. “Ebola is a moving target. There have always been new and emerging strains of Ebola, so you have to keep up.”

Catton believes the disease poses little risk to people in Australia, which has the resources to prevent a serious outbreak, but he would “think twice” about working face-to-face with Ebola victims on the ground in West Africa.



“The pressure is on us,” says Dr Mike Catton, head of the Victorian Infectious Diseases Reference Laboratory.

“Patients, once they get to vomiting and having diarrhoea – copious amounts of fluid with large amounts of virus – are really dangerous,” he says. “So on the ground, in those countries where those patients are all the time, those healthcare workers are really in the firing line.”

“I’ve got the utmost respect for those guys, but I’m a backroom boy.”

He adds: “We’re not about taking risks, we’re not about being cowboys. What we do is actually really safe.”

The Institute’s director, Professor Sharon Lewin, believes the Ebola epidemic highlights a disturbing difference between poor countries and rich ones such as Australia, which have the knowledge and infrastructure to withstand Ebola.

“It’s very scary when a disease like Ebola gets into a country with a very fragile health care system that can’t effectively block transmission,” she says. Australians, she observes, are “really lucky” to have the VIDRL

and its scientists, who have the highly specialised expertise needed for such a rare virus.

It’s a year since Catton and his team moved to the Doherty, a \$210 million facility jointly operated by the University of Melbourne and the Royal Melbourne Hospital. Named after Nobel Prize-winning immunologist Peter Doherty, who works in the building, the Institute brought together hundreds of scientists from different areas – research,

CONTINUED PAGE 16

A relative grieves as a Red Cross burial team prepares to remove the body of an Ebola victim in Liberia.

PICTURE: DANIEL BEREHULAK/THE NEW YORK TIMES





FROM PAGE 15

diagnostics, teaching, medicine and public health – to collaborate in the fight against infectious diseases.

Here, at the heart of Parkville's renowned biomedical research strip, Catton, Druce and other scientists helped design and develop the nation's only high-security PC4 (physical containment level 4) lab for human specimens. They can now test pathogens requiring the highest international standard of bio-safety.

Just outside the lab, Druce shows off a line of the so-called "space suits" that protect staff from pathogens during the diagnostic process, in which the virus is deactivated so it can be safely tested. "It's a little bit like being deep-sea divers," he says of the white, rubbery suits, which swell up with air pressure to push out any contaminants.

When scientists step into the lab, they hook into a bright-yellow air cord that hangs from the ceiling and enables them to breathe. Their main concerns are sharp objects, which could puncture suits or gloves, or getting caught up in the cord.

They work with specimens in safety cabinets that push a curtain of air up and away from their bodies and through a special air filter.

When scientists leave the lab, they are showered with powerful chemicals that kill viruses. "It's a 10-minute car wash," Druce says.

The PC4 lab feels strangely familiar. You might have seen something like it in films: the unnatural chill of purified air, the heavy snap of airtight submarine doors and the almost unnatural quiet of scientists at work. Druce describes the mood as "surreally calm".

Unlike the movies, in which something invariably goes wrong, the team is at pains to emphasise the practical, careful and methodical nature of their work. These are scientists who have trained at the highest level of bio-safety – something only a handful of people in the world can claim.

"We're not exactly hipsters," Catton says of their years of training.

So few people in Australia are qualified to handle Ebola and other infectious diseases that the Doherty diagnosticians regularly seek support from international counterparts. They trained for the space suits at the Galveston National Laboratory in Texas and modelled the PC4 lab after similar facilities in the US and Europe.

Professor Lewin describes the recent Ebola outbreak as the first test of the collaborative atmosphere they hoped the Doherty would create. "We had the scientists who work on other viruses like dengue and flu, the immunologists, the

## ABOUT EBOLA

**E**bola is a rare but serious disease marked by fever, headache, vomiting and fatigue. It can lead to severe weight loss, bleeding, organ failure and death. The virus first appeared in 1976 in the Democratic Republic of the Congo. Scientists believe that it originated from fruit bats.

Ebola has surfaced occasionally since it was discovered, though the most recent outbreak, the 2014 West Africa epidemic, has claimed more lives than all previous outbreaks combined. Nearly 10,000 people have died, mostly in Sierra Leone, Guinea and Liberia, and isolated cases have sprung up in the US, Spain and Britain.



An electron micrograph of an Ebola virus virion.

public health guys and the epidemiologists all kind of sitting together brainstorming ideas around Ebola," she says. "You can do that for a lot of diseases but it doesn't usually sit in one building."

**E**nter Dr Wendy Winnall, a vibrant, enthusiastic member of the Doherty's Kent Laboratory. She is on the hunt for a vaccine for HIV and has been working with a Melbourne biotech company to produce antibodies that would help human immune systems combat the virus.

Like HIV, Ebola is a virus that can mutate. Both are made from a simple form of genetic material called RNA. When the recent Ebola outbreak hit, Winnall thought her research could also be used to develop antibodies that fight the disease. "Antibodies are, in my opinion, the next big thing," she says. "But they're very, very expensive."

Winnall found a new type of antibodies made in bacteria can be produced relatively cheaply, making it plausible to treat large numbers of people when an epidemic hits. Though the protection would last only two or three weeks, this could nonetheless help healthcare workers travelling to Ebola front lines.

As for the collegiate environment at the Doherty, Winnall says proximity to

other scientists inspires her. "You can meet people in the lift who say, 'I test for Ebola in a PC4 facility,' or something like that, and you can come up with these collaborations," she says.

Another lesson underscored by the Ebola experience, according to Professor Lewin, is the need for public health infrastructure, such as the Doherty, capable of managing the constant threat of infectious disease.

"You need strong leadership to make sure that people are on the same page," she says. "And I think everyone struggled with that with Ebola. Not just in Australia but in the US and globally. And probably it gave us a warning sign of how to do it better next time."

Catton also points to the way dealing with the potential for Ebola has left Australia better prepared to deal with other, more likely outbreaks. "All that preparation for Ebola gets you in good stead if you're later having to deal with the new SARS or flu pandemic."

Outside the laboratory hang framed magazine covers marking the epidemics of years past: SARS, H1N1, Ebola. Whatever comes next, the scientists here are prepared.

"I didn't go into it thinking I've got to don my white coat and save the world," Catton says. "But having arrived here, I think it's something that's really worth doing."

# VISIONS SPLENDID



**Its alumni have been making their mark on the built environment since 1902 – and now the University's Faculty of Architecture, Building and Planning is making a bold statement on the Parkville campus with a new home. The state-of-the-art Melbourne School of Design, with a light-filled atrium and open studios that encourage free exchanges between students and teachers, opened in December last year. To celebrate the occasion, Liz Porter profiles some of the faculty's notable alumni and their stunning work.**

PICTURE: MATHEW LYNN



**YVONNE VON HARTEL AM**  
(BArch(Hons) 1967,  
Advanced Management  
Program 1989)

**PRACTICE**

peckvonhartel

**MAJOR PROJECTS INCLUDE**

**333 Collins Street, Melbourne:** Completed in 1991, the 29-storey tower is clad in ornamented exfoliated granite and topped with a distinctive copper dome.

**National Museum of Australia in Canberra** (together with Ashton Raggatt McDougall): With exotic, multi-coloured exteriors and a giant sculptural loop at its entrance, the building comprises several spaces jigsawed around a Garden of Australian Dreams.

**CAREER AND INFLUENCES**

Yvonne von Hartel was 11 when she decided on a career in architecture. Several student jobs turned her off the idea of working with small firms and, on graduation, she applied to the large firm Yuncken Freeman, designers of the Sidney Myer Music Bowl, because it was “the best training ground in Australia”. Working on 140 William Street (the original BHP House), the Austin Hospital and the masterplan for La Trobe University, she acquired a taste for large corporate projects – “the more complicated the better” – that she is still expressing in jobs such as the \$3.5 billion Victorian Desalination Plant, which along with ARM Architecture won the Sir Osborn McCutcheon Award for Commercial Architecture in the Australian Institute of Architects’ Victorian Architecture Awards. With her husband and colleague Robert Peck AM (BArch 1968, MBA 1973) she worked on major jobs in Asia between 1974 and 1980. When the Yuncken Freeman partnership was restructured in 1980, its offices in Hong Kong, Jakarta, and Kuala Lumpur were transferred to the couple. They also set up their Melbourne practice, then called Robert Peck von Hartel Trethowan. Von Hartel received an Order of Australia in 2007 for her contributions to urban design, architecture and the promotion of women in business.

**A UNIVERSITY MEMORY**

“Most of all I remember Professor Brian Lewis (DipArch 1928, BArch 1944). He challenged us by providing a cohort of students of varied backgrounds and entry qualifications and urging us to take on more and more, from extra arts subjects and student politics to fundraising for a new school and the Archi Revue.”



Yvonne von Hartel at the entrance of 333 Collins Street, and (inset) the National Museum of Australia.

**PETER MALATT**  
(BArch(Hons) 1989)

**PRACTICE**

Six Degrees

**MAJOR PROJECTS INCLUDE**

**Meyers Place Bar:** Tiny, European-style bar, constructed with reclaimed materials and recognised as the venue that kick-started Melbourne’s laneway culture.

**UTAS School of Architecture:** A multi-award-winning home for a university school of architecture constructed within a heritage-listed 1950s diesel workshop.

**CAREER AND INFLUENCES**

As a student and for a year after graduating, Peter Malatt worked for Maggie Edmond (BArch 1969) and Peter Corrigan AM (BArch 1966), whose firm would become famous for controversial and award-winning buildings such as RMIT’s Building 8 extension. But by 1991, he was doing contract work and sharing a cold Richmond studio with five other graduates.

They collaborated on architectural competitions and small residential and commercial jobs but had few assets beyond their six architecture degrees. On a winter’s day when the nearby Nylex clock displayed a temperature of six degrees, they had a name for a new practice.

Their “democratic business friendship” became known for its inventive reuse of recycled materials on small jobs, such as the Meyers Place Bar, and is famous for its inventive and sustainable approach to large residential and institutional projects.

Malatt, president of the Victorian chapter of the Australian Institute of Architects, is passionate about architecture’s role in enacting positive social change and outraged by the proliferation of badly designed city apartments – “the slums of the future”. “Melbourne has a lot of ordinary design by non-architects,” he says.

**A UNIVERSITY MEMORY**

“I remember Peter McIntyre AO (BArch 1950, GDipT&RP 1955, DArch 1993) telling us in our fourth year about studying under Roy Grounds (BArch 1951) and Robin Boyd in the old Nissen huts and the influence they had on him. Peter fought the Buildings Department to allow us 24-hour access to the architecture studio and to rekindle that 1950s studio culture. We used to drink and smoke and draw all through the night – it was a bonding experience – then go to Cafe Notturmo at dawn for coffee.”



Peter Malatt in the tiny bar in Meyers Place, and (inset) the bar’s facade.



**STEFAN MEE**  
(BPD 1990,  
BArch(Hons) 1993)

#### PRACTICE

John Wardle Architects

#### MAJOR PROJECTS INCLUDE

**Melbourne School of Design** (with Boston's NADAAA): A "teaching tool" building wrapped in overlapping perforated zinc panels, with a four-level atrium at its heart.  
**Flagstaff Crisis Accommodation Centre, North Melbourne:** Short-term housing for homeless men in four zinc-skylighted black wire-cut brick buildings framing a large interior courtyard.

#### CAREER AND INFLUENCES

As a teenager, Stefan Mee planned to study music but made a last-minute change to architecture. It came about, he reckons, from a love of assembling things, something he absorbed from his schoolteacher/handyman father, and a love of art materials, inspired by his schoolteacher/painter mother.

After graduation, Mee landed a job in architect John Wardle's tiny two-person Carlton practice. Within a year he was project architect on his first major building, the Flagstaff Crisis Accommodation Centre in North Melbourne. This complex project prepared him for increasingly responsible design and leadership roles in a practice that was expanding into city projects, such as the high-rise The Urban Workshop, and taking on large educational institutional jobs. He was thrilled to be one of the design leaders for the Melbourne School of Design.

#### A UNIVERSITY MEMORY

"I recall my thesis supervisor, Professor Philip Goad (BArch(Hons) 1984, PhD 1993, Medley Hall), saying it was important to write down your position on architecture every year or two as a way of clarifying what you had learnt and considered important. So I have always been a keen writer about particular projects as well as the ideas and direction of our practice."

Stefan Mee inside the new Melbourne School of Design, and (inset) the building's bold exterior.



**JULIE EIZENBERG**  
(BArch 1977,  
University College)  
**HANK KONING**  
(BArch 1977)

#### PRACTICE

Koning Eizenberg Architecture,  
Santa Monica, California

#### MAJOR PROJECTS INCLUDE

**Temple Israel of Hollywood:** Designed as a "garden in the park", it has a ceiling made of undulating wood slats reminiscent of a Jewish prayer shawl.  
**Children's Museum of Pittsburgh:** Expands the original building with an award-winning three-storey steel and glass structure.

#### CAREER AND INFLUENCES

Julie Eizenberg, who studied architecture on her maths teacher's suggestion, met Hank Koning in the first week of their architecture course in 1972. They have been working together ever since. Setting off for the US in 1979, the day after they married, they completed masters of architecture degrees at UCLA then started doing small design jobs in the garage of their Santa Monica duplex while waiting for "green cards" so they could work in local architecture practices.

But they never did. Working as volunteers to help revive an ailing shopping strip in midtown LA, they kickstarted a practice committed to sustainable architecture, community engagement and an approach summed up in Eizenberg's 2006 book *Architecture isn't just for special occasions*. The pair are best known for their award-winning work on schools, adaptive re-use of historic buildings and affordable housing.

#### A UNIVERSITY MEMORY

"Charismatic teachers: Blanche Merz (BSc 1941, Queen's College) teaching maths and lighting; the Coldicuts – Allan (BE(CivEng) 1944) and Beth (BSc 1934, MSc 1936, GDipEd 1941) – teaching construction using early computer programming; Hugh O'Neill AO (BArch 1956, DArch 2013, Ormond College) giving classes on Asian architecture. And talking about ideas: we lived in Carlton and we would often end up in the pub – the Clyde or the Lincoln – talking about architecture."

For more on this story,  
go to [unimelb.edu.au/3010](http://unimelb.edu.au/3010)



Julie Eizenberg and Hank Koning at their studio in Santa Monica and (inset) the Children's Museum at Pittsburgh.



Investment banker Mark Carnegie is a provocateur with a disarming vision for transforming society.

BY LUKE SLATTERY  
(BA(Hons) 1983)

**M**ark Carnegie is by repute a tough-talking, big-thinking investor with a combustible temper and a taste for profanity. But either the Sydney-based venture capitalist is striving to deceive when we meet at his office squirrelled away in a narrow Paddington street, or his fearsome reputation ignores an altogether more relaxed temperament. Carnegie pads down the corridor in a crushed aqua linen shirt worn outside khaki chinos, his feet shod in dark tan loafers. I feel an urge to check the calendar. Is it a work day or a golf day?

Equally disconcerting is the genial air of this Melbourne-born silvertail, son of Sir Roderick Carnegie AC (BSc 1954, Trinity College) and a man born, by his own confession, “into such immense privilege that I don’t want to advocate for more”. He offers a civilised handshake – neither assertive nor indifferent – and a genuine, if slightly reserved smile. Once seated in a leather lounge chair he rolls out a range of social and political views that are provocative, perhaps idiosyncratic by the standards of narrowly partisan politics, and never less than challenging. In the process there is the odd expletive, usually



# The making of a maverick

for dramatic effect, but nothing like the incontinent cussing I’d been led to expect.

Education is at the core of his social vision, and on the subject he holds, as he puts it, “strong and really unpopular views”. Carnegie himself has a BSc(Hons) from the University of Melbourne and a BA in jurisprudence from Oxford, and is the quintessential lifelong learner: for the past few years he has hosted a highbrow book club at his home. It’s a fun yet formal affair, with a guest expert delivering a disquisition on a canonical text such as *Macbeth* or *The Iliad*. For his next pairing Carnegie will offer chosen guests the NSW Crown Prosecutor, Mark Tedeschi, on

Dostoevsky’s *Crime and Punishment*.

Carnegie believes the nation has got the wrong end of the stick on education policy. “Education is an investment,” he asserts. “It’s not an expense even though it turns up in the national accounts. All the evidence is that money spent on education returns to society and if you under-invest in education that’s bad policy. Of course that’s unpopular with an ageing population. When there’s a choice between spending on healthcare and education, health gets the votes.”

But there’s a caveat, and it bears on Carnegie’s strict cultural conservatism. “I’ll fund anything at university so long

as it doesn’t end up in the word *studies* – cultural studies, women’s studies.” His scorn for “self-indulgent” tenured professors and the “self-serving pap” or “pernicious rubbish” offered in the “new” theoretical humanities is seemingly limitless. He’s an old-school liberal arts kind of guy.

“Does the country need more engineers, computer scientists, mathematicians, doctors, health and medical researchers?” He answers his rhetorical question in the affirmative. “But these are not only the tough subjects, they’re the most expensive. This is where I really worry about current government

policy. If they’re using market-based pricing then cultural studies is cheap by comparison. And guess what! One is easy, and one is hard. Education should be about working hard to learn something that’s hard to learn.”

I catch Carnegie shortly after his return from the annual J.P. Morgan healthcare conference in San Francisco, described by *Forbes* magazine as “a global, multi-day shopping spree and advertising expo for large and small, traditional and boutique, biotech and life science companies, and the investors who love them”.

Mark Carnegie, with \$350 million in committed funding to a portfolio of companies in an arc across medical technology, resources and high-end real estate, is one of those investors.

It’s typical of the investor’s modus operandi that his entrance into the medical device market upends a few rules. The narrative of Australian higher education has been dominated by the “brain drain”, but Carnegie has been able to secure a net brain gain by propping up at least three US medical device companies – more are in the pipeline – and reeling them home to Australia. The genius of the move is that it builds on Australia’s expertise in medical technology; an expertise grounded in eight Nobel Laureates in physiology or medicine as well as Graeme Clark’s bionic ear and Colin Sullivan’s ResMed sleep apnoea device. “People have done really impressive stuff here and what this means is that the Americans don’t sit there and say, ‘Oh my god you’re going to move my company to Kazakhstan.’ The second thing is that the R&D tax incentive means that we’re on a level playing field

taxes. His ideal Australia is a more equal Australia and on this subject he brooks no opposition. “The stats are there,” he says. “More equal societies are better societies. Suck. It. Up.”

In fact the only thing more likely to raise his blood pressure than a Derrida scholar banging on about “logocentrism” is a booster for “unrestrained free market capitalism” offering “trickle-down economics” as a universal salve.



PICTURES: MICHAEL AMENDOLIA

**“The stats are there.**

**More equal societies**

**are better societies.**

**Suck. It. Up.”**

For Mark Carnegie, greater income equality is not merely a social justice measure. It is a means to another end: economic vitality. Egalitarianism is portrayed by its critics as a sure way to douse the fires of capitalism and reduce them to coals, but for Carnegie, equality is a source of economic dynamism, not a dampener. “The key thing is opportunity and social mobility unleashing the

ideas to a group of investors in the hope of generating a few perfect corporate matches. Known as Carnegie’s Den, it is a platform, as he puts it, “for great Australians to build great Australian businesses”.

The opposite of this approach is inherited wealth used solely for personal gain. “The idea that somebody gets to inherit a large dairy farm from their grandfather and it ends up being a

residential development – that’s just aristocratic rent seeking from the Middle Ages.”

Education, once again, is front and centre; he wants an education system that identifies and nurtures talent wherever it exists on the social spectrum. “I’m not saying this because I’m a do-gooding leftie,” he insists. “I’m saying it because the alternative is leaving a whole lot of social potential on the scrap heap.”

Mark Carnegie is battle-hardened enough to realise that he is easily characterised as a walking, talking contradiction. He’s the rich guy and wealth generator with a social vision that critics will deride as demi-socialist. He’s an Australian patriot who has spent half his life out of the country. A scientist by training with a keen strategic mind, his great mid-life passion is classical literature.

But the contradictions are more apparent than real and the social vision remarkably coherent. At a fundamental level he’s a proud Australian who believes in the national achievement but thinks we “would be able to project a better story, have a bigger presence in the room, if we could resolve some important national issues surrounding education, immigration, and our treatment of Indigenous people, and if we could bring some stability and authority to Federal Parliament.”

In any event he may simply be, as Walt Whitman said of himself, large enough to “contain multitudes”. He is, at the very least, a resolute individualist and provocateur who never backs away from a rumble.

at a federal level with Canada and better off than America. We’ve traditionally had a really good R&D environment and a shitty commercialisation environment. The really good commercialisation is done in Europe, while America has the worst of everything.”

After Oxford, Carnegie cut his teeth with investment banker James Wolfensohn on Wall Street before going to work for Lloyd Williams at Hudson Conway in London. Despite his membership of an ultra-exclusive tribe, he still advocates strongly for higher taxes at the top end of the income scale, particularly tougher inheritance

creative destruction of capitalism in positive ways to make a better society,” he says.

What Carnegie terms an “opportunity-ocracy” – a society that places a premium on the discovery and cultivation of talent – has the hallmarks of a belief system intellectualised from personal experience, as most belief systems are.

Born into wealth, he has done something socially useful with his and others’ money. Aside from his own investments and those he brokers in the normal course of things, twice a year he calls on entrepreneurs to bring their



# Working on tomorrow

**The class of 2015 will find themselves entering a very different world of work than their predecessors of even a decade ago.**

**Val McFarlane meets the men examining how we work now - and what the future might bring.**

**W**riting on the walls is positively encouraged at the Centre for Workplace Leadership. Much of the wall space in the Centre, on the sixth floor of the Business and Economics building in Berkeley Street, is covered in scribbles. There are lists, Venn diagrams, graphs ... all ideas downloaded from the brains of the academics who work there.

It's just one of the signs that the Centre doesn't just research the modern workplace; it is one. Here, academic and professional staff share the space. There's a formal meeting room, but more informal places to gather – booths with comfy couches and a bar with high stools, like in the hipster cafes round the corner in Carlton.

Director Professor Peter Gahan (PhD 1997) hasn't bought a pool table for the team yet, but one wouldn't look out of place.

It's exactly the kind of environment you would expect from Gahan, who has spent his life researching ways of making the Australian workforce happier and more productive. A former Director of Workplace Innovation at the Victorian Department of Industry, Innovation and Regional Development, he has studied the impact of workplace changes over many years.

"We forget the enormity of technological change that has taken place over a relatively short period of time," he says. "Just think about how long things like smart mobile phones have been around. The first smartphone came out in the mid-1990s, the first iPhone in 2007, but where would we be without them now? The first thing I do when I get out of bed – in fact I don't even get out of bed – is check my emails."

Reports of the death of the traditional office may be an exaggeration, but there is no doubt the nine-to-five is changing, with flexibility the current buzzword.

Flexibility takes many forms. "Activity-based working", where employees no longer have their own assigned workstation, instead using a range of areas to carry out specific tasks, is just one. Teams don't necessarily sit together, instead using videocasting to communicate, or meeting in shared spaces. In at least one Melbourne bank – and increasingly around the world – the definition of office space is being stretched even further, to include areas where customers can work alongside bank staff.

Teleworking, or virtual working, with employees scattered across the city, country or even globe, is also increasingly common. At technology firm Cisco, 40 per cent of managers manage people who don't work in the same location.

Research fellow Dr Jesse Olsen says there will always be jobs where such methods won't work, but for those where they are appropriate, they can save money and present new opportunities. "Technology allows us to get lots of people to work together who might otherwise not be able to because of their personal circumstances, whether it is family commitments or because they live in different places," he says. "If you get a lot of different types of people together they share different perspectives and you come up with different outcomes."

It's the "getting together" that makes the difference, regardless of whether it's in person or over Skype. Olsen cites the 2013 decision by the CEO of Yahoo, Marissa

Mayer, to put an end to staff working from home. "It's not that she is against working from home, she is against working by yourself. To get the benefits of diversity you have got to get the people together. Collaboration is the key."

This is where technology can help. It's expected that the next generation of office telephones will allow videoconferencing at your desk, and the research has proved that if people can see each other while they talk,



Professor Peter Gahan, left, and Dr Jesse Olsen. PICTURE: DARREN HOWE



ILLUSTRATION: FRANK MAIORANA

even on a screen, it's almost as effective as meeting face-to-face. "There is still something in us that wants to be with other people. It's what makes us human," Olsen says.

But even with the latest technology, creating serendipitous "watercooler moments" when staff are not in the same building is hard, Gahan admits. "If we are working from home or virtually we miss out on the chance interactions with others in the workplace which often lead to problems being solved and new insights and ideas."

Flexibility brings risks for employees, too, in the form of work-related stress. "We know that when we have less structured forms of working that people find it much harder to balance work and life. Work takes over," Gahan says.

"Organisations have to think about what that means for their workplace health and safety liabilities and the impact on

employee productivity in the long run. How sustainable is it to have staff working in this way?"

There's evidence that when employees feel they have insufficient control over how they work, their risk of depression doubles. And everyone pays – research by Professor Tony LaMontagne (see right) has put the cost of work-related mental health problems at more than \$700 million a year.

Stress-related WorkCover claims are the only ones on the rise. That's something bosses need to be mindful of when introducing new working practices, Olsen says. "Ultimately what we should be doing is creating real flexibility, not forcing a new way of working. You might be lauded for putting flexible working in place in when in reality you are just creating a different rigidity."

## Perks, pay and the real meaning of life

**W**e've all seen them on TV – the big tech firms where perks of the job include gourmet meals, games rooms, massages and gyms. Sounds great? Not to Professor Tony LaMontagne, who leads the Workplace Health research stream in the McCaughey VicHealth Centre for Community Wellbeing in the Melbourne School of Population and Global Health.

"That stuff gives me the shivers," he says. "People think it's the company looking after them but it's not really. It's the company working you to the bone."

"It might be fine for the person who does nothing but work, then goes home and comes back to work. But for most people there is danger in having all of your social connections at work, because if you lose that job or you move on, you lose your social networks at the time you most need them."

Regardless of what their workplace is like, LaMontagne cautions workers against getting

too wrapped up in their jobs, a risk increased by the technology that allows – and encourages – employees to be on call 24/7.

"In Western society we over-invest in work for our identities, and we [in Australia] have some of the longest working hours in the OECD," he says. "Yet there's much more to life than work."

He urges job-seekers to protect their mental health by researching a company's culture carefully before signing up for a new position.

"You need to do more than read the annual reports or know what the salary range is," he says. "Salary drives a lot of people but over time it's not going to make or break whether you stay in a particular role. If you are somebody who really, really values your weekends, you need to know that in certain lines of work you're not going to have them."

"A lot of workplaces might profess to have the flexibility to accommodate you but in the end, it may not be so true. Know what your limits are in terms of how hard you want to work, and how important your life out of work is to you."



# Through a child's eyes

**From boat to schoolyard to Australian future, a new research project will examine the history of our child refugees.**

BY GABRIELLE MURPHY

**I**t was with no English but boundless energy that Joy Damousi started her educational journey in a crowded inner-city kindergarten in Melbourne. A year later, her English little improved, she was thrown into the local primary school.

"The schools were bursting with kids who spoke little or no English," she recalls of those days in the 1960s. "But although my first language was Greek, I don't recall any problem joining in with children in the street and kicking the football.

"For us Greeks, Italians, Turkish and Yugoslavs, Australian Rules football was our communal language, bringing us into the mainstream and establishing an insider status, of sorts, in the face of wog and dago labels regularly projected at us."

These schoolyard experiences were the start of a distinguished academic career that would lead Professor Damousi to become one of Australia's most respected historians and the University of Melbourne's first female – and the Faculty of Arts' first – ARC Laureate Fellow.

The Australian Laureate Fellowship recognises world-class research and is the Australian Research Council's highest individual accolade. The fellowship awarded to Professor Damousi and her team of eight researchers will fund an extensive five-year project looking at the history of child refugees in Australia.

Her aim, as she explains, is to generate new and powerful understanding of the impact and experience of child refugees in Australia throughout the 20th and early 21st century. "We want to explore how this history is tied to Australia's international role on refugee and migration issues and come to an understanding of the impact of child refugees in Australia in cultural,



social and economic terms," she says.

"In so doing, we want to develop an historical and contemporary framework for current discussions on this aspect of migration and humanitarian policy."

This is not a research topic for the faint-hearted. Refugees – and child refugees in particular – are a sensitive topic in modern Australia.

Damousi also admits that her background as the daughter of migrants brings a personal dimension to the exercise. "But this is invariably the case when issues of migration and wartime experiences are concerned.

"My father George was a village bootmaker who migrated from Florina in the Olympian year of 1956 and then arranged for my mother Sofia, a dressmaker, and one-year-old sister Mary to join him in 1957. They initially settled

**"We want to explore how this history is tied to Australia's international role on refugee and migration issues and come to an understanding of the impact of child refugees in Australia in cultural, social and economic terms."**

in George Street, and then Napier Street, Fitzroy, as had many migrants before them."

Damousi's parents were part of the massive postwar influx of Greek immigrants to Australia, one of the largest intakes in the nation's history. Between 1945 and 1959, Australia took in about 63,000 permanent arrivals from Greece, 24,000 of them assisted by the federal government. Many settled in Melbourne, particularly in the inner-city suburbs of Fitzroy, Collingwood and Richmond.

Of her childhood days roaming the streets and laneways of Fitzroy, Damousi and her mother hold opposite views.

While her daughter is unequivocal about her love of growing up in the suburb, Sofia has often lamented the life-defining decision to abandon her rural village, family and community to travel to the other side of the world only to find a different type of poverty and hardship, this time in an unfamiliar and strange urban environment.

"The very things that I adored about growing up in Fitzroy, my parents despised," Damousi says. "The squalid, dilapidated boarding houses, the century-old Victorian houses in desperate need of light and repair." She says Fitzroy's streets were a gigantic playground, and that this landlocked landscape allowed her to explore youthful freedoms.

"I grew up listening to Greek war stories being told over and over again by my mother – each time with more literary flourish – but at this moment,

it was time to take the memories and run."

And run she did, catching and analysing memory as she went, through the laneways of Fitzroy, on to school, university and beyond.

Damousi has explored an eclectic range of historical themes and periods throughout her academic career: Australian cultural history, feminist and women's history, the history of the emotions and psychoanalysis, the history of democracy, speech and oratory, migration history, and the history of war and sound. She has even tackled football and popular culture.

Her latest book, *Memory and Migration in the Shadow of War: Australia's Greek Immigrants after World War II and the Greek Civil War*, will be published this year.

She now moves on to explore the changing nature of Australian internationalism during the 20th and 21st centuries through a study of the history of child refugees and the campaigns undertaken on their behalf by relief agencies and humanitarian organisations.

"One's background can influence and shape the topics you pursue and the questions you ask of your research," Damousi says. "This is not always the case but in this instance, clearly the experiences of some of the researchers on this project have directed them to focus on aspects derived from their personal histories."

One aspect of the research will be to consider the factors that have enhanced

or limited the success of child refugees who have arrived from the 1970s onwards, using Vietnamese, Sudanese, Sri Lankan and Bosnian case studies.

Of the eight scholars Damousi has enlisted to work on the research, three are former child refugees. All will be working on the project as PhD candidates.

Niro Kandasamy was born in Point Pedro in Sri Lanka's Jaffna District, the site of many battles between Sri Lankan forces and the Liberation Tigers of Tamil Eelam during the civil war that raged from 1983 to 2009.



**Niro Kandasamy was a toddler when she arrived in Australia.**

As the conflict escalated, many Tamils, including Kandasamy's family, were forced to flee. A toddler when she arrived in Australia in 1992, Kandasamy grew up in Western Sydney, which she now calls home. Her thesis will explore the effects of long-term resettlement on Sri Lankan refugee children.

Samuel Malak, from Sudan, will examine the settlement experiences and needs of young Sudanese migrants for their successful integration into Australian society. During the civil war in his home country, Samuel was forced to serve as a "child soldier" in the Sudan People's Liberation Army.

His arduous quest for safety ended with his arrival in Melbourne in 2003.

Anh Nguyen was a Vietnamese child refugee raised in Texas. She was born 18 months after the fall of Saigon and six when her parents decided to flee their country in 1982. They were among 110 refugees packed on a boat safe for 45. It took more than a year for the family to reach safety in the US.

Damousi believes the scholars' knowledge and expertise will contribute to our understanding of the history of refugees in Australia.

"It's unusual, definitely rare, that as historians we find ourselves in a position where we can double as informants and informers," she says. "In combining these roles, we hope to provide a detailed, insightful and instructive history that will benefit us all."



**Professor Joy Damousi and her team of researchers (from left) Dr Alexandra Dellios, Niro Kandasamy, Anh Nguyen, Sarah Green, Samuel Malek, Dr Mary Tomsic, Dr Rachel Stevens and Dr Jordana Silverstein. Left: Professor Damousi at primary school.**

PICTURE: CHRIS HOPKINS



## On paper, Glenda Fisher and Cassandra Yam don't look like they'd have much in common.

Glenda (MEd 2005), 65, has spent her life in education, principally helping school students with disabilities.

Cassie, 20, a third-year Bachelor of Commerce student, is headed for a career in accounting. But after being paired through the University's Access Connections Mentoring Program, the two women have formed a strong bond that benefits them both. They tell Val McFarlane about their relationship.

### GLENDA

**M**y experience has been very different to Cassie's. I completed my initial teaching qualifications in Special Education at Melbourne University in 1969. When I described what my days were like back then to Cassie – rolls marked, Wednesday afternoon sport, halls of residence living – she said it was like being back in school, and it was.

I've been a professional educator for 48 years and currently work for the Catholic Education Office, helping senior school students with diverse needs to transfer from school into further education, training or work. I enjoy working with young people and seeing them succeed. Mentoring is another opportunity to do that.

Cassie and I just clicked. One of her biggest challenges was to get herself an internship.

She would get interviews but not succeed in being offered a position which was really disappointing for her. I asked her to send me her resume, write down the sort of questions she'd been asked and what her responses were so that I could see if there was an area where she wasn't making an impact.

Cassie is such a delightful young woman but quite shy. She shied away from shining the spotlight

on herself and was reluctant to emphasise her considerable talents.

I helped her with her resume and through my connections at the Graduate Union, set up a mock interview panel for her, with myself and two colleagues who are experts in accountancy, which Cassie is studying.

We interviewed her for an hour and a half – she really had a tough time of it! We taught her not to be afraid to take time to consider what to say and how to answer questions effectively.

As she was leaving she said she had an interview at a major accountancy firm the next morning. We were delighted when we got an email later in the day saying that she'd been offered a position.

It doesn't matter that we're in different fields. Mentoring is about teaching the students how to look for and acknowledge what isn't working for them and give them the skills to change that and move forward, as a complement to their academic learning.

I've found being a part of this program very rewarding and I would do it again. It has been an absolute joy meeting and working with Cassie. She wanted to learn and that made my job 10 times easier. We'll keep in touch. I'll be interested to follow her career.

I'm so grateful to have been able to meet her, let alone have her as my mentor'

### CASSIE

**I** had always heard people saying that mentors were really important and they could help you so much but I didn't know what to expect when I signed up for the program.

Glenda and I emailed first to arrange a meet-up. I was pretty nervous because I didn't know what I was expected to do or what would happen. I thought that I would feel really intimidated because it was someone who was so much more experienced than me.

But when I met Glenda, straight away she was so friendly and so helpful and caring. Even though she's achieved so much and had so much experience, she was still so willing to help.

It was at the time when I was applying for internships and I was feeling a bit lost. In previous interviews I was just such a mess. I didn't know what to do, and I was so nervous all the time. I would know what I wanted to get across but I didn't know how to express it and remain calm and collected.

I was taken aback when Glenda organised the mock interview but it helped me so much. The panel went through general interview questions and gave me feedback after each one. They also gave me tips about business etiquette and how to act in an interview – talk slowly, think through

your answer before you say it, don't feel you need to rush ... It really helped with my confidence.

It just so happened that I had an interview for an internship the morning after. It was impeccable timing. I felt so much better and more prepared. I just made sure to remember what Glenda and her colleagues had told me. I guess it worked because I was successful and I got the internship.

When I first started at Melbourne the idea of going from uni to full-time work seemed really overwhelming. I was worried about how you go from studying accounting to actually doing it. But through my conversations with Glenda I learned that no one expects you to know everything right away.

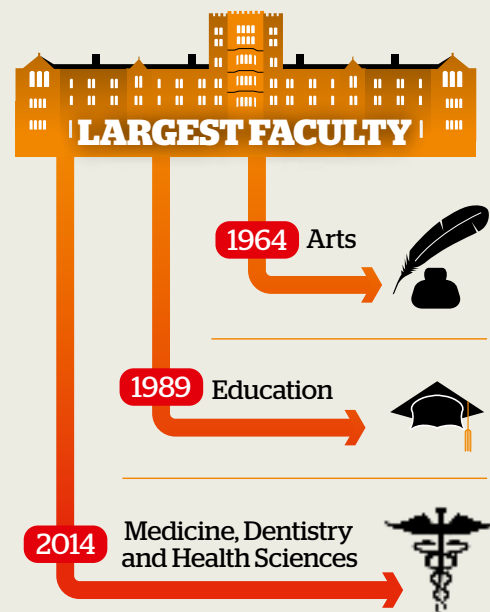
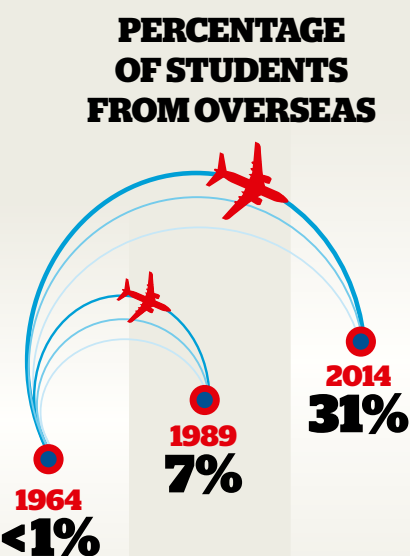
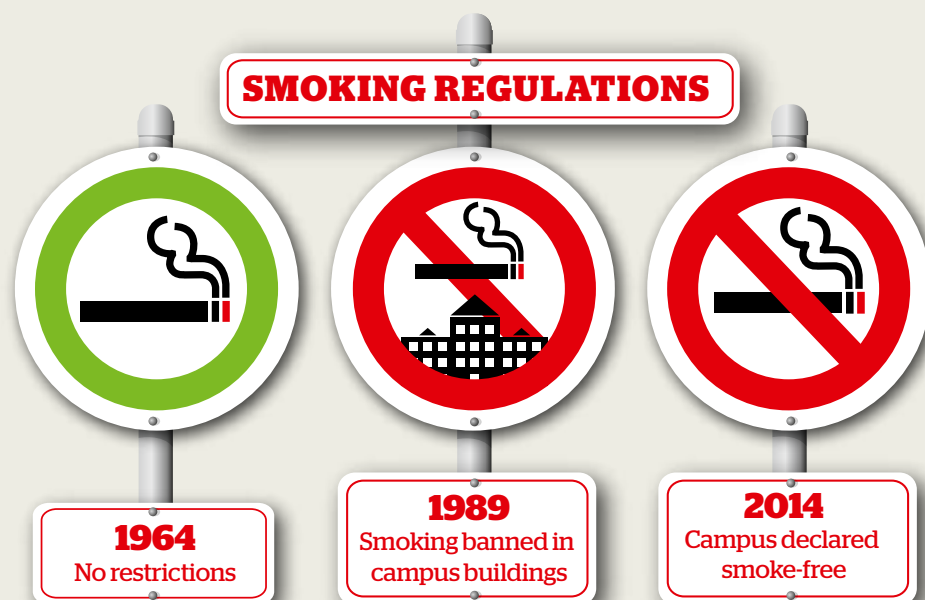
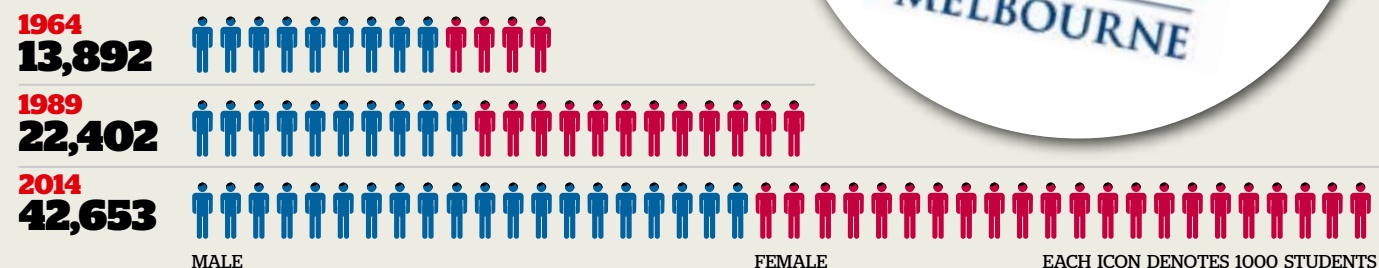
This semester I've been on exchange at Boston College in the US, where I'm studying Chinese as well as finance. I always assumed I'd just go straight down the accounting path, but the more I learn about how many different options there are after uni, the more I'm thinking I don't know where I'll end up. But I'm looking forward to starting my internship at the end of the year. I hope Glenda and I will keep in touch. I'm so grateful to have been able to meet her, let alone have her as my mentor. It's been amazing.



## EVOLUTION OF THE UNIVERSITY

So much is the same, yet so much has changed. Here are some of the ways in which the University of Melbourne has been transformed over the 50 years from 1964 to 2014.

### STUDENT NUMBERS



## Taste of success

**GEORGE SYKIOTIS**  
(BCom 1995)

**G**eorge Sykiotis remembers the meal his mate, celebrity chef George Calombaris, cooked the night they cemented their business partnership on a handshake.

"He was working at One Fitzroy Street and he did a baklava soufflé and calamari carbonara. That was spectacular!"

The two Melbourne men, sons of Greek migrants, complement each other. Calombaris is the frontman with the knife skills, the chef with an outstanding creative culinary touch. The fast-talking Sykiotis is the money man who makes their plans work.

"George is the soul of our business, I'm the heart of the business," he says.

Together with two partners they run Made Establishment, which is behind some of Melbourne's big-name restaurants including the Press Club and Hellenic Republic.

Much has been made of their unusual approach to establishing new restaurants. They don't just create the restaurant, they buy the property it's on.

"The freehold is critical, because that way you have some insurance," he says. "Rents in the city have doubled, tripled, but we keep ours at reasonable levels."

And besides, buying property was what his parents did years ago. "It's called ROI," he says, "return on investment."

Sykiotis' skill with numbers emerged in childhood when he did the books for his parents, who ran a series of cafes across Melbourne. He maintains he can still add faster than some calculators. He calls it "smelling numbers". His ability in commerce was cemented at the University of Melbourne, but not until after learning a painful lesson. It happened in 1999, during his second year. He was 18.

"I started realising there was more to uni than just going to lectures. I was partying too hard. I failed six out of my eight subjects and ended up before the disciplinary review board."

The board gave him another chance: probation and part-time studies for two years. Afraid of what his parents would say, he told them he was opening a restaurant and would therefore be studying part-time. All he had to do was find a restaurant. He did, opening up in Lonsdale Street opposite the Owen Dixon Chambers. It proved a success so he started another.

Eight years after starting at the University, Sykiotis graduated with a commerce degree.

"The thing I learnt in uni was discipline and there was an opportunity to be exposed to different sources of information, things I would not normally have had access to. I developed some amazing skills."

And most importantly, he adds, he was given a second chance.

JENI PORT



**"I was partying too hard and ended up before the disciplinary review board."**





**“I am interested in people on the fringes of society because they are not heard of very often.”**

## The bigger picture

**CORRIE CHEN**

(BFT(Hons) 2008,  
MFT(Narr) 2011)

**C**orrie Chen has ambitions, big ones, the kind that require millions of dollars and nerves of steel. She wants to direct a feature film.

Temptingly, the young Melbourne filmmaker describes her dream project as an Australian-style *Deadwood*, a riff on the old Wild West played out on the Victorian goldfields in the 1850s with plenty of love, death and lawlessness revolving around the arrival of Chinese immigrants.

The storyline is close to her heart and her experience as the daughter of Taiwanese migrants.

“I am interested in people on the fringes of society because they are not heard of very often,” she says. “It started with telling migrant stories because that came naturally to me, but it’s filtering now into other genres.”

Corrie Chen arrived in Australia as an eight-year-old in 1994. When she hit her teens her parents had expectations about her future career, the kind involving law or accounting.

“The Asian thing,” she says, “is that your ideal profession should be contributing something to society, like a doctor or an accountant.”

She enrolled in media at RMIT with thoughts of perhaps becoming a journalist, and it was during a course on film that her lecturer saw in her a kernel of potential and “pushed” her towards committing to film. She enrolled in the Victorian College of the Arts School of Film and Television, receiving a Bachelor of Film and Television (Hons) in 2008 and following it up with a Master of Film and Television in 2011.

Her parents remain unsure of what exactly she does, but there’s no doubt her film work has touched many, dealing as it does with some of the big issues confronting Australia in the 21st century.

In 2014, *Suicide and Me*, exploring the stories of three young suicide survivors, aired on the ABC. It won her Best Direction in a Documentary at the Australian Directors’ Guild Awards.

The 2011 short comedy *Bruce Lee Played Badminton Too* looked at the dreams of an isolated young man who loves badminton and Bruce Lee. It was highly commended at the 2013 World of Women Film Festival.

*Reg Makes Contact*, her latest seven-minute short film, now in post-production, is a story about dementia and alien life forms.

“It’s about an old man who lives by himself in the middle of nowhere. He’s suffering from dementia and he’s really obsessed with finding proof of extra-terrestrial life. On the eve of him being forced out of his home and into a nursing home, he finds an object that he believes is that proof.”

JENI PORT

## Riding the rise in Beijing law

**YAO YI**

(LLM 1996)

**I**f there is one thing that Yao Yi, partner in the Chinese law firm East & Concord Partners, has in spades it’s the ability to adapt to change.

A graduate of Beijing’s Renmin University, Yao’s undergraduate degree in economic law and masters in civil procedural law secured her a position at the Beijing Foreign Economic Law Office, a state-owned law firm specialising in foreign investment.

That was in the early 1990s when a new area of commercial legal practice in China was emerging. “We had just opened the stockmarket in 1992,” Yao recalls. “This was all new in China.”

When a visiting partner from Minter Ellison invited her to work in Melbourne she jumped at the chance and applied for a scholarship to the University of Melbourne Law School to complete a masters in company law and the securities market.

“I was encouraged to do some research in this area,” says Yao, who completed her thesis over two years while working at “Minters” part-time. The Australian legal system was “quite different” but gave Yao “invaluable legal experience”.

While a future in Australia appealed, she received a call from a colleague at the Beijing Foreign Economic Law Office saying the firm was restructuring and she had a chance to be a partner. Yao returned home and a year later was one of eight partners and 16 lawyers at the new East & Concord Partners firm.

“Changes in the Chinese legal system over the past 20 years have been dramatic,” she says. “When I returned in 1994, Beijing had about 3000 lawyers and only a couple of partnership law firms. Now we have over 3000 firms and 30,000 lawyers in Beijing.”

The four-tiered Chinese court system, presided over by a judge and a panel of assessors, hears criminal and civil matters, but she prefers to refer commercial matters to the China Economic International Trade Arbitration Commission. “You can get a final arbitration awarded after one hearing,” she says of the commission, one of the largest arbitrators in the world.

Now with 61 partners, 116 lawyers and more than 200 support staff, East & Concord Partners is carving out a niche as a medium-sized firm for mostly local clients.

Post-merger, Yao’s time is largely spent managing the business, integrating the two firms and building a new IT platform – but she still takes a hands-on approach to clients and China’s fast-changing legal landscape.

“The biggest challenge for lawyers in China is keeping up with changes to regulations. I have practised for over 21 years and I have to learn new regulations every day.”

ANGELA MARTINKUS

**“When I returned in 1994, Beijing had about 3000 lawyers ... Now we have 30,000.”**



PICTURE: MA ZHENG

PICTURE: CHRIS HOPKINS





## An eye for risk

**DR KATIE POTTS**  
(BGeomE 2009, PhD 2014)

**W**hen Katie Potts makes up her mind to do something, it gets done. Growing up in a small country town on the Victoria-NSW border she was so determined to study in Melbourne she chose a degree, Geomatic Engineering, that wasn't offered locally. "I blindly picked it, but once I started to do it I really enjoyed it."

So much so that at just 26 she has completed her PhD and is a founding research fellow at the University's Centre for Disaster Management and Public Safety.

"Disaster management is where my passion lies," Potts says. In the era of climate change and ever-more-frequent freak weather events, her career fits into a niche that has grabbed the attention of governments and industry all over the world. The softly spoken, articulate engineer from Wahgunyah is at the forefront of the field.

Geomatics is essentially 3D mapping and visualisation of land. "It's quite diverse, from GPS satellites to remote sensing and surveying, and it also has a land administration and planning aspect to it, which is the area I ended up in," Potts says.

Central to her work is the layering of information from a variety of sources to identify risk in specific locations. "Property and address information is overlaid with topographic information, flood and bushfire overlays and then geographic information system software is used to identify properties at risk," she explains.

In the final year of her degree a project on the use of spatial information in the 2009 Victorian bushfire recovery introduced her to disaster management. Her PhD research took that a step further by showing how land information can be used by agencies and landowners to determine if they are at risk from a particular hazard. It concluded that national policy changes were needed.

Moving between the Philippines – where her husband owns a factory making fire-retardant insulation out of treated recycled paper – and Melbourne, Potts says her long-distance relationship helped her knuckle down to get the PhD done.

And while many of her friends are pulling big salaries working in industry, she's committed to the Centre for Disaster Management and Public Safety she helped set up last year.

People still sometimes mistake her for a student, but Potts says she hasn't really encountered any problems with being one of the youngest risk-mitigation experts around. "I just surprise people, I guess."

**ANGELA MARTINKUS**



## My island home

**BRIDGET DALY**  
(PGDipTeach(Sec) 2013)

**L**eaf-hut villages, volcanic islands, windswept beaches and emerald jungles – the Solomon Islands is the type of place you might expect to see on the Discovery Channel, but for Bridget Daly, it's home. After she completed her studies in 2013, Daly's husband accepted a job with World Vision International on Guadalcanal. "When the opportunity arose it was too good to pass up," she says.

It was a move that would prove serendipitous for her career as well. During her first weekend in town, she attended the Coconut Olympics – a hotly contested event featuring unconventional sports such as coconut curling. Between heats, Daly was introduced to the curriculum co-ordinator of Woodford International School. Soon after, she landed a teaching role in its primary-years program.

Twelve months on, Daly is still pinching herself. "I never imagined I'd be living and working on an island in the Pacific," she says.

While the surrounds are vastly different to Melbourne, the daily routine isn't that dissimilar. "It's early starts and late nights," she says. "But I'm also learning a new language, culture and different ways to approach life and teaching, which makes the experience a truly rich one."

Excitable chatter can be heard from the classroom as students eagerly await their next lesson. They come from a variety of backgrounds – Kiribati, South Korea, Papua New Guinea, Malawi and the Solomons. Roles are often reversed as they teach Daly about their cultural traditions. "Every day I am brimming with joy over the conversations I've had and the learning I've witnessed," she says.

But being a teacher in the Solomon Islands is not without its quirks. "We don't rely on computers," Daly jokes, "they're temperamental at best."

The technology may be unreliable and the hours long, but there are poignant moments that make it all worthwhile. "I had one student who was so terrified of speaking in front of the class that he would stammer and fidget his way through presentations. Working slowly, I grabbed every opportunity to celebrate his victories. Then one day, he and his classmates wrote a rap, which they presented at assembly. It was incredible! To see struggling students grow into a place of confidence is more precious than gold. It's what it's all about."

Education is much greater than what happens in class, Daly says. "It has the potential to transform lives. I see it happening around me every day."

**EMMA BRIMFIELD-WALSH**

### AT HOME IN THE WORLD

## Leaving Melbourne doesn't mean leaving the University behind



**Enduring bonds: For alumni, graduation isn't the end of their relationship with the University.**

Wherever you are, you're likely to find other University of Melbourne alumni. At the last count, there were nearly 338,000 graduates in 156 countries.

In a number of locations – Beijing, Shanghai, Hong Kong, Singapore, Indonesia, Malaysia, Japan, Vietnam and the United Kingdom – there are active alumni associations, driven by volunteers. Each runs a program of events to connect alumni with each other and keep them involved in the life of the University.

"The associations provide networks for all University of Melbourne alumni, wherever they are in the world, at whatever stage in their career," says Jaclyn Birtchnell, the University's Alumni Relations Manager (Advocacy and Recognition).

"They are invaluable for new alumni in that they instantly expand their social and professional networks, and offer the potential for career support, professional development and employment opportunities.

"But they also offer the chance for more established members of the alumni community to share knowledge with others in the same industry and explore new partnerships."

One easy way for graduates to connect with their local network is by attending a Welcome Home event. These events, organised by the University's Alumni Relations team in partnership with the alumni associations, bring new and older

alumni together to share their experiences of Melbourne.

"Attending a Welcome Home event is often the first step in making connections that last a lifetime," Birtchnell says.

Even in countries without formal alumni associations, there are opportunities to connect with fellow graduates. In 2014, events for international alumni included exclusive dinners with travelling academics in Uganda and Malawi, cocktail functions in Taipei, Cambodia and the Philippines, and large-scale events, hosted by Australian state and federal governments, for alumni living in Denmark, Germany and Oman, among others.

"Getting involved with your local alumni community is a way of tapping into a wealth of knowledge and experience," Birtchnell says.

Alumni are urged to keep the University informed of their mailing address and supply a current email address, so they can be invited to relevant activities.

Birtchnell says: "We love to hear where alumni are and what they are doing, and it means they won't miss out on any exciting opportunities."

To learn more about alumni associations, or find your nearest one, visit [go.unimelb.edu.au/g77n](http://go.unimelb.edu.au/g77n)  
Update your contact details via the In Touch alumni portal at [go.unimelb.edu.au/7ao](http://go.unimelb.edu.au/7ao)

"I am very glad to remain connected"



Singapore-based Alumni Council member Rachel Teo (BCom 1991, PGDipEco 1992, International House) is a strong advocate for the benefits of overseas

associations. Rachel kept in touch with the University following graduation but only became actively involved in the Singapore Alumni Association when it looked like it might close down, helping revive it with some other local alumni.

It has since gone from strength to strength and each year runs a dynamic program of activities to engage and entertain the 4500-plus alumni living in Singapore.

"I have been involved with the alumni association for over 10 years now," Teo says. "I am very glad to remain connected as I get to meet more alumni, both younger and older. I enjoy meeting new alumni and am always happy to learn of their involvement with different sectors."

"I encourage new graduates to continue building their network as they will get to meet more alumni and through it make valuable friendships. Indirectly there will be mentors that you may meet along the way and in time you will also likely mentor someone younger."

Indonesian-born graduate Ryan Himawan (BCom 2012) has also connected with peers in his home country. "When I was there, Melbourne never felt like home to me," he says. "However, now that I have left Melbourne, I feel like I am missing it the way I missed my home during my early uni years."

"I think that it is important to stay connected with my fellow alumni because I believe to achieve great things, one needs to collaborate with fellow great individuals, and UoM grads happen to fill that description."

"Besides, I need friends to reminisce with and share the nostalgia that I have for Melbourne."



## AWARDS, HONOURS &amp; ACHIEVEMENTS



**Professor Terry Speed** (BSc(Hons) 1965, Trinity College), Bioinformatics Division Head at the Walter and Eliza Hall Institute of Medical Research, won the CSIRO Eureka Prize for Leadership in Science, in recognition of his guidance of the bioinformatics team at the Institute and his contributions to the wider field. Professor Speed is also a Professorial Fellow in the Department of Mathematics and Statistics. His team uses computational mathematics to help researchers analyse massive amounts of experimental data.



*Northern Lights: The Positive Policy Example of Sweden, Finland, Denmark and Norway* is the fifth book by former SRC President **Dr Andrew Scott** (BA(Hons) 1990, Janet Clarke Hall). The book explores how the English-speaking world might learn from the achievements of the four main Nordic European nations, which successfully combine economic prosperity with social equality and environmental responsibility.

**Laureate Professor Sam Berkovic AC** (BMedSc 1974, MB BS 1977, MD 1984) and **Professor Ingrid Scheffer AO** (PhD 1998) have been awarded the \$300,000 2014 Prime Minister's Prize for Science for their contribution to the study of epilepsy, its diagnosis, management and treatment. The two clinician-researchers, whose work was featured in the last issue of 3010, have led the way in finding a genetic basis for many forms of epilepsy.

**Ben Rimmer** (DipML(Chin), BA(Hons) 1996, LLB(Hons) 1997) has been appointed Chief Executive of the City of Melbourne. Mr Rimmer was most recently Associate Secretary at the Australian Government Department of Human Services. He has also been a Deputy Secretary in the Department of Prime Minister and Cabinet and a Deputy Secretary, Director and Assistant Director in the Victorian Department of Premier and Cabinet.



**Dr Melanie Plesch** (PhD 1998, GCertUniTeach 2010), left, and **Bronwyn Tarrant** (GCertUniTeach 2013) have been awarded National Citations for Outstanding Contributions to Student Learning by the Office for Learning and Teaching, part of the Commonwealth government's Australian Education Department which promotes learning and teaching in higher education.

Four alumnae were honoured in the 2014 Financial Review and Westpac 100 Women of Influence Awards. They were **Amanda McKenzie** (BA 2004), CEO of the Climate Council of Australia; **Shelley Penn** (BArch(Hons) 1988), Principal at Shelley Penn Architect; **Dr Bronwyn King** (MB BS 1999), Radiation Oncologist at the Peter MacCallum Cancer Centre and Epworth HealthCare; and **Dr Jackie Fairley** (BSc 1982, BVSc(Hons) 1987, MBA 1992), CEO at Starpharma Holdings.

**Julia Marchingo** (BBIomedSc, BSc(Hons) 2010) and **Dr Chun Yew Fong** (BMedSc 2003, MB BS 2005) have been recognised for their originality, innovation and contribution to cancer research. Ms Marchingo, a PhD student at the University and the Walter and Eliza Hall Institute, and Dr Fong, a PhD student at the University and Peter MacCallum Cancer Centre, were awarded the 2014 Picchi Awards for Excellence in Cancer Research. The awards aim to recognise, develop and support the top PhD students in the Victorian Comprehensive Cancer Centre partnership.



**Alan Wu** (BA, LLB 2010, Ormond College) was Australia's only community-sector participant at the World Economic Forum's 2015 Annual Meeting in Davos, Switzerland. Mr Wu is the youngest member of the Board of Oxfam Australia, and has previously served as Chair of Australia's national youth council, as Special Envoy for Young People to the UN Environment Programme, and on the National Commission for UNESCO. He is currently establishing the Canberra Hub of the World Economic Forum Global Shapers Community for young people.



**Dr Maxwell Lay AM** (BE(CivEng) 1958, MEngSc 1960) has been presented with Engineers Australia's most prestigious award, the Peter Nicol Russell Memorial Medal Career Achievement Award in Engineering. Dr Lay is recognised worldwide as an expert in structural engineering, road and transport engineering, the



*Let Down Your Hair*, a coming-of-age novel that explores stereotypes, subcultures and contemporary women's issues, is the debut novel by Melbourne-based cultural diversity consultant **Dr Fiona Price** (PhD 2001, International House). It is a dark modern retelling of the Rapunzel fairytale with two towers: the ivory tower ruled by a Professor of Women's Studies and the penthouse apartment ruled by a rich man's trophy girlfriend.

history of engineering, and information technology. Two other engineering alumni were also honoured by Engineers Australia, being named 2014 Honorary Fellows of the organisation. Electrical engineer **Andrew Yunccken** (BE(ElecEng) 1968, Trinity College) has nearly 45 years' professional experience in manufacturing and consulting, while civil engineer **Peter Godfrey** (BE(CivEng) 1978, International House, Whitley College) was an instrumental member of the Safer Construction Taskforce that produced the Guide to Best Practice for Safer Construction in Australia.



**Professor Michael Green** (MB BS 1972) has been awarded the Alan Coates Award for Excellence in Clinical Trials Research by the Australian and New Zealand Breast Cancer Trials Group. Professor Green is the Director of Cancer Services at Western Health and a consultant medical oncologist with the Department of Haematology and Medical Oncology at the Royal Melbourne Hospital. He has been involved in several clinical research trials that aim to introduce new treatments for breast cancer patients.

*Will to Win: The West at Play*, the latest book by political scientist **Don Miller** (BA(Hons) 1961, MA 1967), is a critique of professional sport today. Mr Miller spent more than 30 years on the academic staff of the University before founding the Melbourne Centre for Ideas in 2006.

## AWARDS, HONOURS &amp; ACHIEVEMENTS

For more Milestones visit [unimelb.edu.au/3010](http://unimelb.edu.au/3010)

**Michelle Di Fabio** (BCom, BIS 2006, GradCert Org. Leadership 2013, GradDip Org. Leadership 2014) of Hostplus Superannuation won the Rising Star of the Year Award at the Money Management and Super Review's second annual Women in Financial Services Awards (Australia). The award recognises female leaders early in their career who have demonstrated personal achievement and a meaningful contribution to the financial services industry.



Geologist **Dr Kathryn Fitzsimmons** (DipML(Ger) 2001, BSc(Hons) 2002) has been awarded the Albert Maucher Prize by the German Research Foundation. The national prize is awarded every three years to a high-achieving early-career researcher in earth sciences. Dr Fitzsimmons was recognised for her research into environmental change and the interactions between humans and their environment in the deep past. The first non-German to be awarded the prize, she has been working at the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany since 2010.

Two alumni were the 2014 recipients of Woodward Medals, awarded by the University to recognise staff for research considered to have made the most significant contribution in their field during the previous three years. **Professor Sundhya Pahuja** (LLB(Hons), BA 1994), of Melbourne Law School, received the 2014 Woodward Medal in Humanities and Social Sciences for her book, *Decolonising International Law: Development, Economic Growth and the Politics of Universality*. **Professor Ashley Bush** (MB BS 1982, GDipPsychMed 1988, PhD 1993), of the Florey Institute of Neuroscience and Mental Health, received the 2014 Woodward Medal in Science and Technology for his research into the causes of and treatments for neurodegeneration, in particular his work defining the role of tau proteins in the pathogenesis of Alzheimer's and Parkinson's disease.

The Hon **Geoffrey Nettle QC** (LLB(Hons) 1975, Trinity College) has been appointed to the High Court. Justice Nettle began his professional career as a solicitor at Mallesons

Stephen Jacques in 1977, becoming a partner of that firm in 1981. He was called to the bar in 1982 in Melbourne, appointed to the Supreme Court of Victoria in 2002 and promoted to the Court of Appeal in 2004.

Research by **Professor Lyal Harris** (BSc(Hons) 1976, International House) was selected by Canadian magazine *Quebec Science* as one of the top 10 discoveries of 2014. Professor Harris, of Canada's Institut National de la Recherche Scientifique, and his colleague Jean Bedard analysed radar images of the planet Venus to prove their hypothesis that certain geological formations on Earth could not be explained by the conventional theory of plate tectonics. They showed that the formations could be the result of shifts in ancient blocks beneath the earth. The discovery has the potential to revolutionise mineral exploration.

**Professor Brendan Crabb** (BSc(Hons) 1988, PhD 1992) and **Professor John Funder** (BA 1964, MB BS 1965, PhD 1970, MD 1971, DMedSc 2013, Newman College, International House) received Companion of the Order of Australia (AC) awards in the Australia Day Honours. Professor Crabb, the Director and Chief Executive Officer of the Macfarlane Burnet Institute for Medical Research and Public Health, was rewarded for his research into infectious diseases, particularly malaria, and their impact on population health in developing nations. Professor Funder's award recognises his work in cardiovascular endocrinology and the development of academic health science centres, and for championing research into mental illness, obesity and Indigenous eye-health.



**Professor Robyn Warner** (MAGrSc 1987) has been awarded the American Meat Science Association's 2014 International Lectureship Award for her contributions to improving international co-operation, knowledge and understanding in meat science. She is the first woman to win the award, which was established in 1992 to honour an individual for internationally recognised contributions to the field of meat science and technology.

Internationally recognised particle physicist **Professor Bruce McKellar AC** (DSc 1976, Ormond College) has become the first Australian to be appointed President of the International Union of Pure and Applied Physics. Professor McKellar is famous for the He-McKellar-Wilkens phase, a seminal quantum physics theory.



*40 Years/40 Women* by **Dr Juliet Flesch** (BA(Hons) 1964, PhD 2002) profiles notable women associated with the University, including staff, alumnae and philanthropists. The book was published by the University of Melbourne Library in commemoration of the 40th anniversary of the United Nations International Year of Women.

**Dr Rohan Wilson** (MA(CrWrtg) 2011, PhD 2014) and **Angus Cerini** (BCA 2000) were among the winners of 2015 Victorian Premier's Literary Awards. Mr Wilson won the fiction category for his novel *To Name Those Lost*, while Mr Cerini won the drama prize for *Resplendence*.

**Professor John Griffiths** (DMus 2012) has become only the second Australian to be elected a Corresponding Member of the American Musicological Society (AMS). The honour recognises his work as a scholar of 16th-century Spanish music and as a performer on the vihuela, medieval and renaissance lutes. The AMS has elected only 70 Corresponding Members since 1937.

Dental scientist and **Laureate Professor Eric Reynolds AO** has received the 2015 Leach Medal, presented annually in honour of the eminent biochemist Professor Syd Leach (1920–2005) in recognition of scientific excellence. Professor Reynolds (BSc(Hons) 1972, PhD 1978) is CEO of the Oral Health CRC at the University.

Alumna **Jill Sanguinetti** (BA 1968, University College) reflects on her days at boarding school in her book *School Days of a Methodist Lady: A Journey Through Girlhood*. Ms Sanguinetti became a boarder at Methodist Ladies' College in Melbourne in 1958.



**Professor Helen Herrman**, Director of Research at Orygen Youth Health Research Centre and Professor of Psychiatry at the University of Melbourne, has become the first Australian to be elected President of the World Psychiatric Association. Professor Herrman (MD 1982) will take up the role in 2017.



# Coming clean on my polar mission

BY DR KATHRYN MUMFORD

(BE(ChemEng)(Hons) 2003, BCom 2003, PhD 2009, GCertUniTeach 2012)

**T**he first time I saw snow I was 23 and flying into Casey Station in Antarctica, after 10 days sailing through huge seas and ice in the Southern Ocean. That final 20-minute helicopter trip, flying around icebergs, was an incredible introduction to the continent.

Once at the station, there wasn't much time to enjoy the scenery; everyone had a job. The most important immediate task was transferring stores ashore before the ship left. It would not return for three-and-a-half months.

Since that first trip I have travelled to the Antarctic stations at Casey, Davis and McMurdo, and the sub-Antarctic base at Macquarie Island, every second year or so as part of a collaboration between the University of Melbourne and the Australian Antarctic Division.

I'm working with a team to develop technologies for the remediation of contaminated sites. Before the 1980s it was common for rubbish to be dumped close to stations, later to be covered by snow and ice or simply pushed out onto sea-ice that melted over summer, sending it to the bottom of the ocean. Long-lasting damage to the surrounding flora and fauna has put a stop to these practices. Diesel, the main means of power generation and the source of inevitable spills, is also a problem.

We are now working to clean up these areas in the simplest, most cost-effective way – and trying to influence other nations with a presence on the continent to do the same. For now, most countries believe it is too difficult and costly to clean up their sites. We want to change this.

Obviously the environment of Antarctica provides a unique set of challenges when designing and implementing remediation systems. Low temperatures, freezing conditions, low soil nutrient contents and variable and high water flows all affect the suitability of systems that might be used in temperate climates. One of the areas that we have been focusing our efforts on is the development of Permeable Reactive Barrier (PRB) technologies. This involves creating a trench filled with reactive material that traps and degrades fuel contaminants into harmless products while allowing water to pass through. These developments have

been highly successful, with a number of PRB installations completed at Antarctic and sub-Antarctic stations.

Antarctica has provided some of the most rewarding and exciting experiences of my career. It is a land of extremes, the highest, coldest and windiest continent on Earth where wind speeds can reach 200 km/h.

It is generally assumed that if the wind speed (in kilometres per hour) gets above your body weight (in kilograms), you shouldn't walk outside due to the possibility of being swept away. In October and November this happens regularly, but in later months you can get caught off guard. On one memorable January night a group of us were working in the science laboratory. We didn't notice the wind picking up and at dinner time, we suited up and headed for the door – which wouldn't open due to the extraordinary wind force.

We weren't going to make it back to the living quarters for dinner. Luckily we had a stash of emergency chocolate so hunkered down for the night. This event made me appreciate the unpredictability of Antarctica. Although I was living comfortably, with ready access to many modern conveniences, the tables can turn quickly.

Most of the field seasons that I have spent in Antarctica were over Christmas. This is when much of the accumulated annual snow begins to melt and the contaminants that interest me begin to migrate and interact with our PRBs.

Christmas in Antarctica is cause for great celebration. One of my strongest memories is of volunteering on Christmas Eve to go out and collect ice. Led by a runway technician, we boarded one of the Hagglands track vehicles and headed out beyond the station limits to an area of thick blue ice.

Here he fired up a chainsaw and started cutting huge blocks of ice to take back to the station. The biggest was carved into a penguin about a metre high. Smaller blocks were cut into plates of progressively smaller size. When stacked together they made a two-metre-high Christmas tree that was then decorated with seafood for the Christmas Day feast. And the ice offcuts made a nice addition to our after-dinner whiskies.



Dr Kathryn Mumford is a Lecturer in the Department of Chemical and Biomolecular Engineering at the University of Melbourne.

**Grace Newton**  
Current student and  
scholarship recipient



# BELIEVE

## SCHOLARSHIPS PROVIDE A WORLD OF OPPORTUNITIES.

I grew up in Bairnsdale in regional Victoria, and for me, the chance to move to Melbourne and study at the University of Melbourne was beyond my family's means. Determined to realise my dream of obtaining a university education, I applied for a scholarship and was lucky enough to receive one. My goal is to focus on journalism or the arts - something that will empower me to address wider community issues. I hope to someday be a strong influential voice that can return to society the knowledge and prospects it has given to me.

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