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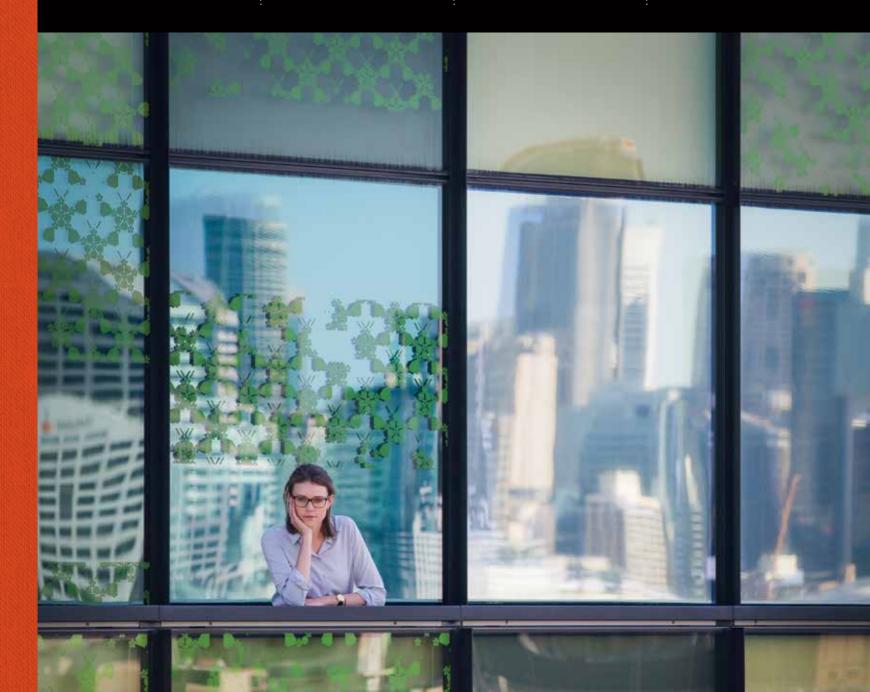


CANCER; LOSING ITS ADVANTAGE

HOPE FOR THE WRONGLY CONVICTED

INDONESIA'S NEW-STYLE
JOURNALISM

FOOD SECTOR CHALLENGES

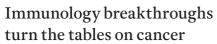


Imagining new cities



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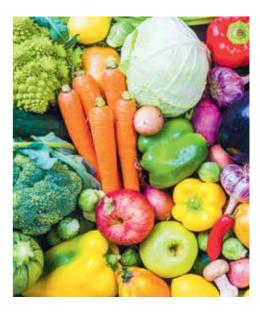




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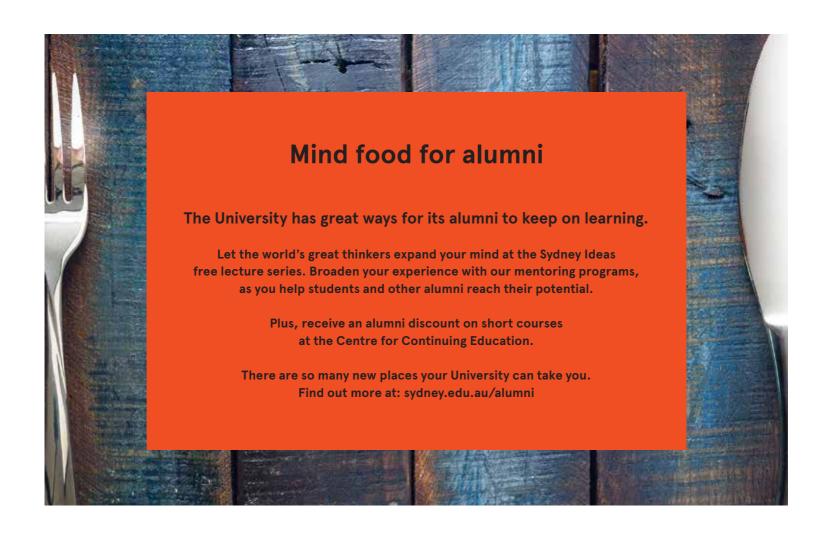
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Inside back cover: University of Sydney medical students of today. Photo: Victoria Baldwin Distributed to more than 150,000 members of our community. 16/5757 ISSN 1834-3929 @2016 The University of Sydney



Help us make SAM even better.

Do you have a few spare minutes? Then we'd love you to do our online survey about *SAM*.

Tell us what you think about the look, the stories, the pictures, the good bits, the not-so-good bits.

You'll find the survey at sydney.edu.au/sam-survey

We want *SAM* to be your favourite magazine.

DIVERSITY'S DAY HAS COME

In July, the University featured on the front page of the *Sydney Morning Herald* for its work with the Race Discrimination Commissioner Dr Tim Soutphommasane, on producing the landmark report *Leading for Change: A blueprint for cultural diversity and inclusive leadership.* This study investigated the cultural composition of leadership in prominent Australian organisations.

Diversity and inclusion are vital to the University; so much so that we have enshrined both as part of our culture and values in our 2016-20 Strategic Plan. These core values are key ingredients in collaboration and research, which in turn lead to the breakthroughs that will enable us to meet the challenges of our time. This is why we have embarked on a series of programs to encourage us all to understand each other and work better together.

In July, we also launched *Cultural Competence at Sydney*, becoming the first university in the nation to incorporate cultural competence at a whole-of-university level, and we have established a number of programs aimed to reach our target of 50 percent women in leadership by 2020. These are among many initiatives designed to ensure genuine equity and a community free of bias.

Diversity, inclusion and tolerance are not only in the best interests of the University community, but will ensure that our graduates emerge into the broader community as the voices of reason, becoming the leaders who navigate a path through an uncertain future. And in times of turmoil, it is more important than ever that reason be heard.



▲ Belinda Hutchinson AM (BEc '76), Chancellor



▲ Michael Spence (BA '85 LLB '87), Vice-Chancellor and Principal

RECOGNITION



OUR ENGINEERS IN THE TOP 50

Five University of Sydney researchers have been named among the most innovative engineers in Australia. Appearing in the inaugural Engineer Australia 50 Innovators, the five were recognised for their contributions to the community, the industry and the profession.

Their research projects range from a mid-air refuelling system and green packaging that extends the shelf-life of food, to an injectable biomaterial for tissue regeneration, an agricultural robotic device for weeding, and a hard hat that monitors health.

Our congratulations to Dr Ali Fathi (MPE (Chem & Biomol) '11 PhD (Research) '15), Professor Fariba Dehghani, Professor Andrew Harris, Daniel Wilson (PhD '15) and Professor Salah Sukkarieh (BE (Mechatronics) '97 PhD '00 CertEdStud '03).



The things you learn here.

University is more than what happens inside the classroom. Our students share what they learnt at Sydney.

sydney.edu.au/thingsyoulearn





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Leadership for good starts here



SENATE NOMINATIONS NOW OPEN

Nominations are now open for the University of Sydney Senate, which is the governing body of the University.

The Senate has key input into the strategic direction and purpose of the University, and Senate Fellows have an important say in shaping the University at a time of great change. The role is voluntary but offers opportunities to make a real difference and connect with some of Sydney's most influential people.

Self-nominations for the Senate are welcome and the term begins 1 December 2017. Nominations close 10 February 2017. You can find more at:

- sydney.edu.au/senate/Fellows_nominations



WEBSITE

ON MY MIND GOES ONLINE

There are so many stories in this issue of *SAM* that you'll find our regular opinion piece, On My Mind, in *SAM* online. This time around, lawyer Claire Wivell Plater (LLB '81), talks about the imminent technological revolution, artificial intelligence. It is a timely piece that look at the pros and the cons of what will soon be a powerful influence on all our lives.

Thank you to everyone who sent in their thoughts about the On My Mind piece in the previous issue of SAM. You can also find those responses in the online version of SAM at

- sydney.edu.au/sam/on-my-mind-responses



GETTING READY FOR THE NEXT PANDEMIC

No one can know when the next infectious disease crisis will threaten Australia or the world, but the University is part of a new initiative to boost Australia's capacity to respond.

University of Sydney researchers will partner with other leading national experts in clinical, laboratory and public health research based on \$5m of new funding from the National Health and Medical Research Council (NHMRC).

The Director of the University's Marie Bashir Institute for Infectious Diseases, Professor Tania Sorrell, will be one of the leaders of the initiative. "The new partnership will focus on threats such as influenza, coronaviruses, haemorrhagic viral diseases, arboviruses, novel pathogens and antimicrobial resistance," she said.

CORRECTION

MAKING A DOG'S LIFE LONGER

(published in SAM Heritage, July 2016)

A recent article in *SAM Heritage* told the story of how the Mac and Jetty Lymphoma Research project is making advances in the treatment of dog lymphoma thanks to a generous gift from Anne Evans and Warwick Adams. In the original article Anne and Warwick's names were recorded incorrectly and the article omitted the names of their vets, Dr Helen Schaefer (nee Oates) (BVSc '89) and Dr Jane Woolacott (nee Lacey) (BVSc '01), who were instrumental in the gift coming to the University. The *SAM* editors apologise for these errors and have amended the online version accordingly.



Something remarkable is happening at Boggabilla School and the explanation is clear and surprising at the same time.

Grinners are school winners

Written by George Dodd Photography by Wayne Pratt and Sarah Rhodes (BA '96 MPub '09)

Situated in a remote corner of the Moree Plains Shire in northern New South Wales, Boggabilla is home to about 1500 people, most of whom are Aboriginal, and it has suffered through many tough years. For its part, the local school has had issues with attendance.

To encourage more children to come to school, the teachers created a visual attendance grid. When a child came to school on time, they'd get a green

sticker. If they were late, they received an orange sticker. If they didn't come to school at all, they were given a red sticker. Signs on school doors asked "How green is your grid?" Too often, the answer wasn't what the teachers were hoping for.

Kim Szerdahelyi is the Project Manager of Oral Health at the Poche Centre for Indigenous Health at the University of Sydney. She regularly visits Boggabilla School because the Poche Centre provides a free dental service from what was once the school's photographic darkroom.

"Last year one of the teachers at Boggabilla said he wanted me to see something," she recalls. "He showed me the attendance grids and it was amazing – there was more green. And the green began growing from when we started our dental program at the school.







▲ (Main photo) During their prac placements, Dharini Ravindra (left) and Petra Vasic (right) worked with Boggabilla school students.

"That was incredible to me – really powerful."

Allowing for how most children feel about going to the dentist, why would a dental service actually improve school attendance? The fact is, dental health can have a profound effect on a child's ability to function at school.

Dharini Ravindra and Petra Vasic are both final-year dental students. As part of their studies they were required to undertake a four-week practical placement in a regional area, and they took the two places that were available with the Poche program.

Though they both admit to being very much city people, they were soon working in some of the state's most

remote and disadvantaged locations.

"I'd never been anywhere that remote," Ravindra says, now back in Sydney with Vasic for their final exams. "It was a different world. Also, the level of oral health was a lot worse than I ever, ever expected."

As well as Boggabilla, they worked in Toomelah, which had grown from an Aboriginal mission in the 1930s into a community so impoverished that in the '80s and '90s it was the focus of national attention and shame. More recently, there have been some positive changes for the people of Toomelah, yet dental health remains a significant problem.

"The rates of decay and tooth loss were pretty high," Vasic says. "Their

parents had lost teeth, so the kids expected to lose their teeth as well. They didn't really understand the idea of prevention."

Vasic herself had an experience that no dentist would want. She had to remove a badly decayed permanent tooth from a nine-year-old girl.

The local water in some of the communities is part of the problem. In Toomelah, the current water supply is sourced from a single artesian bore using an electrical pump. The Poche team hear from the local children that the water tastes horrible and sometimes makes them sick. Bottled water isn't an option because it's more expensive than soft drink. "The result is that many of

the children in these communities don't drink water at all," the Director of the Poche Centre for Indigenous Health, Kylie Gwynne, says.

"So, in consultation with the elders and other people in the communities, we've started a program where we're installing free bubblers that filter and chill the water. We want everyone to have access to clean, cool, yummy water."

As the water program gets underway, the green stickers on Boggabilla's attendance grid show that the Poche dental program is already changing things. A child with a toothache or mouth abscess can't sleep, and if they go to school at all they can't concentrate in class. As the Poche clinicians make regular visits to schools such as Boggabilla and Toomelah, they take away the pain and educate the children and their parents about how to keep teeth healthy.

There are longer term health benefits as well. Poor dental health has been linked to heart disease and possibly even kidney problems, diabetes and low birth weight in babies.

Working from the Edward Ford Building at the University, Gwynne designs Poche Centre programs in collaboration with elders and local organisations. Together, they figure out where the programs are needed and how they'll work.

"There's been a long and unhelpful history of clever white fellas coming up and saying 'we can solve your problems'," says Gwynne. "The initial thing for us was about building trust, having lots of conversations and listening. Then doing what we promised to do."

The Poche Centre was established after a \$10 million donation in 2008 from Greg Poche AO, who revolutionised the transport industry with Star Track Express. Poche, his wife Kay and best friend Reg Richardson AM, felt strongly about improving Aboriginal and Torres Strait Islander

outcomes, and their donation allowed the University to create the Poche Centre for Indigenous Health. It has three active priority areas: healthy kids, healthy teeth and healthy hearts.

The Poche Healthy Teeth program now works across 10 communities employing new-graduate staff, including oral health therapists and graduate dentists, as well as local Aboriginal dental assistants and support people. Costs are kept down by using existing infrastructure at schools and healthcare centres, and equipment that is mobile and portable.

Rostered senior clinicians provide supervision for the new dentists, on a pro bono basis.

Another key plank of the Poche program is getting it ready for community management. This is set to happen in 2019, with more local people already taking service delivery and management roles, and this year 157 Aboriginal scholarship holders are studying from Certificate III level through to PhD, with a view to delivering future clinical services.

"There's a mythology that to do things in partnership with communities is time consuming and expensive," Gwynne says. "That's not true. We are the demonstration of that."

The Poche Centre program is important for another reason. As Ravindra points out: "No one else is doing what they're doing out there."

"The initial thing for us was about building trust – then doing what we promised to do."

▼ Kylie Gwynne works with communities to create programs that deliver real and sustainable results.



Image page 06, The Poche Centre team celebrates NAIDOC week at Boggabilla. Photo: Norma Binge

Cancer hides from the body's defences. But now the immune system is coming, ready or not.

A friend on the inside

Written by George Dodd Photography by Matthew Vasilescu

Cancer is a formidable foe. It has a number of sophisticated strategies for evading the immune system, mostly based on making itself look like it belongs – that it is 'self'. But cancer's days of flying under the immune system's radar may be coming to a close, thanks to huge advances in the science of immunology.

Professor Derek Hart and Professor Joy Ho (MBBS '88) both started their careers as haematologists, becoming specialists in the study of blood and blood diseases. Blood plays a big role in transporting the soldiers of the immune system, called T cells, around the body, so haematologists become very familiar with the immune system's architecture. Through this, Professors Ho and Hart number among the

leaders in their field, both with a strong immunological skill set.

They are also each participating in world-leading but quite different research into how the immune system can be coaxed into recognising cancers as the threat they are.

"The field is very exciting because it's a totally new mode of treatment," Professor Ho says. "Now we're trying to develop clinical techniques that allow new immune therapies to be applied to patients."

Part of the promise of immune therapies is that treating cancer may become less of an ordeal. Rather than trying to irradiate, poison or cut out the cancer – with all the collateral traumas that brings – the cancer is tackled on a





Professor Joy Ho in the research area in which she works at Royal Prince Alfred Hospital, Sydney

cellular level as part of the natural immune processes. This is an immunology Holy Grail that is coming into reach after decades of work.

As a teenager, Professor Hart set up a lab for himself at home where he eagerly pursued his innate interest in science. His career has seen him leading research teams around the world, including in his current role with the Dendritic Cell Research Group which has highly skilled, multidisciplinary staff based at Concord, Westmead and Royal Prince Alfred Hospitals.

As the group's name suggests, the focus of the team is on dendritic cells, which were first found in mouse tissue through the Nobel Prize-winning work of Canadian immunologist Ralph Steinman. But Professor Hart himself was the first to identify them in rat and human organs.

"I looked down the microscope, and dendritic cells stared back at me," says Professor Hart, who has bright personal energy and an easy laugh. "Gee whiz what am I looking at? I didn't have a clue. Then I realised they were probably related to Steinman's cells."

Dendritic cells have the job of raising the alarm when an infection invades the body. They also 'describe' the infection to the immune system using antibodies, so the system can produce T cells (the 'T' stands for thymus, the organ in

which the cells mature), armed to fight that specific enemy.

Though researchers avoid overpromising, there is the whispered possibility in the immunology community that dendritic cell manipulation could one day lead to an anti-cancer vaccine.

Right now though, the key task for Professor Hart's team is to create antibodies to treat cancers using some of the target molecules they've identified. They are also developing methods to purify and manipulate dendritic cells for treating cancer. Ultimately, the cells would be injected into a patient to stimulate anti-cancer action in the immune system. This is a hugely detailed and painstaking process. But ask Professor Hart what is the toughest nut to crack and he'll say finding the funding his team needs to take the next steps.

"The real buzz from day one was getting to the point where we are now, where we can make products that could actually have a real impact on patient care," he says. "But we need funding to get under way with the clinical trials of those products."

For her part, Professor Ho is highly aware of the constraints of the trial process. Where Professor Hart is mainly a pure scientist, Professor Ho is part of a laboratory research team and a principal investigator in clinical trials.

Professor Ho's skills were recognised early with a

Young Researcher of the Year Award in 2001. Since then she has taken leading research roles, finding a particular fascination with myeloma, a cancer of the bone marrow. Somehow, through all her years of intensive research, she's also found time to become proficient in French, which she uses during visits to New Caledonia, where she's part of a team that conducts clinics for local people with haematological malignancies.

A big focus for her now is running clinical trials. With a warm intelligence, she describes each trial as like putting together a jigsaw puzzle. A key piece is finding the right More than that, some patients have been seriously affected by cytokine release syndrome due to the release of chemical agents when the CAR-T cells are applied, a process that is not yet fully understood. Patients have been made sick by some therapies and there have been deaths.

"Safety is a paramount concern," says Professor Ho.

"These are new therapies and you have to be able to pick up the nuances of every reaction and side effect. We are very well set up to do that here."

RPA is one of only two sites in Australia doing CAR-T cell therapy, and while the US gets much of the immunology

"THE REAL BUZZ, FROM DAY ONE, WAS GETTING TO THE POINT WHERE WE ARE NOW."

research question that will bring maximum benefit to patients. Other pieces include enrolling the appropriate patients and, of course, funding.

Professor Ho's research team works in a complex of rooms just beyond the grand, sandstone entry doors of Royal Prince Alfred Hospital. To reach her office, you walk through the waiting room where patients with cancers such as leukaemia, lymphoma and myeloma are waiting for their next or even first appointment in a clinical trial of a new therapy.

Where Professor Hart has a focus on dendritic cells, Professor Ho and her team are fascinated by the possibilities of directly convincing T cells to fight cancers.

The starting point is to manipulate the T cells through genetic engineering. A blood sample is taken from the patient and the T cells are extracted. The sample is then sent to the United States, where a virus is used to introduce a receptor and other elements into the T cell that will direct it to the cancer. This turns the T cell into what's called a chimeric antigen receptor T cell, or CAR-T cell for short.

While this is happening, the patient undergoes chemotherapy in Australia to deplete their lymphocytes, so the engineered CAR-T cells can be injected and begin attacking the cancer.

As the media is trumpeting the admittedly impressive results of CAR-T trials overseas, Professor Ho knows there's a good case for caution. It's widely known in the research community that for some people, the new therapies may not be effective or may lose effectiveness.

limelight, the RPA research team has made the best of its relatively meagre resources over the years to be recognised as world leaders in haematology and immunology.

As Professor Hart and Professor Ho explore different regions of the immunology landscape, their growing collaborations hold considerable promise. The two researchers also share the same core inspiration for their work. "I did medicine to help people," Professor Ho says. "I get great joy out of being able to provide them with excellent therapy."

HELP US BEAT CANCER

Professor Hart and Professor Ho are part of the University's Cancer Research Network, which brings together some of the brightest minds of the University and its affiliates. To support the research work of Professor Hart and Professor Ho, to help more clinical trials happen, or for more information about the advances in immunology, please contact David Meredith on +612 8627 0797 or david.meredith@sydney.edu.au.

Image page 11: The work of Professor Derek Hart and his team could lead to a revolution in cancer treatment.

ON MY DESK: REBECCA SHEEHAN

Dr Rebecca Sheehan, lecturer in US History at the United States Studies Centre (based at the University of Sydney)

Photography by Louise Cooper

Dr Rebecca Sheehan's expertise ranges from feminist and gender history to social movements in the US, including teaching an undergraduate subject, 'Sex, Race and Rock in the USA'. With several moves between Australia and the US, she has learned to travel light, but she found a few things in her office to talk to us about.



COMPLETE ROCKY SERIES DVDs

I'm not generally a fan of sport but I saw *Rocky III* when I was a kid. My mum's an immigrant, and Rocky is an underdog I related to. A lot of the great film directors like John Huston and Martin Scorsese made boxing films because they provide a way of looking at the intersections of ethnicity, gender and class. I still find the fighting metaphor really powerful. If I'm having a difficult time, I'll listen to the *Rocky* soundtrack for inspiration.

BOOK WITH FIRST PUBLISHED PAPER

My first published article was initially presented as a paper at a conference at Harvard University about the global 1970s. There were papers about disease eradication, the rise of securitisation, nuclear parity, and other more traditional historical topics. Then my paper talked about



groupies and sex, and the article had sections about David Bowie and Jesus Christ Superstar. I felt like a cat in the wind! But I maintain that my subjects are as important to understanding history as others.



BO, THE FIRST DOG

I read an article about 'First Dogs', which are the dogs of US presidents in the White House. Kids write to the dog instead of the President, so

a person has the job of responding to those letters. A workmate gave me Bo, who is the current First Dog, because of my love of animals and Barack Obama. I think for the US, Obama's election is one of the most significant things that has happened in my lifetime. And I love the story that Obama made a deal with his wife, Michelle, that he'd quit smoking if he could run for the presidency. The deal with his daughters was that they could get a dog.



BOWIE EXHIBITION BOOK AND CONFERENCE PASS

My brother said I'd never be a true guitar player unless I could play the whole David Bowie songbook and Led Zeppelin's *Stairway to Heaven*. So I did. But then I stopped playing guitar because I found that process so traumatic! I was not a huge Bowie fan when I was growing up. Then I started studying Bowie as a cultural icon. He created a public place for

people to experiment. I think it is so meaningful for a pop artist to have had that sort of impact on people's lives. I still get emotional thinking about him.

GERMAINE GREER (MA '63 DLitt '05) LIFE MAGAZINE COVER

I bought this magazine partly because of the headline: 'Saucy feminist that even men like'. Right there is the idea that feminists are angry and man-haters, and men hate them back. These days Germaine contributes to negative perceptions about herself, with things like her transphobic comments, but she's always been a provocateur. She sold her personal archives for \$2 million and put that money towards her rainforest charity. That's not all over the newspapers. I don't agree with her on a number of key issues, but I think she is a profoundly brilliant person who hasn't been given her historical due.





THE JEZABELS

My partner was working on the Jezabels' first full-length album, Prisoner, when I was about to have our child, Reyna. Everything was timed so the album would be finished the day before she was due, but she came a month early. I told him to focus on the album. That was really hard for me, but then he was nominated for two ARIA Awards and the album won Best Independent Album. All the Jezabels are graduates of the University of Sydney. The lead singer and lyricist, Hayley Mary, consciously explores emotions and particularly the state of being a woman, which is a significant interest of mine.



TRINITY FROM THE MATRIX

I worked in an internet company that streamed online music content in New York, and all the guys had action figures on their desks. When they gave me Trinity,

it was a sign of respect. The President of that company, Les Garland, was one of the co-founders of MTV. He was always super nice to me, and encouraged my academic interests. He now gives a Skype lecture every year for my music course. He really embodies '70s and '80s rock'n'roll, and he has stories about everyone. That history is embedded in the Trinity doll. In the film, Trinity was incredibly brave and strong. She reminds me to try to be the same.



While working to exonerate the wrongly convicted, law and psychology students teach each other new ways of thinking.

Guilty until proved innocent

Written by Monica Crouch (BA (Hons) '95) Photography by Louise Cooper

When Henry Keogh was released from prison in December 2014, he had served 20 years of a life sentence for the murder of his fiancé, Anna-Jane Cheney, who drowned in the bath in the couple's Adelaide home in 1994. But there was one big problem: Keogh was innocent. His conviction was a miscarriage of justice due to flawed forensic evidence that hinged on the bruises on Ms Cheney's lower left leg.

In a more high-profile case, millions of viewers tuned into the American series *Making a Murderer* as it unpacked Steven Avery's wrongful conviction for rape, for which he served 18 years.

Both cases may seem to be one-offs, but in the United States it

is estimated that between 0.5 and 5 percent of all prisoners have been wrongfully convicted. Even the 0.5 estimate suggests a possible 7500 wrongful convictions in the US – every year.

Reliable statistics are hard to come by in Australia, but this doesn't mean there are no errors in our justice system.

"The legal system is run by humans and humans make mistakes," says Dr Celine Van Golde (PhD '13), Associate Lecturer in the School of Psychology at the University of Sydney. "Admitting something went wrong with a case is tricky both personally and politically, so it's not easy to reopen a case. But

just because it's difficult doesn't mean we shouldn't try."

Dr Van Golde heads up Not Guilty: the Sydney Exoneration Project, which seeks justice for wrongfully convicted inmates. "The idea came from a similar project I worked on in the Netherlands during my undergraduate degree," she explains.

"When I finished my PhD, I received a letter from a person in jail saying they had watched a documentary and they believed what they saw there had happened in their case. They asked me to look at it, to see if I could help them because they were innocent."

This led Dr Van Golde to talk to her colleagues about the possibility of



◆ Dr Celine Van Golde, of the University's School of Psychology, started the Exoneration Project after receiving a letter from a jailed man. Photo: Justin Lloyd/Newspix

starting an innocence-type project, and they all supported the idea. But this innocence project has a key difference.

"We have law and psychology students working together – the first in Australia to do this," Dr Van Golde says.

Offered as a unit of study for the first time in 2016, the Sydney Exoneration Project pairs senior law students with psychology honours students to collaborate on real-life scientific," says Yeabee Kim (BPESS '13), a participating Juris Doctor student who also studied psychology as part of her bachelor's degree.

"The process gave me insights into how I can approach evidence differently," she says. "It was challenging at times, as scientific reports can be confusing, but that is where the psychology students stepped in and helped the law students. We

With that we have the big issues in play: false confessions to escape the duress of police questioning or to protect someone; the questioning techniques themselves; the conduct of line-ups and how they affect witnesses; and the nature of memory and how we construct memories based on our social conditioning.

Then there's mistaken identity, which is the leading factor in up to

"CONFIDENCE IS AN IMPORTANT FACTOR IN LAW AS IT MAY BE USED TO INDICATE RELIABILITY."

cases and learn from each other's fields. It's experiential learning at its best: students read transcripts, watch video tapes of police interviews if they are available, research and debate various points and make a presentation to the group.

While we cannot reveal details of the current case as it is still unresolved, we can talk about what the students gained from it.

"A criminal case is not only about the law – it is far more complicated and

could analyse the evidence and the law in more depth and in a new light."

Third-year Juris Doctor student Zeb Holmes-Baer (BA '13 MA '14) is equally enthusiastic. "It was really beneficial working with psych students," he says. "I found out about a lot of research that I wouldn't otherwise have had any knowledge of, like the uncertainty of eyewitness evidence, mistaken identification, false memories, false confessions – things I might not have thought to question."

70 percent of miscarriages of justice. It's a fraught issue. Holmes-Baer describes a phenomenon known as unconscious transference: "Where you identify someone from memories that aren't based on witnessing the crime." He cites the case of a train-ticket seller who was held up at gunpoint, then identified someone who had an iron-clad alibi simply because he had sold that person tickets previously.

The level of confidence of an eyewitness is another issue at the

very nexus of law and psychology.

"Confidence is an important factor in law as it may be used to indicate reliability," Kim says. "But it's understood differently in psychology." While a witness may be confident in identifying a suspect, Holmes-Baer says, psychologists are aware there isn't really a strong link between high confidence and the accuracy of a memory.

While great advances have been made with DNA technology in proving innocence (or guilt), expert medical or scientific evidence can also influence verdicts. That said, experts often interpret the same evidence differently, and expert evidence deemed persuasive at trial can be rejected

as unconvincing on appeal.

Senior Lecturer in Evidence, Miiko Kumar (BA '94 LLB '95), who is collaborating with Dr Van Golde, emphasises that "the appeal process is supposed to weed out the flaws". Despite this, she raises "the biggest disaster" – the Lindy Chamberlain case in the 1980s.

"This is where the system absolutely failed," Kumar says. "Lindy Chamberlain went right up to the High Court and her appeal did not succeed, and it was expert evidence that was the flaw."

Chamberlain spent more than three years in prison for the murder of her daughter, Azaria. It was not until 1987 that she (along with her then husband Michael) was exonerated. It took until 2012 for the Coroner to declare that a dingo did in fact take Azaria.

In the short time since its inception, the Exoneration Project has attracted considerable support. "We have collaborations within the NSW Police and we are talking to public defenders who want to help us if something comes out from one of the cases," Dr Van Golde says.

She mentions an offer of help from a specialist DNA scientist in the US, and letters of praise from former judges and barristers.

Kumar as well is a big supporter of the project. "Our students learn skills from each other – it's invaluable," she says. "They teach each other to look at things differently."

▼ Senior Lecturer Miiko Kumar warns that even expert evidence can lead to false convictions and failed appeals.



With the rapid growth of Australia's cities, University researchers are partnering with industry and government to hothouse innovative planning solutions.

Big ideas for better cities

Written by Lynne Blundell Photography by Louise Cooper and Stefanie Zingsheim

More people. That single, simple concept is driving one of the most rapid and dramatic urban redevelopments Australia has ever seen, underscored by the fact that Australia's population just reached 24 million – 17 years earlier than expected.

To give a sense of the scale of change, Australian building projects currently underway are valued at more than \$400 billion, and it won't end there.

The concept of more people might be simple, but the implications are anything but. More people means more cars, garbage, air pollution, urban sprawl, water demands and housing pressures. And less biodiversity.

As previously sleepy Sydney streets become apartment canyons, there is the very real possibility of a gridlocked city where services and resources buckle under the demands

made of them. In recognition of the pressing need to find better urban planning solutions, the NSW Government agency, UrbanGrowth NSW, formed an alliance earlier this year with the University of Sydney and other universities across the state. The agreement promotes opportunities for undergraduate students, postgraduate students and researchers to work with the agency on urban planning projects as part of their academic studies.

When announcing the agreement, NSW Planning Minister Rob Stokes said the agreement recognised that collaboration between government and the university sector is "critical for the delivery of innovative approaches to urban transformation".

Garry Bowditch is Executive Director of the Better Infrastructure Initiative at the University of Sydney's







▲ Garry Bowditch (left) and Professor Peter Phibbs (right) are working to improve urban development projects.

John Grill Centre for Project Leadership. The centre was established by a donation from Sydney alumnus John Grill AO (BSc '66 BE (Civil) '68 DEng (Honoris Causa) '10). It now educates executives and conducts research aimed at bringing Australia's sometimes wasteful major projects up to the standards of world's best practice.

One key focus for Bowditch is making sure those big projects deliver value and the solutions people actually want.

"We have to shift the mindset away from physical assets to the services that are provided by those assets," he says. "People aren't interested in whether we invest in a tunnel or a bridge or a road. They are concerned with the quality of the services provided and whether they are delivered in a way that is efficient and adaptable to changing circumstances."

An important part of any successful city is easy transport. It is a well-loved feature of some of the world's great cities and a regular criticism of Sydney. Already, about 30 percent of Sydney's driving commuters spend the equivalent of three weeks of their year getting to and from work.

"We need to make sure that our mobility is insured for the future," Bowditch says. "And it needs to be structured so that people can change from bus to bike to train to car seamlessly and without penalty." Australian cities now have the chance to integrate land use and transport planning. Sydney's WestConnex project, for example, will connect the outer and inner suburbs of the city and provide an opportunity to develop large-scale, pleasant and affordable housing along the road corridor. This should be built into the DNA of such projects, says Bowditch.

It should be an Australian style of high-density housing, rather than a replica of high rise elsewhere.

"Australians want to be able to see the sky and feel a breeze and have some sort of openness to the environment. What is lacking so far is an Akubra hat of densification. We need to address the land-use regulations that are preventing proper experimentation," says Bowditch.

The John Grill Centre is addressing these issues through courses such as its Executive Leadership in Major Projects, a one-year program for senior executives who are further developing leadership skills to head up major infrastructure projects. The centre also has a thought leadership program that focuses on resource management and allocation, aimed at driving greater intellectual enquiry into the infrastructure sector, which has also been sorely lacking, says Bowditch.

Professor Peter Phibbs is the Chair of Urban and Regional Planning and Policy at the University and also Director of the

"NOW IS THE TIME TO CREATE VIBRANT, AFFORDABLE, SUSTAINABLE AND DESIRABLE PLACES TO LIVE."

planning-focused Henry Halloran Trust. He says it is time to take the politics out of urban planning and adopt a long-term view.

The best city planning looks at least 20 years ahead.

"If we are to deal with strong population growth in our cities and maintain liveability, we can't just leave things to market forces," Phibbs says. "In Sydney we have a housing crisis and people are starting to realise their kids can't live in the same city once they leave home, as prices are too high."

In New York, developers are obliged to include a proportion of affordable housing in their new projects. Another idea is to establish planning mechanisms for newly developed housing around transport modes. Instead of the owners of existing housing making a profit of 300 or 400 percent, the regulations could restrict this to 100 or 200 percent, with the balance going into providing affordable housing.

"We need to find ways of funding the infrastructure we need," says Phibbs. "And if we want to attract the smartest and brightest people to live and work in our cities, they must be affordable."

The University of Sydney has a number of programs that aim to promote new ways of thinking about city planning, including those under the umbrella of the Henry Halloran Trust. One of these, the Practitioner in Residence program, supports research by an experienced practitioner who then delivers a public lecture on their findings. The Trust's Blue Sky grants also foster innovative research into areas that may otherwise find it difficult to attract funding.

Other programs, such as the Smart Seeds innovation competition and Festival of Urbanism, aim to promote new ideas and better approaches to city building.

Another new initiative is the Lendlease Bradfield Urban Vision Scholarship which encourages academic excellence and creativity in first-year and second-year undergraduate students in studies related to urbanism.

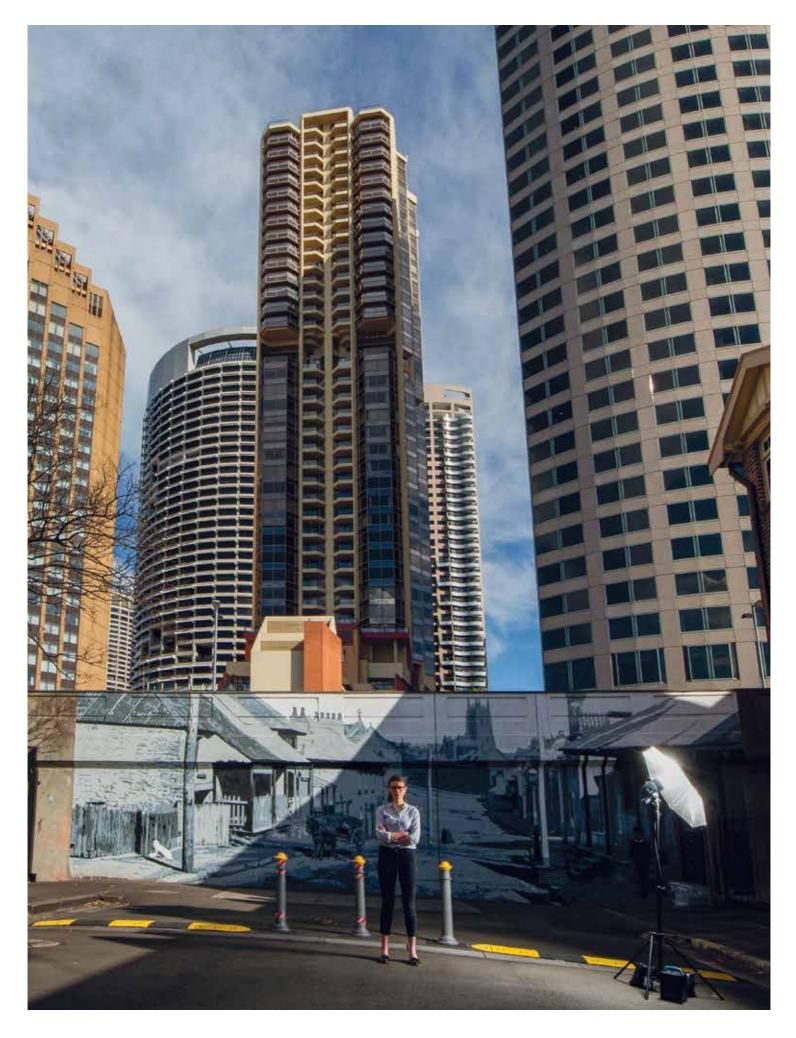
It gives special emphasis to encouraging women into this field of study. Caitlin Hanrahan, the inaugural recipient of the scholarship, has a vision for a future Sydney comprising central living districts interconnected by an efficient transport system. The combined Bachelor of Engineering Honours and Bachelor of Commerce student says these central living districts would include essential infrastructure such as healthcare, education and entertainment services.

"Now is the time to create a vibrant, affordable, sustainable and desirable place to live," says Hanrahan.

Caitlin Hanrahan has seen her city planning ideas recognised with a scholarship.

A TRUST FOR BUILDING THE FUTURE

The early 20th century was another time of great change, and one of the innovators was Henry Halloran. Henry introduced new concepts of town planning in the many settlements he established as part of his contribution to nation building. The Henry Halloran Trust was created through a gift from Henry's son, Warren, and supports research to drive better outcomes in town planning, urban development and land management.



As a global food crisis looms, the race is on to find solutions and increase production.

Making the next meal

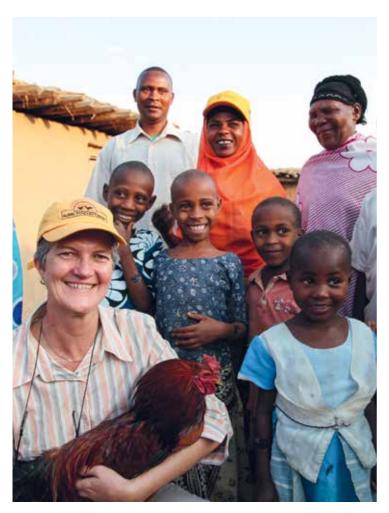
Written by Gillian Crowhurst Photography by Louise Cooper

By 2050, global demand for food is expected to increase by more than 60 percent, with some experts saying this figure will be even greater. Yet world crop yields are not growing fast enough to meet the demand.

This places huge pressure on the food sector to find new ways to produce more food, safely and viably. Across the University of Sydney, people with expertise and ideas are working to address what could be one of the greatest challenges of the 21st century. A particular focus of this activity is the School of Life Sciences and two faculties, Agriculture and Environment, and Veterinary Science.

With a record number of students being offered a place within the school in 2016, and with the appointment of Professor Robyn McConchie, the University's first woman professor in the Faculty of Agriculture and the Environment, there is strong recognition of the importance of this work and, equally, the role of women in it.





▲ Professor Robyn Alders (front left) has helped small African communities with the health of their precious poultry stock. Photo supplied.

"Women play a key role in improving livelihoods, health and education, particularly in the developing world," Professor McConchie says. "For example, women are responsible for 70 percent of the productivity in African countries, in addition to looking after the home and family. Targeting women in agricultural and capacity-building projects has a huge multiplier effect."

Professor McConchie introduced the new Bachelor of Food and Agribusiness to the faculty in 2014, a combined degree that focuses on both the science and business of food production and supply. It includes a 12-week compulsory industry internship to ensure students are work-ready upon graduation.

Holding a Bachelor of Science (Plant Science), a Master of Arts in education and a PhD, Professor McConchie has for 20 years been teaching and researching in the area of how to extend the usability of perishable crops and grains, after harvest.

"One of my fortes is engagement with industry. I saw an opportunity to grow that through developing a Fresh Produce Safety Centre. It's funded by industry, but it's affiliated with the University," says Professor McConchie.

The Fresh Produce Safety Centre is supported by everyone from producers to food retailers such as Harris

Farm, Coles and Woolworths, as it focuses on research into practical solutions for industry to minimise food-borne illness in products that are eaten raw, such as salads.

PhD candidate Reetica Rekhy is working with Professor McConchie, but she has a different focus. She's investigating novel strategies to increase the consumption of fruits and vegetables in Australia. She has published two papers and is finalising her thesis.

Rekhy has undertaken her PhD after 20 years' experience in the food industry. "Agriculture and agribusiness are key components of the Australian economy," she says. "Women have a lot to contribute and we need to attract more women into this line of work."

Fourth-year Agriculture student Stephanie Tabone agrees. "It's incredibly important for women involved in the industry to be able to voice their opinions," she says.

Close to finishing her Bachelor of Science in Agriculture, Tabone is looking forward to seeing the results of her honours research project, which she hopes will apply in a practical way to the challenge of global food security. "This project can provide plant breeders with the basis of improving aspects of crop growth, such as water-use efficiency, harvest index and crop yield," she says.

For her part, Professor McConchie's world view has been shaped by years of experience in developing countries, including more than three years in post-harvest management of maize, rice and legumes in Africa, funded by the Australia Awards Program through the Department of Foreign Affairs and Trade.

As Professor McConchie works on improving the output and quality of crops, Associate Professor Robyn Alders AO (BSc (Vet) '83 BVSc '84 DipVetClinStud '86), of the Faculty of Veterinary Science, has been working closely with smallholder farmers in Africa and Asia for the past two decades. As a veterinarian and researcher, she is developing a sustainable vaccination program against Newcastle disease in village chickens.

Newcastle disease is highly contagious and deadly for domestic fowl. There is no cure, but Professor Alders' vaccination program is improving the health of village chickens and saving small farmers in many countries from devastating loss through the disease. Professor Alders is now based in Tanzania and Zambia where she is evaluating the impact of improved family poultry and crop production on the health of mothers and children.

She says the key to the best outcomes in food security and nutrition in developing countries is an interdisciplinary approach. She also attests to the important role women play in food production globally, including in low-income countries.

"Involving women in all aspects of agriculture, food and nutrition security and sustainable development, from farming to policymaking, is the smart and sensible thing to do, as is involving people from different farming traditions," Professor Alders says. "With the multiple challenges our world faces, enabling diversity of gender and culture, in addition to diversity of disciplines, will facilitate the leaps



▲ Through her research project, Stephanie Tabone aims to improve global food security.



▲ Reetica Rekhy worked in the food industry for 20 years before undertaking her PhD.

in understanding and practices that are urgently required."

The benefits of Professor Alders' approach are easy to assess. It has been estimated that her work coordinating projects totalling \$8 million in funding has delivered economic benefits of \$105 million, primarily for women and African households. That's a return on investment of more than 1000 percent. If the adoption rates keep increasing, the benefit is set to increase to \$480 million.

In Australia, Professor Alders' domestic research portfolio aims to improve farm gate prices for farmers, while increasing access to high-quality food for vulnerable people and households.

"Current food systems in Australia have contributed to 60 percent of our populations being overweight or obese, while these same people simultaneously suffer from micronutrient deficiencies," Professor Alders says.

This issue of access to safe and nutritious food is attracting considerable interest from large agribusiness companies and global humanitarian agencies. It's also opening up diverse avenues of employment for graduates in agriculture and the animal and veterinary biosciences. These graduates are finding careers as agronomists, livestock production specialists, farm managers, researchers and irrigation specialists, in areas including biosecurity, biotechnology, commodity trading and crop production and protection.

"Our graduates are addressing the key challenges of our planet," Professor McConchie says. "Feeding the world, sustainability, healthy food and wellbeing — our students can make a big difference and positively contribute real and innovative solutions."

Image page 25: Professor Robyn McConchie at green-grocery chain Harris Farm, one of the active partners in her food research program.

FUTURE FOOD

The University of Sydney is planting itself in the future of food production with a number of partnerships and initiatives. Here are just two.

FACING CLIMATE CHANGE

Abundant Produce, a company that breeds hybrid vegetables with better yield, disease resistance, temperature tolerance and taste, undertakes its research at the University. Working on the project on behalf of the University is Dr Nabil Ahmad (PhD (Agriculture) '05), who is Abundant's chief breeder. In 2016, Abundant Produce's share price soared by 350 percent.

KNOWLEDGE SHARING

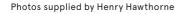
Australia and Israel face many similar challenges in food production, so it makes sense for the two nations to work together. In April 2016 the University of Sydney and the Agricultural Research Organisation of Israel signed a memorandum of understanding in front of NSW Premier Mike Baird and the Chancellor of the University of Sydney, Belinda Hutchinson, which will see the two institutions innovating and teaching together in the areas of dairy, poultry and aquaculture.

Learn more about Professor Alder's research area at:

- sydney.edu.au/vetscience/research/Nkuku4U/
- sydney.edu.au/perkins/research/current-research/ healthy-food-systems.shtml

HENRY HAWTHORNE

Henry Hawthorne (BA (Hons) '09 LLB (Hons) '11) briefly worked as a corporate lawyer after leaving the University of Sydney, but quickly changed career paths. He completed a Master of English Language at the University of Oxford, leading him to his current position as a lexicographer at the Oxford English Dictionary. He credits finding his path to the many weird and wonderful ideas he was exposed to at Sydney.





MY FAVOURITE

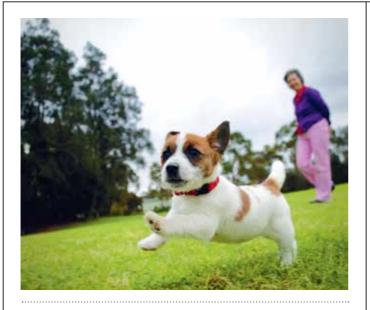
01. FAVOURITE WORD? 'SILHOUETTE'

Not only do you pronounce just half the letters of 'silhouette' (truly a word for the lazy), it also has a cool etymology. In an attempt to resurrect the ailing French economy in the 18th century, Etienne de Silhouette imposed taxes on the rich and the church. He was duly sacked and associated with 'cheapness', with his name soon used to describe portraits done as outlines instead of proper paintings. I hope I've shown that the phrase 'cool etymology' isn't always an oxymoron. I took this photo last year during the solar eclipse, among the spires of Oxford.



02. OTTOLENGHI RECIPES

Sure, most of acclaimed Israeli-British chef Yotam Ottolenghi's recipes are just different permutations of five ingredients (chilli, lemon, garlic, aubergine, pomegranate), but they're delicious all the same. At the time of writing I'm about to go to one of Ottolenghi's London restaurants, where I'm sure to discover just how wrong I've been getting it at home.



03. COCO

There's not much to say about this except that she is our new Jack Russell Terrier puppy and she beams healing light into the world of anyone who meets her. I encourage you all to get a Coco in your life.

04. FLYING TO EXOTIC LOCATIONS

A major consolation of living in darkest, greyest London as opposed to lovely, sunny Sydney is the existence of RyanAir and EasyJet. Over the last four years I've been on micro-jaunts to many of Europe's highlights (and, frankly, some of its lowlights). I took this photo of a bee flying to its own exotic location in sunflower fields outside Geneva.



05. (BIRD) PHOTOS

I like taking photos of basically anything (see www.henryfrankhawthorne.com) but particularly birds. The beating wings demand high shutter speeds, the speed of flight thwarts easy focus, and their far-from-unflappable nature requires ninja stalking skills. I took this while walking along a canal at dusk in Cambridge.



06. HIKING

There's no surer sign of my passing into middle age than my recent obsession with hiking. When I was in my early 20s I at least used to run long distances – now I just amble, with camera, hiking poles and hydration equipment in hand. I snapped this in the mountains around Berchtesgaden, Germany. Nothing gives you a sense of perspective like standing in the shadow of ancient, monolithic mountains.

A landmark project involving maternal and infant health is lending a whole new meaning to 'early intervention'.

Baby steps

Written by Melissa Sweet
Photography by Matthew Vasilescu and Victoria Baldwin (BA '14)

Dr Adrienne Gordon (MPH(Hons) '05 PhD '12) clearly remembers getting her start as a neonatologist in a Glasgow hospital. "That first day, I had to fight past about 20 very pregnant women, standing at the front door in the freezing cold, all of them smoking."

It was the 1990s and poverty was part of the Glasgow landscape, which was good for a neonatologist in training. "A lot was going on there medically," says Dr Gordon in her bright, Edinburgh accent.

"The stories behind who ended up with babies in intensive

care were often complicated by social disadvantage," she says.

The Glasgow experience shaped Dr Gordon's career and world view. Today, she is a recognised authority on risk and prevention of stillbirth and improving perinatal outcomes. She is a senior lecturer in obstetrics, gynaecology and neonatology at the University of Sydney's Central Clinical School as well as an NHMRC Early Career Fellow at the University's Charles Perkins Centre, which is dedicated to stemming the global epidemics of modern lifestyle diseases such as obesity, diabetes, and cardiovascular disease.





◀ Tendencies to some health outcomes can be set before birth. Dr Adrienne Gordon (left) works to understand how to make these outcomes positive.

A key focus is the BABY1000 project. The project aims to track the progress of babies for 1000 days. Significantly, the tracking starts prior to conception.

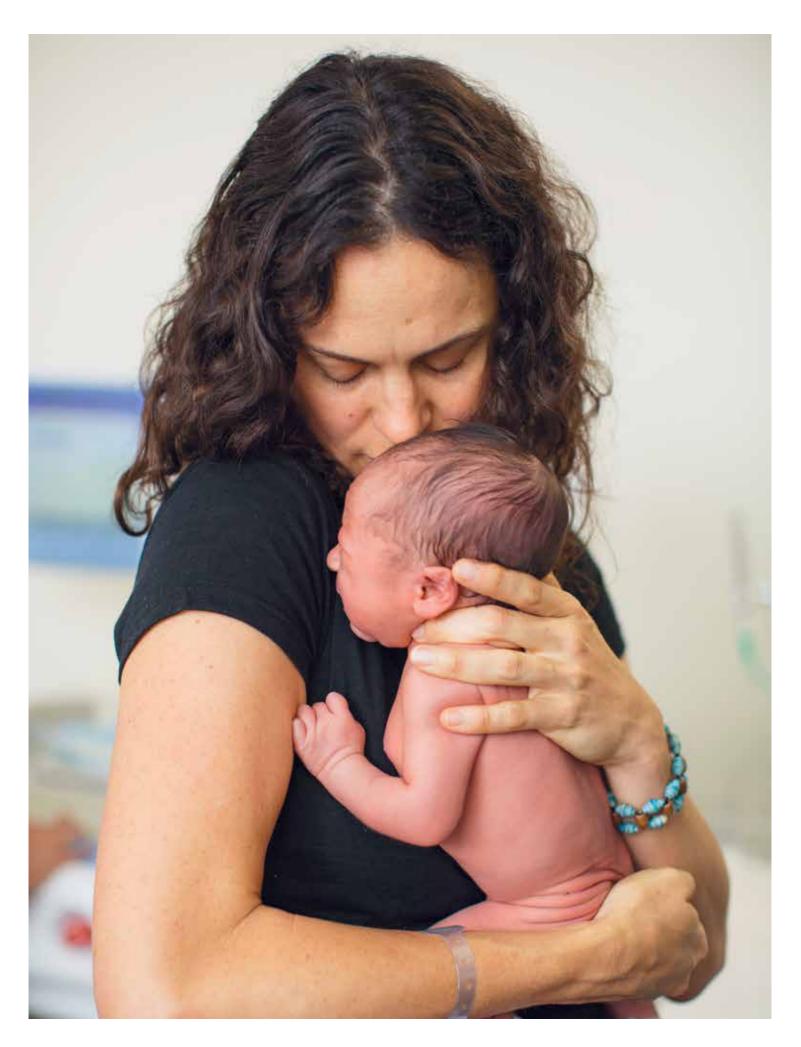
"There are many studies around the world looking at babies at birth or a few weeks after, then following them through life," Dr Gordon says, "but there are virtually none that start before pregnancy."

New technologies are showing that the way people respond to health risk factors during their lifetimes can be set prior to conception. Things like undernutrition or over-

nutrition in pregnancy, maternal diabetes, maternal stress and anxiety affect how DNA functions. The result can be a child pre-programmed to respond in a certain way.

These effects have already been observed in communities around the world. In Ghana, for example, it has been shown that women who conceive during the wet season have children who live longer and are healthier than those conceived in the dry season, most likely because in the wet season people eat more green, leafy vegetables.

Similarly, around the end of the Second World War, in



the occupied Netherlands, food was scarce and severely rationed. Depending on when during her pregnancy a woman was malnourished, her child would have a different tendency towards cardiovascular disease and obesity.

The BABY1000 project aims to measure such effects in a clinical setting. The ultimate goal is to assess the modifiable risks and interventions for pregnant women and those considering pregnancy, to ensure the best lifelong health outcomes for their babies. It's about starting preventative medicine extra early.

This ambitious, cross-disciplinary project involves collaboration across various University sites and faculties,

and other external stakeholders. The project also includes data linkage research and in keeping with its emphasis on translating knowledge into practice and policy, it will test interventions through randomised controlled trials.

"The Charles Perkins Centre really wanted to have a flagship longitudinal study that could answer novel questions as well as harness all the scientific infrastructure and people who are at the University," Dr Gordon says. "But also have a public health and clinical outlook and affect real health outcomes."

In many ways, the BABY1000 project combines Dr Gordon's passion for research-informed practice as well as practice-informed research.

The challenge is connecting with women who are still only thinking about getting pregnant. To do that, Dr Gordon and her colleagues have set up a clinical service centre where, in a single visit, prospective mothers see multiple specialists including a dietitian, midwife, and obstetrician. The big hook is that this one-stop shop is free.

"The idea is that if we build it, they will come," says Dr Gordon. "This will allow us not only to offer a clinical service but a point of recruitment for the BABY1000 project. We plan initially to invite those who attend the service to be involved. Then, when we have enough funding, we'll advertise really widely using social media for the main project to make sure we're not excluding any part of the population."

The target is to track 10,000 babies across four Sydney hospitals: Royal Prince Alfred, Westmead, Nepean, and Royal North Shore, where there are a total of 20,000 births annually. This will tap into parental experiences across ethnicities, regions and socioeconomic groups.

■ The Baby1000 project aims to give every child the potential for a healthy life.

Researchers have raised enough money for a pilot study later this year focused on a set of key research questions. The questions have been developed with input from 70 researchers, clinicians, community and health service providers.

The questions include whether a mother's pre-conception weight loss can improve her baby's outcomes, what aspects of socio-economic disadvantage can be mitigated with information or guidance, and how receptive pregnant mothers are to health messages coming through social media.

This last point relates to another of Dr Gordon's projects. She has been collaborating with a charity in the United

Kingdom in designing a mobile app called Baby Buddy. "It's about giving women easy access to information that can help them understand risks. It also embeds with the UK healthcare system," says Dr Gordon. "We're now looking at creating an Australian version."

Early evidence suggests the app is reaching people who don't want to engage with the healthcare system. It also appears to increase breastfeeding rates and antenatal visits.

In an ideal world, Dr Gordon would like to see greater community education about pre-conception health and for that education to begin in high school. "Many people do more to plan their holiday than to plan a baby," she says.

Starting her research career with a focus on preventing stillbirths, Dr Gordon quickly came to see the importance of public health approaches in creating healthy parents and pregnancies, which leads to more happy and healthy babies.

"You do make a difference as a doctor. And by doing public health research, you have the ability to make a difference on a much bigger scale," she says.

Follow Dr Gordon on Twitter at @AdrienneOz and read more here: sydney.edu.au/lifespan-research-network/research/baby-1000.php sydney.edu.au/perkins/research/current-research/baby1000.shtml



▲ The Bod Pod measures body fat through air displacement. A smaller version is used for babies.

HOW TO GET INVOLVED

You can help the BABY1000 project as it works to improve health outcomes for babies and communities. If you'd like to offer support or learn more, contact Toni Jones on +61 2 8627 4671 or email toni.jones@sydney.edu.au

THINGS YOU LEARN HERE

THE UNIVERSITY EXPERIENCE IS
ABOUT MUCH MORE THAN LECTURES
AND EXAMS. WE SPOKE TO FOUR
PROMINENT ALUMNI ABOUT WHAT THEY
LEARNED BEYOND THEIR STUDIES AT
THE UNIVERSITY OF SYDNEY, AND THE
OPPORTUNITIES AND EXPERIENCES THEY
FOUND HERE THAT TRANSFORMED THEM.

Photography supplied





◀ At the University (above), Michael Kirby was busy with study and involvement in student organisations.

THE HON. MICHAEL KIRBY (BA'59 LLB'62 BEc'66 LLM'67)

The Hon. Michael Kirby AC CMG, is an international jurist, educator and former judge, and a widely recognised and admired Australian. He kept busy during his University years by earning a Bachelor of Arts (1959), Bachelor of Laws (1962), Bachelor of Economics (1965) and Master of Laws (1967). The University was where he could more fully be the person he wanted to be.

At school I had learned of the contributions of a Sydney alumnus, Dr HV Evatt (BA '15 MA '17 LLB '18 LLD '24 DLitt '44 DSc '52 DSc (Honoris Causa) '52) who was both on the High Court of Australia and one of the founders of the United Nations and the Universal Declaration of Human Rights. It seemed unattainable, but I dreamt of following in his footsteps and contributing to a better, kinder and safer world.

I did very well in the school leaving certificate 1955, so going to university was a no-brainer. At the time, there was only one university in Sydney. So there I enrolled. I knew I wanted to be a lawyer.

I learned to stretch my mind, even in the law which, at the time, was pretty formalistic. Professor Julius Stone challenged the orthodox view that law was values free. I also learned to become a 'joiner'. I joined the SU Law Society and became its first student president. I then became President of the Students' Representative Council (twice) and of the SU Union. I was also elected Student Senator.

The biggest challenge to me was the pressure imposed at the time to be silent and to deny my sexuality. I had a lonely personal life. I hid my loneliness in chairing thousands of student committees. I became the king of committees. But there was a big hole in my life. At the end of my student years I proudly brought my newfound partner, Johan, to the SRC where I was reporting on SU Senate business. "This is a bit childish at age 28," he says, with typical Netherlands directness. Suddenly I had to wake up and become an adult.

Learning from my life, I would tell my younger self to drink deep on the love of parents and siblings. And never to give up in the search for love. Finding my partner Johan in 1969 was a kind of miracle. Sustaining our relationship for 47 years is the most important thing I have done.

► Anne Summers (second from right) wrote a landmark book and become a leading voice of the women's movement.



Dr Anne Summers AO is a best-selling author, journalist and leading thinker with a long career in politics, the media, business and the non-government sector in Australia and internationally. She has been particularly instrumental in developing policies that improve opportunities for women. Doing her PhD at the University introduced her to a community of people and a way of thinking that changed the purpose and direction of her life.

I left school the second I turned 16, and I started doing the work girls were supposed to do back then: first a bank, then a shoe shop, and office work. Next I worked in an antiquarian bookshop. That was a turning point for me because I spent all day reading and in many ways, that was the beginning of my education.

Later, I had a job at the library at the University of Adelaide. I used to look out the window and see the students, and that's when I decided that I wanted to become one of them. I got my first degree in Adelaide then moved to Sydney.

Some friends in the Department of Government and International Relations at the University of Sydney persuaded me it would be a good place for me to do my PhD. I studied under Professor Henry Mayer (MA '84), and he became one of the most important people in my life.

We didn't use the word 'mentor' back then, but he encouraged me to see what was happening in the women's movement as something worthy of serious study. He'd read the drafts of the book I was writing and we'd argue about those issues. The





great gift he gave me was the gift of rigour.

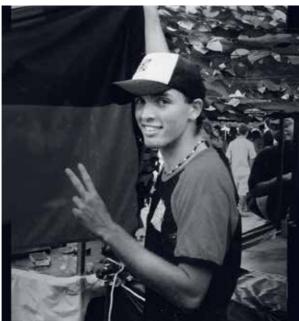
It was such a formative part of my intellectual development and I will forever associate the University with that.

The book turned out to be the groundbreaking, Damned Whores and God's Police. As I wrote it, I was also trying to balance my academic life with my activist life. I was very active in the women's movement, which was young and new at that time.

If I had a dream, it was to be a writer, which I've actually managed to do throughout my life. I believe that we should know more about ourselves and our society. That's one reason I write.

If I met that younger self somehow, I'd say to her: Like yourself more, aim high, and never give up.





▲ As a teenager, Jack Manning Bancroft already knew he wanted to do something that mattered.

JACK MANNING BANCROFT (BA(Media and Comm) '07)

Jack Manning Bancroft entered the University on a leadership scholarship. As he studied media and communications, he had a growing determination to do something that would make a real difference. His ambition grew into the Australian Indigenous Mentoring Experience (AIME), which has now helped hundreds of disadvantaged kids finish school and go on to university. While studying, Jack was energised and inspired by the huge variety of people in the University community.

There is always a moment that changes everything. Mine was sitting at a scholarship interview to head to Sydney Uni and being asked why I should get the scholarship. I responded by saying "if you give it to me I'm going to want to put something back and if I do anything in my life I'm gonna do something big". I got the gig. Now I had to think of something big to do.

The early theory was: I'd play cricket for Australia then do some sports journalism. The cricket dream fell by the wayside and in its place came something that's probably better for everyone. That idea was AIME — an educational mentoring program that has since changed the lives of thousands of Aboriginal and Torres Strait Islander kids and given a generation of uni students across the nation the chance to lead us all to a better tomorrow.

My time at Sydney was the perfect melting pot to chase greatness. It was because I was exposed to so many different people. From the super privileged to the poorest families and everyone in between. At Manning Bar I sat with future athletes, doctors, scientists, revolutionaries, film makers, musicians — when I spoke to them I felt I was looking at a mirror asking who I was going to be.

As the years went by, I learned some of my most important lessons, which incidentally were not in the classroom. I learned who I was. I learned how to take people for who they are and where they could go, as opposed to judging them on where they had come from. In the romantic main Quadrangle I learned to stand up for justice and I learned I could be a leader of men and women.

SAMAH HADID (BEcSocSc '10)

Samah Hadid consistently appears in lists of emerging leaders and change-makers. As an international human rights and social justice advocate, she is a respected adviser to governments and leading international organisations. She has had key roles with Oxfam, the Global Poverty Project and the United Nations, and she's about to become Deputy Director for the Middle East with Amnesty International. The passion of her University peers gave her a new world view.

At the time I came to Sydney, I was veiled and publicly Muslim. Living in the post-September 11 context meant that I had experienced both verbal harassment and discrimination, and it opened my eyes to the need to really strengthen human rights for the most vulnerable in our society.

Coming from Western Sydney, I wasn't always exposed to a diversity of Australians from all around the country. Being at the University broadened my understanding of different cultures in Australia and the different experiences of young people.

The best memory for me was the rigorous nature of the debate, the discussions, the critical analysis that came with studying political economy and political science. It was really refreshing and challenging for me on an academic level. There was also the social and political organising that comes with being a University of Sydney student.

What is really motivating is the support you get from your peers, the energy that comes from it, and also the spirit of the student body.

Graduating felt like a huge accomplishment. I was the first child in my family to graduate, so it was sweeter for me. It was a proud moment for my parents as well. Graduating from Sydney made it even better, because it's such a prestigious institution.

Sydney is where I learned that it's really important to have an open mind. Having those rigorous discussions in class allowed me to do that. They taught me that we need to ground our opinions in evidence and analysis, and have a deep understanding about a lot of the contentious issues our society faces.

If I could talk to my younger self now, I'd tell her not be afraid to stand out, and to take the unconventional pathway, even though it's not laid out clearly before you. It's OK to take risks and it's OK to fail as well. You will learn a lot along the way.





▲ As a veiled, Muslim teenager, Samah Hadid became aware of how vulnerable minorities can be.

Find out more at sydney.edu.au/thingsyoulearn



Shelter makes life easier. And working to create shelters for Indonesian street vendors gave students a creative challenge.

When east meets west

Written by Rachel Fergus
Photography by Fauzan Alfi Agirachman and Stefanie Zingsheim

Informal street vendors are vital to the economy of Bandung, Indonesia's third largest city, selling affordable food and other goods and creating valuable employment.

But by setting up on footpaths, the vendors also cause significant congestion, and the stalls are often unattractive and hard to move. This makes the vendors a contentious issue for the local council that has made many attempts to regulate them.

Having spent most of his adult life in Bandung, renowned Indonesian architect Dr Rizal Muslimin saw an opportunity. "Some of the vendors' stalls don't follow the regulations, and the way of getting rid of them can lead to tragedies. I tried to come to this as an academic, with no political motivation."

When he joined the University of Sydney as a lecturer, Dr Muslimin knew he wanted to establish an international exchange of students. Working together, they'd create a practical shelter for street vendors, something that could possibly improve the lives of thousands, and the culture of a city.

"I had two goals," Dr Muslimin says. "I wanted to

introduce students to the problems facing informal street economies in developing cities, and teach ways to apply deployable design as part of the solution."

The exchange began in January this year, with support from the Department of Foreign Affairs and Trade's Australian-Indonesian Institute and the Consulate General of the Republic of Indonesia. Eight students and two professors from Dr Muslimin's former place of study and work, the Institut Teknologi Bandung (ITB), arrived in Australia to work with six University of Sydney students.

One week would be spent in Sydney designing the structures, the second in Indonesia working with the vendors to refine and construct them.

Laras Winarso, a fourth-year architecture student at ITB, was excited. "Coming from Bandung, the idea of making the street vendors look a little different in a pretty way made me interested, since it's usually not a pretty sight to see," she says.

Divided into mixed teams, the students were tasked with

designing new shelters using affordable materials that could be widely accessed in Indonesia.

"I think our differences were very useful to the process," says Matthew Hunter (BDesArch '15), who is currently in his final year of a Master of Architecture at the University of Sydney. "We had no idea about the requirements of the street vendors, and the ITB students were able to guide us.

"Perhaps some of our naivety helped the ITB students question their own preconceptions of how a vendor's shelter should operate, and this really helped take the design to the next level," he says.

Winarso agrees. "Each student had different skills. I did notice that we had different ways of solving problems; however, in the end, everyone was able to work together."

Dr Muslimin introduced the students to computational, parametric design which enabled them to quickly build, test and analyse their designs in a computer first — and save time by pursuing only those they could demonstrate would work.

"Architects need to fail, to test and come up with the best idea," Dr Muslimin says.

The University of Sydney's Faculty of Architecture, Design and Planning also houses a world-class Design Modelling and Fabrication Lab, including a Digital Fabrication Lab complete with 3D printers and laser cutters.

"We were able to make a prototype for our ideas and actually build them on site to see how they would be used in real life," Winarso explains.

Winarso and Hunter worked in the same team, designing a beautiful umbrella-like shelter described by Dr Muslimin as a "deployable structure pushed to the limit".

"The design evolved as we examined the material properties of bamboo and worked through different iterations and configurations of joints," Hunter explains.

According to Dr Muslimin, the team harnessed the potential of bamboo in an unprecedented way, with computer simulations testing and verifying their decisions through the process.

Hunter compares the structure to a "blossoming flower" or "bunga" in Indonesian, appropriate given Bandung is also nicknamed "kota kembang", the "flower city". It can attach to a pole or a street lamp, and easily folds away when not in use.

Once in Bandung, the students scoured the city for spaces dedicated to pedestrians, where they could set up their structures. Conveniently, one such location was directly opposite ITB's campus. Eager to obtain the support of the vendors, students and professors at ITB negotiated

with the local leader of the vendors for permission and for help to install the shelters.

Hunter says: "I think the vendors were a bit confused at first, but after they saw our designs they were very welcoming. They had some very valid comments and pointed out some obvious design flaws, but overall seemed truly touched that we as designers were trying to improve their day-to-day life. It was an unreal feeling seeing the structure go up, and a huge relief to see it still standing the next morning."

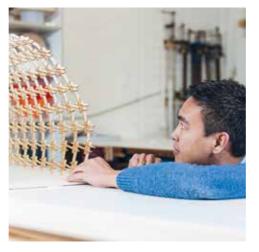
In fact, two structures remain in place. The third, says Dr Muslimin, was "so portable it's gone – whoosh!"

For the students, the exchange was a genuinely inspiring experience. For Dr Muslimin himself, the results were beyond expectations.

"This was about students having the real-life experience of building in a real context, and talking to the vendors, their clients, about what they want. We can't teach that — you have to be immersed in it. Next time the students are in a similar position they'll be wiser," he says.

The experience has also informed Dr Muslimin's design philosophy. "It's a big question for me. What does it mean for a foreigner to come to our country and bring their ideas to our way of life?" he asks.

"I think it offers a new way of seeing things. Some people have tunnel vision, and sometimes we need assistance from others who have never been in that tunnel."



▲ Dr Rizal Muslimin looks at new ways to create usable, portable structures.



The team designed a "deployable structure pushed to the limit".





▲ (Top) The project gave Matthew Hunter a greater understanding of the materials used, and new insights into problem solving.

▲ The shelters were erected in a Bandung market and used by street vendors.

Photos on this page taken by Fauzan Alfi Agirachman

 ${\bf Image~page~38:} \ Professor~Rizal~Muslimin~likes~to~challenge~his~students~through~real-world~experiences.$

BOOKS THAT CHANGED MY MIND

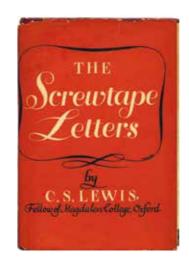
TWO MEMBERS OF THE UNIVERSITY COMMUNITY REVEAL THE BOOKS THAT CHANGED HOW THEY SAW THE WORLD.

ETHAN BUTSON

He's still studying advanced science, but Ethan Butson has runs on the board as a researcher and inventor, including systems for the management of vision impairment and the side effects of radiotherapy. His work has won awards, but his key motivation is always to help people.



CS Lewis, 1942





The Screwtape Letters is one of those books that seems to be so realistic that it should not be considered fiction. It is a series of letters from Screwtape, a "senior tempter" to his nephew Wormwood. Wormwood is assigned to a newly fledged Christian, known only as "the patient", to tempt the patient away from God, and to deliver him to "Our Father Below"... I forgot to mention that both Wormwood and Screwtape are demons.

The letters from Uncle Screwtape, also known by his title "His Abysmal Sublimity Under-Secretary Screwtape", are regarding his nephew's most recent exploits in the manipulation of the patient's mindset. He offers advice on how Wormwood might improve his methods. Screwtape's understanding of the human mentality is unerringly accurate, and manages to point out numerous problems that I myself have experienced, as well as divulging the reasons behind their use. As Screwtape says: "It is funny how mortals always picture us as putting things into their minds: in reality our best work is done by keeping things out." With many such

insights, I have used this book as much as a "self-help" guide, as for pleasure, if not more so.

It would seem that Lewis's main aim with this book was to expose the human mentality and express the supernatural realm through an analysis of his own internal person. Many of Screwtape's responses are quite chilling, and should act as cautionary advice to readers as they contemplate aspects of their own lives.

More importantly, Wormwood's continued failures with the patient and the perseverance of the patient himself lead to the patient's complete salvation, making him untouchable by any of the characters. This is the peak of attainment within Christianity: the overriding love of God that will overcome all temptations.

BETH YAHP

Beth Yahp isn't just a reader, she's a writer and a teacher of writing. She's currently a lecturer in the University's Master of Creative Writing Program, but across 25 years she has published fiction and non-fiction that has been translated into a number of languages, and written a libretto for an APRA award-winning classical composition.

THE WOMAN WARRIOR

Maxine Hong Kingston

"You must not tell anyone what I am about to tell you," the mother insists in Maxine Hong Kingston's *The Woman Warrior*. In Malaysia, as a 16-year-old avid reader with secret aspirations to become a writer, these words were familiar enough. They echoed widely held beliefs in my family and in our country that speaking about 'sensitive issues'— such as race—based inequalities—could land you in jail, indefinitely, without a trial.

I first came across these words in a Kuala Lumpur bookshop that I haunted as a schoolgirl in the late 1970s and early '80s. I'd never heard of Maxine Hong Kingston, a Chinese-American author, but her "memoir of a girlhood amongst ghosts" seemed to match mine so completely that it changed not only my mind but opened up the world – immediately, irrevocably.

This book, with its vengeful ghosts, sword-wielding woman warriors (my childhood dream), and weary fathers and mothers working punishing hours to feed ungrateful children (my childhood

reality), reflected a world very different to the one I'd believed could be written in English.

It's embarrassing now, but back then I didn't think heroes and heroines in the English language could look like me or bring to life the stories around me.

In the Woman Warrior's world and mine, children translated their parents' 'broken English' and eavesdropped on forbidden talk-story sessions. But in Kingston's world this forbidden talk could be written, captured courageously and beautifully, on the page. A no-name aunt, erased from the family history, could be given a story. A writer could "tell" and "not tell" simultaneously. In Malaysia, this still seems necessary.

"I learned to make my mind large, as the universe is large, so that there is room for paradoxes," the mother explains in *The Woman Warrior*, and I understood.

I knew what I had to do.





As one of Indonesia's best known TV journalists, Marissa Anita works where freedom of the press is still a relatively new concept.

Voice of the people

Written by George Dodd
Photographs supplied by Marissa Anita

It's not often that Marissa Anita (MMediaPrac '07) can walk around in public without people wanting to say hello or have their photograph taken with her. As one of Jakarta's best-known TV journalists and presenters, recognition comes with the territory, especially since Jakarta's population is almost twice that of Sydney.

Today is different though. Anita is sitting relaxed and unrecognised in a café in Sydney's Newtown, thinking about how much has changed for her in the nine years since she graduated from the University of Sydney. While visiting her alma mater, Anita has engaged with the current crop of students, including talking with students attending a field school on women's empowerment organised by the Sydney Southeast Asia Centre.

As she tells her career story, she moves easily from thoughtfulness to bright laughter and even comedy voices. Anita isn't quite as conventional as her TV publicity shots might suggest.

"When I started studying, I thought I wanted to go into print journalism," she says. "But Sydney taught me about all kinds of media and, going back to Jakarta, my first job offer came from TV, so that's how it started for me."

That offer came barely two months after graduation from Metro TV, Indonesia's first 24-hour news channel. Her new employers made very little allowance for Anita's new-graduate status. "I remember when they wanted me to do a live report from the anti-graft commission," she says. "There was no training, it was go — do a live report now! Sink or swim. Metro TV was like my second school after Sydney."

Through long years as a field reporter putting in gruelling hours, Anita has risen to a place where she is a key member of the Indonesia Morning Show news team on the highly regarded NET TV network. She also has her own interview show, 1 Indonesia, where she talks to Indonesia's most successful people from the arts, sport and politics, including powerful senior figures such as former President B J Habibie



▲ Anita interviews former President, B J Habibie (right), on her show, 1 Indonesia.

and current President Joko Widodo. Anita believes her access to the A-list comes from her interviewing style.

"I do ask the hard questions. I try to be the voice of the people and find clarity in the issues that they care about," she says. "But I don't go on the attack. The questions are part of a conversation where I'm exploring ideas."

That said, Anita admits there have been times when her questions about corruption and other key issues in Indonesia have caused guests to "bite back" on air. Some of this biting might come from the fact that public officials still aren't used to being held to account in Indonesia's new era of relative press freedom.

"The political scene in Indonesia is very, very interesting because we had Reformasi – or Reform – in 1998, which led to freedom of the press," she says. "The situation is definitely much better than in the time of the New Order."

The New Order was the repressive and hugely corrupt regime of President Suharto. For most of Suharto's 31-year

reign (from 1967 to 1998), there was no freedom of speech and the media was heavily censored and controlled. The regime was swept from power in 1998 by an energy largely generated by Indonesia's student population, which was hungry for democracy and freedom.

Today, the Indonesian people are still very much engaged with events in their country. Indonesians are among the world's most active Twitter users (Anita has close to 200,000 followers), and the public has used social media to engage with the news media, affecting outcomes in recent events involving religious freedom and sexual violence against women.

This is all part of the rapidly evolving media landscape where Anita works (NET TV has only been in existence since 2013). She's part of a new generation of Indonesian journalists who are learning what it means to report news and address issues in a more open environment. International observers note that freedom of the press still has a long way

to go in Indonesia, but Anita seems energised and confident about the future.

"There's a lot of mess in the Indonesian media, post reformation," she says. "But there's beauty in the mess. It's a great time to work there as a journalist."

Sitting beside Anita in the café is her husband of eight years, video maker Andrew Trigg. During their visit to Australia, they've been shooting stories together for broadcast on NET TV; the first was shot at Lakemba Mosque. But Andrew knew Anita long before she had a media career. "She came from such a sheltered family life," he says. "Now she's quite fearless. When there was a terrorist attack recently, she just jumped on her motorbike and started reporting from outside while it was still going on."

The two are in Sydney because Anita is the 2016 winner of the prestigious Elizabeth O'Neill Journalism Award. The award is given each year by the Department of Foreign Affairs and Trade (DFAT) to two high-achieving journalists: one from Indonesia and one from Australia. Part of its purpose is to give each journalist a chance to learn more about the other's country. Hosted by DFAT, Anita is travelling around Australia for two weeks, which is giving her the chance to do what she loves most.

"The great thing about journalism, that I cherish, is that I get to talk to people from different walks of life, and I love it," she says. "I love feeling that connection with people. You get to understand the layers of the human condition."



▲ Marissa Anita (left), on the set of *Indonesia Morning Show*.





▲ Anita can be anonymous in Sydney, but it's a very different story at home in Jakarta, Indonesia.





▲ Anita with her husband, video maker and theatre director Andrew Trigg.

CLASSNOTES

More stories of alumni at work around the world. We love hearing what our alumni are doing. Help us keep up by updating your details at alumni.sydney.edu.au/updatedetails

John R Hails (PhD '69) went on to become visiting professor in the Department of Geological Sciences at Cornell University in the United States then senior lecturer at the University of London before joining the UK Scientific Civil Service as Deputy Head of the Unit of Coastal Sedimentation. Natural Environment Research Council. He returned to Australia to take up the role of Foundation Director of the Graduate Centre for Environmental Studies at the University of Adelaide, before joining the corporate sector with a management role at CSR. He then established his own company, Resources Management & Technology International, and later spent three years in China training senior managers in the iron and steel Industry. Now retired, he is still actively engaged as a trustee of a scholarship fund.





Effy Alexakis (BA '80), documentary photographer, and Leonard Janiszewski (MA '87 BA '80), historian, are partners in life and work. Since the early 1980s they have documented the historical and contemporary story of Greek-Australians. Their visual, oral and literary archive is one of the country's most significant, and they have produced national and international touring exhibitions, three major books, more than 200 book chapters, articles, conference papers, and three film documentaries on their subject. Alexakis has been ranked in the top 10 portrait photographers in Australia and works as a freelance photographer. Janiszewski continues his historical research and is the curator of a university art gallery.



Karen Attar (BA '88), went on to do a PhD in Old Norse at the University of Cambridge, where she also catalogued the archive of East German dissident writer Stefan Heym. From this, she trained in librarianship at University College London. This led to employment at Senate House Library, the central library of the University of London, where she is now Curator of Rare Books and University Art, and an Associate Fellow of the Institute of English Studies. Other projects have included reconstituting the first books gifted to the University of London in 1838, and the publication of a major directory of rare books and collections from 873 locations throughout Britain. She is currently editing Senate House Library's World War Two diaries.



Amira Hashemi Master of Sustainability

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Professor Rebecca Johnson (BSc (Hons) '96) is a Wildlife Forensic Scientist, conservation geneticist and co-chief investigator of the Koala Genome Consortium, carrying out sequencing of the koala genome to aid in conservation. She has worked as a molecular geneticist in Australia and the United States, and joined the Australian Museum in 2003. She is now Director of the Museum's Research Institute, making her the first woman science director in the Australian Museum's 188-year history. Her work has helped make the museum a global leader in wildlife forensics and conservation genomics. She is passionate about education in science, technology, engineering and mathematics and frequently presents her research locally and overseas to underscore the importance of science in making a positive difference for everyone.

Raha Lewis (BA'00, LLB'03), turned her love of entertainment into a career in which she is now a digital content creator and brand strategist. She has been seen on E! News, Good Morning America, CNN and Australia's Seven Network, commenting on pop culture stories. After university, Raha spent two years as a tax consultant advising entertainment clients before moving to the United States to break into the entertainment industry. She found her calling as a multimedia journalist after a stint as an agent at Ford Models then landing at the Los Angeles Times Magazine as associate editor in music and fashion. Today Raha lives in Los Angeles and enjoys interviewing celebrities for People magazine where she also creates internationally relevant stories.

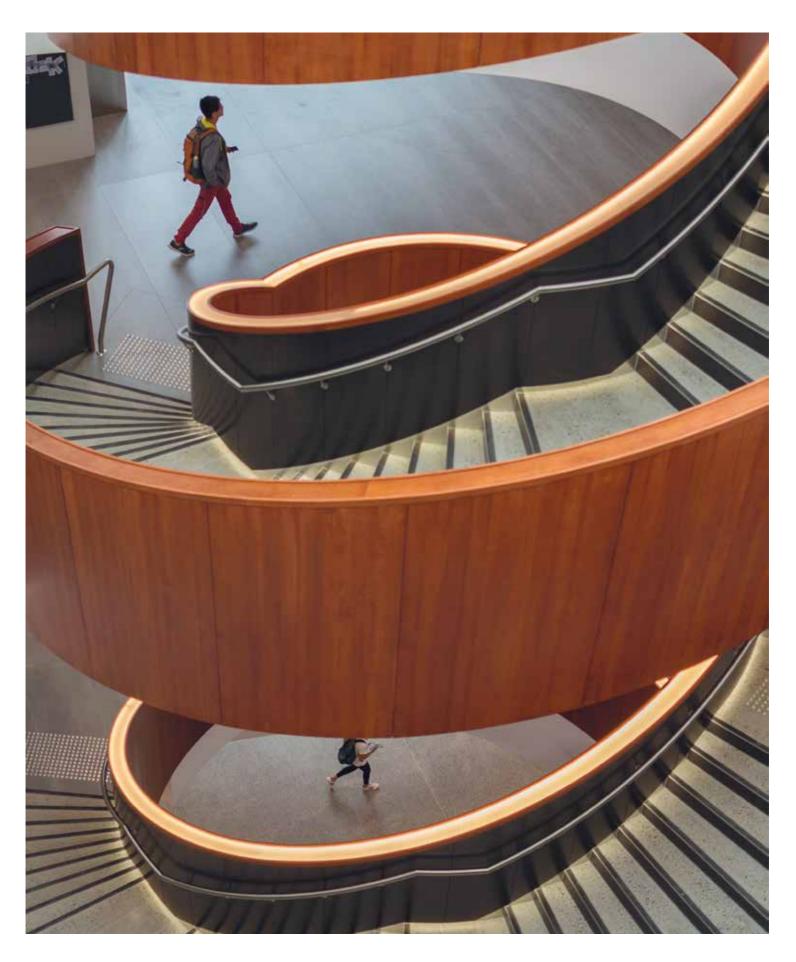
Sarah Ayoub (MMediaPrac '08), is a freelance journalist and author whose work is widely seen in publications including Marie Claire, The Guardian, Sunday Style, House & Garden, Cosmopolitan, Collective Hub, Cleo, Girlfriend and Yen. She has appeared at various writers' festivals throughout Australia and, as a Stella Prize Schools Program Ambassador (celebrating Australian women's writing), she runs writers' workshops and author events at schools. Sarah is dedicated to empowering young people to pursue their creative dreams, and advocates for diverse voices in literature for young Australians. She also lectures in journalism at Notre Dame University in Sydney. Sarah has published two novels with Harper Collins that are available in both print and e-book editions.







Yile Wang (BDesArch '07, MArch '10), is on a career path that has taken her from architecture to music. After graduation she worked with leading design firm Urbanus, in Shenzhen and Beijing, China, before becoming the International liaison manager for the Pecking Natural Science-art Organization. Yile has simultaneously pursued a music career, co-founding the Leiluo SoundArt Studio for music production while collaborating with musicians from Puerto Rico and Tanzania. She has also released three albums.









A BUILDING THAT MEANS BUSINESS

The new Abercrombie Building is 9100 square metres of eye-catching design that is the new home of the University of Sydney Business School.

Opened in July this year by
New South Wales Treasurer Gladys
Berejiklian, the building was created
to be an organic space where students
can learn, study and connect with each
other in ways that will enhance their
ability to think differently.

It's not just the building design that looks to the future. The Dean of the Business School, Professor Gregory Whitwell, has committed the school to 'business not as usual'. "That means being an educational institution which uses its teaching and research to raise questions about the roles and responsibilities, the higher purpose, of business," Professor Whitwell says.

Named after its Abercrombie Street location, the building is part of the Abercrombie Precinct Project, which is the largest construction the University has undertaken since the 1960s, with learning hubs, student accommodation and four new lecture theatres.





ASK SYDNEY

IF YOU HAVE A BURNING QUESTION, WE'LL FIND AN EXPERT AT THE UNIVERSITY WHO CAN ANSWER IT FOR YOU. NOTHING IS TOO OBSCURE. JUST SEND YOUR QUESTION TO: SAM@SYDNEY.EDU.AU

Q. With all the text message abbreviations and emojis, what will written language be like in the future?

A. Written forms of language are flexible and fast changing. Many different scripts and codes are used around the world for capturing the fleeting sounds of spoken language and rendering them into enduring form, for a range of purposes. The primary constraint on what these forms look like is that they must work.

A writing system will fail if it is unlearnable or uninterpretable. But it should also be relatively economical. Abbreviations are one of the most obvious ways for writing systems to achieve efficiency while not compromising on intelligibility. In many Arabic-based writing systems the symbols for vowel sounds are often simply left out, as words can be readily recognised without them.

In text messaging abbreviations and acronyms such as GR8 (great), LOL (laughing out loud), AFAIK (as far as I know) or FOMO (fear of missing out) are readily learned and understood, and they are obviously much simpler to key in. We can expect that abbreviations in contexts such as messaging will affect the broader conventions of written language, just as wave upon wave of innovation has constantly caused writing to evolve since its earliest origins, balancing the two forces of intelligibility and efficiency.

Professor Nick Enfield is the Chair of Linguistics at the University of Sydney. He researches language, culture and cognition to understand the foundations of human sociality.

Q. Ants are always held up as a model of social cooperation. But do ants ever argue among themselves?

A. We often use the social insects like ants, but also bees and termites, as model organisms to understand how a collective can make decisions. Such an approach is very useful and has given us many insights into how groups of organisms can work together, including humans. But do they argue? That, of course, depends on your definition of arguing. According to the *Cambridge Dictionary*, argue means "to speak angrily to someone, telling that person that you disagree with them". If you use this definition, ants do not argue among themselves.

A better question would be whether they ever disagree with each other. The answer to that is yes, they do. The point is that collectives such as insect colonies comprise individuals that are innately selfish, simply because they are always more related to themselves than they are to even their closest relative. And given that evolution through natural selection drives living things to want to increase their genetic contribution to the next generation, at some level it becomes everyone for themselves. Sound familiar? What do ants disagree about? It's often related to reproduction. So it seems we have a lot in common with the ants.

Professor Madeleine Beekman studies social insects to answer questions to do with evolution. She investigates a range of ideas, including conflict and cooperation, and decision-making in groups.

OPEN FOR DISCUSSION

You can hear more interesting questions raised and answered by University of Sydney researchers in the new podcast series, *Open for Discussion*.

sydney.edu.au/news-opinion/news/podcasts.html
 Also available on SoundCloud

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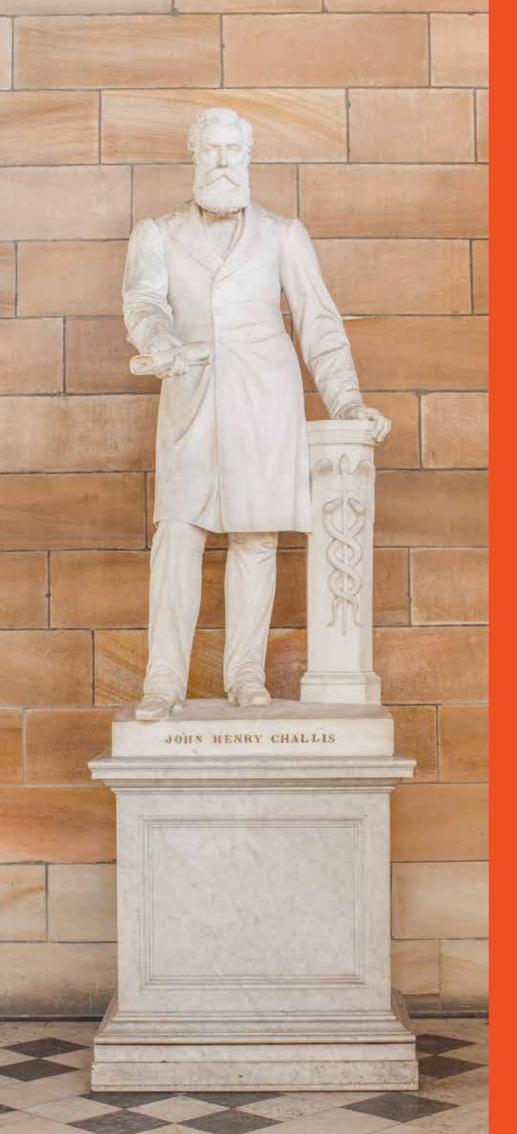
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John Henry Challis (1806 – eternity)

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