

SAM



THE UNIVERSITY OF
SYDNEY



Going with
the flow

WHY TURBULENCE MATTERS



Opening run of the Bicycle Club
outside main building, 1897.
University of Sydney Archives
G3_224_1548

CONTENTS



11
An unexpected plastic
pollution solution



18
Finding justice through
forensic psychology



21
Bringing new perspectives
to public transport

University update	Welcome	02
Newsbites	Information	03
Going with the flow – Professor Ben Thornber	Engineering	04
On the plus side – Suhanya Raffel	Community	08
Perspective shift – Associate Professor John Gilroy	Insight	14
The fight for peace – Paul Dziatkowiec	Community	15
Timelines – Jane Foss Russell	Historical profile	24
Classnotes	Community	26
Just the facts	Knowledge	28

Managing Editor: Hayley Bryce
Publishing Editor: Cassandra Hill

Advancement Portfolio
The University of Sydney
Level 2, Michael Spence
Building, NSW 2006
+61 2 9036 9222
sam@sydney.edu.au

Produced by Marketing and
Communications, the University
of Sydney. Printing managed
by Publish Partners.
Design: Fábio Dias
Cover:
Professor Ben Thornber creating
turbulence from movement.
Photo by Louise M Cooper.

Distributed to more than 130,000
members of our community.
22/8810 ISSN 1834-3929



©2022 The
University
of Sydney

SAM AS A PDF

To download complete
PDF copies of SAM
past and present,
visit sydney.edu.au/sam

Download links are on the
right side of the page.

HIGH AMBITIONS FOR THE NEXT DECADE

➤ As we move into the third year of the global pandemic, what we hoped would be a more optimistic start to 2022 has been marred by the distressing news of war in Ukraine and, closer to home, the devastating impact of flooding in New South Wales and Queensland – a sobering reminder of the manifestation of climate change and the need to do all we can to protect our environment.

It is important to remember, even in the face of such bleak news, that there is much to be grateful for, and we have been heartened to see our campuses full of life again after months of remote learning. University isn't just about what you learn in the classroom; it's about experiences, connections and friendships that can shape your life for decades to come, and we've been delighted to be able to welcome students and staff back in person.

Through the challenges of the pandemic, our researchers have continued their pursuit of excellence. Support from the Australian Research Council will fund 78 projects, including industry collaborations that will improve lives, such as our partnership with Cochlear Ltd to work on revolutionary changes in implantable bionics. We also launched the Sydney Manufacturing Hub, which will enable us to deliver cutting-edge research and development in additive manufacturing, and we're proud to be part of NSW government's \$96-million RNA pilot manufacturing facility, developing local mRNA drugs and vaccines to combat disease and save lives.

As we start work on our 2032 Strategic Plan, we're setting high ambitions for the University's next decade, with the goal of becoming one of the world's truly great universities.

This longer time horizon will enable us to be agile, and to respond to a changing landscape. We want to be known as great collaborators, strong and effective partners, powerful contributors, generous colleagues and skilled educators. We want the University to attract students of great potential, and we particularly want to be open to students who have not had the same advantages as others, and to create an environment where they will flourish.

The strategy work that we're embarking on now gives us a chance to solve real-world problems together, to identify our biggest challenges and to devise clear, coherent plans to change things, so that we become the best University we can be.

Whether it be protecting our environment for future generations, working on groundbreaking medical discoveries, or delivering a transformative education, we want to know that we are living up to our own potential and enabling our students to do the same.

Your continued support and generosity is appreciated, and we thank our alumni and supporters for completing our once-in-a-decade Census. Your participation plays an important role in shaping our future direction and we look forward to sharing the first iteration of the strategic plan with you later in 2022. ●



Students soaking up campus life during Welcome Week 2022



Belinda Hutchinson AC
(BEc '76), Chancellor

Mark Scott AO
(BA '84, DipEd '84, MA '93, HonDLitt '15)
Vice-Chancellor and President



The rancid juice is extracted before being placed in a scientific oven. Credit: Stefanie Zingsheim, University of Sydney

ENGINEERING

When life gives you oranges

While most people throw out rotten oranges, Biomedical Engineering PhD student Pooria Lesani uses them to make cancer-detecting nanobiosensors. These tiny biomedical probes can be created from food waste, such as the juice of spoiled oranges. The juice is heated with water to around 200°C, breaking down into fluorescent carbon dots which are used to build the nanobiosensors. They can detect whether human cells have become more acidic, which may indicate the early stages of cancer or other serious diseases. It's a simple, cost-effective and timely way to measure the degree of acidity in cells, years before the onset of symptoms.



HEALTH

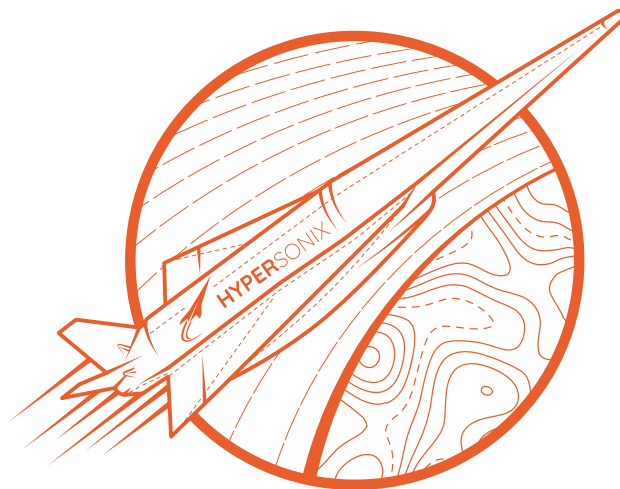
Walk this way

How we walk today can contribute to arthritis in future, according to a study by University of Sydney researchers, published in *Osteoarthritis and Cartilage*. It was found that if a person's walking style places more pressure on the hips and knees, this increases the likelihood of onset and progression of osteoarthritis. The next step for University researchers, working in collaboration with the University of British Columbia, is to screen for these 'markers' and identify ways to take the pressure off joints to catch these habits early on. They will draw on the Biomechanics Lab's 3-D motion capture technology which will enable them to examine movements in more detail.

SPACE

Not since the invention of the printing press

Who would imagine that 3D-printing could be used to build a carbon-neutral, satellite-launching 'spaceplane'? Named *Delta Velos*, the vehicle will be powered by hydrogen and include the world's first 3D-printed fixed-geometry (i.e. no moving parts) scramjet engine. Researchers at the Sydney Manufacturing Hub have teamed up with Australian aerospace engineering startup Hypersonix Launch Systems to develop and manufacture the spaceplane's key components, including its launch system,



fuselage and improved versions of its engine. They will use next-generation additive manufacturing technology to build the hypersonic spaceplane, which is capable of deploying small satellites into low-Earth orbit.

Analysing the turbulence in a gently flowing river might spoil the poetry of the moment. But if that gentle flow becomes a destructive torrent, understanding its behaviour becomes crucial. Professor Ben Thornber is working to make that complex task much easier.

Going with *the flow*

Written by George Dodd

Photography by Louise M Cooper

👉 If you'd like to earn yourself \$1 million, perhaps take a look at the Millennium Problems. Established by the Clay Mathematics Institute in Boston, the problems are seven mathematical Everests that, so far, no-one has been able to climb.

Conquer any one of them, and \$1 million is yours. But to really impress people, solve the problem relating to turbulence, which is called the Navier-Stokes Equation. In the 200 years since it was first posited, the equation has remained insurmountable.

While it can confidently predict turbulence up to a point, making it useful for designing anything from oil pipelines to cars, no-one has been able to determine an analytical solution for the Navier-Stokes Equation in turbulent flows. This is because turbulence itself, such as the flows around a car, around a plane, or inside a star, can be staggeringly complex.

For example, a gently flowing river might be almost turbulence free, but when the water encounters a bridge pylon, the result is a turbulence event across a huge range of scales from the obvious, churning waves to countless smaller turbulence points so miniscule they are measured in micrometres, all busily transferring energy between each other.

Yet for all the ubiquity of turbulence, a single model of it has been surprisingly resistant to the giants of mathematics, physics and engineering. Even the mathematics colossus Werner Heisenberg is said to have remarked that if he could ask questions of God, one would be, 'Why turbulence?'

This question takes on added urgency when you're in a passenger plane being tossed around the sky like it's made of balsa wood. On that score, allow yourself to be reassured by Professor Ben Thornber of the School of Aerospace, Mechanical and Mechatronic Engineering and the Sydney Fluid Dynamics Research Group.



“An aircraft can take a lot more of a beating than you would expect,” says Thornber, who came to Australia via Burnley, in Lancashire, UK, and various international organisations that used his skills in aerodynamics and space propulsion. “If you look at the extreme structural testing that is done to passenger plane wings, they can be bent like a bow without failing.”

As a keen jogger and cyclist, Thornber has created quite a bit of turbulence in his time, especially when you consider that a simple wave of your hand in the air generates invisible patterns of turbulence so complex that they are beyond fully describing or predicting. Even more problematic is the turbulence in rivers, weather, the ionised gases swirling through deep space and the blood surging through our bodies.

When you consider that an estimated 25 percent of the energy consumed by global industry is used to move fluids or move objects through fluids, a fuller understanding of turbulence would have profound economic benefits. It could also lead to dramatic advances in engineering, medical device design, all kinds of vehicles, weather prediction and our understanding of climate change.

But even as we constantly hear about rapid advances in technology, they're not rapid enough for turbulence researchers like Thornber.

“Even using the world's fastest supercomputers, we can only simulate the turbulence around a few centimetres of a civil aircraft wing,” says Thornber. “It will be around 2050 before we have the computing power to simulate, in full, the flow over a whole wing.”

Another example of the challenges is the turbulence generated by scramjets. Thornber was involved in what became the world's largest calculation of turbulence

relevant to these supersonic propulsion systems. It ran for the equivalent of 228 years on one computer.

Rather than wait for technology to make these calculations happen faster, Thornber and the team in the University's Fluid Dynamics Research Group have focused on developing software algorithms and models of turbulence that can allow current computers to squeeze out the sort of information that future computers should be capable of.

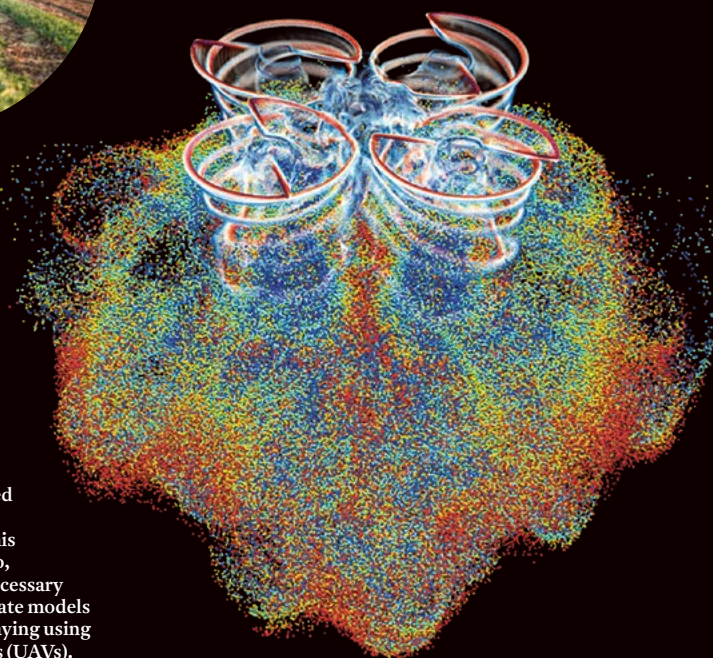
Demonstrating that idea is the backdrop image that Thornber is using as SAM talks with him online. It looks like a dramatic piece of chaotic contemporary art. It is, in fact, a rendering of the turbulence

patterns of an experimental high-speed Sikorsky helicopter and the focus of one of Thornber's projects.

“The Sikorsky X2 has two coaxial rotor blades, meaning the two blades share the same shaft but rotate in opposite directions. This makes them pretty complicated to simulate,” he says. “Standard methods might need to run on 2000 processors for few weeks to do it. We have a research program aimed at making that doable in a day on a computer that could sit under your desk.”

Thornber's team has also investigated not just one helicopter taking off or landing, but many at once. “It's about establishing if the downwash of one helicopter could be dangerous for another helicopter, so reducing the risks of shipboard or urban operations. Not so long ago, these were nearly impossible questions to answer.”

The helicopter projects started for Thornber nearly a decade ago when he was approached by the Australian Navy to



A visualisation of flow around a quadcopter, used for agricultural spraying – an area Thornber and his team recently moved into, which is providing the necessary understanding to formulate models to guide agricultural spraying using unmanned aerial vehicles (UAVs).

“AUSTRALIA IS SO WELL SET UP FOR A RENEWABLE ENERGY FUTURE. IT’S AN AREA WE HAVE TO GO INTO AND I KNOW THE TEAM HERE CAN MAKE A BIG CONTRIBUTION.”

help their pilots land and take off safely from ships and, if bad weather makes it necessary, the occasional iceberg. It’s work that is right at home with his broader interest in anything that generates relatively high-speed turbulence – speeding cars, aircraft, rotating detonation engines (which are a story for another time), and the Ingenuity helicopter currently on Mars, having just made the first controlled flight by an aircraft on a non-Earth planet.

Though Thornber admits he didn’t really apply himself in high school (“I loved sports too much”), he has certainly made up ground. His childhood fascination with the rivers near his home



Professor Ben Thornber

HAPPY PLACE

Exploring outdoors with my family

MOST PRECIOUS POSSESSION

A book of family photos my mum gave to me when I started university

THE THING YOU NEVER WANT TO DO AGAIN

Multi-pitch rock climbing in a storm

eventually became a Master of Mechanical Engineering, which then sparked a passion for aerospace engineering. A Master of Space Studies from the International Space University soon followed, leading to work with plasma propulsion systems at the NASA Jet Propulsion Laboratory and another master’s degree, this one in Computational Fluid Dynamics.

“I think my parents gave me an excitement for this stuff,” says Thornber. “Their generation saw aviation evolving, the first rocket go into space, then just 12 years later, the moon landing. And my dad loved the visionary science fiction writers like Arthur C Clarke and Asimov.

“The race to break new frontiers in space travel might have slowed down, but what has changed dramatically is the efficiency and cost of access to space – falling by more than a factor of ten in just a decade.”

The future figures prominently in another element of Thornber’s work, which is understanding how turbulence affects wind turbines. As climate change threatens the human liveability of our planet, wind turbines are a cornerstone of the renewable energy response, and Australia has some of the best locations in the world for using wind to generate power, particularly coastal Western Australia and southern Australia around Bass Strait.

“This is something we’re really excited about actually,” says Thornber. “We’ve put an expert team together that covers data sciences, computer software and hardware, structural design and optimisation, and people from the Australian Centre for Field Robotics for real-time asset management.”

Even if you remove natural wind turbulence from the equation, the turbulence generated in the wake of an upwind wind turbine enormously

affects what happens to any turbines downstream. As wind passes through the forward turbine, it slows down and takes on strong turbulent eddies.

For the downstream turbines this means a 5 to 20 percent drop in efficiency from the slowdown, and greater structural fatigue from the increased turbulence. Some wind farms will even turn off turbines in certain circumstances to prevent this fatigue damage. Add together the lost power production and fatigue damage repair, and the cost to the wind farm industry is around a quarter of a billion dollars every year in Australia alone.

“We’re spending a lot of time on this, and applying what we’ve learned from helicopters,” says Thornber. “The goal is to develop a digital twin of the wind farm and feed in real-time data from the actual wind farm. That way we can tune the model and simultaneously use it to optimise the performance of the real wind farm.”

The team is in place, the need for this approach is clear, and there is no shortage of ideas. “We are co-developing our digital twins with the world number one producer of wind power, Iberdrola.

“Australia is so well set up for a renewable energy future. It’s an area we have to go into,” says Thornber. “And I know the team here can make a big contribution.” ●

TURBULENT TIMES

Support research like this and you’ll help tackle some of the world’s biggest problems. To learn more, call the Alumni and Supporter Relations team on +61 2 9552 2539 or email alumni.office@sydney.edu.au



ON THE *plus* SIDE

Written by Lauren Sams

M

Credit: Lok Cheng Photography courtesy of M+ Hong Kong.

A love for contemporary art led Suhanya Raffel to an internship at Britain's top museum. Now her vision for a global museum of visual culture in Hong Kong is becoming a reality.

👉 Suhanya Raffel (BA '85, GradDip MuseumStud '86) has a problem: the museum she has just spent five years building, quite literally from the ground up, is such a success that it is struggling to keep up with the thousands of people who want to visit every day. Audiences clamouring to see inside M+ will have to be patient: due to the pandemic, Raffel has been forced to reduce the number of visitors allowed to roam Hong Kong's newest museum, and to establish a registration system. It is, she says, all things considered a good problem to have.

"It was incredibly exhilarating to open," says Raffel, who is Museum Director at M+. "After everything - COVID, especially - it felt amazing. Hong Kong is closed, so there are no foreign visitors. And the pandemic delayed the opening. But despite that, we opened very successfully." In the first seven weeks that M+, Asia's first global museum of visual culture built on Hong Kong's West Kowloon site, was open, it saw more than 370,000 visitors. "Hong Kong is a small city, so that is very validating," says Raffel. "It puts us on par with the opening of the Tate in London or Centre Pompidou in Paris."

And that is the idea. M+, founded with 8000 objects and over 50,000 archival items (many of them thanks to Uli Sigg, a Swiss entrepreneur and art collector, who donated some 1500 works of contemporary Chinese art) was built with the intention of rivalling Britain's Tate, the Museum of Modern Art in New York and Paris's Centre Pompidou. The museum is not simply the largest in Hong Kong but the first of its kind for the region, in terms of its breadth of collection. It now houses

one of the most significant collections of contemporary Chinese art anywhere in the world, including some of the works of dissident artist Ai Weiwei.

It makes Raffel's job one of the hardest - and best - in modern and contemporary art right now.

The Sydney graduate was never meant to end up here, though. Born in Sri Lanka, Raffel moved to Australia with her family at 14. Her father was a doctor (as was his father, and his), and there was an unspoken family rule that Raffel would follow suit. But it was her mother, ultimately, who influenced the young Raffel's career choice. A musician who was involved in modernist art and cultural circles in Sri Lanka, Raffel's mother encouraged a love of learning and exploration in her daughter.

"For me to work in the arts wasn't entirely unexpected, but it did come as a surprise, I think," she says now from her home in Hong Kong. "My parents always told me that you need to do work that satisfies you. You spend so much time at work, if you don't enjoy it you're not going to have a very pleasant life."

At university, studying fine arts and, later, museum studies, Raffel was keenly involved in the campus museums and galleries, cutting her teeth at the Tin Sheds (where she learned about Australian art, which was not part of the official curriculum at that stage), Macleay and Nicholson museums.

After graduation, Raffel moved to the UK.

"I became an intern at the Tate, and it was the work that I had done at Sydney that got me that internship," she says. "There was a direct throughline from university to the Tate."



M+ lights up the Hong Kong skyline at night. Credit: Keith Tsuji Photography.

“Art is such an important part of our community. During a pandemic, that is amplified. Museums are places of unity, memory, history, reflection. We need those things more than ever now.”

— Suhanya Raffel

It was a time, she says, when the Tate was thinking about different relationships with its audience. “It was becoming more outward-looking, more purposeful. It was a good time to be there, thinking about how the museum could serve the population. It was a new way of thinking about public spaces.”

This fresh perspective, and the experience Raffel gained in London, served her well when it came time to return to Australia. Raffel’s husband, Michael Snelling, had landed the director role at Queensland’s Institute of Modern Art; in turn, Raffel “knocked on the door” of the Queensland Art Gallery.

“I said, ‘You need me,’” she recounts. “It was clear at the time that things were changing. I wanted to expand the dialogue around art in the Asia-Pacific.”

Raffel’s moxie paid off. She climbed her way up from being a researcher at the gallery to curator, and eventually became acting director of both the gallery and the Gallery of Modern Art in Brisbane. “Working there in those early days ... it was like a blank page regarding this area of practice,” she says. “It was so exciting.”

Then in 2013, Raffel became Deputy Director and Director of Collections at the Art Gallery of New South Wales, where she was responsible for all curatorial areas. During her time there, she worked on the gallery’s expansion project with the Pritzker Prize-winning architecture firm SANAA.

Raffel joined M+ in 2016, taking over from previous executive director Lars Nittve. “They were very

much at the stage of thinking about structure. It was very foundational: who did we need, and what skills were we looking for?” It was, she says, like “a start-up, really.”

“There is a huge sense of accomplishment of bringing this to fruition,” Raffel says. Though she’s aware that it is still early days for the space, Raffel is keen for Hong Kongers to adopt the museum as their own. “Success, to me, is that people in Hong Kong understand that this is a place for everyone, and that M+ belongs here.” One benefit of Hong Kong’s closed borders has been that only citizens of the city have been able to see the museum.

“It’s a great thing that the museum opened to the city,” she says, “because the city invested heavily in the museum.” That said, she is keen for the artworks of the opening exhibitions to stick around a little longer. “The world has not seen anything yet, and so we want to extend that opening show beyond the first year. It is very significant for the region and it needs to be seen by the broader public.”

She laughs gently when prodded about censorship, demurring and answering diplomatically. “I will say, our plans were realised as we intended them to be.” She points to the incredible opening exhibition featuring M+ Sigg Collection, which she calls “the most eminent collection of contemporary Chinese art in the world”, spanning four decades. “That integrity is intact. We feel very proud of that.”

For Raffel, art is more important than it has ever been, the pandemic having highlighted our need for connection and relation. Art, in all its forms, achieves those bonds.

“Art is such an important part of our community. During a pandemic, that is amplified. Museums are places of unity, memory, history, reflection. We need those things more than ever now.” ●

Shear *genius*

Working in the meal kit delivery sector, Joanne Howarth was horrified by the amount of polystyrene packaging it generated. The solution she came up with was a disruptive game changer. It's also won her some impressive awards.

Written by
Lauren Sams

Photography by
Louise M Cooper



👉 For most of us, the vaccine rollout has been about sourcing a job ourselves. For Joanne Howarth (BEc '81), the delivery of COVID-19 vaccines has been about keeping cool – quite literally.

Howarth's packaging business, Planet Protector Packaging (PPP), has been instrumental in maintaining the temperatures of vaccines as they move across Oceania. It is so effective, in fact, that the company's Vaccine Protector won a WorldStar Packaging Award ("the Academy Awards of the packaging world," Howarth says) at the close of 2021 – just one of a series of accolades the business took home last year.

There was also the New South Wales R&D Innovation Challenge, two categories in the NSW Sustainability Awards (Circular Transition), the 2021 University of Sydney Alumni Award for Innovation and Entrepreneurship, as well as funding from the likes of the Boosting Female Founders Initiative, Investment NSW and the federal government.

But what led to Howarth's greatest achievement to date was becoming Australia's first Cartier Women's Laureate in 2020, joining a global cohort of women impact entrepreneurs selected for their work driving social and environmental change. In 2021, as part of the initiative's 15th anniversary, Howarth was one of just nine Cartier fellows from the last 15 years to receive a Cartier Impact Award.

"Without a doubt, it's the biggest achievement of my career," says Howarth of the win. "Cartier has enabled me to think big and really project my thinking to imagine our potential global impact. We've always said our mission is to rid the world of polystyrene. We can't do that in Australia alone."

Howarth's mission is well on its way to being realised. The "born entrepreneur" has spent decades in the food packaging industry, but it was just six years ago that she shifted her focus to sustainable packaging solutions. Her company, like many others, used polystyrene to protect goods during shipping, but when she was contracted by a well-known meal delivery service, its customers soon inundated the call centre with complaints about wasted polystyrene.

Polystyrene, mass manufactured since 1954, is essentially plastic. It is very, very good at insulating and at absorbing shock (check your bike helmet's interior), and isn't water-soluble, meaning your coffee can sit in it and stay hot. But it's also one of

the least recycled materials – in New South Wales alone, it's estimated that 12,000 tonnes of it is sent to landfill each year, taking up 240,000 cubic metres of space. And if it's not going to landfill, chances are it's ending up in the ocean, where it can sit for a long, long time, and slowly break down into microbeads which can harm both waterways and marine life. Oh, and it may not be great for human health, either.

Deciding there had to be a more sustainable alternative, Howarth set out to find one. Today, PPP manufactures an innovative product called Woolpack, created from coarse-fibre wool, which takes advantage of wool's unique thermal properties, keeping food cool and warm as necessary.

"As a city girl, I'd never thought too much about wool," she says. "But it is the most remarkable fibre: it keeps sheep warm in winter and cool in summer." Preliminary studies from Germany in the 1980s showed promise, and Howarth quickly enlisted a renowned textile physicist and packaging engineer to test her hypothesis.

"I was inspired by nature and just had this thought that we could mimic nature, by putting a wool liner inside a cardboard box." The resulting product, which took three years to perfect, is just that: a piece





“People probably look at it and think it’s very simple, wool inside a sleeve, but it’s much more than that, there’s a lot of science involved.”

– Joanne Howarth

of wool, about a centimetre thick and a metre long, wrapped in a compostable outer. “It’s deceptive,” she says. “People probably look at it and think it’s very simple, wool inside a sleeve, but it’s much more than that, there’s a lot of science involved. It actually outperforms polystyrene, which is an achievement seventy years in the making. And it took years to perfect our proprietary blend.”

There was much back and forth, for instance, in the type of wool used, and then, though Australia produces 25 percent of the world’s wool, most of that is sent offshore for processing so Howarth couldn’t have her product manufactured here. She was forced to set up a supply chain out of China, though sovereign manufacturing is something she is very passionate about.

“It was the only way that we could get off the ground,” she says. Happily, in 2021 Howarth won a \$5 million grant to build a state-of-the-art wool-processing facility in Geelong, which will begin construction this year.

“It’s a crime that we are using 20 tonnes of wool a week, and it is all Australian, but we don’t have a wool scouring industry here anymore, so we are technically buying it back from China. That’s a revenue stream Australia is missing out on. We can strengthen rural communities, we can increase yield to sheep farmers. This is a huge opportunity.”

It is a sentiment typical of Howarth, who sees opportunity everywhere. Prohibitive freight costs

led to a dedicated distribution hub in Tasmania, for example, and that led to a partnership with Brand Tasmania, amplifying the positive environmental benefits of the product and its uptake by the state’s food suppliers. But Australia is small fry for packaging, says Howarth, who has world domination on her mind. Australia and New Zealand combined account for 1.3 percent of the globe’s polystyrene use; Asia accounts for 46 percent. “That,” she says, “is where we are really needed.” This year, PPP will begin supplying to south-east Asia.

Though the Morrison government has pushed to phase out polystyrene by the end of 2025, Howarth wants the move mandated. “Government waits for big business to take the lead,” she says. “But that’s not good enough.” She points to a recent interaction.

“I’ll never forget this meeting, with one very high volume user of polystyrene. There were 11 people from across all aspects of the business – from branding, marketing, logistics. And everybody loved the product. But at the end, the decision-maker said, ‘Well, this is great, but there’s no need for us to make a change now. Keep up the good work. When the government legislates, come back and see us.’

“But it’s not about that. It’s about doing the right thing because it’s right, not because we’re told to. The oceans are in crisis and we just can wait any longer.” ●



PERSPECTIVE SHIFT

Working in community advocacy most of his life, Associate Professor John Gilroy (PhD '13) is passionate about Aboriginal-led disability research, as a force to drive policy. A project in Central Australia opened his eyes to new understanding – and now, as Deputy Director Aboriginal and Torres Strait Islander Research and an associate professor of sociology in Indigenous health, his insights shape his work with communities around the world.



👉 When I got my first large Australian Research Council (ARC) grant, working in Alice Springs, I knew it was going to be different because I grew up with my saltwater mob, the Yuin nation on the NSW South Coast, and I was going into the heart of the desert people. What I didn't expect was that the Desert communities had their own ways of research and of understanding disability.

I had created my own methodology, which worked in coastal communities. It blended critical disability studies with Indigenous methodologies, and my own perspective as a blackfella with a disability, in a scholarly sense. Then I realised that just because I'm a blackfella doesn't mean other mobs want to work with me using my methodologies. They wanted to do things their way. I realised that much Aboriginal scholarship is coastal-centric – I was reinforcing a different type of oppression – and I realised how ignored communities in remote areas of Australia are by governments and agencies. Indigeneity is

as diverse as the experience of invasion. I had to step back and listen.

The amazing reports that came out of this, and that research influenced government policy via the Ngaanyatjarra Pitjantjatjara Yankunytjatjara (NPY) Women's Council. My research has since inspired Inuit, Māori, and Sami scholars. I'm working on a collaboration with Sami at a Swedish university, as well as my ongoing focus on Aboriginal people's participation in services, like the National Disability Insurance Scheme (NDIS).

At a United Nations Expert Committee meeting, I was with Indigenous people from all over the world and I realised that other countries talk about disability differently. I realised that the world sees Aboriginal people as not disadvantaged,

because most Indigenous people live in developing nations. At the local level, the Indigenous rights movement is not united; it is heavily contested. No one should compare themselves to the global context, but they should reflect. Being a community scholar, you have to foster Aboriginal-led research and engage on an international platform – but, most importantly, build trustworthy relationships first. The last thing we want is to reinforce disrespectful ideologies to other Indigenous communities.

That time in Central Australia really shifted my thinking about Aboriginal-controlled research, about disability research, about the interface between all disadvantage and neglect. I learned more than in a whole career in those two years.

The *fight* for *peace*

Written by
George Dodd

Photography by
Guillaume Megevand

The images coming out of Ukraine have shown cities and people being torn apart by war. But behind the scenes, highly skilled peace negotiators like Paul Dzatkowiec are also fighting hard to bring people together for peace.

👉 For 20 years Sydney alumnus Paul Dziatkowiec has worked in international diplomacy and peace mediation. Some of those years have been spent at the high tables of formal diplomacy between governments, others have seen him in shadowy hotels and tense backwaters talking with warlords, traffickers, spies, and human rights abusers.

“Sometimes you find yourself with people who have ruined countless lives, even countries,” says Dziatkowiec, who is quietly spoken but a skilful storyteller. “To engage with them, you have to leave your prejudices back in your hotel room, keep an open mind, and sometimes hold your nose. Whether we like it or not, the worst of the worst often hold the key to peace.”

It isn't easy walking into a room where two aggressive players in a conflict are there to see how far they can push their own interests. Dziatkowiec and his associates would have spent the previous weeks not just researching the combatants, but talking to local people and (trustworthy) journalists to get a sense of the deeper grievances.

While the forces at work in Ukraine are specific, a recurring truth in many other conflicts is that both sides ultimately want similar things: dignity,

recognition and respect, jobs for their people, education for their children and, therefore, peace. Still, negotiations can go on for many frustrating years. But suddenly comes a moment of possibility: a new political dynamic, a new president, a new head of the rebel group who seems a little more constructive.

“Even two or three years before a peace agreement, you might have said, ‘That’s impossible. The situation won’t allow it, the wrong people are in charge.’ But look at Northern Ireland, Colombia, South Africa, many others. Sometimes change comes quickly.”

It’s easy to see the influences that led Dziatkowiec to his life’s work.

In 1981, with the Communist Party in Poland about to impose crushing martial law to deal with the ‘Solidarity’ union movement, the then three-year-old Dziatkowiec was taken by his parents as they fled the country, first spending three months in an Austrian refugee camp before settling in Australia with nothing.

Speaking from his now home in Switzerland, Dziatkowiec is still very aware of how much was in the balance. “A lot of our family wanted to but didn’t manage to get out,” he says. “I was lucky – I had so many great opportunities, because we ended up in Australia.”

Growing up in Canberra, Dziatkowiec went to Brisbane for a bachelor’s degree in international business before spending a year in Austria on an exchange program. At the time, the Balkans war was unfolding, and he found himself less interested in business and more in the mechanics of that conflict. So much so, he came back to Australia to complete a Master of Policy Studies at the University of Sydney.

When the time came to set a career path, the Department of Foreign Affairs and Trade (DFAT) was the golden ticket.

It’s fair to say that Dziatkowiec had a rapid rise through the ranks of DFAT. After graduating from the University he joined literally thousands of others in applying for an entry-level position. He made the cut. Later, at just 30 years old, he found himself in a position of real and consequential responsibility.



“Not long after I arrived for a posting in Nairobi, my Ambassador said, ‘I’m travelling for the next two weeks, so you’re the acting Ambassador.’ I’d never done that before and suddenly I was acting Ambassador to several conflict-affected countries – Kenya, Somalia, Rwanda, and a handful of others.

“An Australian citizen had been kidnapped in Somalia, which was really difficult, and there was this growing embassy to manage – it eventually peaked at 70 people. But I enjoyed the challenge.”

Over the course of the three-year posting, Dziatkowiec acted as Ambassador for almost a year, dealing with complex issues including piracy, terrorism, various UN engagements, and the environment. In all, Dziatkowiec was with DFAT for 11 years, becoming adept at the official practice of diplomacy.

He was a peace monitor after the Bougainville Civil War in Papua New Guinea and, at a time of upheaval in the Middle East, aged 25, he was a diplomat to Israel and regularly the acting Representative to the Palestinian Authority, taking in both the Iraq war and the Palestinian uprising known as the second intifada. But it was that posting in Africa that gave Dziatkowiec himself a sense of his own capabilities and an insight into his real drivers. He realised there that he was fundamentally

“Here is a truth to consider: most wars are not ended through military victory, but by negotiated settlements.”

– Paul Dziatkowiec



1. Dziatkowiec opening an Australian Government-funded project to provide safe water to a local community in Kenya.
- 2-5. Dziatkowiec pictured with former Australian prime minister Bob Hawke, former US president Jimmy Carter, Nobel Peace Prize laureate Kofi Annan, and former Australian prime minister Kevin Rudd. Photos supplied

interested in why people fight – and really always had been.

Made restless by this realisation, Dziatkowiec applied for an opening at a mediation organisation called the Centre for Humanitarian Dialogue (HD) in Geneva, an international foundation that’s partly funded by governments but holds itself apart as impartial and independent. A lot of what it does is confidential and few of its projects are to be found on its website.

“HD’s work is as fascinating as DFAT’s but it is like an alternative universe. By necessity secretive, at times seedy, often exhilarating, it gave me the deeper focus I was looking for.”

Moving into mediation has seen Dziatkowiec facilitate dialogue with armed groups, including in Myanmar, Nigeria, and for the last few years in the now war-torn Ukraine. Russia’s recent full-blown invasion came after several years of it supporting pro-Russian separatists in the border region of Donbas. This volatile situation saw

Dziatkowiec make up to 35 trips a year to Ukraine itself and to other ‘neutral venues’ in Europe and beyond for discreet peace discussions.

One earlier success during the Donbas conflict helped protect the water filtration station that serves the city of Donetsk and surrounding towns. As intensified fighting and COVID movement restrictions threatened to close down the water supplies, Dziatkowiec and his HD team were part of a desperate, ultimately successful effort to prevent this. After some intensive shuttling of messages between key interlocutors, security guarantees were eventually agreed by the peace process actors that enabled the facility to keep working – thus averting a water crisis that could have been disastrous for more than a million people.

Then in February this year, and in the blink of an eye, the stakes for the people of Ukraine became immeasurably higher as Russia unleashed all the horrors of war on large parts of the country. By this time, Dziatkowiec had left HD for a new

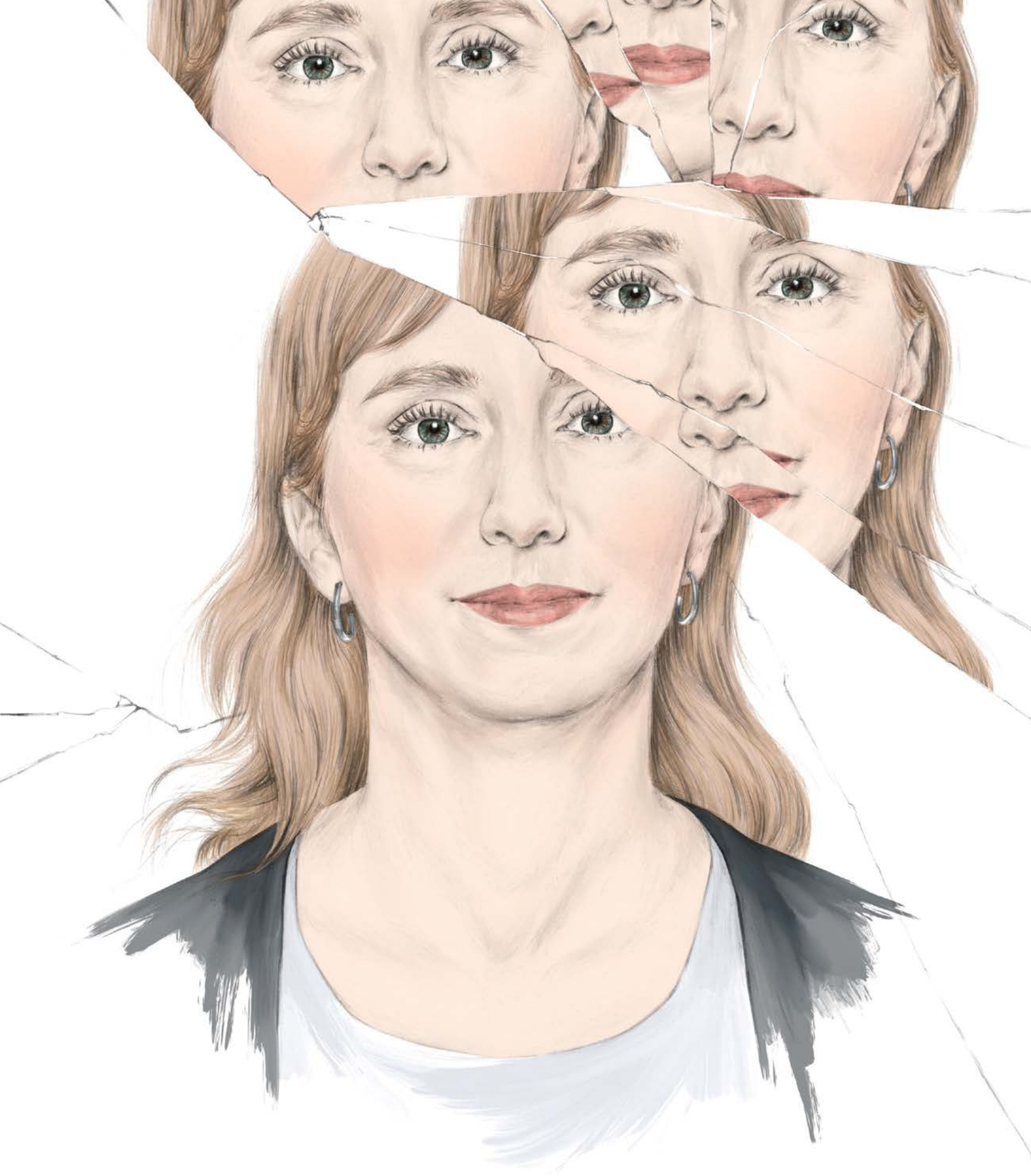
role at another foundation dedicated to peace, the Geneva Centre for Security Policy, where he is now Head of Diplomatic Dialogue.

Knowing many people in Ukraine and feeling the situation very personally, Dziatkowiec wrote to SAM:

“This is a nightmare, beyond words. War is a conscious choice – almost always catastrophic – yet again and again, people decide it’s the right option because they value ambition and pride over the lives and futures of countless innocent people.

“Frankly, there are often good reasons why mediators could just give up. But someone has to be there to keep the last flicker of hope alive, and that is often the mediators. They have to buckle down even more, and explore all options for a way out, despite the warmongers seemingly committed to a different, violent, path.

“Here is a truth to consider: most wars are not ended through military victory, but by negotiated settlements.” ●



There's a lot more to forensic psychology than shown on TV crime shows. Associate Professor Helen Paterson's focus is on understanding witness memory, which can help police to gather the information they need to prosecute.

Truth be told

Written by Rebekah Hayden Illustration by Emma Leonard

👉 If you witness a violent event, your body has a specialised set of responses. The stress hormone cortisol floods into your blood, readying you for a fight or flight response. As part of what is called the Easterbrook hypothesis, your attention narrows in on the threat at hand, tunnelling your awareness down to your central vision and losing peripheral details.

Afterwards you may have a pretty good recollection of what happened, though you might lose some specifics over time. You should be able to remember what the perpetrator was wearing and what they said or did. You are unlikely to forget what day it was. These facts are vital for convicting someone in a court of law.

For people experiencing repeated trauma or abuse, such as victims of domestic violence or workplace bullying, all those little details blur together. Tragically, this inability to remember the salient facts can mean the victim is discounted as an unreliable witness, and they struggle to receive justice.

"It is highly concerning to me that the more frequently people are victimised, the less complete their accounts are of each instance," says Associate Professor Helen Paterson, a Senior Lecturer in Forensic Psychology. "Victims of repeated events also tend to confuse one incident with another. Then it's Defence 101: if you find any inconsistency in what the witness says, you can completely discredit them."

Vancouver-raised Paterson's interest in working with witnesses and victims of crime began while in Sydney on

exchange from the University of British Columbia in 1998. Her "nice cheap place to stay" was anything but nice.

"The apartment building had some rather shady people living in it, one of whom was an arsonist," Paterson says. "He kept setting my apartment building on fire, and the police kept questioning me as a witness. I felt this huge discrepancy between what I was learning in my forensic psychology classes about how witnesses should be interviewed and how the police were doing it."

The experience motivated her to bridge the gap between the police and the academic field of forensic psychology, to find out what police needed in terms of questioning, and to share with them research about witness memory and the best ways to question witnesses.

Forensic psychology is a massive field. It applies psychological research and theory to the entire criminal and civil justice system. It includes all the people and processes in the legal system, from crime investigation through to trials, post-sentencing and rehabilitation of offenders. Researchers might study judges, juries, police officers, witnesses, victims, or criminals.

The Forensic Psychology Lab at the University, headed up by Paterson and Senior Lecturer in Forensic Psychology Dr Celine van Golde, is where the psychological effects of crime, lie detection and eyewitness memory are studied by a team of honours students, PhD students and volunteers.

“It is highly concerning to me that the more frequently people are victimised, the less complete their accounts are of each instance.”

— Associate Professor Helen Paterson



**Associate
Professor
Helen
Paterson**

**EARLIEST
MEMORY**

When I was three, we moved houses and I remember spinning in circles in my big, empty room

**QUALITY YOU
MOST VALUE
IN OTHERS**

Kindness

**THE MOVIE
YOU’VE SEEN
MOST OFTEN**

The Sound of Music

Their investigations into eyewitness memory are showing just how different memory for one-off events is from repeated or ongoing events.

Part of the problem lies in the way our brains reconstruct memories every time they are recalled. They aren’t placed perfectly in the brain like in a filing cabinet. This means there might be slight inconsistencies in how we remember events. An analogy might be the difference between cooking from a recipe or from memory. We might add a little more of one spice or another. The basic recipe is the same, but there are subtle differences in flavour.

One of Paterson’s students, recent Forensic Psychology PhD graduate Sarah Deck, found that people who had experienced repeated events were rated as being less credible than actual liars and those experiencing a single event. The findings are interesting for what they imply: we might assume that people telling the truth will give detailed, specific information about what they experienced, when the opposite is often true.

We don’t have an impartial way of measuring if someone is lying – there’s no Pinocchio’s nose. We do know that liars tend to create and rehearse a story and stick to it. These rehearsed reports can make them appear confident, highly consistent, and therefore more credible.

The implications for cases of domestic violence or workplace bullying are worrying. In these situations, there is rarely external evidence to verify a person’s claims, so the entire proceedings are reliant on how truthful the victim appears.

“There is a lot of research looking at repeated assaults on children, but very little on the effect of repeated events on adult memory. I guess there was a belief that adults wouldn’t let themselves be repeatedly victimised, when in fact it is a huge problem,” Paterson says.

Another one of Paterson’s PhD students, Natali Dilevski, has shown that repeated events can affect

an adult’s ability to remember the specifics. Similar research by others on children’s memories has led to a relaxing of legislation in courts in recent years, so that children who have experienced long-term abuse now only need to recount what typically happened in an abusive event. Dilevski’s findings suggest adults who have experienced repeated abuse should be considered under the same legislation.

Much of the research into domestic violence conducted by Paterson and van Golde was funded by an anonymous donor who gave \$100,000 in 2018. It’s hoped the research program will provide strategies to support ongoing psychological welfare for victims and help them gather the information they need to see offenders prosecuted. As part of this, Paterson and her team created an app called iWitnessed.

“iWitnessed can help you complete a report straight after the incident, when your memory is optimal,” Paterson says. “Along with your memory account, you can include date stamps, GPS coordinates, and photo attachments. This report can be used to refresh your memory when later questioned. It could also help to consolidate your memory for the crime.”

This is crucial in instances where it might take some time before a victim reports the matter. The work is ongoing, with the app needing constant updating so it stays compatible with new phone updates. And of course, also ongoing is the need to find the truth to ensure justice.

Despite the challenges, Paterson is constantly inspired by what she does and the dedication of those around her. “The lab is just a great environment to work in, with a really talented group of people.” ●

MAKING MEMORIES

Support research like this and you’ll help tackle some of the world’s biggest problems. To learn more, call the Alumni and Supporter Relations team on +61 2 9552 2539 or email alumni.office@sydney.edu.au

At the intersection where politics, individual egos and the public good collide, you'll find the University's Institute of Transport and Logistics Studies. In a time when transport is evolving dramatically, it works so that public good survives the crash.

Written by George Dodd
Photography by Louise M Cooper

GOING THE DISTANCE

👉 Think about how relaxed things are on the road during school holiday time. Shorter queues at intersections. Easier-to-find parking spots. Noticeably less congestion on usually busy roads. Yet during school breaks, there is only 5 or 6 percent less traffic on the roads.

It's no surprise then, that 5 or 6 percent is often a notional reference point for the people working to get more cars off the road and make public and private transport more efficient and less damaging for the environment.

One of the top five institutions in the world where this thinking happens is the Institute of Transport and Logistics Studies (ITLS) at the University. A lot of research is done in the areas of aviation, maritime and freight, but there is a strong focus on public transport-related subjects like the impacts of electric cars, COVID-19's dramatic effect on travel and traffic, and the changing transport needs of Australia's growing population.

The ITLS team is made up of world-leading local and international academics, and at the centre of it you'll find the Institute's founding director, Professor David Hensher. An economist by early training, Hensher became fascinated by the challenges of transportation and how many societal threads had to be part of any serious discussion. He'd like to bring in even more of those threads.

"Transport planning has always been a space full of economists, planners and engineers," says Hensher, a fast-talking 74-year-old and master of his subject. "I think we need to bring in the soft sciences more – sociologists, psychologists, ecologists. People who would bring very different perspectives and solutions."

Providing transport options for a city of millions is a mind-bogglingly difficult thing to do, and it would be easy to conclude from recent revelations, including new trains and ferries arriving from overseas manufacturers not fit for purpose, that transport processes and goals in New South Wales need a serious rethink.

Talking about how transport happens at planning level, Hensher cites 'relevance' as one of his favourite words and too often, he says, decisions lack true relevance to what is needed. "It's what I call emotional ideology, where you start off with what you want rather than what you need. And too often, what they want is a railway."



Professor David Hensher pictured at the Sydney Bus Museum.

Hensher himself believes that quite often, the solution to many of our transport woes can be found in the humble bus. "Buses aren't considered sexy though," he says. "Cutting a huge ribbon on a train makes a much better photo."

It was questions around a rail project that first brought Hensher to the notice of transportation bigwigs and the ITLS itself into existence, after Hensher was asked to do some of the heavy thinking on a Sydney-Melbourne very fast train project in the late 1980s.

When that train research project got underway at the University, it developed its own momentum with, no doubt, a fair amount of its forward energy delivered by Hensher himself. Prospering locally then internationally, the ITLS developed strategic partnerships with business schools in the UK, India, China and South Africa. Today, much of the software and processes used by people and organisations doing this kind of work was developed at the ITLS.

The organisation is also hugely influential for its work in demand forecasting and what are called choice experiments, which can identify why people make the choices they do. Recent choice experiments have suggested strongly that people will choose to own and use electric cars.

For all the benefits of electric cars, the fact they will ultimately cost half as much to

“I think we need to bring in the soft sciences more – sociologists, psychologists, ecologists. People who would bring very different perspectives and solutions.”

– Professor David Hensher



manufacture and 25 percent less to run could take some of the shine off public transport. People prefer cars for some obvious reasons relating to convenience. If electric cars add an economic advantage to that list (just owning a car in Sydney currently costs around \$10,000 a year), then catching a crowded train to work becomes an ordeal cheaply avoided.

As for driverless vehicles, consider this scenario: an office worker drives to work, but there is nowhere to park. A self-driving car could take them to work, take itself home for the day, then come back in the evening to pick them up. One office worker. Four daily car trips, helping to create a new generation of monster peak hours (already Sydney drivers spend more than 30 percent of their travel time stuck in traffic).

As new challenges appear, the core question remains the same: how do you convince people not to use their cars?

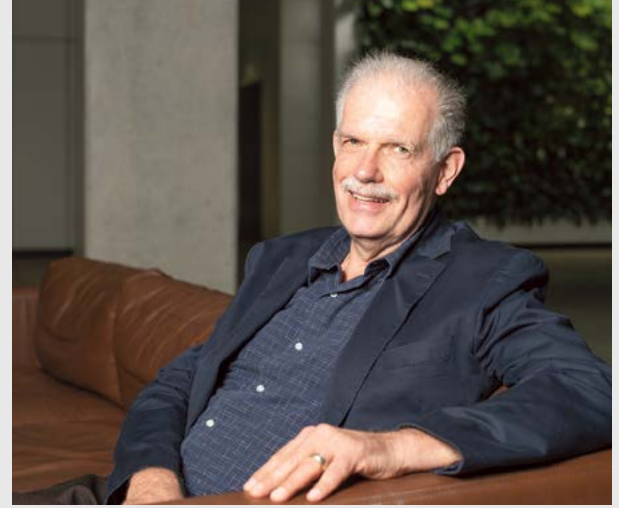
The key tools for manipulating road users are usually expense and convenience. On the convenience side is an idea known as Mobility as a Service (MaaS), where people forgo owning a car at all and instead pay a subscription that gives them access to all modes of public transport, taxi and Uber discounts and community rental of whatever vehicle is needed. Plans are already underway to establish MaaS pilot programs in New South Wales and Queensland.

“We’re all pretty excited with this stuff,” says Hensher. “We’re investigating partnerships with the GoGets, the Car Next Doors and the Ubers. But the debate now is whether there is a business model and who would run these services. In Finland it’s based on venture capital.

“The thing is, the ITLS understands how to translate these new ideas into relevance. And if they’re not relevant they shouldn’t be on the table.” ●

TACKLING TRANSPORT

Support research like this and you’ll help address some of the world’s biggest problems. To learn more, call the Alumni and Supporter Relations team on +61 2 9552 2539 or email alumni.office@sydney.edu.au



Taking the high road

The Neil Smith Research Chair in Sustainable Transport Futures

Giving millions of Australians the mobility they need to work and live isn’t the only huge challenge for the Australian transport system. A now urgent challenge is to do this sustainably against the backdrop of accelerating climate change.

With a \$7.9m gift, alumnus Neil Smith (BA ’73 MTM ’95) is helping the University to become a leader in the knowledge and action needed to transform and decarbonise transport.

The gift, one of the largest ever to be given to a business school in Australia, has made possible the Neil Smith Research Chair in Sustainable Transport Futures at the University. The Chair will be located in the Institute of Transport and Logistics Studies (ITLS), a leading global research group.

The activities of the Chair are not unlike what the world must do more generally to stave off catastrophic climate change: understand the barriers to adopting green transport and logistics technology; identify optimum decarbonisation practices and technologies; and rethink the regulatory environment so the broader goals can be more quickly achieved.

In all this, and much more, the Chair will be well placed and supported to advance thinking in how transport can be more efficient and less carbon producing.

Starting as an office worker in a small bus company, Smith found himself full of ideas about how the company could do things better. Soon, he took himself into the transport industry by buying into a flagging regional bus company. He had found his life’s work.

Smith, who is on the board of the Kelsian Group, Australia’s largest land and marine transport service provider and tourism operator, is now a global player in buses, light rail, ferries and logistics. He is a true innovator, his success having come from passion for what he does, love of a challenge and an excitement for what is possible.

The Neil Smith Research Chair in Sustainable Transport Futures is the next step Smith has taken to reshape the future to make things better for people everywhere and for Earth itself.

Jane Foss Russell in 1885, the year before she graduated with honours in classics and mathematics. Russell was a staunch fighter for the right of women to have an education. Archival photo: G3_224_0802



TIMELINES

Among the University's very first women and a true force for change: Jane Foss Russell

✦ It was a time when people would openly wonder out loud whether women had the mental capacity to be highly educated at all.

In the 19th-century, British Empire environment, a woman wanting a tertiary education had to be made of stern stuff. Jane Foss Russell was one of those, driven as she was by her devout Anglican faith and an exceptional intellect.

Growing up, she spent long hours at the Sydney Observatory contemplating the heavens with her astronomer father. This exposed her to science in ways that were rare for women and no doubt shaped her future educational achievements.

Records show that the younger Russell was taught by a Miss Hooper, and the partnership must have been successful. When Russell sat the government-set Junior Public Examination in 1878, she excelled and received a University of Sydney prize as the best female student of that year.

Three years later she was again awarded best female pupil when she sat the Senior Public Examination in eight subjects, passing with first-class honours.

Despite her academic success, Russell had to hold back her university ambitions because at the time, the University of Sydney did not accept women, though the University Act did not explicitly deny them access.

It was actually the University of Adelaide in 1881 that was first in Australia (and second in the English-speaking world) to welcome female students. Soon after, in that same year, the University of Sydney

Senate unanimously followed suit, with two women forming the first female intake in 1882. In 1883, Russell became part of the second group of women to enrol.

There were two main reasons for such progressive thinking that had everything to do with the fact Australia was a colony.

First, there was no aristocracy in Australia, which meant liberal ideas that emerged didn't have the pushback as they might have had elsewhere. The colonials also had a strong desire to, on occasion, demonstrate their nationhood and independence by being open to new ways of doing things.

In welcoming women, Sydney went further by allowing them to study and graduate on the same basis as men. At most other universities in Britain and North America, women were either not admitted, or admitted only to specific courses. At Oxford and Cambridge Universities, women were not admitted to degrees until the twentieth century.

At the University, Russell's academic achievements continued, graduating from the University in 1886 with a Bachelor of Arts and first-class honours. Then in 1889, she became only the second woman to receive a Master of Arts, the same year she earned a degree in Moral Philosophy.

Amid all this, she also became a champion of advancing the cause of women's rights to education at the University and beyond, including being a founding member of the Sydney University Women's Society and having a long involvement with the council of the Women's College.

After her studies, Russell became a schoolteacher, but she returned to the University in 1892 in the role of Tutor to Female Students, including female medical students who often arrived at the University unprepared in subjects like chemistry and physics. She also guided the female arrivals in how to deport themselves on campus.

In her various roles, Russell was the only female member of the University teaching staff until around the turn of the century.

Another obstacle to female advancement was the expectation that married women should not be in employment. So, with her impending marriage to the University registrar and warden, Henry Ebenezer Barff, Russell resigned her University position in 1899.

When she died in 1937 at her Rose Bay home in eastern Sydney, Foss left the University a silver tea and coffee service which the University had presented to her husband for his 25 years of service. Her will stated that she hoped the service may be used by the Chancellor and Vice-Chancellor when entertaining distinguished visitors to the University.

The service is still kept by the University and Russell herself is often invoked as people speak of the Jane Foss Russell building which now rises above the University's City Road entrance. ●

Written by George Dodd with thanks to Julia Horne, Professor of History and University Historian, Department of History.

CLASSNOTES



WILLIAM CAMPOS

BSc '94

Campos was born in Brazil and migrated to Australia as a child. He started his career as a family and youth service worker, moving into disability and health as a manager of psychological services, while studying clinical psychology. He pursued a career that encourages cultural difference and context in the therapeutic process and worked with telephone helplines, supporting the delivery of counselling services. He developed the Helplines Australia association in the 1990s. He researched the therapeutic context of the telephone environment and then later, online and interactive technology environments. He's now the CEO of Independent Community Living Australia, a mental health and psychosocial disability service provider. He has been a keynote speaker on mental health advocacy and the importance of psychological research.



MELANIE ECKERSLEY-MASLIN

BSC(ADV) '06, BSC(HONS) '08
After completing her honours degree, Eckersley-Maslin realised that she loved biomedical research so much that she wanted to complete a PhD. She also loved travelling – so she decided to combine the two, going on to complete her PhD at Cold Spring Harbor Laboratories, New York, before moving to Cambridge, UK, as a postdoctoral research fellow. Back in Australia, she leads her own cancer research laboratory at Peter MacCallum Cancer Centre and the University of Melbourne, studying the way cell identity is established in embryonic development, providing insights into how cancers arise and develop. She was awarded the 2021 MetCalf Prize for Stem Cell Research, a 2021 Snow Medical Research Fellowship worth \$8 million and is the winner of eight prestigious prizes, including the University of Sydney Medal.



DR RICHARD HARRIS

MBBS '89

Harris studied Medicine and was awarded a Fellow of the Royal Australasian College of Surgeons, in both General and Vascular Surgery, before working as a vascular and endovascular surgeon. He is now one of Australia's leading vascular surgeons, working at Hornsby Ku-ring-gai Hospital and the Sydney Adventist Hospital (SAN). He has also been the Chairman of the Medical Staff Council at Hornsby Hospital. In 2010, he spearheaded a campaign to upgrade Hornsby Hospital and was pivotal in lobbying state and federal governments, raising over \$300 million for its complete rebuild. His other passion is writing. He has had two poems published and has just released his first novel, *Imagine*, inspired by John Lennon's iconic song.



DR GARRY LEWIS

**MBBS '65, MREHABCLNG '00,
HSCD '10**

Awarded his most recent degree from Sydney at the age of 75, Lewis holds 13 degrees and five doctorates. After growing up working on the land with his father, he went on to pursue his dream of studying medicine. He first graduated from Sydney in the 1960s and recalls overflowing lecture theatres, all-night card games and forging lifelong friendships. He has worked as a doctor across Australia, England and Canada over 50 years. He was awarded overseas fellowships, a professorship, a specialisation in anaesthesia, published significant research, made breakthroughs in the treatment of asthma and radiation sickness, and holds qualifications in theology, science, letters and alternative medicine. A car enthusiast, he still owns a 1956 Armstrong Siddeley limousine, which he rides in the back seat of, alongside his wife, Elizabeth.

More stories of alumni at work around the world. We love hearing what our alumni are doing.

Help us keep track by updating your details at sydney.edu.au/alumni/update-details



SOPHIE RAY
LLB '98, BA'96

Since her graduation with honours, Ray has spent two decades working across the diverse sectors of law, manufacturing, hospitality and tourism, early childhood, and social and welfare support. Her career has spanned Australia, the UK and Uganda, including 15 years as a director and corporate lawyer at PricewaterhouseCoopers in Australia and the UK. Ray is currently a full time Non-Executive Director of Go2 People (ASX: GO2) and of Big Fat Smile Group; Chair of the National Association of Women in Operations; Chair of RSL NSW; and Chair of Peak Care Equipment Pty Ltd. Living at her family's business on the NSW South Coast, Silos Estate Winery, she is also involved in the local community, chairing the Shoalhaven Education Fund and the Shoalhaven Women's Resource Group.



ANNE RING
BA '64, MA '74

Born in China to Hungarian parents, Ring (née Wise) immigrated to Australia in 1949. After majoring in psychology and anthropology and working as a clinical psychologist, she and her husband, a doctor, moved to Papua New Guinea, where she worked and studied as an anthropologist, gaining a master's degree in 1974 from Sydney. After working in the US, Sydney and Brisbane and earning a Graduate Diploma in Health Education from the Brisbane College of Advanced Education in 1983, positions as tutorial fellow and lecturer led to her becoming the principal research officer in medical education at the University of Queensland, while completing her PhD in health sociology. Her current focus is writing on a range of ageing matters, with her book on this topic published this year. With three children and six grandchildren, she is also passionate about the environment.



DR NAJEEBULLAH SOOMRO

MINTPH '12, PHD '18
Soomro is a medical doctor and dual-trained injury epidemiologist and sports scientist, having completed a Master of International Public Health, majoring in Epidemiology and Biostatistics, as well as a PhD in Exercise and Sports Medicine. His thesis, *Cricket Injury Prevention*, was completed in collaboration with Cricket Australia. It involved creating the world's first Cricket Injury Prevention Program (CIPP) and injury surveillance mobile app for community cricket, called TeamDoc. From 2013 to 2018, he worked in various research roles at the University. He has worked with Cricket Australia, FIFA, Rugby League, Netball, Iron Man, Australian Hockey Team and Australian Football League and in 2021 was appointed as the Chief Medical Officer for the Pakistan Cricket Board.



CATHERINE WALKER
BE(Civil) '13

Walker graduated with an honours thesis on *'Fog Collecting in Peru'*, which involved helping local communities to address water scarcity by constructing a system to catch fog droplets. She worked in regional Australia as a specialist in civil engineering and irrigation design and consulting, then moved into the floodplain risk management industry, specialising in flood engineering and community consultation. Ten years on, she has opened an office for WMS, and built an all-female team of engineers in Sydney. Walker is on the founding committee of the Young Floodplain Managers and leads an industry working group to improve flood education in schools. Actively involved in the Sydney University Women in Engineering mentoring network, she is passionate about encouraging girls to persevere with STEM subjects.

JUST THE FACTS

Dealing with vast amounts of information is just another day at the office for University researchers and academics. Here, three researchers each explain an idea at the centre of their current work.



ON PREVENTING LORIKEET AND FLYING-FOX PARALYSIS

Many native Australian animal species are in decline. Key threats that contribute to this are diseases caused by known and emerging infectious agents, toxins, and diseases driven by climate change. My research group is working to identify the diseases that are having the most significant impact on wildlife and on developing methods to mitigate them. A major focus of our current work, which is supported by WIRES, involves using citizen scientists coupled with modern DNA sequencing technology. This will enable us to determine the source of toxins that paralyse thousands of rainbow lorikeets and flying-foxes on the central coast of Australia each summer. Citizen scientists are assisting by reporting the plant species or food sources they observe the rainbow lorikeets feeding on.



Professor David Phalen

Phalen has dedicated his career to combatting the impacts of disease on wild animal populations. He is a Professor of Wildlife Health and Population Management in the Sydney School of Veterinary Science, where he collaborates with other researchers with similar interests and trains veterinary students to care for wildlife patients.

ON UNDERSTANDING MOOD DISORDERS

We all know how bad jet lag feels. We feel irritable, moody, physically sick, and have trouble concentrating and sleeping, waking at irregular hours. We get jet-lagged when we fly across time zones because we've disrupted our internal biological time, so our 24-hour 'circadian rhythm' is out of sync with the local time where we've landed. Now imagine feeling jet-lagged all the time. Some people with mood disorders such as depression and bipolar disorder do feel like this. My research aims to learn how the body's circadian system might go wrong in some people with mood disorders (by analysing clinical, laboratory, and wearable measures of the circadian system), which may point to new ways to predict and treat these problems.



Dr Jacob Crouse

Greater awareness of mood disorders

will help to better manage their personal and social consequences. Jacob Crouse is a NHMRC Emerging Leadership Fellow with the Youth Mental Health and Technology Team at the Brain and Mind Centre, who focusses on dysregulation of "body clocks", as one possible mechanism underlying mood disorders.

ON CARBON

Carbon is an essential element to all life. It regulates Earth's climate by controlling the amount of CO₂ in the atmosphere. My research is focused on the long-term geological carbon cycle that drives Earth's climate between icehouse and hothouse extremes. I am especially interested in one of the least known components of this cycle – sedimentary carbon that has been sequestered in deep-sea sediments for about 120 million years. Quantifying this on a global scale involves working with vast amounts of existing ocean-drilling data, collected over many decades, and analysing these data in a framework of moving tectonic plates.



Dr Adriana Dutkiewicz

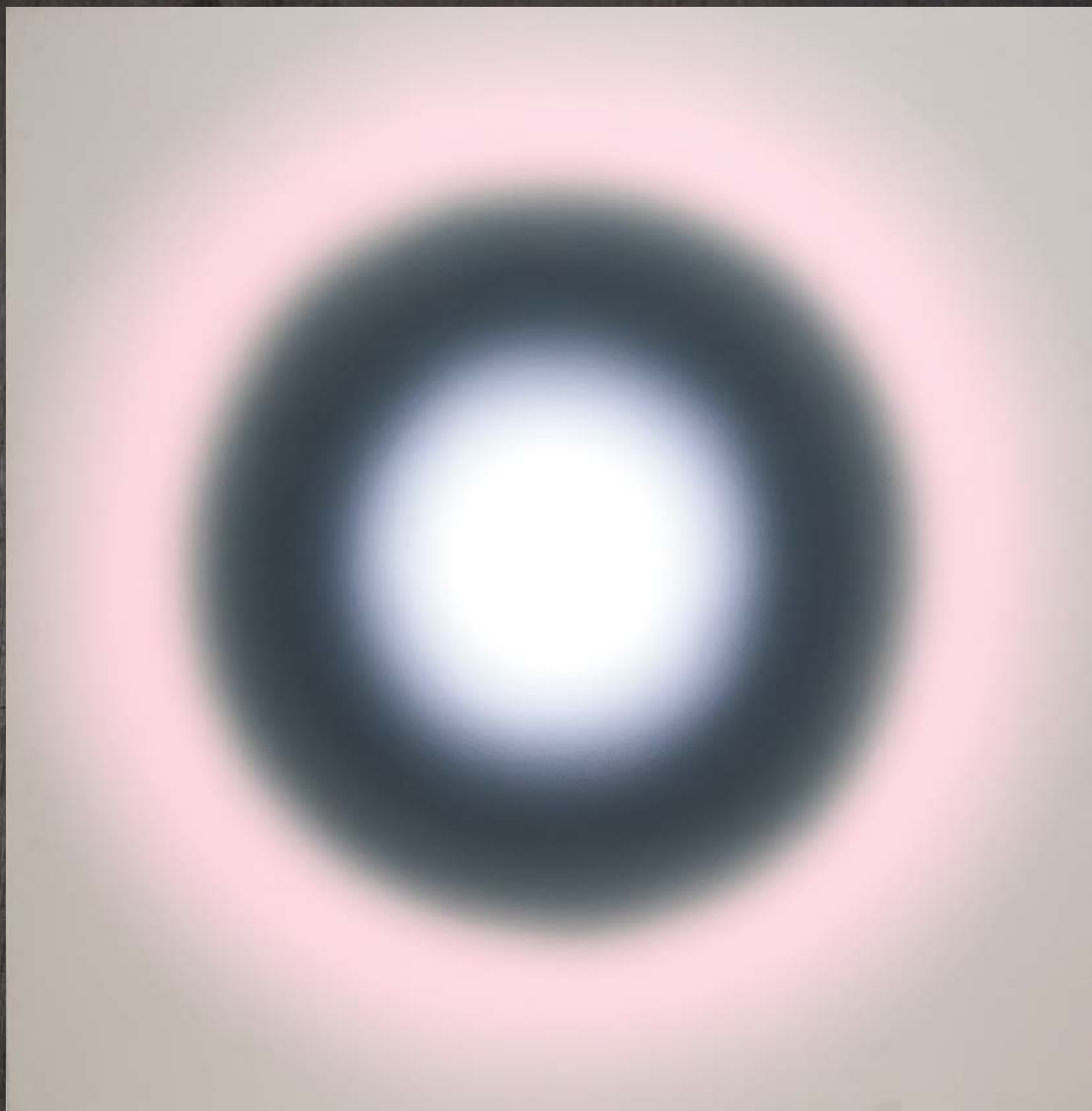
Examining

Earth's past enables us to better predict the rate and implications of climate change. Dutkiewicz is a sedimentologist, in the School of Geosciences and ARC Future Fellow who combines traditional sedimentology with cutting-edge technology, including the creation of the world's first digital map of the seafloor's geology.



Students undertaking wellness activities, 2021.

A passionate vision.
A powerful legacy.



Wojciech Fangor
M 26 1969
oil on canvas
Power Collection,
PW1969.6
© estate of
Wojciech Fangor

The compelling force in the life of JW Power was art.

In 1962, he gave an everlasting gift.

Through art exhibitions, research and public education programs,
the Power Institute has enriched the lives of thousands.

What will your legacy be?

Our Planned Giving team can help you shape your ideas:

planned.giving@sydney.edu.au

02 8116 2998



THE UNIVERSITY OF
SYDNEY