

SAM HERITAGE



A BOOK THAT CHANGED
THE WORLD

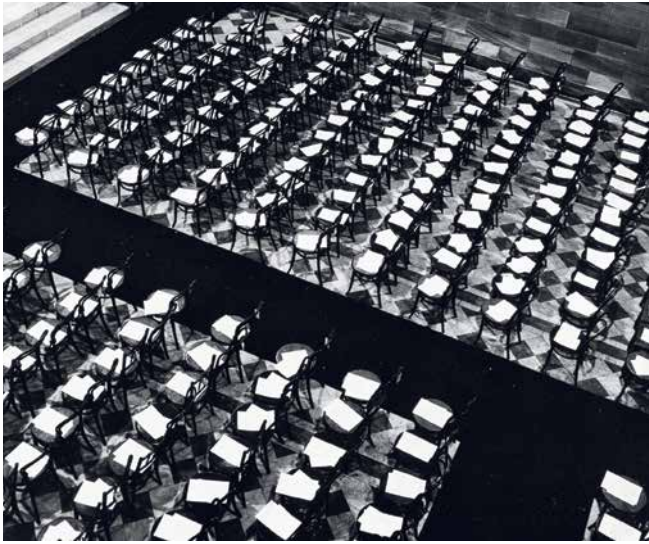
FIGHTING ADDICTION
A NEW WAY

BUILDING BLOCKS
OF A UNIVERSITY

PHOTOGRAPHS
FROM A MASTER



**What happens
when a horse
visits the dentist?**



PICTURES OF A TIME

It could be Australia's most famous photograph: *Sunbaker*, by Max Dupain, 1937. Though not a student, Dupain had strong University connections. As a struggling photographer, one of his first exhibitions was held on campus in 1938. Thanks to his skills as a visualist, he later worked here as part of a team designing camouflage techniques for the military, to help defend Australia in the impending Second

World War. In the early 1950s, and as a labour of love, he took a series of photos of the campus (some seen here), though he was disappointed by the outcome saying, "I had intended to create a book illustrating life in context at the University. Hundreds of exposures were made but the finance to publish was not forthcoming." Many of those photos have now found a home at the new Chau Chak Wing Museum.

Top left: Pages on seats lined up in the Great Hall

Bottom left: Students in the Quadrangle, accessing the news through a now-superseded technology

Top right: A staff member gives a graduation address with military representatives present

Bottom right: A cadet of the still-operating Sydney University Regiment

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need makeovers

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TELL US WHAT YOU THINK

We would love to hear your feedback about this publication and your ideas for future editions via sam@sydney.edu.au

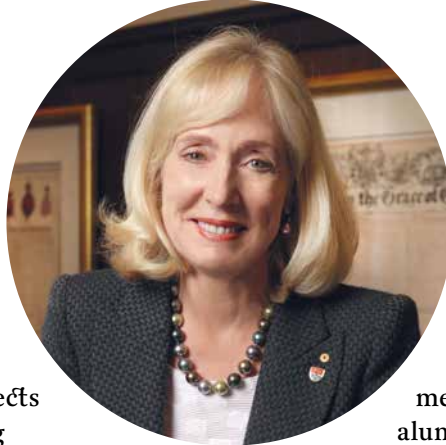
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CHANCELLOR'S MESSAGE



COVID-19 has disrupted many aspects of our lives, but it has been inspiring to see how the University of Sydney community has responded. Our staff and students have shown remarkable resilience in finding new ways to work, learn and stay connected with each other. With 9000 Zoom meetings taking place each day, more than 4000 classes now running online, and over 100 researchers working on COVID-19, the University is more focused than ever on developing the leaders of the future and helping find solutions to humanity's greatest challenges.

Our leading experts in public health, infectious disease and clinical care are working around the clock. From Professor Eddie Holmes, who was part of the team that first sequenced the genome of COVID-19, to the team collaborating with NSW Health to build a low-cost ventilator, and another that has created a searchable public database that pinpoints virus hotspots in NSW, our researchers are supporting COVID recovery efforts.

This focus on research that benefits society is one of the reasons the University was ranked first in Australia and second globally in the recent Times Higher Education Impact Rankings, which measure how well institutions deliver against the United Nations' Sustainable Development Goals.

We are also taking care of those in our community who need it most. We have assisted more than 1700 students in financial distress and thousands more through support measures that include grocery vouchers, accommodation relief, and social and

mental health services. Some of our alumni who live alone will have received phone calls from our staff checking on their wellbeing, and many others are building and maintaining essential social connections through online events and reunions.

Staff and students are proactively addressing the broader social impacts of the crisis on our most vulnerable neighbours, including leading a strategy to address homelessness by locating rough sleepers on campus and in our local area and providing outreach services.

Universities will play an essential role in NSW and Australia's economic recovery from this crisis. A recent report showed that in 2019 alone, the University contributed \$5.9 billion to the national economy and created the equivalent of more than 35,600 full-time jobs in retail, construction, tourism, real estate and hospitality. These endeavours have a positive impact across the country.

Our contribution to the communities we serve has never been more important.

I hope you enjoy this 2020 edition of *SAM Heritage* – take care and stay well.

Belinda Hutchinson AC
Chancellor
BEc Sydney, FCA

The next two stories make up our Now and Then feature, showing how our alumni have worked to make a better world.

NOW:

Undoing drugs

Written by George Dodd
Photography by Stefanie Zingsheim



Even people desperate to end their substance abuse often can't. But thinking differently about how the brain is affected by addiction means the answer could be, ironically, in a pill.

👉 Graham* is no-one's idea of an addict. A light, social drinker in his 60s, he's never taken recreational drugs or wanted to. After he had his back operation, he was strict about how he took the opioid pain relievers he was given, and he was keen to stop taking them. As it turned out, maybe too keen.

Rather than slowly withdraw from the tablets, Graham just stopped taking them. A couple of days later, he was restless and edgy. He couldn't sleep and wandered around the house all that night and the next. Despite taking a minimal dose for only a few weeks, Graham was now suffering withdrawal.

His doctor put Graham back on the opioid pain relievers so he could ween off them slowly.

The addiction that Graham experienced was mild and easily resolved, but the work of Associate Professor Michael Bowen (BA(Hons)'10 PhD '14) and his team aims to help people whose addictions might be overwhelming enough to destroy careers and relationships and, indeed, be deadly.

"Addiction causes changes in the brain that make it harder and harder for someone to stop," says

Bowen, a tall, and warmly engaging researcher whose youthful looks belie his numerous achievements and awards.

"What we now know about the addicted brain tells us there could be a medicinal way of managing addiction. That's what we're working on."

There are two approaches being looked at. The first involves stimulating social pathways in the brain to shift focus away from seeking out addictive substances and back onto engaging in positive social support networks; known to be critical for long term recovery.

The second approach involves reducing the traumatic effects of withdrawal to make giving up easier and possibly preventing full-fledged addiction from forming in the first place.

A key substance in the first approach is oxytocin.

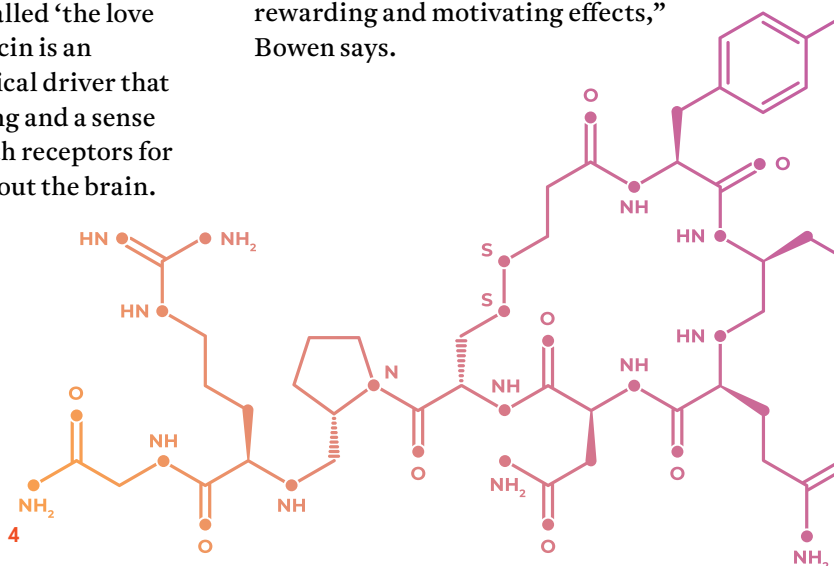
Sometimes called 'the love hormone', oxytocin is an important chemical driver that promotes bonding and a sense of belonging, with receptors for it found throughout the brain.

It is implicated in the mother-child bond, family togetherness, friendship and social skills, among many other things.

"You could say it helps increase the salience of the social world, something that, tragically, often degrades severely for an individual as they develop a chronic substance use disorder," says Bowen.

In testing the effect of oxytocin during alcohol consumption, Bowen's team found that rats given a dose of the hormone before consuming alcohol, passed the rodent version of sobriety tests with flying colours because oxytocin blocked alcohol from acting at sites in the brain that cause intoxication. The tests also suggested that oxytocin can reduce the amount of alcohol rodents consume, overall.

"It seems to prevent alcohol from hijacking pathways in the brain that mediate alcohol's rewarding and motivating effects," Bowen says.



* Not his real name

▶ The oxytocin molecule



▲ The fight against addiction is difficult. Associate Professor Michael Bowen thinks differently to find new solutions.

Australia has a very strong motivation to reduce alcohol abuse. According to the National Alcohol Indicators project, an estimated 5797 Australians aged 15 and over died from alcohol-related causes in 2015, while alcohol-related hospitalisations from 2012 to 2013 exceeded 144,000 – that’s 400 people a day.

While oxytocin shows real promise for a range of addictive substances, a continuing challenge is how to effectively administer it to humans. As Bowen’s team and his collaborators look at methods from tablets to nasal spray, he is also pursuing other treatment options, including the compound KNX100, a novel treatment for opioid withdrawal which Bowen co-invented at the University of Sydney.

So promising is KNX100, Bowen co-founded a spinout company, Kinosis Therapeutics, in 2018 to fully focus the research; Bowen is now its Chief Scientific Officer. Encouragement came quickly, with Kinosis awarded a grant of up to \$US.4.6 million by the US National Institutes of Health. Its first ever human clinical trial is scheduled for early next year.

There is strong motivation for Bowen’s opioid work. In just over a decade, the Australian death rate from opioids has more than doubled, and things could get much worse if the American experience is anything to go by. Opioid overdose is now the number one cause of preventable deaths in the United States, killing more people than firearms or car accidents.

“Addiction is a complex brain disorder,” says Bowen. “It changes the way people think, the way they behave, the way their brain and body functions.

“It’s a tough adversary, but new pharmacological treatments will be a key part of the solution. We are hopeful that our work will provide a much-needed breakthrough.” ●

BEATING ADDICTION

Individuals, families, communities – all can be devastated by addiction. But an answer is emerging. To find out more or to help advance neurological research, please phone Charly Brown on +61 2 8627 8818, or email development.fund@sydney.edu.au

THEN:

Starting rehab

Written by George Dodd
Photography by Stefanie Zingsheim

Rehabilitation centres are now commonplace and more openly seen as a treatment option. But in the early 1970s, they were almost unheard of. Dr F Harding Burns helped change that.

👉 Australia has had two peaks in alcohol consumption. The first was in the 1830s when Australians consumed, on average, 13.6 litres per head of pure alcohol each year. During the Great Depression, it dropped to a more temperate 2.5 litres. But the party mood returned by the mid-1970s, when we were back up to 13.1 litres per person in a veritable flood of cask wine, Cold Duck and VB.

Not coincidentally, the mid-1970s also saw the launch of an early alcohol rehabilitation facility at Royal Prince Alfred Hospital (RPA). It was a time when hospitals were evolving from general medicine to establishing specialist medical units. Dr F Harding Burns OAM was nominated to head up what became the RPA Drug and Alcohol Unit.

“The psychiatry and community health people said we should have a unit for alcohol-related problems,” says Burns. “I was on the steering committee to make that unit happen, then I became the head of the unit.

“I was feeling my way around about how we learn things and what we should do. I was pretty much self-taught.”

That said, Burns was always a good student. Born in country New South Wales, he went to boarding school in Sydney from the age of 10. He remembers being more focussed than other country students, eventually becoming dux. Graduating from the University of Sydney, he now says he found the study of medicine difficult, though he did achieve honours.

When he set up the Drug and Alcohol Unit, it was early days for people treating alcohol-related problems as an illness, or even as a broad threat to health. Even some of Burns’ colleagues were unconvinced by the idea of a specialist unit.

“I was told to be careful with it because it would bring into the hospital an undesirable group of people,” says Burns with a laugh as he sits in his study, surrounded by objects reflecting an Australian family history going back to the 1850s.

The idea that people with alcohol-related problems were some sort of niche group was profoundly shaken when Burns and his team at the unit conducted an alcohol prevalence survey funded by the Health Department.

By interviewing and examining 1000 hospital admissions, they found that one in six people had an admission directly related to alcohol, and one in three were connected to alcohol in some way. This made it clear that alcohol wasn't the problem for an undesirable group. It was a problem for the community in general.

As Burns expanded his understanding, he became aware of the emergence of an international community of addiction specialists. He travelled the world investigating approaches, including at the World Health Organization. Across this time, he became a board member or chairman of a number of non-government organisations, both locally and internationally.

A consideration for Burns when this all started was the fact that he had a young family. "All the things I did were only really possible because of my wife, Mary," he says. Trained in architecture, Mary set aside her own career to care for the children. Today, Burns is glad to look after the running of the home.

Looking back at his years working to understand and treat addiction, Burns is quick to deflect any suggestion that he was a leading light, despite his many senior roles and much professional recognition. Instead, he says his greatest skill was getting along with people, which he credits to his country upbringing.

Still, his achievements speak for themselves. The RPA Drug and Alcohol Unit became a model for others to follow. He pioneered the use in Australia of the now well-established addiction treatment, Naltrexone. As a member of a World Health Organization Collaborative Project, he worked to develop AUDIT (Alcohol Use Disorders Identification Test) which became 10 multiple choice questions that are still used internationally to identify people in danger of alcohol problems.

For the record, the Australian Bureau of Statistics says that in 2017–18, annual alcohol consumption in Australia was 9.51 litres, and apparently falling. ●



▲ Top: After an early dedication to helping children with diabetes, Dr F Harding Burns OAM became a leader in the treatment of alcohol addiction.

▲ Bottom: The Royal Prince Alfred Hospital today.

Precious stone

Written by George Dodd
Photography by Stefanie Zingsheim

The University of Sydney is one of a rare breed, having some of the finest, grandest sandstone buildings in Australia. But with great buildings comes great responsibility to maintain them.

👉 They were called Paradise, Purgatory and Hellhole, and chances are, you've seen what they produced without realising it. These were the three quarries from which most of the sandstone was obtained for the great, classic buildings of Sydney.

St Mary's Cathedral, Sydney Town Hall, the Martin Place General Post Office and indeed, the early parts of University of Sydney, were built of sandstone from Paradise, so-called because it produced high quality stone that was easy to extract. By comparison, Purgatory and Hellhole demanded a lot of work for lower quality stone.

"All three were in what is now the heavily built-up inner-Sydney suburb of Pyrmont, so that stone is effectively out of reach," says Chris Legge-Wilkinson, until recently, the University's longstanding Heritage Architect. "This is a problem when you need matching sandstone for restoration work."

Restoration is a continuing issue, because Sydney sandstone, as it's called, will last for only about 100 years in exposed areas. Construction of the glorious Quadrangle began 166 years ago. Fortunately, greater Sydney rests on a massive seam of sandstone, and there are sandstone quarries in Gosford, north of Sydney, that give a close-enough match.

"If you were looking to refinish a whole building, you'd be in strife," says Alan Crowe, Design Manager

of University Infrastructure (UI). "But in terms of building conservation, we manage pretty well."

Some of the problem solving is invisible but essential. As Simon Ridout, UI's Infrastructure Delivery Manager, explains, "On the JD Stuart Building (completed in 1913), they originally used steel nails on the roof tiles. But steel rusts, so the heads started breaking and the slate was sliding off the roof. We replaced them all with copper nails."

Protecting the University's precious buildings from decay is just one responsibility of UI. Crowe and Ridout are part of a busy team, along with a rotating cast of artisan builders, stone masons and specialist architects.

A much larger scale project was the recent repair of a major damp issue in a section of the Quadrangle. It had been a problem for 120 years, made worse by some incorrectly placed concrete slabs, probably from the 1960s. The damp made for a difficult workplace and it was undermining the wall plaster. Repairs involved excavating almost down to bedrock.

"Water is the enemy," says Crowe. "We planned for a couple of years, then we sent in the specialist contractors who've worked on the campus for generations, to essentially restore the intentions of the original builders. They also added some new drainage structures. "No-one can see what we've done, but it looks like the old problem's been fixed," says Crowe.



▲ It's taken years off. The RD Watt building recently returned to its former glory.



▲ Digging deep in Pymont. When buildings come down, crews move in while they can, to grab more sandstone for maintaining the historic buildings of Sydney. Kennerley / Sydney Morning Herald

Of course, some projects aren't invisible at all. In fact, they're transformative.

When it was completed in 1916, the RD Watt Building was a large, elegant, two-storey Federation Arts and Crafts structure nestled in a quiet corner of the campus, and the first purpose-built space for the newly established Faculty of Agriculture.

Not unexpectedly, a hundred years of use and remodelling took a heavy toll, with rooms divided, ceilings and even windows covered, and exterior gargoyles weathered by decades of wind and rain.

"We looked at records in the archives to see how it used to be, because you lose a lot of detail with weathering and the like," says Crowe. "Then we asked the contractors to reproduce what's there but with some licence to do their own thing."

RD Watt was built when the fashion for solid sandstone buildings had passed, but it had sandstone elements, including those gargoyles. And no, carving gargoyles is not a lost art. "Plenty of people still have those skills because of the number of sandstone buildings around the city," says Legge-Wilkinson.

Right now, the bright, new gargoyles are easily spotted. But time and weather will eventually give them the University of Sydney complexion. That would be true even when using the sandstone from Paradise, which is actually sometimes a possibility.

Every so often, one of those buildings in Pymont has to come down, as happened most recently in 2017. In the time between demolition and new construction, as much stone as possible is taken out for the use of the city's building conservators, though the sandstone stockpile is managed by the State Government and an application must be made for an allocation.

Negotiating big and small projects, budgets and suitable raw materials for the University's sandstone buildings would be a big enough job on its own, but UI also has oversight of the other, non-sandstone but still significant architecture across the campus.

From the old and graceful Macleay Building to the more recent, and in its day, innovative, Fisher Library, the team is constantly assessing, repairing, upgrading and conserving. They care for the buildings but also consider how those buildings sit in the wider compass: the domain of the University.

"We have camellias that live nowhere else in the world because of a language professor from the 1920s called Gowrie Waterhouse, who was an avid camellia grower and created gardens around the campus," says Legge-Wilkinson. "The whole landscape is precious."

It's no wonder the University of Sydney has been many times voted one of the top 10 most beautiful campuses in the world. ●

Don't like going to the dentist? Think how it would be if you were a horse. With a mouthful of large, hard-to-access teeth, horses are a challenge for the dental problem solvers at the Camden Equine Centre.

The horse's mouth

Written by Rebekah Hayden
Photography by Stefanie Zingsheim



▲ With a specialised skill set, Associate Professor Denis Verwilghen has helped horses recover from difficult conditions.

👉 When Black Beauty*, a nine-month-old foal destined to be an Arabian show horse, fractured her face in a collision, her future would have been bleak were it not for the skills of Associate Professor Denis Verwilghen.

As the field of jaw and face surgery ('maxillofacial surgery') tends to be more advanced for humans than for horses, Verwilghen called on a human-maxillofacial expert, Belgium-based surgeon Professor Maurice Mommaerts,

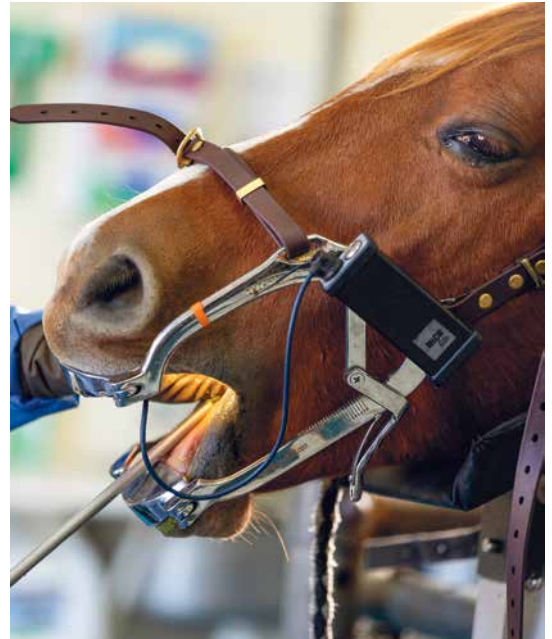
to help him tackle the complexities of Black Beauty's case.

It took the two surgeons three and a half hours to reconstruct the foal's face, but the operation was such a success that two years later Black Beauty went on to win third

* Not her real name



▲ The Equine Centre has two operating theatres, an in-house clinical pathology lab and a specialist imaging service for speedy diagnosis.



▲ A big problem in equine dentistry is being able to see where the problem is.

prize at the Arabian Horse World Championships, with first prize for the most beautiful head (yes, that’s really a thing).

Being a surgeon specialising in the mouths and heads of horses is not your run-of-the-mill profession, but after studying as a vet at the University of Ghent in Belgium, Verwilghen felt he needed to know “a lot about a little, rather than a little about a lot”, so he did a degree in equine surgery followed by a PhD in orthopaedics.

“Horses have always been my passion,” Verwilghen says. “I’ve always ridden them, but I’m also passionate about caring for them and looking at preventative medicine rather than curative medicine.”

Verwilghen now heads the Camden Equine Centre southwest of Sydney, the equine arm of the University of Sydney’s Veterinary

Teaching Hospitals. The centre’s multidisciplinary team includes leading equine specialists with skills in internal medicine, surgery, anaesthesia, diagnostic imaging and emergency critical care. Their patients can be anything from donkeys to racehorses and showjumpers.

The importance of dental care in horses has been known for a long time, with writing on the subject dating back to long before Christ. As a profession however, it is still developing.

“At the end of the last century, there was some disinterest in the field from the equine profession because it’s a hard and dangerous job. A horse’s mouth is relatively deep – 20, 30 centimetres – you can’t just stick your head in there and have a look,” Verwilghen says.

You might expect that work

on horses would happen under general anaesthetic. In fact, horses recovering from a general anaesthetic are liable to try and take off before they properly regain consciousness, potentially endangering themselves and any people nearby. But thanks to breakthrough medications, equine veterinarians can now sedate horses and treat them standing up. Affordable camera technology is also making it much easier to investigate a horse’s mouth.

“It has totally opened up the field of dentistry,” Verwilghen says. “You know the saying: if a carpenter only has a hammer, everything is a nail? When I was being educated, they’d say there’s no such thing as tooth decay, because the only treatment device we had was a scraping tool called a rasp. So, everything was treated as an overgrowth.”

Not only is tooth decay ('caries') now recognised in horses, but treatments have been developed to prevent root infections or fractures that could create more complex problems. The rule of the rasp is also being challenged, with Verwilghen educating the horse community about the importance of regular dental care and diagnosis.

To advance things further, the Camden Equine Centre is currently fundraising for what would be NSW's first standing CT scanner for horses. This kind of diagnostic imaging could help solve the eternal problem of all vets: that animals can't tell them where the pain is. The scanner could also pinpoint small but dangerous trouble spots in large animal bodies.

Verwilghen's collaboration with Professor Maurice Mommaerts also continues. One shared project sees them using the 3D-printed jaw joints of sheep to develop treatments that could benefit animals and humans with serious jaw damage.

"Our collaboration is enriching both sides," Verwilghen says. ●

CARING FOR ANIMALS WHEN THEY NEED IT MOST

Animal health and welfare is a key area of research and service provision at the University. To learn more or to help us to help animals, please call Judith O'Hagan on +61 2 8627 8818 or email development.fund@sydney.edu.au



- ▲ Top: Horses are kept calm for their own safety and that of the staff.
- ▲ Middle: Hold your horses. Equine treatments are on a different scale.
- ▲ Bottom: New technologies have made diagnosis and treatment easier.

GOOD TO KNOW

You don't even have to leave your home to enjoy some of the great activities and programs offered by the University. Most on this list are low cost or even free. Take a look and get amongst it.

KNOW HISTORY:

OBJECT MATTERS

A monthly podcast series drawing on the vast historical and artistic collections of the new Chau Chak Wing Museum. Hear fascinating insights and interviews in a program hosted by archaeologist and museum manager, Dr Craig Barker.
sydney.edu.au/museum/news/podcasts

KNOW SCIENCE:

LUNCHBOX SCIENCE SERIES

Live lunchtime sessions of scientists talking science. Irresistible information and the chance to ask the questions you need answered.
sydney.edu.au/science/lunchbox-science

KNOW MUSIC:

SYDNEY CONSERVATORIUM OF MUSIC YOUTUBE CHANNEL

Hundreds of hours of talks, webinars and glorious music from Australia's brightest future classical music stars.
youtube.com/user/sydneycon

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open.sydneyuniversitypress.com.au

KNOW LOTS OF STUFF:

SYDNEY IDEAS

The Sydney Ideas public talks program brings together the leading thinkers of the world to change how you see the world. Dive into this dazzling range of subject matters and podcasts for free.
sydney.edu.au/sydney-ideas

KNOW WHATEVER YOU WANT:

THE CENTRE FOR CONTINUING EDUCATION

Lots of courses have moved online, so can be taken from wherever you are. Subjects range from the humanities and marketing to gardening and psychology. Alumni receive a 10% discount (up to a maximum of \$500 per course) on enrolment.
cce.sydney.edu.au

KNOW FROM THE BEST:

THE UNIVERSITY OF SYDNEY AND COURSERA

From astronomy to music, free online courses are offered by some of the University's top academics as MOOCs (Massive Open Online Courses) through Coursera, which promotes easy access to online learning.
coursera.org/sydney

KNOW WHAT'S COMING UP:

LIFE AFTER LOCKDOWN

When social distancing rules allow, there are great reasons to come to campus:

- The new state-of-the-art Chau Chak Wing Museum will open soon with free art, technology and historical displays.
- Visit the Quadrangle for free
- Carillon bell concerts, which will soon restart.
- Book free guided tours of the campus by calling Nichole on 02 8627 0948.

Check the University website regularly for updates on what's happening.
sydney.edu.au

Travel document

Written by George Dodd
Photography by Stefanie Zingsheim

International travel in the ancient world didn't include too many buffet breakfasts. Yet some ancient travellers still had the urge to write travel guides, and Daniel Hanigan couldn't be happier.



▲ The early journeys of the ancient Greeks have given Daniel Hanigan a fascinating journey of his own.

👉 Considering how detailed and even chatty online maps are today, it's strange to think there was a time when people were wrestling with the very idea of what a map should be.

It was the Greeks who first began taking maps seriously as factual documents (some earlier cartographers depicted religious ideas as actual places). The Greeks (and later, the Romans) also had another way of guiding people through the world, called a periplous, which translates as 'sailing around'.

A periplous was a chronological document, like an itinerary, indicating landmarks to guide your journey. Many of them talk of places we might still visit today,

but also of places and civilisations that now exist only on those pages.

Perhaps part of the reason that periplography (as the writing of periplous is called) has stayed relatively understudied is that it's best done by people who can read ancient Greek and who are happy to trawl through documents piecing together and cross-referencing ancient journeys. Daniel Hanigan (BA(Hons) '17 MPhil '19) is one of those people.

"Learning Greek was the most remarkable experience of my life," he says. "It's very technical and a new way of thinking, but parts of the language are lost, so there's this fantastic, almost detective work in piecing



▲ Originally a description of the Black Sea in 25 books, only the opening of this periplus remains. It was written by Greek historian and philosopher, Arrian before 132 CE and republished, as here, in 1533.



▲ The locals are so helpful. Learning classical Greek allowed Hanigan, here with Dionysus, the Greek God of wine and festivity, unravel the great, ancient texts.

it all together. The payoff is that you get to read some of the most remarkable poetry and literature ever written.”

Despite a studious disposition, it was never obvious that Hanigan was destined for the classics. Raised on a dairy farm in northern New South Wales, and later in the western suburbs of Sydney, neither parent had academic leanings and Hanigan himself admits he wasn't a dedicated student. “I was pretty unfocused,” he says. “But I was good at ancient history, so while I studied mathematics during my first year at uni, I had electives in ancient history, archaeology, and anthropology – all of which I loved.”

Making these subjects the focus of his studies led Hanigan to winning the University Medal in 2016.

Now in Cambridge doing his PhD in classics, he is grappling with the question of whether the many periplus written over 800 years were specifically created as travel guides. Some academics are unwilling to bring them together under one classification because their styles vary so markedly, but Hanigan sees that as an inevitable product of who wrote them.

“There's the periplus of Arian, an administrative general for the Roman emperor, Hadrian,” says Hanigan. “His periplus was sort of a military report. The earliest one was Hanno's *Periplus of the African Coast*. Hanno might have been a Carthaginian King who went to colonies in Africa. At one point, his periplus seems to describe sailing past an erupting volcano.”

“... Large torrents of fire emptied into the sea, and the land was inaccessible because of the heat. Quickly and in fear, we sailed away from that place. Sailing on for four days, we saw the coast by night full of flames. In the middle was a big flame, taller than the others ... By day, this turned out to be a very high mountain, which was called Chariot of the Gods.”
Periplus of the African Coast (4th century BCE), Hanno the Navigator

The reference to Chariot of the Gods demonstrates another feature of some periplus: insights into the language and history of the sites visited.

“Our best guess here is that Hanno is referring to Mount Cameroon, largely because it is known locally as *Seat of the Gods*, says Hanigan. “So, *Chariot of the Gods*, is likely an adaptation of that local name.”

As dramatic as Hanno's report of the volcano might be, there was a tug-of-war in the ancient world about what a periplus should contain. For example, Markianos of Heraklea championed the removal of anything other than pure navigational information.

For Hanigan though, the insights and perceptions beyond navigation are where the real value is. “This is the Greeks coming into contact with cultures that are fundamentally not like their own. As our world is changed by forces like migration and tourism, that's one of the challenges of today.” ●

In the universe of influential books, one of the brightest stars is the *Principia Mathematica*. There, Sir Isaac Newton laid out the laws of motion leading to the Industrial Revolution, no less. The University has an original copy of that transformative book.

Wheels in motion

Written by Eleanor Whitworth

👉 In 1687, Sir Isaac Newton published his acclaimed work on physics, the *Philosophiæ Naturalis Principia Mathematica*. The University of Sydney holds not only a rare first edition of what is one of the world's most influential books, it is the custodian of a version with annotations in Newton's own hand – giving it special reverence for Newton's many admirers.

The *Principia Mathematica* changed our understanding of the laws of motion and gravity, and led to a myriad of new technologies and indeed, the Industrial Revolution. The University's volume of *Principia* is one of only 189 surviving first edition copies. And that's just where it starts to get interesting.

Like all good scholars, Newton continually refined his work. To eliminate inaccuracies in the second edition, Newton sent four (known) first edition copies to his peers, such as the Scottish mathematician, John Craig, for feedback.

Following Newton's death in 1727, our annotated copy found its way to Sir Demetrius James of Kent, where it remained for more



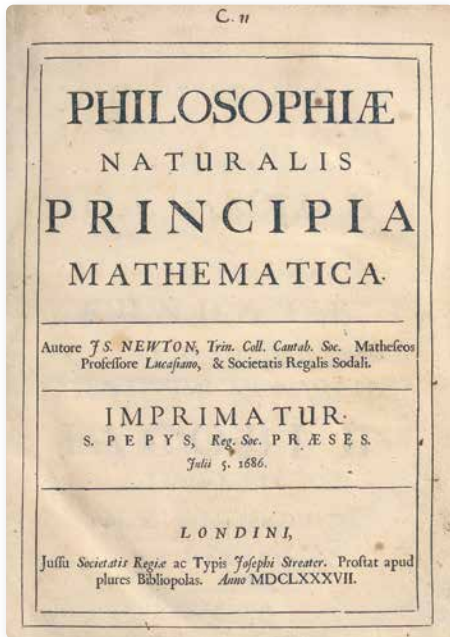
than 140 years, packed with other books in an oak chest. In the early 1900s, the chest was shipped to Australia as part of an estate and put on sale. The *Principia*

was purchased by someone who quickly saw its value: the Hon. Arthur Bruce Smith, a barrister and politician who assisted with the drafting of the Australian Federal Constitution.

Intrigued, Smith undertook some amateur palaeography to identify the authors of the annotations. To confirm his Newtonian hunch, he sent images to various experts, including Trinity College, for comparison against Newton's personal archives.

Following close examination of the structure of the handwritten 'E's, it was agreed, and published in *Nature* magazine, that several corrections are in Newton's own hand. Others may have been by the original peers he sent it to for review.

"This insight into the thinking processes of these extraordinary minds is incredibly powerful," says Julie Sommerfeldt, once a conservator at Oxford's Bodleian Library and now Manager of Rare



- ▲ Title page of the *Principia*
- ▶ Newton used many 'propositions' to lay out his ideas. Proposition 22 (right) talked about the moon's orbit, with annotations possibly handwritten by Newton himself.
- ◀ The Hon. Arthur Bruce Smith. Decades after he purchased the *Principia*, his daughters donated it to the University.

Books & Special Collections at the Fisher Library.

In 1961, Smith's daughters, Miss Barbara Bruce-Smith and Mrs Beatrix Bruce Blomfield, donated the unique volume to the University of Sydney, after refusing a generous purchase offer from Harvard University in the United States.

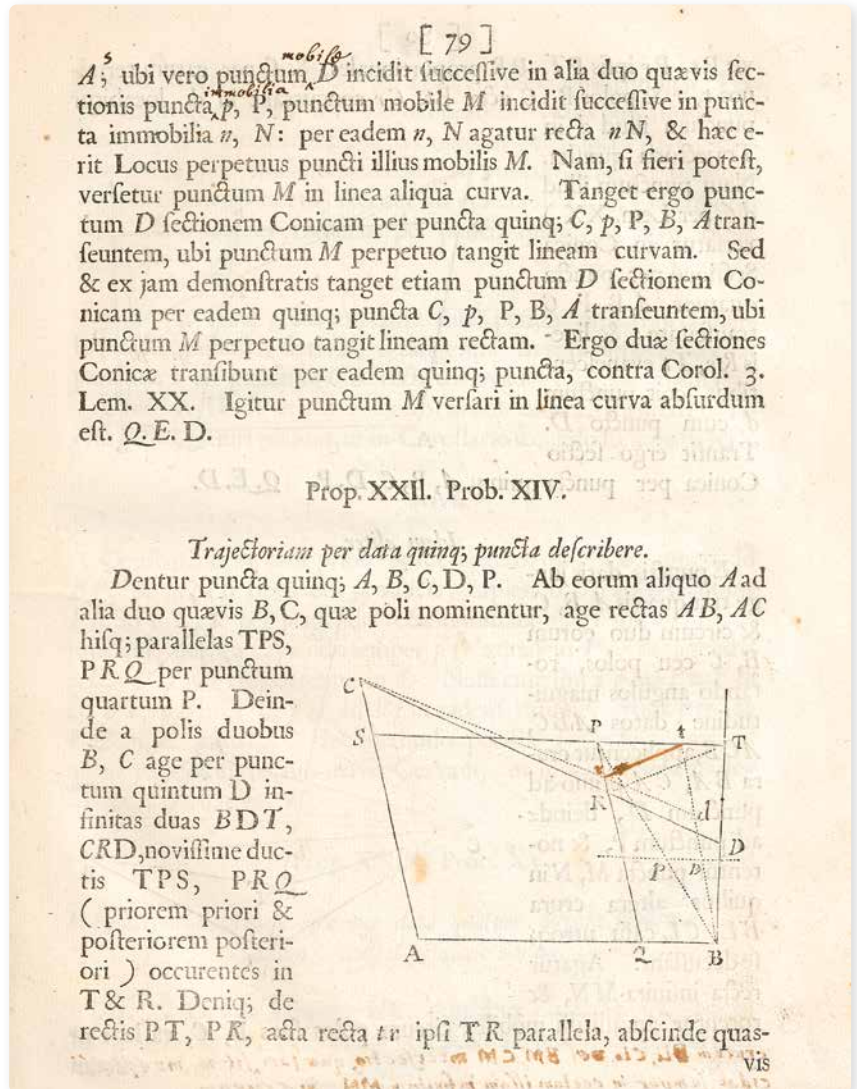
It now looks much as it did when in Smith's possession. "For a book of inestimable intellectual value, it's very unassuming," says Sommerfeldt, pointing out the absence of gold leaf on the front cover, with instead, utilitarian blind tooling. Sommerfeldt also notes the *cockling* of the paper: gentle waves that are a

characteristic of the letterpress printing process.

Housed in the Fisher Library alongside many other remarkable works, the book is now a resource for the whole community.

"This *Principia* hasn't required conservation, but it is kept in a climate-controlled environment to ensure it is stable for future generations," Sommerfeldt notes.

"Students of science, physics and engineering come and hunch over it in awe. Seeing Newton's own handwriting, his corrections,



calculations and diagrams, gives them a window through time and into his mind. It's like a religious – or numinous – experience for them," Sommerfeldt adds as she carefully closes the cover. ●

Digitised copies of the *Principia Mathematica* and associated correspondence are available on the Fisher Library's Digital Collections website:
digital.library.sydney.edu.au

Like most Sydneysiders, Professor Penny Russell was aware of the new light rail being installed throughout the city. Then suddenly, this huge construction project presented a very personal connection.

The unlikely event

Written by Rebekah Hayden
Photography by Louise M Cooper



▲ A career as an historian, with particular interest in gender, class and race in colonial society, started for Penny Russell in a teenage fascination with historical novels. Here, Russell is photographed in the University of Sydney's Shellshear Museum of physical anthropology and comparative anatomy.

👉 Historians might be used to startling occurrences that shape history, but it is another thing entirely when the unexpected is personal. Professor Penny Russell was deep into researching her great-great-great-grandfather for her latest book when she learned that his bones had just been uncovered at a Sydney construction site.

“Before I began my research, most of my ancestors were just names to me,” says Russell. “People from the past ‘come alive’ for us much like characters in novels – only as they exist in text and in print and in imagination.

“Over the years I’ve spent thinking about this one ancestor, Joseph Thompson, I’ve developed a strong sense of sympathy, of closeness with him. And suddenly here he was, existing in tangible form – as bones.”

The story goes back to 2013, when Russell’s research on Joseph Thompson began. As an historian and historical researcher, she thought her own family could be an interesting springboard for telling the story of retail commerce and Protestantism in mid-19th century Sydney.

“Joseph arrived in Sydney in 1834 with his wife, Mary Thompson, and 10 of their 12 children. He’d been a draper in London, and within two weeks of arrival, he had set up shop as a draper in Sydney,” Russell says.

As one of the founding members of the Pitt Street Congregational Church, Thompson rubbed shoulders with future newspaper magnates, the Fairfaxes, and fellow draper, later department store owner, David Jones.

“They were part of an elaborate network of friends and supporters, and their children intermarried quite a lot. When John Fairfax was buying the *Sydney Herald* in 1840, he borrowed money from his friends, including Joseph Thompson,” Russell says.

In the early days of her research, Russell looked for her ancestor’s grave. She found that Thompson had been buried in the Devonshire Street Cemetery in 1858; his brother Samuel joined him two years later. By the time Joseph’s wife, Mary, died in 1871 and was buried in the same grave, the cemetery had been formally closed for a decade.

In 1901, graves were moved from the Devonshire Street Cemetery to make way for the new Central Station. Records show the three Thompsons were moved at that time to Bunnerong Cemetery in the south-eastern Sydney suburb of Botany. Like many others, their headstone had been bulldozed in the 1970s. Russell’s search seemed fruitless.

Yet in the move to Bunnerong, it now appears,

Joseph Thompson was somehow left behind.

In the course of extensions to Central Station, work had already stopped six times in 2019 so bones could be exhumed. When Joseph Thompson was disinterred by a team of historical archaeologists, he could have been yet another nameless body were it not for the ornate silver plate attached to the coffin that gave his name, age and year of death.

Russell was sitting in her office in the McCallum Building at the University when a colleague sent her the news about Joseph’s reappearance. She was able to raise her eyes from the article and look out her window to the medical building where his bones were already being held.

“That was an emotional moment,” Russell says. “My rational mind was saying the discovery of a coffin is not going to tell me anything very much. And the other half of me was just thinking, wow, here is this man resurfacing. There was a sense of a real connection made more tangible by the reappearance of the grave.”

As part of the protocols laid down by the Sydney Metro organisation, which found the remains, and in consultation with the Department of Health, a meeting with descendants was called to make decisions about the bones.

“Meeting Thompson’s descendants has been another reminder of the reality of his life’, Russell says. “So many people now feel a stake in his history and how he should be remembered.”

Bones can be a sensitive subject, especially, as Russell says, “when you’re talking about Aboriginal remains unearthed from graves that should never have been disturbed, or massacre sites where they were never properly buried.” But Thompson was clearly buried in accordance with his faith, and the family have seemed more excited than distressed by the discovery of the grave.

For now, Thompson’s bones await DNA testing in the University’s Shellshear Museum, which specialises in human, other primate and mammalian skeletal collections. They may prove to be an extraordinary historical resource in themselves, revealing another layer of information about his life.

The new question is how to properly lay him to rest again? The plan is to rebury Thompson at the Bunnerong Cemetery where he should have been all this time, along with a commemorative stone telling his story; a story now made much richer by Russell’s years of research. ●

THE RIGHT MOMENT. THE RIGHT PERSON.

Written by Rebekah Hayden
Photography by Stefanie Zingsheim

When Libby Sakker heard she'd been the subject of a heartfelt speech, she thought it must have been a mistake. But no mistake. Shannon Foster always remembered Libby as the teacher who put her on a new road.

👉 SHANNON: WHY LIBBY WAS SO IMPORTANT TO HER

Growing up Aboriginal in Sydney was sometimes a strange experience. As Sydney D'harawal people, we are some of the Traditional Owners of this Country, but to the rest of the world, we didn't exist.

I was raised and educated during what has become known as the "great Australian silence" and the "silent apartheid" of colonisation here in Australia. The hope from the government was that if everyone was quiet and did not discuss, engage with or teach Aboriginal cultures and knowledges, we would just go away and colonisation would be complete. Everything I learnt about my Aboriginality was taught to me by my D'harawal father outside of school, as all of my teachers completely ignored the fact that Aboriginal people and cultures existed. That was, until Libby Sakker came along.

Mrs Sakker (Dr Sakker to the world outside our high school) was the biology teacher at my high school in Bankstown in the late 1980s. Mrs Sakker not only taught me to more deeply understand and appreciate the Country that I was connected to, she taught me a far greater lesson – to be proud of who I am. She was the first teacher to show interest in me as an Aboriginal student and we connected through discussions of all things Aboriginal. When Mrs Sakker asked me about being Aboriginal and allowed me to have a voice, she did more, right there in that moment, than any other teacher throughout my entire education.

Understandably, Mrs Sakker left a lasting impression on me and I thought of her often as I continued my education at the University of Sydney and became a teacher. My work has always involved educating people



▲ Shannon Foster (GradDip(Second) '96) is a D'harawal Saltwater Knowledge Keeper, artist and educator.

of all ages, and in all professions, about the stories and knowledges of my family. Throughout more than 20 years in education, I have seen many changes in the attitudes and behaviours of Australians towards

Aboriginal people and cultures. I have gone from enduring the silence and erasure of our people to being able to create dedicated Indigenous knowledge programs and curricula for prominent learning institutions including universities, museums, galleries and government bodies.

As a part of my work, I am often asked to speak at conferences and deliver Welcome to Country ceremonies. One stands out. I was invited to give the opening talk at the Australian Science Teachers Association conference hosted by the University of Sydney during NAIDOC in 2018. It was there, in front of a sea of dedicated science teachers, I was inspired to pay homage to my favourite science teacher, Mrs Sakker.

Remembering her through my talk, I found myself wishing we could somehow reconnect. Not long after, through a series of seemingly unrelated events and connections, Mrs Sakker and I found each other and met up just days before her 81st birthday.

Meeting Ms Sakker (I must now call her Libby!) I realised I hadn't been idealising her at all. In fact, she is even more inspiring than I ever knew and still a dedicated ally to Aboriginal people and a shining light for women in STEM (science, technology, engineering and mathematics).

I asked Libby what advice she has for anyone considering a career in science. Her reply was clear, enthusiastic and true: "Keep exploring, keep listening, looking and learning and go for it!"

I'm looking forward to many more catch-ups with Libby. Today, when I think of her, I remember my favourite wish from our D'harawal Welcome Wishes: "Ngeeyinee bulima nandiritah" – *May you always see the beauty of this earth.*

LIBBY: THE TEACHER WHO NEVER STOPPED LEARNING

"I love the dark nights when I can see the constellations and watch the dark spaces the way the Indigenous people do; the emu with its dark head alongside the Southern Cross and its long neck extending through the pointers and then filling out as the body. I particularly look for the Warrior, his head starting as the upside-down head of the emu; his neck is the beak, and then his torso fills out below. All are dark spaces."

This was part of a text message sent to the SAM office by Libby Sakker, who'd just spent two nights sleeping in her off-road vehicle, as she very often does, just outside



▲ Libby Sakker (BSc '59 PhD '83) left teaching and now engages more deeply with the country she loves.

Canberra, on her way down to Kosciusko. She likes to travel widely, and alone.

Long before it was more generally embraced, Libby had a deep respect and admiration for Aboriginal people and their culture. When one of her students, Shannon Foster, revealed in a high school class that she was Aboriginal, Libby took every opportunity from then on to learn about the Indigenous relationship with the land, the creativity of Indigenous people and their open-handed approach to living; enlightening students who knew nearly nothing of it.

There is no Aboriginal ancestry in Libby's family. She does have a convict in her lineage and early farmers, but she herself has always felt very connected to Australia's open spaces.

"I grew up at Killcare on the NSW Central Coast," says Libby in the bright, windowed lounge room of her home in Sydney's upper north. "Mum was a

terrific surfer. She taught us to body surf and we slept on an open verandah.

“During winter, we still swam because there was no shower and it kept us clean. We’d dig a hole in the beach, as you could do then, and put a damper in the fire to cook, and we’d play beach cricket.”

While hoping her University studies would lead to a career in marine biology research, marriage and family responsibilities took over. Her husband was a navy doctor who travelled back and forth to Vietnam during the war, leaving Libby to care for their home and growing family. Later, they moved to the United Kingdom where Libby’s husband studied to become a surgeon.

Sadly, the marriage ended not long after the family returned to Australia, leaving Libby with four young sons. The long career interruption put research work out of reach, so she returned to the University to teach biology for another 10 years and complete a PhD.

She then looked for teaching work in schools, which she eventually found, with some difficulty. “I was given a biology teacher job, then became Science Coordinator.”

Later, Libby took on the care of her elderly parents, leaving her with just two weeks a year (when her sister could take over), to have something precious: time to herself. A strong desire to spend that time exploring Australia led her to learn more about and meet Aboriginal Australians.

Now retired, Libby is an active and wide-ranging volunteer. When she sent SAM that message, she

was travelling to Kosciusko to help rid the area of the imported plant pest, hawkweed. Other regular trips with Desert Discovery take her along the Murray River and up into the Central Deserts where she helps trap small mammals and lizards for research (“we’re very careful not to hurt them and they go back exactly where they’re caught”). Aboriginal school children join in for a week too.

There is much else that Libby does, such as walking with camels each year in the Simpson Desert, often seeing and photographing Aboriginal artefacts. Talking to her, she is particularly energised by her work with the Track Care organisation in remote Western Australia. Yes. She drives there.

Libby’s vehicle is neatly plastered with numerous stickers dating back to 2013, marking projects where she worked with Aboriginal Rangers to upgrade water wells and install dunnies that help nearby Aboriginal communities and other users of the Canning Stock Route. Opportunely for Libby, this has seen her spend much happy time with the local Aboriginal people.

The irony of the girl who was raised swimming and playing beach cricket, finding herself drawn to the mountains and the deserts, is not lost on the now grandmother.

“I do love coastal Australia too,” she says quietly. “But there is so much light with so many people in coastal cities. It’s harder to get the dark skies and see the Warrior.” ●



▲ “Me in my desert habitat, I guess,” says Libby of this photo taken near Well 12 on the Canning Stock Route in Western Australia.



▲ Libby Sakker (left) and Shannon Foster (front row, second from left)

THE UNFORGETTABLES

They're the University staff members who always made an impression.
Usually loved, sometimes feared, but never forgotten.



Associate Professor Kate Lilley
Remembered by Noel Jeffs
(MCW '17)

She lay upon her couch with a dreamy mode and I was unsure of myself until I sat down.

Her kind, alert mind opened my mind to a world of poetry which touched life and I touched it from the fair visions of my past and now felt redeemed.

Without a literary heritage, she showed me how we could sew together a world of philosophy and psychology which I shared. From her library she generously shared in a way that friends do, and accumulated books which became my depository for this post-modern world. Across the worlds of queerness and the blight of illness, she was outstanding in her support and finally saw me through my Master of Creative Writing and helped me steer a course to where I am now.

She became one of my mentors in the poetry world I inhabit now and is still willing to provision me and tell me that I definitely have a place in it, despite its many reject slips.



Dame Leonie Kramer
Remembered by Dr Susan Moore
(PhD '72)

Like earlier great instructors in my life, Leonie was a model of first-rate teaching. She encouraged me to attend her lectures and small honours classes at UNSW and the University of Sydney, where I completed my PhD. Although my specialty was Socratic teaching, she taught me about literary style: diction, tone, rhythm, phrasing and felicitous sentence structure.

Relaxing in the family garden and on nearby walks, she talked with unfailing flair and humour about our shared passions: world literature, schooling, live theatre, classical music, and civic life. The people who feared her formidable authority and intellect didn't see her sense of fun or her generosity with people of every age and background, including my own children.



Dr Bill Hensley
Remembered by Paul Niall
(MBBS '69 GradDipPHith '74)

Bill's biochemistry lectures in the 1960s were exhilarating. He was the best of teachers. He was the worst of teachers. Erudite and exciting, he obviated all possibility of neat notetaking. No liver, gut or muscle enzyme escaped his ken. The times suited him. He could tantalise 60s medical students over the latest finds in protein synthesis. Not many lecturers can drive junior undergraduates to feast over last week's journals. He did. Addicts could get additional fixes at his declamatory tutorials early on wintery mornings at Wesley College. No speaking scripts – only a pipe and a rubber tobacco twist pouch. Great days.

WHO WAS YOUR UNFORGETTABLE?

We'd love to hear about your unforgettable University staff member. Send their name, how you had contact with them and why they were unforgettable to: sam@sydney.edu.au

CLASSNOTES



Angela Wales (BA '69)

For Wales, it was a long way from her youth on a sheep property in northern NSW to a career working with screenwriters. As executive director of the Australian Writers' Guild from 1979 to 1989, she worked in collective bargaining, industrial and legislative lobbying, served on many industry boards and committees and increased guild membership substantially. In 1989, she married the president of the Writers Guild of America, George Kirgo, and moved to the United States in 1990. She joined the US Writers Guild Foundation in 1993, raised \$2 million for the foundation's Shavelson-Webb Library, and became its Executive Director in 2005. Wales returned to Australia in late 2013 and published her first book, *Barefoot in the Bindis* in 2019.



Owen, Judith and Alan Sperling

It was a rare event in March 1958, when three members of the same family graduated on the same day: Owen Sperling (BA '55 LLB '58 LLM '87) his wife Judith Sperling (LLL '58 DipArts '01), and his brother Alan Sperling (LLB '58). Until Judith and Owen married, the brothers lived with their parents who stoically tolerated endless arguments over points of law. Owen later gained a Master of Laws then practised as a solicitor in Sydney. Judith was a solicitor for a short time, then wrote and edited for the tax law publisher, CCH Australia, before becoming its General Manager. Alan went to the United States soon after graduating, then gained a Master of Laws at Harvard Law School. Settling in Canada, he worked in the then emerging field of technology law.



Akky van Ogtrop (MVArts '89)

Graduating from the Royal Academy of Fine Arts in the Netherlands, where she studied printmaking and the European avant-garde and movements such as Fluxus and Dada, van Ogtrop continued her Fine Art studies after moving to Australia, with her thesis titled 'Holland Dada'. An art historian, independent curator and arts administrator, van Ogtrop has worked on major exhibitions and events including the *Biennale of Sydney*. She founded and directed the *Sydney Art on Paper Fair* (1989–2005), and since 2015, has curated the *Paper Contemporary* segment at Sydney Contemporary Art Fair. As President of the Print Council of Australia, she represents and connects national and international communities in printmaking and works on paper.



Gediz Bizys (DipArchComp '87)

Arriving from Europe as a displaced person in 1949, Bizys spent several years in Cowra Migrant Camp in Central Western NSW, gaining his architectural degree at UNSW in 1972. Being multilingual took him from numerous Australian developments to billion-dollar international projects in retail, residential and hotel accommodation, ports and airport facilities, working in temperatures from -10 to +52°C. For his input to the Jebel Ali Port and Village in Dubai, he was presented to HRH Queen Elizabeth II in 1979. A founding member of the Australian Institute of Project Management, he consulted on the initial stages of relocating Sydney College of the Arts to the University's main campus.

School of Civil Engineering class of 1950 (BE(Civil) '50)

Of the first cohort of engineers to graduate after the Second World War, five had a 70th anniversary reunion in February 2020. They were: Pat Christie (DipTCPLan '52), an engineer of the Snowy Mountains scheme and automated sheep shearing; Nigel Seton, from the Department of Housing and Construction; Tom Roberts, a mining and civil works engineer; John Fuller, who pursued harbour works in Australia and the United Kingdom; and Geoff Martin, who worked on dams, cooling tower and the Sydney Harbour Tunnel. Two others weren't able to make the reunion: Neville Boughton (ME '70), an engineer for dams around Australia and iron ore mining in Western Australia; and Kenneth Johnson, who developed water resources and was a project planner on the Snowy Mountains scheme.



▲ Helped to build post-war Australia. Left to right: Pat Christie, Nigel Seton, Tom Roberts, John Fuller and Geoff Martin

RECOLLECTIONS

Professor Dale Trendall

Remembered by Professor Paul Hockings (BA '57)

In the early 1950s, I was an undergraduate student in archaeology and anthropology. At the time, the only visual art you could see around the campus was paintings of dead chancellors. Partly because of this lacuna, I and several others (among them, Robert Hughes, who would later become a famed art critic, writer, and TV documentarian), formed the Sydney University Art Group in 1953. In our attempt to organise functions to arouse interest in visual art, I came up with a plan for a short lecture series on sundry art topics that might involve the few faculty members willing to talk to us.

Among these was the Vice-Chancellor, Professor A.D. Trendall, who taught classical archaeology and whose student I chanced to be. He was known as an utterly brilliant product of Cambridge University.



A spellbinding lecturer, Trendall would be the obvious star of our series if he agreed to talk about his passion: classical vase and wall painting.

The only other subject he spoke about with such obvious affection was his elderly mother, with whom he was still living. In informal moments, he would sometimes pass endearing comments about her.

In those pre-email days, one could actually telephone a professor and have a conversation. So one evening I phoned Professor Trendall to ask if he would honour us with his participation.

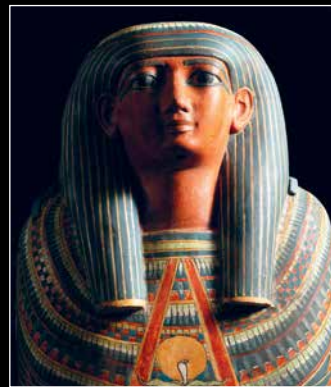
His reply was devastating:

“My dear man, my Mother just died ten minutes ago.”

What could I say? It was perhaps the most awkward moment of my life.

But shortly afterwards, Trendall did indeed accept our invitation, and his lecture packed out Wheeler Auditorium.

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