

Adelaidean

News from the University of Adelaide

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University's hidden gems

Fighting fire with science

OUR FIRST LOCALLY TRAINED VETS



THE UNIVERSITY
of ADELAIDE

>ADELAIDEAN



INSIDE THIS EDITION OF ADELAIDEAN

In a historical first for South Australia a group of students are about to graduate from the University of Adelaide as fully trained vets. It's a highly anticipated development and we find out what it means for the State.

Also in this edition of Adelaidean we take a look at the ultimate self-sustaining home made from old tyres and discover how science is helping to fight bushfires.

Our Vice-Chancellor explains why a new initiative to open the gates of University to all students is so important to him personally. And we feature the extraordinary collection of artefacts and memorabilia which is providing a unique insight into the University's rich history.

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Cover photo: Professor Kym Abbott with 6th year students, Danijel Mitrovic, Esther Mayo and Kate Townsend with Pepper the dog.

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WINNING IN THE DIGITAL AGE



A digital revolution is sweeping the higher education sector globally and Mark Gregory has relocated from the US to ensure the University of Adelaide is among the leaders.

The recently appointed Chief Information Officer (CIO) is tasked with overseeing some serious IT capacity building which will impact on just about every area of the University.

It's a heady list which starts with the latest e-learning tools for students and researchers – a priority under the University's 10-year Beacon of Enlightenment Strategic Plan.

"We're working on improving tools for online teaching, course content capture and classroom technologies which are all related to enabling the new small group discovery approach," says Mr Gregory.

"Then there are priorities like mobile apps development, upgrading data centres, replacing management systems, wireless network expansion and information security – it's a pretty long list."

But Mr Gregory arrives in Adelaide well qualified for the task after 20 years in educational technology. A technology R&D specialist, he ran his own IT consultancy and spent 15 years at Portland State University where his leadership roles included CIO.

The University of Adelaide is trebling its IT budget over the next 10 years and a key focus is the Student e-Experience Project. This involves maximising online support for students which increasingly means making use of mobile devices.

"Today most people have their device of preference and many schools are already taking a tablet-centric approach to access online courses and eBooks." Mr Gregory said.

"This means we can eventually get out of the hardware provision business and instead focus our energy on creating software tools that work on student, teaching faculty and researcher devices."

Another priority is staff training to bring faculty members up-to-speed with all the latest technologies so they can help drive new e-learning initiatives.

It's a fundamental change in higher education delivery and Mr Gregory envisages both opportunities and challenges ahead.

"Universities have in large been about the business of knowledge creation, storage and communication. All those endeavours have been rapidly transformed by technology and this is showing no sign of slowing," he said.

"Technology enables us to work smarter and more collaboratively, but it also means higher quality global competition, and it significantly increases student and public expectations.

"As a university we need to think clearly about why our students need us, why our nations and economies need us, and what we must offer going forward. I'd say that's a major challenge and a major opportunity." ♥

TOP Mark Gregory,
Chief Information Officer

"Technology enables us to work smarter and more collaboratively, but it also means higher quality global competition, and it significantly increases student and public expectations."



UNIVERSITY'S HIDDEN GEMS

EXTRAORDINARY COLLECTIONS OF UNIVERSITY OF ADELAIDE ARTEFACTS AND MEMORABILIA ARE BEING UNCOVERED, RESEARCHED AND CAREFULLY CATALOGUED BY ART & HERITAGE COLLECTIONS. THE WORK IS HELPING TO PRESERVE THE UNIQUE HISTORY OF THE UNIVERSITY GOING BACK TO ITS EARLY DAYS.





“The University of Adelaide is the third oldest university in Australia and was founded at a time when there was a great desire for intellectual academic achievement.”

Mirna Heruc recalls she was gripped by an ‘enormous mental migraine’ on the first day of her senior role at the University of Adelaide nine years ago.

She had just been appointed Manager of the newly created Art & Heritage Collections unit with a job description requiring her to research, document and curate the University’s entire collection of artefacts.

The enormity and importance of the challenge quickly dawned. With a rich and dynamic history stretching back to its founding year in 1874, the University has collections like no other in the State.

Over the decades it has been generating and collecting valuable documents, books, artworks, natural history specimens, archaeological items, furniture, early medical equipment ... The list goes on.

There are important works from the intellectual pursuits of some of Australia’s greatest academics and pioneers.

They include a basement full of rocks collected by explorer and University professor Sir Douglas Mawson when he was in Antarctica, and photographs of Nobel Laureate Sir William Bragg’s experiments with the first X-rays in Australia.

Then there’s the University’s Tate Museum, which contains a fascinating collection of fossils, shells and meteorites collected by, among others, Professor Ralph Tate, Elder Chair of Natural Science (1875-1901).

Ms Heruc admits that she still has moments of being overwhelmed by the sheer scale of the various collections and their cultural and historical importance.

“The University of Adelaide is the third oldest university in Australia and was founded at a time when there was a great desire for intellectual academic achievement,” she said.

“The founders had the exciting notion of recruiting super intelligent people to come and teach in what was in effect a colonial outpost.

“We still have their work, intellectual gems showing their early interrogation of South Australia, helping to define our history and forming the basis of our industries now – geological research which was essential for mining, for example, and the research efforts coming out of Roseworthy and Waite which were crucial for the success of agricultural development in this State and beyond.”

ABOVE

Alfred Morton,
Contrabassophone (1871)
Photograph: Julian Tremayne

Sir William Henry Bragg’s
Microscope purchased
in 1898 for his children
Photograph: Mick Bradley

FACING PAGE

Clockwise from top left:

Hossein Valamanesh
Target Practice (1986)
Photograph: Mick Bradley

Professor Ralph Tate
Shell specimens
Photograph: Denis Smith

Hans Kreiner Gifting
Tree (2006)
Photograph: Julian Tremayne

Hans Kreiner Huey–Oh
you pretty thing! (2004)
Photograph: Mick Bradley

**THIS PAGE**

John Mills, Sir William
Lawrence Bragg
(1962, cast 2007)
Photograph: Mick Bradley

Iguanodon,
plaster model (c 1920s)
Photograph: Denis Smith

FACING PAGE

Anna Platten For Fleur
Elise Noble (2012)
Photograph: Saul Stead

Julius Schomburgk,
The John Ridley Testimonial
Candelabrum (1860)
Photograph: Grant Hancock

Denis Smith Ball of Light
@ The University (2013)
Photograph: Denis Smith

Since Ms Heruc and her colleagues began their task in 2004 they have organised the artefacts into an extraordinary 39 separate collections, all valuable in their own right.

They include 18 art, heritage and teaching collections totalling about 500,000 objects. The artefacts range from significant artworks such as The Judges series of 12 paintings by the renowned Australian artist Arthur Boyd to a Resilient Tapered Threshing machine developed by Department of Agronomy, patented in 1980 and distributed worldwide.

The Visual Arts Collection developed strongly during the 1960s through the Works of Art Committee established by university staff to fund the purchase of works of art.

Over nearly 10 years Ms Heruc and her colleagues have been sorting through records and meeting with key individuals to identify and document other areas of the vast collection.



Three of the team are University of Adelaide graduates, Ms Heruc, an anthropologist, arts administrator and teacher; Collections Officer, Anna Rivett, an archaeologist and museologist; and Special Projects Officer, Elizabeth Pascale, an art historian and curator. Together with the fourth member of their team, Installation Technician Julian Tremayne, they have created excitement around the University collections and its heritage, reaching out to broader community.

There is also a volunteer group of 27 who meet every Tuesday to assist with cataloguing collection objects, tour guiding and research.

“We spend a lot of time investigating what people do and finding out what materials they might have stored away,” Ms Heruc said. “Some people have been here close to 50 years and it’s important we speak to them before they leave to capture their knowledge. It’s a process that turns up some amazing things.

“Sometimes people ring to say they’ve found a cupboard full of rubbish and they’re thinking of getting a skip – we end up getting there fairly quickly and usually find some gems.

“And then there are items which fall into the grey zone, items that we are fairly confident are important but we’re not exactly sure in what way. It all has to be investigated before any decisions can be made.”

Fortunately the Art & Heritage Collections unit has not started totally from scratch. During 1985-86 the University had a curator who documented some of the collections. But in reality the work hardly made a dent.



Then in the mid 1990s the Federal Government began a push for universities to audit their collections after the Cinderella Collections report found they were sadly underutilised. It was a catalyst for universities to start cataloguing their collections and to make them more accessible.

Art & Heritage Collections is working diligently to share the University's collections through exhibitions, forums and displays presented in an annual Cultural Program offering on average 40 events per year with contributions of over 70 artists, speakers and community members. They also support various art and cultural activities, and conduct guided tours of the University's first home, the Mitchell Building, Bonython Hall, University campuses and public art.

Long-term Ms Heruc would love to see the University have its own museum to display key narratives of selected collections, tell the University's story and showcase the significant contribution it has made to South Australia.

"This would also enable it to organise cultural exchanges with other institutions," says Ms Heruc. "The major issues are funds and space – all something that can be worked on."

In the meantime Art & Heritage Collections will continue its process of exploration and discovery. "At the moment we've just scratched the tip of the iceberg." ♥

EMULATING THE GREAT FLORENCE NIGHTINGALE

PROFESSOR ALISON KITSON IS AN **INFLUENTIAL** LEADER GLOBALLY IN THE DEVELOPMENT OF **MODERN NURSING** WHOSE LIFELONG AMBITION IS TO **IMPROVE CARE** FOR PATIENTS.



ABOVE Professor Alison Kitson, Head, School of Nursing

It's a lofty goal, but if history and her own career path are any guide, she's in precisely the right place to succeed.

The Dean of the School of Nursing at the University of Adelaide has drawn inspiration and, to a large degree, research direction from her hero, the founder of modern nursing Florence Nightingale.

And by delving into the past Professor Kitson has discovered that nursing has a curious yet strong provenance with the founding fathers of South Australia and the University's founding Vice-Chancellor Augustus Short.

Providing the link is the Reform Club in London whose members back in the 1830s had the vision of settling South Australia based on the democratic principles of liberty, tolerance, rationalism and humanitarianism.

"Enter Alexis Soyer, the famous French chef of the story," says Professor Kitson. "He became the most celebrated chef in London working at the Reform Club in the 1840s – he was the Jamie Oliver of his day and revolutionised English attitudes to food.

"Then in 1856 he responded to a request from Florence Nightingale to help her provide nutritious food for the troops in her hospital in Scutari during the Crimean War – and he financed the whole exercise himself.

"History tells us a lot about Nightingale but not as much about the importance of good, nutritious, appetising food for the sick and needy."

It was only appropriate, therefore, that one of the first studies Professor Kitson pursued when arriving in Adelaide was ways to improve nutrition for older people in acute hospital settings as well as more effective systems to introduce new initiatives.

This latter focus, knowledge translation, has been an underpinning theme of her research over the past 20 years and is internationally recognised.

"Changing behaviours and routines of staff in a big system is far more difficult than people realise. It's why Nightingale is my hero and why stories such as the work she did with Soyer are inspirational."



THE FOUNDER OF MODERN NURSING

Professor Alison Kitson explains the legacy of Florence Nightingale.

When Florence Nightingale came back from the Crimea in 1858 she more or less became a recluse, staying in bed for most of the rest of her life.

She probably was suffering from some sort of post-traumatic stress which made her an invalid, yet she knew what her life's work had to be and that was to challenge the status quo.

She took on the British army, the hospital system, the government, the medical profession and consequently began to transform the whole healthcare system through setting up modern nursing.

Not only was she a first class statistician, she was also a social reformer, a hospital planner but, most importantly, someone who understood what good nursing was.

She knew it was a blend of empirical insight with compassion and consistent attention to detail.

She also believed that the most important transformative factor in any health system was a well-educated nurse armed with statistical and empirical knowledge, attention to human needs with authority and leadership capability.

And it is exactly the same today.

Professor Kitson held various research positions at Green Templeton College at the University of Oxford and the Royal College of Nursing in the UK before taking on her current role at the School of Nursing in 2009.

The School was established in 1995 for post graduate training with an undergraduate program introduced 10 years later. This has quickly grown to an intake of 150 students a year.

Research is a focus and major strength. Excellence in Research for Australia (ERA) has given Nursing a top five-point rating twice in the last two exercises, placing it ahead of just about every other nursing school in Australia and competing with the top international nursing schools in terms of impact and reputation.

Earlier this year Professor Kitson took on an additional role of joint Executive Director of Nursing with responsibility for driving innovation and reform within the Central Adelaide Local Health Network.

She has also been working hard over the past five years to establish a global research network focused around the importance of patient-centred care and leads the international Fundamentals of Care Research Program with partners in the US, Canada, UK and Sweden.

Professor Kitson believes her career goal to improve patient care will be assisted by the new University of Adelaide integrated clinical school with the plan to bring Medicine, Dentistry and Nursing together for the first time.

"There's been a lot of rhetoric around inter-professional learning in the past – and a lot of wreckage on the side of the road – but what we're doing here really is leading edge," she says.

"We will be creating a laboratory for our learners where they can test some of the boundaries, learn about each others' roles and responsibilities, and appreciate and respect each others' contributions.

"It will allow us to build on the very best elements of nursing. I think Florence Nightingale would be very proud to know that we have the best researchers and academics, and that we are growing critical thinkers and leaders with sound scientific training and also a moral sensibility, not just in nursing but in medicine and dentistry too." ♥

"We will be creating a laboratory for our learners where they can test some of the boundaries, learn about each others' roles and responsibilities, and appreciate and respect each others' contributions."


FIGHTING FIRE WITH SCIENCE

PHD STUDENT MIKA PEACE IS UNRAVELLING THE MYSTERIES OF BUSHFIRES WITH POWERFUL NEW 3-D SIMULATION MODELLING. HER RESEARCH COULD BRING NEW LEVELS OF ACCURACY TO FIRE FORECASTING.



PHOTO CFS fire fighters extinguishing Kangaroo Island fires

Photograph: CFS Promotions Unit



When predicting bushfire behaviour it's best to keep your fingers crossed. Years of experiencing fires do the unexpected has taught Australia's meteorologists and firefighters that precise forecasting is extremely challenging.

Even on seemingly safe days fires can suddenly take on "blow-up" characteristics with devastating consequences.

The fact is that bushfires are extremely complex events which can generate their own unstable weather conditions and create havoc on the ground.

Bushfire Cooperative Research Centre PhD student Mika Peace is pursuing exciting new research to better understand their behaviour to support firefighting efforts.

She is working on advanced computer simulations which give an entirely new perspective – one which is three-dimensional involving interactions between the fire and atmosphere.

Already her work is providing unique insights into the way bushfires behave – information she hopes will one day provide a new weapon for firefighters and increased safety for people in bushfire prone areas.

"We're getting results which are quite unexpected and which clearly demonstrate that each fire has its own unique characteristics," Ms Peace said. "It's showing that there is no such thing as a one-size-fits-all approach when it comes to dealing with bushfires."

As a qualified meteorologist, part of Ms Peace's former role involved fire weather forecasting. Through her work she realised there were serious knowledge gaps in how we go about predicting bushfires and understanding what they are likely to do.

Australia is still using forest and grassland fire danger meters developed in the early 1960s by forester Alan McArthur. He worked out the likely chances of a fire starting, its rate of spread and intensity based on factors such as temperature, wind speed, relative humidity and the effects of drought.

"But the information is all focused on conditions on the ground and doesn't take into account what is happening in the atmosphere above," Ms Peace said. "The interactions between the fire plume and the three dimensional atmosphere can be quite dynamic."

"It's only in the past 10 years following some major fire events here and overseas that people have started to say that was great work 50 years ago, but we have much better information now and we are not really using it to the full effect."

Ms Peace's work is funded by the Bushfire Cooperative Research Centre and supported by the Bureau of Meteorology and the Department of Parks and Wildlife in Western Australia.

As part of her research she studied the 2007 Kangaroo Island bushfires and the break-out of a prescribed burn in the southwest of Western Australia in 2010. Both fires occurred during fairly benign weather conditions on what were considered to be low fire-risk days.

Four of the KI fires burned for two weeks destroying over 20 per cent of the island's vegetation while the WA fire consumed more than 10,000 hectares.

Ms Peace is using a US simulation program that couples a weather prediction and a fire behaviour model to gain a deeper understanding of how fires evolve.

"It gives us a three-dimensional view of the interaction between the fire and atmosphere, including the plume structure of the fire, how high it's going and how the winds converge," Ms Peace said.

"One of the most extreme examples of fire and atmosphere interactions was a fire tornado generated in the Canberra bushfires of 2003.

"The 2009 Black Saturday fires in Victoria are another good example. The vertical development of the fire generated thunderstorms known as pyrocumulonimbus."

Eventually Ms Peace would like to see information on three-dimensional atmospheric structure included in all fire weather forecasts.

She has presented her early findings to various land management and bushfire forums and they've been excited at the possibilities.

Being armed with such knowledge would be an invaluable tool for firefighters and be critical in saving property and lives. It would also assist in deciding the best days for fuel reduction burns, which are likely to occur more often and over bigger areas following some of the recent catastrophic bushfires.

A long-term goal is to have 3-D coupled models operating in real-time in incident control rooms, accurately predicting what fires are going to do next. But that takes considerable computing power and could be some years off yet.

To support her work Ms Peace has been provided access to eResearch SA's super computer Tizard, the state's most powerful high-performance computing system.

"Currently it takes about one day to run one simulation and four days to run one of the other simulations – so it's not quite real-time just yet," Ms Peace said. "But computing power is improving all the time and it would no doubt run faster if we had exclusive use of the system."

In the meantime Ms Peace is pleased to witness the trend of fire authorities working much closer with weather forecasters.

"In the past meteorologists have done the weather side, packaged it up and sent it off to fire managers and behaviourists," she said. "What we're seeing now is a lot more overlap as we begin to understand interactions between fire and the atmosphere."

Ms Peace hopes to further develop her interest in fire-weather forecasting once she has completed her studies early next year. ▀

OUR FIRST LOCALLY TRAINED VETS

IN A HISTORICAL FIRST A GROUP OF STUDENTS IS ABOUT TO GRADUATE AS FULLY TRAINED VETS IN SOUTH AUSTRALIA. IT'S A HIGHLY ANTICIPATED AND WELCOME DEVELOPMENT FOR VETERINARY CLINICS NATIONALLY.



Since South Australia was founded nearly two centuries ago not a single vet has been formally trained here – and that's caused ongoing skill shortages.

That is, until now. The first cohort of 35 students will graduate from the University of Adelaide School of Animal and Veterinary Sciences later this year after completing their six-year course.

Head of School Professor Kym Abbott said it was a milestone that was long overdue.

"Over the years it has been very difficult, particularly for rural veterinary practices, to attract and retain experienced vets," he said. "Previously students had to study interstate – and there was no guarantee they would come back."

A key reason for the long wait has been the prohibitive cost. In addition to teaching facilities, a veterinary school also needs a high standard clinical practice to provide students hands-on experience.

Funding for the \$37 million school was finally secured with the persistence of former Vice-Chancellor Professor James McWha who convinced the Commonwealth to contribute \$15 million and the State \$5 million to the overall cost.

A Companion Animal Health Centre opened to the public in 2010 and a \$10 million Equine Health and Performance Centre is also being built on campus and is due to open in September.

The equine hospital will be of major benefit to horse owners in the northern suburbs as the only other referral service providing equine surgery is located at Morphettville.

The School has established ambulatory veterinary services for both production animals and horses. These have been operating from the Roseworthy campus for over a year and provide excellent hands-on clinical training.

Already the combined state-of-the-art teaching, research and animal care facilities rate among the best of their kind in the world. And that's being reflected in strong student demand.

The average intake after the first year has averaged 50-60 students with many more applications than places.

Most important, the majority are from South Australia, plus some from interstate and a handful from overseas.

"This is good news for the State's veterinary clinics because we estimate about 80 per cent of our students will be looking at veterinary practice after they graduate," Professor Abbott said.



"We are providing graduates for rural practice as well as companion animal practice nationally, and some are likely to move into other endeavours such as post graduate study, possibly government vet services or the pharmaceutical sector.

"Our School is also providing support for the local veterinary profession through access to specialists and continuing education."

Valuable assistance has been provided by private clinics in offering work placements for students in the final three years of their study. Most see it as a way of giving something back to the profession while at the same time they can screen for potential employees.

Originally from South Australia, Professor Abbott took over as head of the School of Animal and Veterinary Sciences in 2011 during its growth phase after about 20 years in academia in the eastern states and with the Royal Veterinary College in London.

He qualified as a vet in Melbourne and practised interstate before returning to open his own practice at Birdwood in 1975. He also spent some time at a specialist sheep practice in the State's south east.

Since it opened the Roseworthy school has taken a lead in curriculum development through its integration of preclinical and clinical subjects.

"Traditionally vet schools have tended to compartmentalise courses but we've aligned ourselves with modern educational principles to demonstrate the relevance of course material straight away," he said.

"We have a lot of practical classes in the early years of the program to expose students to the clinicians who will be their principal teachers later.

"These integrated learning activities are designed to help them understand the application of what they are being taught. It stimulates their curiosity and creates deep learning rather than superficial rote learning.

"By the end of the six years our students have been exposed to excellent training in all areas of vet science by teachers of a world standard."

It's estimated that by next year the school will have about 100 staff and between 300 and 320 veterinary students.

In August the Australian Veterinary Boards Council advised that all Veterinary Surgeons Boards in Australia and New Zealand had given the veterinary sciences program interim national accreditation. The final accreditation visit will take place in November.

PHOTO Michael Aldridge, Georgina Eden, Caitlin Evans and Lorraine Lampton at the University of Adelaide's School of Animal and Veterinary Sciences

Photograph: Dylan Coker, The Advertiser



Annabel Cadzow

Driving around the countryside measuring sheep's testicles didn't phase Annabel Cadzow. Although she admits presenting the results of her fourth-year research project to a conference room full of sheep veterinarians was a "little scary". Annabel grew up on a sheep farm at Keith and has a special interest in sheep medicine. "I'm really interested in supporting commercial farmers to improve their production and management systems," says Annabel.



Chalette Brown

Chalette went to Chicago in July after winning the School's top academic award, the \$15,000 Audrey Abbie Veterinary Perpetual Prize. The prize money helped Chalette attend the American Veterinary Medical Association Convention to expand her knowledge of animal behaviour medicine – an area she hopes to pursue once she qualifies. A childhood among domestic animals and wildlife in South Africa seeded Chalette's interest in becoming a vet. She has a particular interest in avian medicine.



Emma Johnson

Emma has wanted to be a vet for as long as she can remember. Both her parents are practising vets on Kangaroo Island and Emma was resigned to moving interstate to study until the veterinary school opened at Roseworthy Campus. Recently she joined 11 other students and two staff on a mid-year study trip with Wildlife Vets in South Africa for a unique insight into managing African wildlife. Emma plans to work in rural mixed practice in the State's South East after graduating.



“By the end of the six years our students have been exposed to excellent training in all areas of vet science by teachers of a world standard.”

PHOTO Professor Kym Abbott with 6th year students, Esther Mayo and Kate Townsend with Labradors Nellie & Poppy



James Meyer

Doing a veterinary science degree at Roseworthy has enabled James to explore two quite different but interrelated passions – equine medicine and involvement in small business. He used his entrepreneurial skills to help Senior Microbiology Lecturer Dr Darren Trott establish a business at the School making agar and other media to support teaching and research, and eventually plans to supply the Veterinary Diagnostic Laboratory. James visited three leading equine practices in the US in mid-year and hopes to return to America for further equine study after gaining experience in mixed veterinary work.



Jonathon Bartsch

Jonathon is hoping to secure a position in the pig industry next year after developing a special interest in the subject during his time at Roseworthy. A work placement with flying pig vet Dr Chris Richards took Jonathon to farms in Queensland, Victoria and South Australia and convinced him it was an area he wanted to pursue. Jonathon recently joined a course study trip with Wildlife Vets to South Africa prior to graduating.



Leila Haghighi

Leila says her six years of studying veterinary allowed her to meet some amazing people, travel to exciting places and provided endless opportunities. Recently she worked with New Zealand fur seals on Kangaroo Island and at a stray animal shelter in Sri Lanka, and then headed off to South Africa and Namibia. “I hope to continue my adventures and work in New Zealand when I graduate,” says Leila.

OPENING THE DOORS TO UNIVERSITY FOR ALL STUDENTS

Major new funding to unlock higher education for all smart young students – no matter what their background or where they live – is of special significance to Warren Bebbington.

The University of Adelaide Vice-Chancellor and President has carved a brilliant academic career and become one of the nation's most accomplished teachers.

But a rural background and lack of family involvement in higher education meant his early path to university was never going to be straightforward.

"My father was a farmer who left school when he was 14 and he quite liked the idea of his children going to university – but he had no idea how to bring that about," Professor Bebbington said.

"I ended up being the first in my family at university and I know what it's like to feel not welcome in a great tertiary institution."

It's an experience that has left Professor Bebbington determined to help disadvantaged students overcome their barriers.

His personal goal has been given a significant boost with a \$9.245 million grant for a Journey to Higher Education initiative under the Federal Government's Higher Education Participation and Partnerships Program (HEPPP).

The University of Adelaide has taken a lead role in partnership with Flinders University and University of South Australia to support the retention of Indigenous and other disadvantaged students throughout their entire student life from early primary right through to senior secondary.

The grant will fund partnership activities with schools, families and communities, and use the strengths of each university's outreach to engage and assist students under three key themes: *Aspire, Support and Achieve*.

Professor Bebbington said the founders of the University of Adelaide wanted every student of ability to be welcome and *Journey to Higher Education* would help make this a reality.

"What this grant does magnificently is bring all three universities together with the whole of the state school system so that we can look at all the areas of disadvantage and ensure that students from all backgrounds realise their potential," he said.

"Just throwing open the gate to university doesn't solve the problem of disadvantage because the people are not prepared and don't know how to survive.

"The great thing about this grant is that it's very substantial and can address the problem at its roots."

An office is being established in the University's Office of Future Students to coordinate the project and place resources where they are needed via the universities and schools.

Programs will include mentoring, leadership training and additional tuition to address skills and knowledge gaps.

"Together we will work to put tutors and mentors into schools to talk to children who might never have thought of coming to university," Professor Bebbington said.

"We need to teach people about the culture of how to study, the skills they need to prepare for university and support them while they are there. This is an intervention which will achieve just that." ▀



“Before then I’d never considered going to Adelaide so it opened up more options,”

JESSICA SMITH IS A 20-YEAR-OLD STUDENT ON THE MOVE.

She’s studying a double degree at the University of Adelaide yet still manages to find time as a Student Outreach Ambassador to mentor and support school students on their journey to higher education.

It’s her way of helping young people achieve their potential and paying back the confidence shown in her when she was finishing school.

For despite being dux of Mark Oliphant College in Munno Para West, the school is in a lower socio-economic area where students are less likely to consider university or gain entry to a subject of their choice.

“Then my principal called me in and told me that University of Adelaide had a program for their law degree where the dux from certain schools could have a place in law,” says Jessica.

Under the Adelaide Law School Achievement Program students achieving the top Australian Tertiary Admission Rank (ATAR) rank in their school can be eligible for law.

“Before then I’d never considered going to Adelaide so it opened up more options,” says Jessica.

The eldest of five children, Jessica has since given more thought to her career choices and switched to a double degree in international studies and the arts.

“Eventually I’d like to move into humanitarian or aid work, maybe in Africa or Asia and use my skills where people need help.”

It’s a role for which Jessica is obviously suited.

As a Student Outreach Ambassador with the University’s Office for Future Students, she goes out to schools about twice a week to advise students on going to university and about her own experiences. She also gets involved in campus tours for visiting students.

LEFT Jessica Smith

feeling & rhythm LITERATURE
 observation **Creative**
WORDS University
 surprising dynamic imagine ?
 sound Experimenting
 expression TONE Ideas technique
 strategic feeling Creativity
 STRATEGY **Risks** thoughts
 and Discover PHILOSOPHY Question
 muse PUBLISH TALENT
 Concept **Poetry** & think
 muse
 tone
 ?

EXPERIMENTING WITH WORDS



ABOVE Jill Jones
 Photograph: Annette Willis

Budding writers at the University of Adelaide are having their creative talents unlocked in a dynamic program that is testing the boundaries of experimental writing.

In the same way scientists use laboratories to make discoveries, young writers are being encouraged to take risks and venture into the unknown with the written word.

It's an approach which has produced a growing list of impressive writers from Australia and overseas, including MAN Asian Literary Prize winner Miguel Syjuco, Carol Lefevre and Rachel Hennessy.

For most students there are elements of the Creative Writing course which are as surprising as they are exciting.

"Many have grown up with a predominance of fantasy and that's how they see creative writing – thank you Harry Potter," says Lecturer Dr Ros Prosser.

"Through experimental writing and poetry we encourage them to step outside what they are familiar with and help them to think about themselves and their world differently.



ABOVE Dr Ros Prosser

"There are lots of different types of writing and techniques they could be using – once you understand that you can play around with words in a big way."

A recipient of the Dean's Prize for Excellence in Teaching, Dr Prosser recently co-edited *Mud Map: A first collection of experimental writing by Australian women for the new century*.

Published online, the Mud Map is a landmark anthology featuring 33 of Australia's most distinguished and upcoming women writers, including University alumni and creative writing PhD candidate Naomi Horridge.

Creations in the collection are diverse and inspiring – typical of the writings being encouraged in the Creative Writing course.

The experimental focus of the program has a strong emphasis on poetry, a subject directed by Senior Lecturer Jill Jones, an award-winning poet and writer who is widely published in Australia and overseas.

She will be publishing her eighth full-length book, *The Beautiful Anxiety*, later this year.

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One of Ms Jones' goals is to see poetry recognised as important as any other form of writing. The performance of her students is providing cause for encouragement.

"Often there's a feeling in the community that poetry is hard and obscure, but it's a way of experimenting with language and trying new forms that are not formulaic," she says.

"I'm starting to uncover students who are looking at poetry in creative new ways and presenting it online, live and on the page. It's really pleasing to see them uncovering exciting ideas for exploring language, and I'm sure some of them will become very influential."

Ms Jones says course students are finding the space and freedom to take risks and step outside their normal thinking, using poetry as a way of working with diverse processes and structures.

"A lot of poetry is what I would call R&D – experimenting with language, sound and rhythm. This is creative research at work, the research of creative language itself."

But while the style of writing may be new and innovative, the idea of experimental writing has in fact been around for generations. The French term *avant-garde* refers to people who are prepared to innovate and push the boundaries.

And what may seem terribly out there today, may well be common place in another 100 years. But not always.

Like all scientists or researchers, experimental writers must expect the odd failure.

"You must be prepared to fail at some stage and that's the issue – how do you turn an experiment into something that is still readable and which people can access," says Dr Prosser.

"It's about setting up a tone or feeling and finding ways to soften the reader into making them still read. There are standard ways and there are different, experimental ways." ♥

"A lot of poetry is what I would call R&D – experimenting with language, sound and rhythm. This is creative research at work, the research of creative language itself."

DARING TO THINK BIG

THE UNIVERSITY OF ADELAIDE HAS A LONG AND PROUD HISTORY OF RESEARCH ACHIEVEMENT. TO LEARN MORE ABOUT THE UNIVERSITY'S RESEARCH FOCUS AND PRIORITIES ADELAIDEAN CAUGHT UP WITH PROFESSOR MIKE BROOKS, DEPUTY VICE-CHANCELLOR (RESEARCH), AND PROFESSOR ROBERT SAINT WHO RECENTLY RETURNED TO THE UNIVERSITY IN THE NEW ROLE OF PRO VICE-CHANCELLOR (RESEARCH STRATEGY).

What are the University's strategic priorities for research?

MB. First and foremost it's about the pursuit of research excellence and aiming high. We want to be increasingly known internationally for outstanding research output, addressing the world's grand challenges, and impressive application of our discoveries.

RS. Without question we already have strength in key areas tackling both deep and fundamental questions and the grand challenges that confront society. To succeed you need to have great people working with excellent facilities, lots of brilliant higher degree students and a collaborative mindset. We already have numerous examples of these but are working to develop more.

What is the University doing to support the State innovation agenda and the new national strategic research priorities?

RS. On the Federal scene I'm a standing member of the Prime Minister's Science, Engineering and Innovation Council, so I've been able to contribute directly to the development of a new set of national research priorities. It's likely that a good proportion – perhaps half – of Federal research funding will be associated with these priorities. Significantly, the University's research profile is already closely aligned with them.

MB. I'd add that the University is working closely with both State and Federal agencies. Alignment at the State level covers a wide range of activities including R&D in agriculture, food and wine and also broader manufacturing. We have a range of initiatives including recruitment of outstanding researchers and the development of interdisciplinary research that will further strengthen this alignment.

Do you place any greater emphasis on fundamental or translational research?

RS. It's very important to value both and to realise that they are interlinked. Many research students are inspired by and develop their talents best by tackling the great fundamental research questions, while the contribution we can make to our communities through translational research is important.

MB. We have many great examples of fundamental research leading to translational benefit. By way of example, we enjoy a tremendous relationship with a variety of hospitals in our state and many hospital specialists hold academic positions at Adelaide. As a consequence we have a very strong pipeline connecting discovery to patient benefit. A world leading researcher from a very eminent US institution recently told me that the collaborative environment across the university, hospitals and other research partners in South Australia was better than anything he'd seen back home. That's great and we'll keep working to improve it.

How important are collaborative links with industry?

MB. Industry links are tremendously important. The University of Adelaide is by far the most industrially engaged university in the State as gauged by industry research contracts, linkage funding, royalty flow and the like. Many researchers in our organisation enjoy wonderful relationships with industry. It's important to listen carefully to industry requirements and solve relevant research problems. Researchers often find applied work throws up new and fascinating fundamental challenges.

RS. The range of companies we deal with is quite extraordinary. It spans IT, defence, automotive, mining, agriculture, pharmaceuticals, finance and many more.



The University has many and varied successes in research over the course of a year. What do you prize most among these successes?

MB. Tough question! There are many choices including major awards to staff, large competitive grants won, company spin-outs, etc. But if I had to pick one type of success, it would be breakthrough research contributions that have a major impact upon a field.

RS. I agree. And that might, for example, take the form of a really influential journal article, book or creative work in music or literature.

What about collaboration between researchers in different disciplines. How do you foster such links?

RS. A good strategy is to promote research that coalesces around 'wicked problems' and grand challenges, such as food security, sustainable energy, and abundant clean water. Solutions to challenging problems like these are best tackled collaboratively by scientists, engineers, law researchers, economists, political scientists, social scientists, etc.

MB. We're currently establishing an Interdisciplinary Research Fund, recognising that some of the most exciting discoveries take place at the interfaces between disciplines.

Nobel Laureates Howard Florey and Sir William Bragg head a long list of distinguished researchers from the University. What are the strengths of a great researcher?

MB. Great researchers challenge orthodoxy, are imaginative and ask tremendous questions. They eschew incremental research and dare to think big.

RS. Plus they need insatiable curiosity, dedication and commitment. Of course a deep knowledge of the issues is critical to be able to understand the great questions and opportunities.

Do you have any tips for a young student starting out on their first research project?

MB. Follow your passion. It's so much easier to devote yourself to a challenge that truly excites you. Seek out a supervisor and research environment that are buzzing. Take time to lift your eyes from the desk and get a sense of context for your work – and read widely.

RS. And make sure you seek the advice of those more experienced and knowledgeable to build a network as you go. Be organised, persevere and, most importantly, THINK. ♥

PHOTO Professor Mike Brooks, Deputy Vice-Chancellor (Research) and Professor Robert Saint, Pro Vice-Chancellor (Research Strategy)

EARTHSHIP IS OUT OF THIS WORLD

PHD STUDENT MARTIN FRENEY IS TAKING A GIANT LEAP TOWARDS SUSTAINABLE LIVING WHILE CREATING CLEVER COMPUTER MODELLING TO PROVE SOME RADICAL IDEAS.

Take a pile of old tyres, tonnes of dirt and throw in some cans and bottles and various other recycled bits and pieces and the result is a bed and breakfast like no other.

But then Martin Freney sees little place for conventional design and materials when constructing the ultimate self-sustaining home.

The University of Adelaide PhD student is building an 'Earthship' on his four-acre property at Ironbank in the Adelaide Hills in a project which is exciting environmental enthusiasts and testing government approval agencies.

Earthships are the creation of US architect Michael Reynolds and are starting to appear around the world. They don't require heating or cooling, even in harsh climates, and they operate independently of electricity, water and sewerage grids.

Mr Freney's Earthship is the second in Australia – another has been built in Queensland – and his PhD aims to establish the thermal efficiency and environmental impacts of the homes compared to traditional dwellings.

His research has taken him overseas to log temperatures in Earthships built in the US and the results are encouraging.

"I've now got data which confirms anecdotal evidence about the efficiency of these homes and I've developed a simulation model which can predict the thermal performance of an Earthship in different climates," Mr Freney said.

"With the help of my PhD supervisors, Terry Williamson and Veronica Soebarto, I've also written a paper on the theoretical performance of Earthships in different parts of Europe where they are starting to be built."

Earthships challenge conventional design by having a sun-facing 'greenhouse' at the front which acts as a natural convection 'engine' to heat and cool the home without energy.

"The concern was that in Australia the homes would overheat, but with some design modifications my study demonstrates there is still a cooling effect in summer," he said.

An industrial designer by profession, Mr Freney leapt at an opportunity to build an Earthship after organising a trip to Adelaide by Mike Reynolds in 2009. The two have since visited each other several times and developed a good working relationship as he perfects his modelling program.

Mr Freney has run workshops for architecture and design students – and many other interested people – who work alongside him to help construct the Earthship and gain a greater insight into self-sufficient living.

The design includes an internal garden to grow food and filter captured water, it has minimal solar power and the external tyre structure can be rendered with a choice of materials.

But gaining approvals can be problematic.

"Planning approval was given for the home to become a bed and breakfast and structural engineering has been completed, however construction was stalled because of delays in receiving building approval which was eventually given in June," Mr Freney said.

"I was a bit concerned that the absence of concrete footings under the tyre walls might be an issue, but the engineer I used was very enlightened and confirmed the design was structurally sound.

"It has also passed energy assessment, but only just because the nationally accredited software is not capable of accurately modelling the heat transfer through the greenhouse, the living space and out through the very thick tyre and earth walls."

The CFS also gave the thumbs up describing the home as highly bushfire resistant.

However, one issue involves the use of grey water for the indoor garden which has been queried by health authorities. Mr Freney intends using captured rainwater four times – for a bath or shower, irrigating the indoor garden, flushing the toilet and then for irrigating the outdoor garden.

"I'm in the process of convincing the health authorities that this is perfectly safe and this will involve a PhD student conducting scientific testing of the greywater system," he said.

With development approval now in place Mr Freney plans to run a series of workshops in January 2014 to complete the project. For information on the workshops email Mr Freney at martin.freney@internode.on.net ♥

"I've now got data which confirms anecdotal evidence about the efficiency of these homes."

RIGHT Martin Freney and the earthship



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