



THE UNIVERSITY OF
NEWCASTLE
AUSTRALIA

THE UNIVERSITY OF NEWCASTLE

A GLOBAL LEADER DRIVING WORLD-CLASS INNOVATION

► **Recasting the city
of Newcastle as a
knowledge hub**



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COVER IMAGE: The ship “James Craig” has had strong ties with the Hunter Region since the early 1900s when the ship transported coal from Newcastle to New Zealand. The ship continues to visit Newcastle to this day for the annual Maritime festival.

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“Through engagement with partners, the University will deliver world-class innovation...”

The economy of the city of Newcastle, one of Australia’s earliest settlements, was founded on coal, steel, manufacturing and the central role of its harbour as a major port. During the past 50 years, the University of Newcastle (UON) has played a key role in transitioning the city’s economic base to focus on education, research and innovation.

As we look towards our sixth decade, the next transition will see Newcastle recast as a knowledge hub, a driver of world-class innovation, and a collaborative partner of choice. We invite you to engage with us through the next phase of our journey.

Professor Caroline McMillen
Vice-Chancellor and President

37,450 students

from

 **109** countries

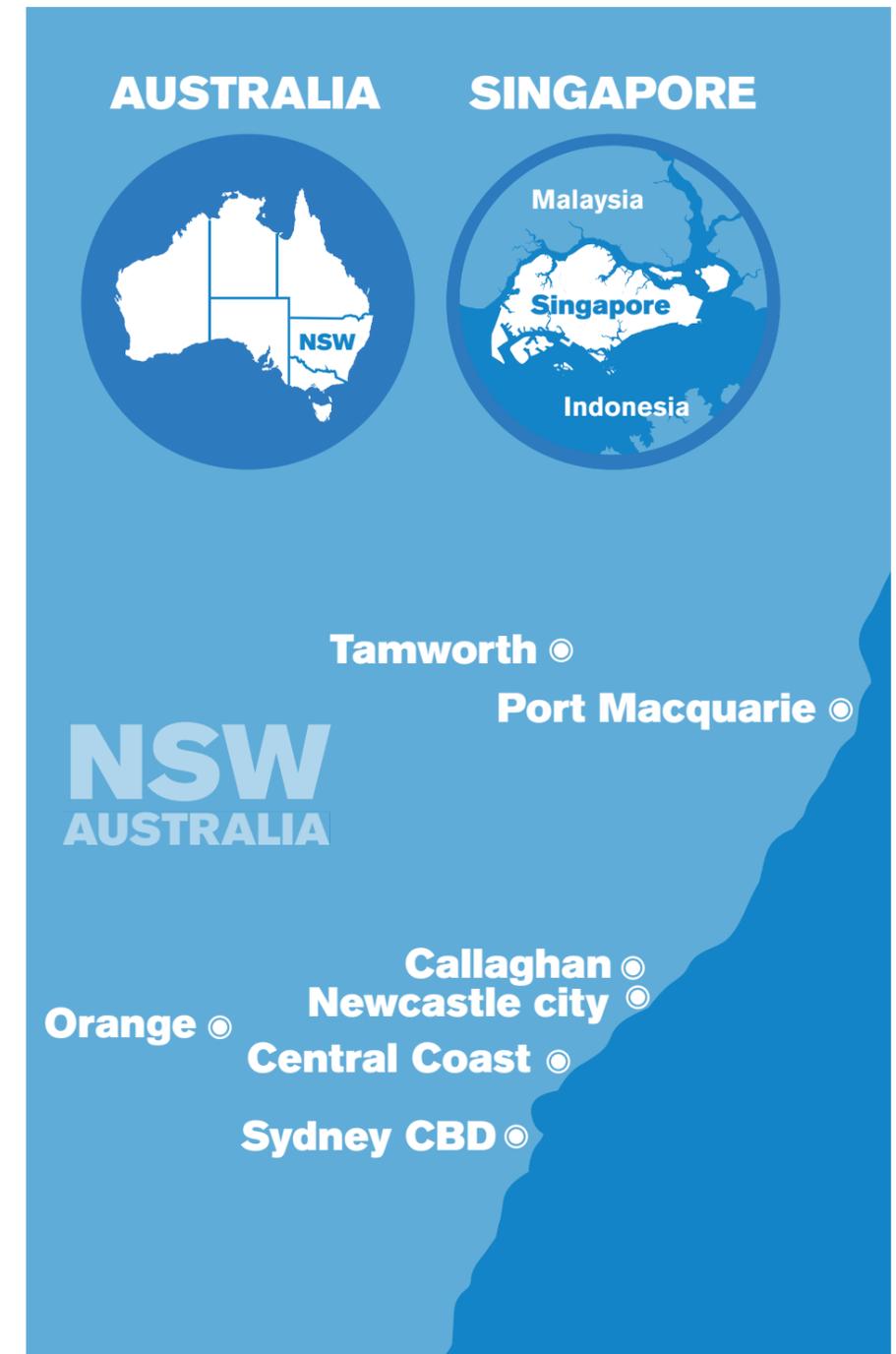
educated and supported by

2,596 staff

Top 3% of universities
in the world*

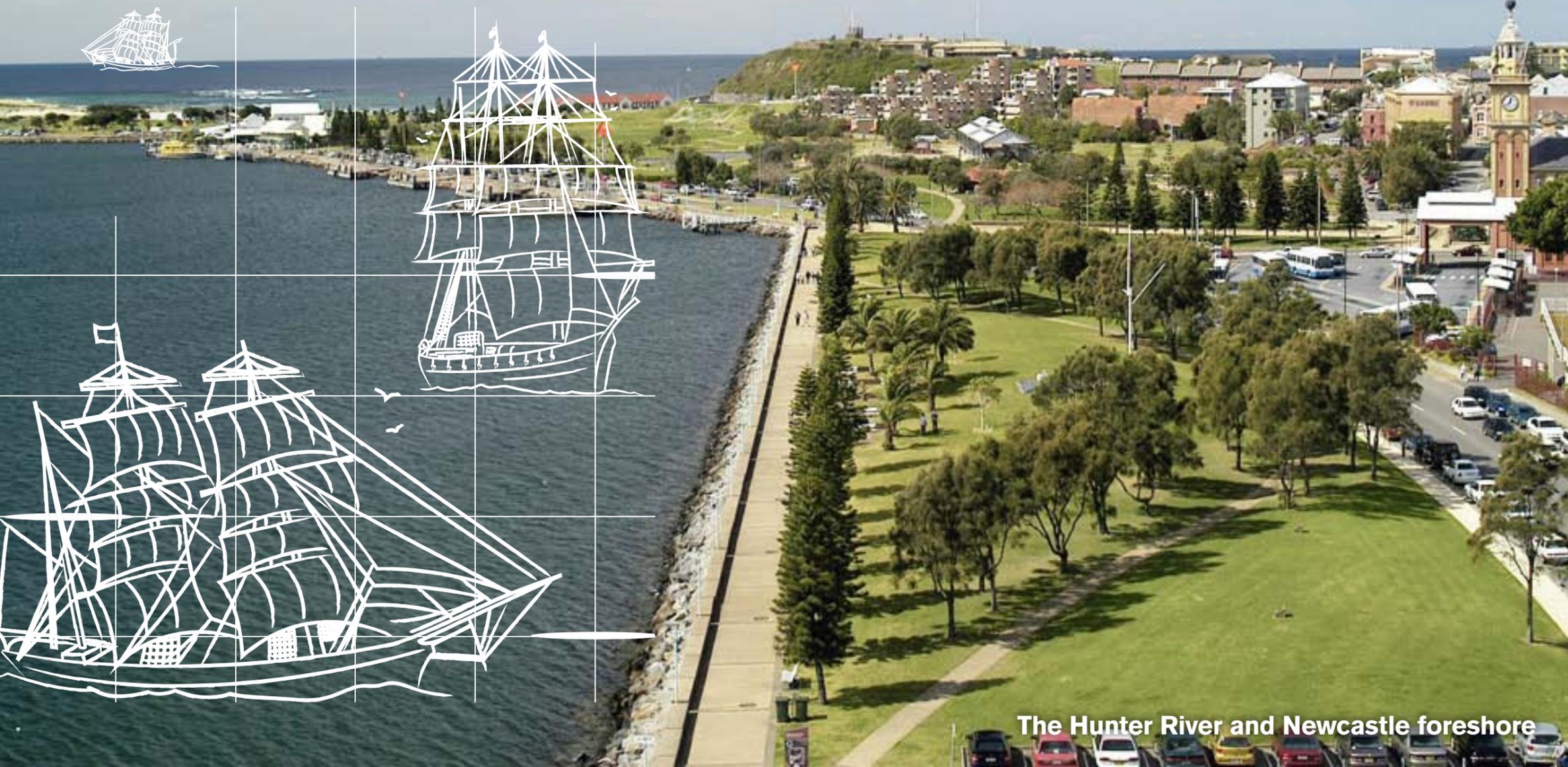
Top 50 universities
in the world
under 50 years of age*

*Times Higher Education World University Rankings 2013 and QS World University Rankings 2013



THE ORIGINS OF A UNIVER-CITY

NEWCASTLE, NEW SOUTH WALES



The Hunter River and Newcastle foreshore

Newcastle, like all of colonial Australia, was **born modern.**



1797
ABUNDANT DISCOVERY OF COAL IN NEWCASTLE

1803
EXPORTS BEGIN - ACTIVELY INVOLVED IN WORLD ECONOMY

1822
NEWCASTLE BECAME A 'FREE TOWN' AND NAMED AFTER BRITISH NAMESAKE



Merewether Beach

In the late 1700s, the city of Newcastle emerged as part of a bold venture in which the world's most technologically advanced nation, Great Britain, used its convicts to 'claim a continent'. With Sydney established as the port and administrative centre in 1788 and its fertile land ensuring food security, the search began for ways to recoup the costs of colonisation. Whaling and sealing provided some income, but the discovery of abundant coal in Newcastle in 1797 was warmly welcomed as providing a potential staple export. By 1803, intercultural trade commenced with the sale of coal to India and the Cape of Good Hope.

In 1822, it was decided that the penal colony should be removed further north to Port Macquarie and Newcastle was opened as a free town and gateway to the fertile Hunter Valley. When Henry Dangar surveyed the town in 1823, he expanded the association with Newcastle-upon-Tyne in Great Britain by naming the principal cross streets after the engineers and inventors whose work had enabled Britain to become the workshop of the world. The prosperity of Newcastle upon Tyne and its shift from being a provincial port to an international centre, was something many hoped this new 'Australian' Newcastle would replicate.



During the 1820s, the Australian Agricultural Company (AACo) began negotiations with the government to take over the coal mines. Although formed with the intention of employing convicts in large-scale agriculture, the AACo became interested in other profit making enterprises and judged that Newcastle's quality coal could be used in the trade with the countries of southern Asia. When AACo took charge in 1831, the company supplemented their convict workforce with free labourers, creating new centres of population around pit heads which were later to become the suburbs of Newcastle. Newcastle soon began a long tradition of innovation through pioneering the use of new technologies such as the gravity powered tramways with imported iron rails used to carry coal to the harbour where it was loaded onto ships. Australia's first steamship, the Sophia Jane, started on the Sydney to the Hunter River route in 1831.



Newcastle CBD shopping district built on the original mine sites

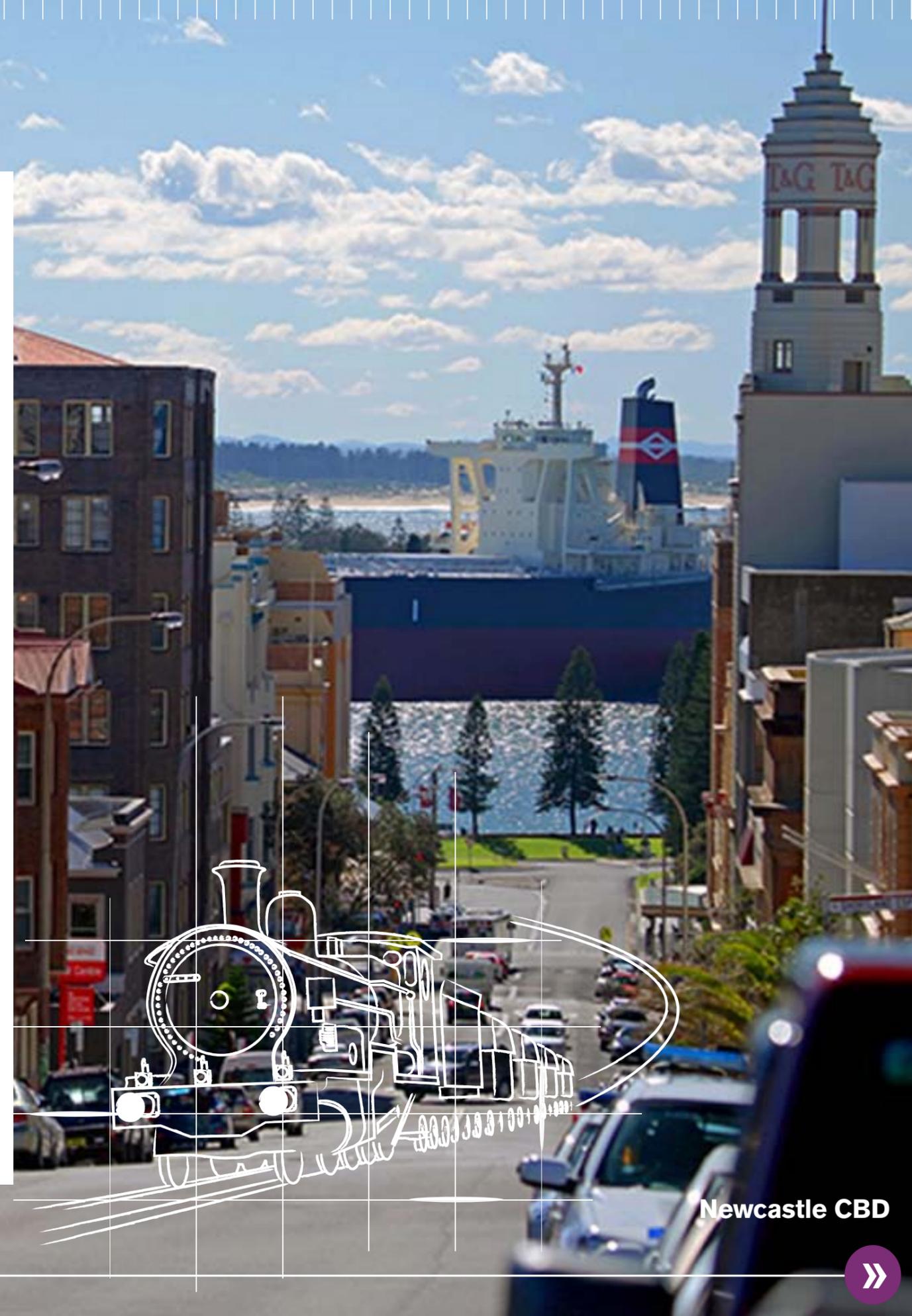


1912

BHP LANDMARK DECISION TO BUILD A STEELWORKS IN NEWCASTLE

From its early days, Newcastle was actively involved in the world economy. In 1870, the tonnage of exports clearing Newcastle was higher than that of Sydney; double Melbourne's and three times that of Adelaide. Newcastle was a thriving commercial centre in which coal comprised the principal medium of exchange and the elite was made up of mine owners, agents, financiers and ship owners. Newcastle was well connected to the outside world and well known as a coaling depot

by ships of all nations that frequented the South Pacific. As coal mining companies shifted their interests to other parts of New South Wales, mining company Broken Hill Proprietary Ltd. (BHP) had plans for Newcastle. The landmark decision to build a steelworks at Newcastle was made in 1912 and three years later the first steel rail was rolled. The presence of the steelworks gave Newcastle a new identity and a new importance as a key player in the national economy.



Newcastle CBD



NEW CULTURAL AND INTELLECTUAL HORIZONS

THE EMERGENCE OF THE UNIVERSITY OF NEWCASTLE



The establishment of the BHP steelworks brought a new group of well-educated people to Newcastle and an increased demand for structured learning. As well as adopting and adapting innovations in steel making, leading minds in technology and business sought new efficiencies in managing the large enterprise.

The Great Hall, Callaghan campus





As a result, the heavy industries

helped to fund the building of a new Technical College in the late 1930s, with BHP providing a 22-acre site. The new facility opened in 1942 with some 4000 students. The well-trained technicians who emerged helped BHP to respond to wartime demands with a series of innovations. These included a new form of bulletproof steel using titanium, and a new process for manufacturing more durable machine tools with tungsten carbide.

As the city grew, Novocastrians became used to the continued prosperity brought by heavy industry. However, they had begun to imagine

a post-industrial life for the city and began exploring alternative identities. A key goal was the establishment of a university. Parents and Citizens' Associations along with unions, heavy industry, local professionals and churches began this call in 1942. The Newcastle University Establishment Group formed in 1950 and argued for the development of a comprehensive university in Newcastle. The University of New South Wales (UNSW) opened the Newcastle University College in 1951 offering degrees in maths, engineering and applied science as well as some humanities courses.

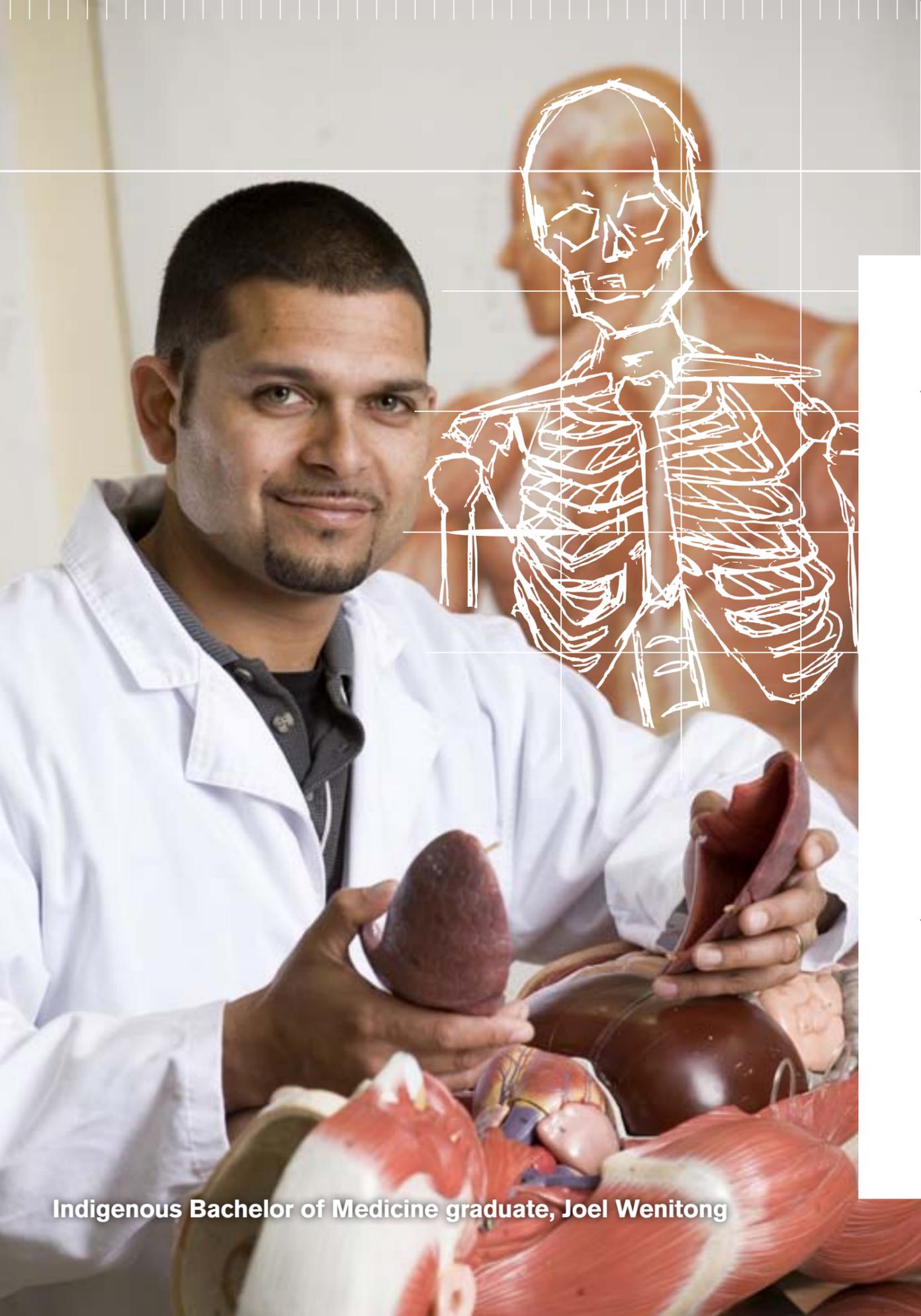
UON Callaghan campus, Newcastle
Original Technical College site in the distance



With the university presence

secured and the demand from students established, the next push was for Newcastle University College autonomy. An Act of State Parliament in 1965 established the University of Newcastle with Professor J.J. Auchmuty as founding Vice-Chancellor (President). While government grants covered teaching, administrative spaces and a progressive library, a community and cultural space for concerts, exams and graduations had to be funded through grassroots donations, including AUD\$200,000 from BHP and associated industries. It was during these formative years that the deep academy-community relationships developed even as the University began to focus on broader horizons.





In 1975, a Medical School was opened, making the University a ‘disruptive innovator’. UON placed unique emphasis on preparing doctors who would be actively involved in their communities and take on the challenge of medical practice in regional and rural Australia. For half of each year’s intake, admission to Medicine was by personality tests and interviews with a panel of academics, practitioners and community members. Teaching was interdisciplinary, in small groups and problem-based.

The result was a Medical School which quickly developed an international reputation for high quality graduates. This practical approach was more recently turned to attracting Indigenous students and Newcastle now graduates more Aboriginal Australian doctors than any other university, many of whom return home to work in their communities. The University’s reputation in health research is international, and focuses on its flagship research centre, the Hunter Medical Research Institute.

Indigenous Bachelor of Medicine graduate, Joel Wenitong

THE 'SEISMIC SHIFT' OF AN INDUSTRIAL CITY TO

EDUCATION, RESEARCH

AND INNOVATION

ION



The University with its partners from industry, business, government and the community has and will continue to play a major role in the city's transition from a 'steel city' to a global innovation hub.



On the 28th December 1989, the city of Newcastle was hit by an earthquake with a Richter magnitude of 5.6 and felt over an area of 200,000 square kilometres. The earthquake claimed 13 lives and hospitalised 160 Novocastrians. 50,000 buildings were damaged and 300,000 people were affected, including 1,000 who were left homeless. The total damage bill was estimated to be AUD\$4 billion.

The earthquake hit at a time when Newcastle's BHP

steelworks was gradually closing down its operations in what was once the “linchpin of the Hunter Valley economy and the engine room of Australian heavy industry”. In 1989, BHP management and the unions engaged in revolutionary negotiations for a new workplace agreement that allowed a significant company restructure. The person who would lead BHP into its new era of steel manufacturing was Mr Paul Jeans, who now serves as UON's seventh Chancellor.



Newcastle Institute for Energy and Resources (NIER) built on an original BHP site

**1999
BHP CLOSURE, NEWCASTLE 'REBORN'**

The scaling back of the steelworks did not have the dire consequences for the city and region that many predicted. Many steel workers found employment in emerging industries as the economy began to diversify, with commentators equating the eventual closure of the BHP steelworks in 1999 to Newcastle being 'reborn'. The closure forced the region to diversify and move

rapidly from a concentration of activities in traditional industries toward new opportunities in areas such as sustainable energy, health and services, and the creative industries. The University with its partners from industry, business, government and the community has and will continue to play a major role in the city's transition from a 'steel city' to a global innovation hub.



Hunter Medical Research Institute (HMRI)



The University continues to build access and participation in higher education for the people in each of its regions. Today, the University has 37,450 students enrolled and equity remains a key part of its 'DNA'. A higher proportion of students from low socioeconomic backgrounds and double the proportion of Indigenous students are enrolled at Newcastle, compared to the Australian average. The contribution of the University to the development of a high skilled workforce is critical to the participation of Newcastle and the Hunter Region in Australia's changing economy. Estimates suggest that Australia requires an annual increase in tertiary qualifications by at least 3.5 per cent to 2025.



The Wollotuka Institute, Birabahn, Callaghan campus



In 2013, the University received funding from the Federal and NSW State governments to contribute to the building of a AUD\$95 million 'NeW Space Education Precinct' in the heart of the Newcastle CBD. This will be a technology enabled learning and teaching hub which will realize the University of the future for Newcastle's students and the community. The announcement of funding for the Precinct was shortly followed by key announcements by the State government of plans to reopen the city to its harbour by replacing a heavy rail corridor with light rail and building more residential accommodation and boutique retail outlets to 'activate' the city. Newcastle's transitional journey continues, with the University at the heart of developments.



The NeW Space site in Newcastle's CBD to open in 2017 - Artist's impression

BUILDING A

GLOBAL KNOWLEDGE AND INNOVATION HUB

By any measure, the University of Newcastle is a world-class research-intensive university. Its strengths in health, engineering, energy, science and the social sciences are complimented by emerging areas of research excellence in humanities, creative arts and law.

Research laboratory at HMRI





Professor Paul Dastoor at NIER

Our flagship research institutes, the Newcastle Institute of Energy and Resources (NIER) and the Hunter Medical Research Institute (HMRI), are supplemented by a group of Priority Research Centres and a growing network of research clusters that focus on translating research into innovation.

The current NeW Directions Strategic Plan expresses a clear vision that by 2025 the University will be a global leader in each of its spheres of achievement and that through engagement with partners, the University will deliver world-class

innovation to support the social, economic and environmental development of strong regional communities. With the NIER and the Australian Commonwealth's Energy Transformed Flagship and the National Solar Centre all located in Newcastle, as well as the role of the Hunter Region in the production of 60 per cent of the state's energy supply, there is demonstrable capacity to leverage these assets into global leadership with partners. The University's objective is to drive first-class innovation and effective collaborations, which deliver energy solutions worldwide.



One example of global

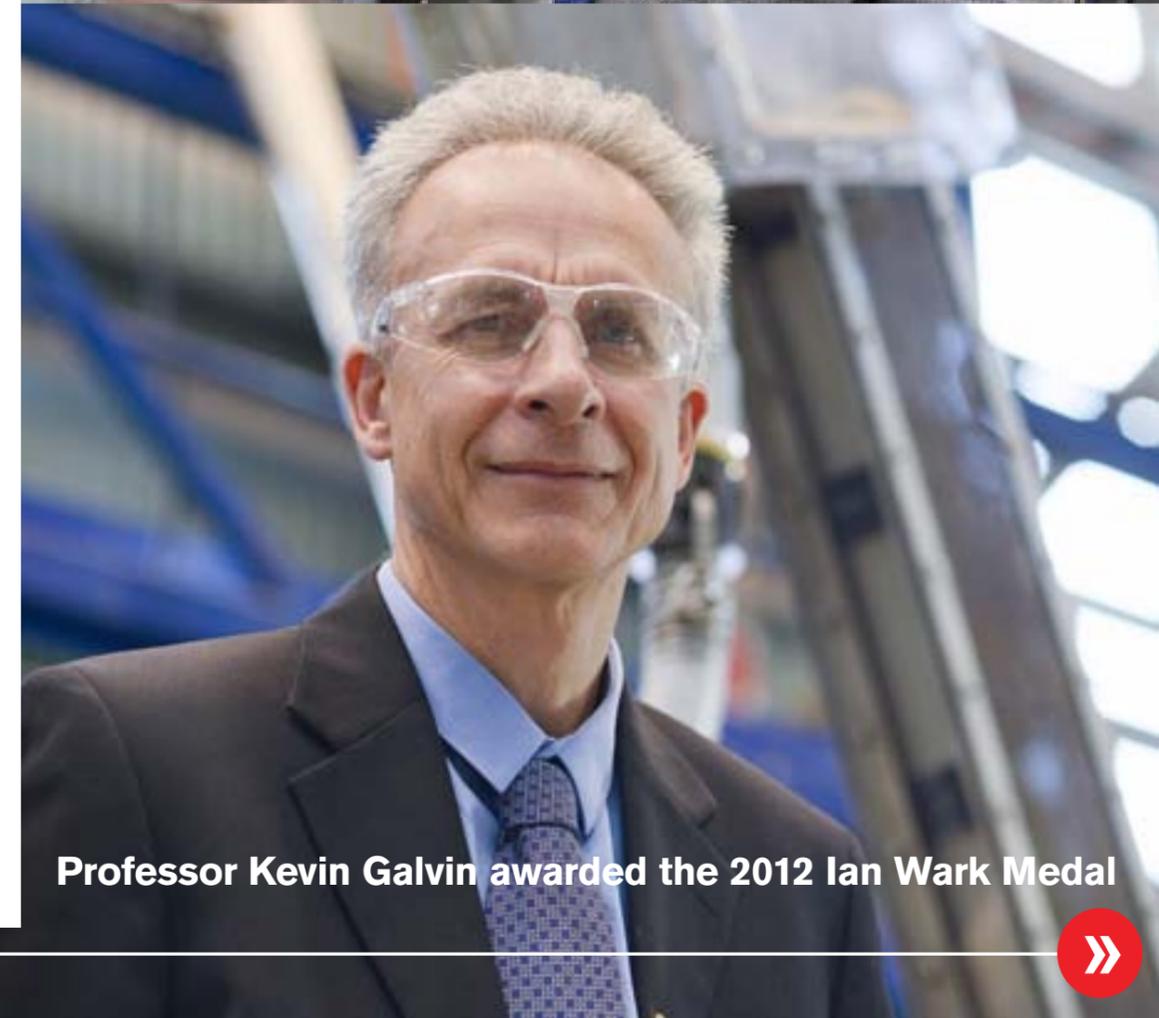
innovation is the acclaimed Jameson Cell, which uses a flotation technology to enhance mineral yield for the coal industry. This innovation alone has generated almost AUD\$25 billion of export income for Australia, and was created by a UON researcher, Laureate Professor Graham Jameson. His colleague, Professor Kevin Galvin, separately developed the Reflux Classifier in collaboration with commercial partner Ludowici. This is a revolutionary innovation, which separates fine particles on the basis of density and has been a game-changer for the energy industry. It is this calibre of research and innovation that allows

UON to tackle global challenges through collaboration, and utilise world-class facilities to develop innovative solutions and enabling technologies.

NIER acts as a multidisciplinary research and innovation hub with strong partnerships across Asia. This is built through the recruitment of talented staff and research trainees from across the Asia region. Such engagement with Asia and beyond also supports the development of introductions and collaborations between the industry partners of universities. This will in turn support the economic development of the region and connect to the changing global landscape of research.



**NSW Scientist of the Year 2013
Laureate Professor Graeme Jameson**



Professor Kevin Galvin awarded the 2012 Ian Wark Medal





Professor Chris Levi, Neurologist and Professor Clare Collins, Nutrition and Dietetics expert (inset).



The Hunter Medical Research Institute (HMRI), a collaboration between the University and the Hunter New England Health District, is housed in a AUD\$90 million building on the John Hunter Hospital campus, and has attracted world leading researchers with an outstanding track record of translating world-class research into clinical and population interventions. For example, Conjoint Professor Chris Levi, an internationally recognised stroke neurologist, researcher and co-director of the University's Centre for Translational Neuroscience and Mental Health Research at HMRI, conducted a groundbreaking study in partnership with Harbin Medical University China into methods of cooling the brain after a stroke.

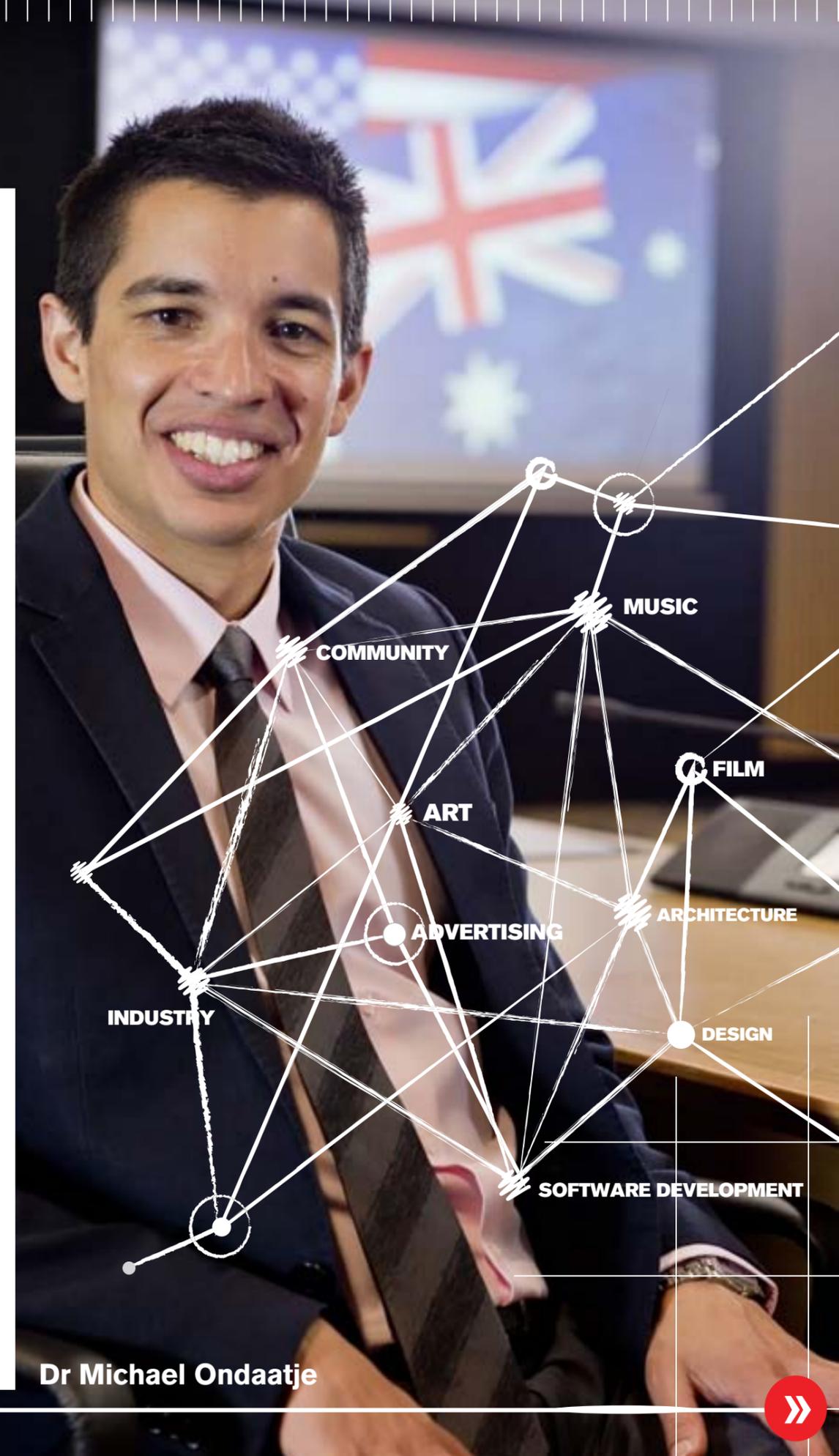


Plans to launch three new Research and Innovation Clusters are another important part of the University's NeW Directions Strategic Plan. The clusters will act as 'one-stop-shops' to bring industry partners together with researchers across different discipline areas, and in doing so, generate 'real-world' solutions to complex problems. A new Creative Industries Research and Development Cluster will support the economic transition of the region through engaging with the many stakeholders that contribute to the growth and health of contemporary creative economies.

UON is also a leader in range of

disciplines, including geography, history, mathematics, plant biology, religion and religious studies, social sciences, and social work. The University celebrates the international achievements of all our researchers, for example in 2013 Dr Michael L. Ondaatje, researcher in American History, was selected to participate in the prestigious International Visitor Leadership Program – the US Department of State's premier professional exchange program.

Under the leadership of our new Dean of Law, the Newcastle Law School is building its research on strong foundations in the academic study of law and clinical practice.



Dr Michael Ondaatje

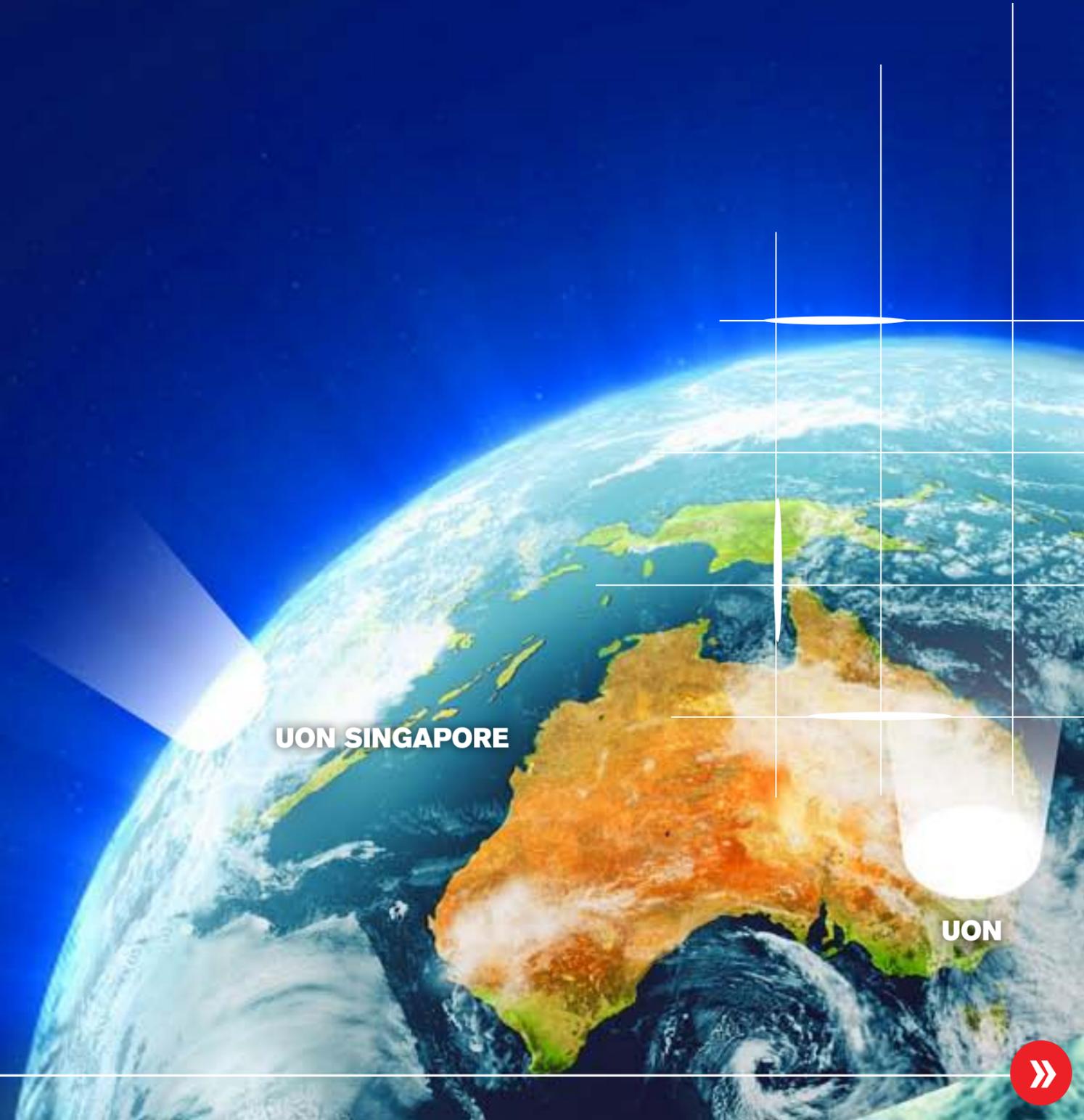


The University of Newcastle's education and research partnerships with institutions and researchers across the US, Europe and Asia are a testament to the global impact of the work undertaken at Newcastle.

UON is a leading partner of business and industry supporting the translation of research through to world-class innovation in the development of 'real world' solutions to complex problems. It has a reach that spans the

globe, with more than 115,000 alumni across 118 countries, and a UON Singapore campus where there are more than 1500 students enrolled.

As UON approaches its 50th Anniversary, its reputation continues to grow as a driver of world-class innovation. Through engagement with partners across industry, education and other sectors in Australia and worldwide, the first-class research underway at Newcastle can have global impact.



UON SINGAPORE

UON



Written by Nancy Cushing, Katrina Quinn and Caroline McMillen



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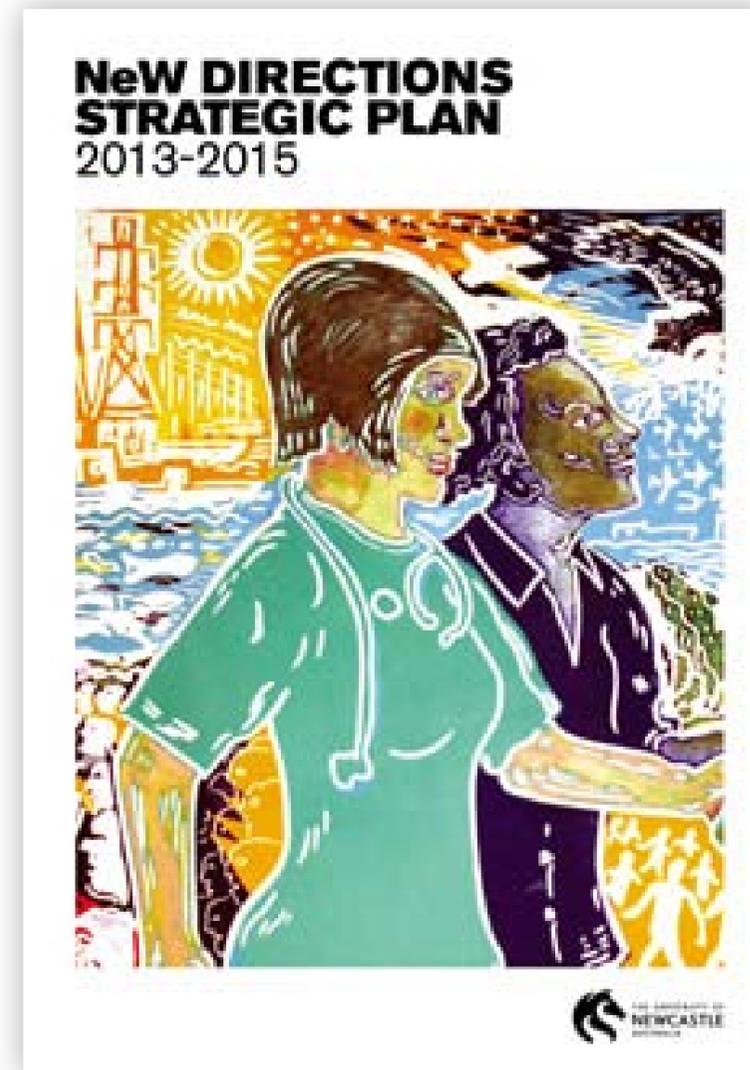
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