ORIGINS

2008 *Edition 1*

ORIGINS

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Contributors

ROBYN MCDOUGALL

Robyn McDougall is a long-time reporter, newspaper editor and former journalism academic. She currently is CDU's Public Relations and Media Manager. Robyn writes several articles in this edition of *Origins*, based on interviews with CDU researchers, lecturers and students whose areas of interest provide fascinating material for a good story.

RICHIE HODGSON

Richie Hodgson is CDU's Media Officer based in Darwin and a product of Australia's northern most university. For this edition of *Origins*, Richie has penned features examining the future uses of water in the Top End, the University's gambling research group and two, high-achieving Territorians.

JASON MCINTOSH

Jason McIntosh is CDU's resident Media Officer in Alice Springs. He enjoys capturing the motivations of staff and positive outcomes of their work through engaging pictures and words. He is also keen to articulate the ideas of extraverted academics, lecturers and researchers.

FELICITY ROBSON

Felicity Robson is General Manager of Sustainability and Corporate Affairs for the OneHarvest group of companies. Felicity leads the organisation in the pursuit of minimising its ecological impacts, while increasing efficiencies and creating business value. Felicity has a key role in the organisation, and in the food and agri-industries, contributing to various sustainability initiatives and leadership forums on the issue.

COVER *Dawn on the river, Vietnam* PHOTOGRAPH *Tuan Nguyen*
INSIDE FRONT COVER *Ship cloth, Tampan | Late 19th Century| Lampung, Sumatra, Indonesia | Hand spun cotton and natural dyes, supplementary weft weave | 73 x 68cm | Museum and Art Gallery of the Northern Territory Collection IND 00336.*
PHOTOGRAPH *Courtesy Museum and Art Gallery of the Northern Territory.*

Beyond our borders

As the Northern Territory's higher education and Vocational Education and Training provider, Charles Darwin University has a conspicuous and crucial role in the development of the Territory and its people. Given our position, the University's impacts in its own backyard should not come as a surprise.

Our influence on people, communities and conditions beyond the Territory's borders, however, might be a revelation for some readers. CDU has a distinguished record of achieving above its weight and helping to make a concrete difference to communities across the north and in other selected geographical locations, particularly in Asia. We are rightly proud of this record.

The University has just completed its first full year under its "Futures Framework: First in 5 in 10", which identifies five commitments that aim to define our distinctive edge, building on our current and potential strengths. Three of these commitments are:

- professional, globally oriented education and training
- knowledge to solve complex problems of importance to the communities of our regions, and
- expanding our capacity through partnerships.

These form the basis of this edition's main theme: Beyond our borders.

In this issue you'll read about research on bamboo that aims to help alleviate poverty in one corner of the newly emerging superpower, the People's Republic of China.

We also highlight the Australian Snakebite Project that connects 100 hospitals across the country in a bid to unlock the mysteries of snakebite.

You'll read about views on environmental capitalism that are helping to inform Australia's response to global warming.

And you'll discover some of the secrets of the Catalina flying boats that were destroyed off Broome during World War II. This story, which dates back 65 years, continues to have an impact in Europe today.

This issue also focuses on the first Charles Darwin Symposium for 2008, entitled "Water in the Top End: Opportunities and constraints".

The Symposium is scheduled for 30 May in Darwin and will bring together experts, practitioners, users and policy-makers to discuss scenarios for the future use of water in the Top End. It's a hot topic by any measure, with competing local interests and pressures being exerted from drought-ravaged areas of southern Australia. This edition provides a taste of the deliberations that will take place during the Symposium.

Elsewhere in *Origins*, you will read about the remarkable achievements of one of our graduates whose professional journey from Darwin to Dubai included an unusual detour through the battlegrounds of Iraq. This edition also includes details about the impacts that generous donors are having within CDU.

I hope you find that these and the other stories give you a deeper sense of the truly remarkable work that emanates from Charles Darwin University.

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Professor Helen Garnett PSM

UNU centre recognises traditional knowledge strengths

Charles Darwin University's position as a key location for Indigenous training and knowledge has been reinforced with the launch of the United Nations University (UNU) Institute of Advanced Studies (IAS) Centre of Traditional Knowledge.

ABOVE
Director of UNU–IAS, Professor A.H. Zakri (center) with CDU Vice-Chancellor Professor Helen Garnett and Deputy Chief Minister Marion Scrymgour RMLA at the launch of the Center of Traditional Knowlege at CDU.

The centre, which will enhance the broader understanding of and training in Indigenous knowledge, was launched by the Director of the UNU-IAS, Professor A.H. Zakri.

The initiative was supported by the Northern Territory Government with a commitment of $2.5 million.

The Northern Territory Deputy Chief Minister, Marion Scrymgour, said the Government was pleased to support the development of the Territory's knowledge-based industries.

"The new centre will tap into the unique knowledge of Indigenous Territorians in fields such as science and the environment for use in modern and emerging industries, helping develop new economic and job opportunities in remote and rural areas," Ms Scrymgour said. The UNU advised in 2006 that it had chosen CDU to host the Centre of Traditional Knowledge, recognising the University's capacity to play a central role in the international debate on traditional knowledge.

In 2007 the Northern Territory Government announced its commitment to the establishment of a UNU Centre of Traditional Knowledge at CDU with an investment of $2.5 million over five years. Other philanthropic funding has also been achieved.

During 2007, the UNU-IAS spent almost $1 million on a number of pilot programs designed to demonstrate the types of activities that could be undertaken through the centre. These pilot activities include the role of traditional knowledge in fields such as climate change, water, international policy-making, biological resources and marine management.

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Talks centre on rebuilding a battered country

Oppression, corruption and inequity need to be overcome if East Timor is to rebuild a torn nation, according to the Deputy Prime Minister of Timor-Leste, Jose Luis Guterres.

ABOVE
Deputy Prime Minister of Timor-Leste, Jose Luis Guterres

Mr Guterres spoke passionately about the country during his opening address at a two-day international conference, entitled "Democratic Governance in Timor-Leste: Reconciling the Local and the National", at Charles Darwin University.

"Timor-Leste is a complex country in its relative infancy with a history of fighting and suffering," he said.

"We are mindful of our past and the atrocities that took place and we are united in the belief that these crimes against humanity cannot go unanswered. The experience is unforgettable, but we are looking to the future and rebuilding East Timor," he said.

Deputy Prime Minister Guterres pointed to the recent occupation of East Timor as a process which has now strengthened sentiment and unity in the country.

"We have paid a huge price to live in the East Timor of today, with almost 200,000 lives lost as a result of the fighting," Mr Guterres said.

"As a state, country and government we are committed to do whatever we can to foster and maintain stability in our nation and relationships with our neighbours."

Mr Guterres said his government, under the leadership of Prime Minister Xanana Gusmao, had established a number of programs that would further East Timor and provide services essential to the evolution of the world's youngest nation.

He also communicated his government's commitment to addressing issues which had led to the downfall of previous governments in East Timor.

"We are serious in fighting corruption, oppression, poverty and inequity in our nation. Ideally we want to create a system in East Timor that can last even if there is a change in government and these factors need to be overcome if this is to be a reality."

Mr Guterres said that East Timor faced a great struggle ahead and he hoped that the informed discussion and debate emerging from the CDU conference would aid in the rebuilding process.

"We cannot develop a nation without academics and educated discussion. We have a lot to learn from other countries and we look forward to what the future holds for East Timor," he said.

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NT's mangroves under threat: Study

The mangroves of Darwin Harbour, considered among the richest in the Asia-Pacific region, are at risk from rising sea levels, increased cyclones, urban development and, surprisingly, hungry turtles.

Dr Kristin Metcalfe, who was awarded her PhD recently from Charles Darwin University, has just completed one of the most comprehensive studies of animal diversity of any mangrove forest in the world.

Her thesis documented the distribution, diversity, and abundance of fauna in the mangroves of Darwin Harbour. The research assessed the impacts of urbanisation on mangrove biodiversity. It also examined some of the factors delaying the recovery of mangrove forests damaged by urban expansion and cyclones. Several field methods for forest rehabilitation were developed during the project which may fast-track recovery of these important ecosystems.

With some global warming specialists predicting an increase in extreme weather events, including cyclones, Dr Metcalfe's research may be significant for rehabilitation of mangrove ecosystems across the world. She said Cyclone Tracy's destructive path through Darwin's mangroves in 1974 was still evident.

"More than 30 years later, there is still a very clear gap where the tallest forests grew before the cyclone," she said. Dr Metcalfe said mangroves were critical for a healthy estuarine environment, as these highly productive forests buffer the coastline from strong winds, waves and erosion, while supporting an extraordinarily diverse, specialised and abundant animal life. Northern Australia was fortunate to have such large areas of relatively pristine mangrove forests, she said.

Areas of South-East Asia, including Indonesia and the Philippines, had lost more than 70 per cent of mangrove cover through human activity.

"People don't realise that these buffers between land and sea perform many vital ecological roles and functions as well as being an important feeding ground for many fish." During a two-year experiment, Dr Metcalfe tested the effects of shade, damage from floating debris, and the feeding habits of animals in bulldozed and cyclone-damaged mangroves. She found the recovery of the Darwin mangroves was hampered by sea turtles eating mangrove seedlings in damaged areas close to the seaward edge.

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ABOVE
Dr Kristin Metcalfe undertakes fieldwork at Charles Darwin Park, part of the Port Darwin Wetland.

$500,000 to help NT live with climate change

Charles Darwin University, in partnership with the World Wide Fund for Nature Australia and the Department of Economic and Regional Development, has been awarded around $500,000 by the Australian Government's Natural Heritage Trust to explore future scenarios for the Top End.

The study will focus on the potential impacts of climate change on the Territory's unique environment and way of life. Project leader Professor Stephen Garnett, from the School for Environmental Research, said the research was a unique opportunity for the Northern Territory to create its own future.

"All the indications are that we have less time to adapt to climate change than we thought even a few months ago," Professor Garnett said.

"But we cannot panic. With planning and ingenuity we can still create a sustainable world. We, in the Territory, should see climate change as an opportunity as well as a threat."

The research will have close links with key stakeholders across the Territory including the newly established regional councils, the Department of Primary Industries, Fisheries, and Mines, and the Aboriginal Land Councils.

"The project is a tremendous opportunity to understand the visions of north Australians," he said.

"We all share responsibility for our future in these tough environments. This project will give us greater understanding of the choices available to us and the potential consequences of our decisions."

The project begins this year and will run for three years.

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Caterpillar donation powers apprentices

World-renowned heavy earth-moving manufacturer Caterpillar has boosted the outlook of heavy vehicle apprentices studying at Charles Darwin University with a substantial donation of equipment.

Hastings Deering Australia, distributor of Caterpillar heavy equipment, has donated two, state-of-the-art Caterpillar C18 engines valued at $75,000 each for the use of CDU's heavy vehicle mechanics. The Caterpillar C18 engines, worth a combined $150,000, are used in the Caterpillar's AD55 Underground Articulated Truck designed for high-production hauling in large underground mining applications.

Coordinator and lecturer in the heavy vehicle program in the School of Trades, David Smith said the University's continued partnership with Hastings Deering and Caterpillar was key to CDU's heavy vehicle apprentices. "We currently have an unrivalled level of online technical support from Caterpillar which we use as an educational resource for trainees and apprentices," he said. "Caterpillar is the industry leader and largest supplier of earth-moving equipment in Australia and we are extremely appreciative of this donation." Features of the 650 horse power C18 engine include the electric management system and Caterpillar's breakthrough emission control technology.

The latest donation brings the number of Caterpillar engines donated to CDU to five, with previous donations including gearboxes, transmissions, hydraulic pumps, hydraulic cylinder rods and fuel injection pumps.

LEFT
Hastings Deering's Mark Neale (left) with CDU Chancellor Mr Richard Ryan AO at the equipment handover.

Outcomes delivered in Tennant Creek

An Indigenous trainee program developed by the Tennant Creek Town Council is delivering positive work outcomes for Charles Darwin University-trained Indigenous people in Tennant Creek.

Two council trainees have been offered full-time positions and another six are expected to be offered similar contracts, reflecting the confidence of the council in its Indigenous workforce.

Twenty-four people were selected by local business, training and employment organisations for the 18-month traineeship which included formal and on-the-job training. The University provided initial training at the Juno Horse Centre near the township.

Students learnt the basics of operating machinery in an environment relevant to their workplace.

Further training in chemical handling was offered as part of CDU's Certificate I in Rural Operations, delivered in Tennant Creek by horticultural lecturer Lex Martin. Mr Martin complimented the students on their enthusiasm and work ethic. "They were enthusiastic, receptive, and while some students did struggle with literacy, they were all capable of answering the questions up front," he said. "I would happily employ any of them."

Peter Dickerson, human resource manager for the council, said the trainees had become an important part of the council workforce. "They continue to demonstrate a good work ethic with enthusiasm to finish tasks, learn new skills and use equipment, and they interact well with work colleagues," he said.

Mr Dickerson was also complimentary of CDU training. "The trainees enjoyed Lex's training style, participated in the training with enthusiasm and interest, and displayed good language skills and a high level of practical skill and knowledge," he said.

The council partnered with CDU, Papulu Apparr Kari (Language Centre), Julalikari Council, Alpurrurulam Council, and ITEC Employment, the Indigenous Coordination Centre and DEWR to deliver the various elements of the program.

Kate Young, centre manager of CDU Tennant Creek, said the trainees were a great role model for other Indigenous people in the Barkley region. "This is a great example of the Tennant Creek community working together to support and assist local people to a successful career path," she said.

ABOVE
CDU-trained Indigenous people at work in the Tennant Creek Town Council's trainee program.

Research casts doubt on Bach's claim to *Cello Suites*

New evidence from a six-year study of various Johann Sebastian Bach manuscripts suggests that Bach did not compose the highly acclaimed *Six Cello Suites*.

Associate Professor Martin Jarvis, artistic director and conductor of the Darwin Symphony Orchestra, has undertaken one of the most comprehensive studies of the acclaimed composition.

The findings, contained in his recently completed PhD which was awarded by Charles Darwin University, call into question some of the more entrenched scholarly positions with regards to Johann Sebastian Bach's career, and the authorship of the *Cello Suites* and other works which have long been ascribed to him. "The documentation of Johann Sebastian's life, particularly in his early years, is sparse at best," Dr Jarvis said. "Consequently, his private life is shrouded in a kind of mystery, and the fact is that much of what has been written about Johann Sebastian's domestic situation is also at best, highly educated conjecture."

Dr Jarvis' thesis used, for the first time, the principles and techniques of the science of forensic document examination.

"The fact that some of Bach's most significant works do not exist in his handwriting but in the handwriting of, for example in the case of the *Cello Suites*, Anna Magdalena, his second wife, we are left with a mystery and a question: why is this so? My research shows that the traditional view that Anna Magdalena was simply a copyist of her husband's music is not likely to be the case, and that it is more likely that she was much more, that is a composer herself and probably the composer of the *Cello Suites* and other works attributed to her husband. If this really is the case, and I am certain that it is, we will need to re-write the history of music, which is why there is so much resistance to my work," he said.

There can be little doubt that the matter of the interpretation of the *Cello Suites* as a result of the many editions of the composition, has caused and continues to cause much debate among cellists. If the music was really written by Johann Sebastian Bach, why should there be the need for so many different versions of the *Six Cello Suites?* Dr Jarvis said.

"What is it about the Bach *Cello Suites* that causes them to be '…considered by many to be the most challenging of the solo repertoire', as the great contemporary cellist Yo-Yo Ma commented? It is more than feasible that this is because they weren't actually composed by Johann Sebastian Bach," Dr Jarvis said.

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ABOVE *Associate Professor Martin Jarvis*

Woodcarving a sustainable art in Arnhem Land

Research into the use of harvested trees for woodcarving in Arnhem Land has found the practice is sustainable at current levels, reducing uncertainty about the viability of the art form.

Charles Darwin University researcher Dr Jennifer Koenig, who recently was awarded a PhD from the University, examined the socio-cultural, economic and ecological determinants of sustainably harvesting timber for woodcarving in the Maningrida region of central Arnhem Land.

Her thesis was prompted by concerned community members who approached CDU to examine the long-term environmental effects of their relatively new woodcarving practice. "They didn't have the resources and expertise to examine these sustainability issues and so utilised their existing relationship with researchers in the School for Environmental Research to instigate a collaborative project," Dr Koenig said.
A breakdown of sales data showed that the number of woodcarvers and the number of carvings produced in the region has grown rapidly over the past 20 years. Her research found the tree populations used for woodcarving were resilient to harvesting and could cope with predicted increases in their use.

Dr Koenig also identified many cultural differences in harvest practice among various language groups, but found two tree species commonly used for carving across all language groups in the region: *Bombax ceiba* and *Brachychiton diversifolius*. Mature tree stems cut to near ground level re-sprouted and these new shoots were found to grow up to six times faster than similar sized, non-sprouted stems. While *B. diversifolius* was more resilient to increasing harvesting intensity, the current harvest regimes for both species were sustainable, she said.

Dr Koenig said the results were very positive for the community. "The study has reduced the uncertainty surrounding the sustainability of harvesting these species and ensures woodcarving continues to be an important livelihood option for Indigenous Australians of Arnhem Land," she said.

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RIGHT *Dr Jennifer Koenig delivers good news for woodcarvers.*

first person

Islam, education and politics

In edition one of *Origins* 2007, CDU PhD candidate **NATHAN FRANKLIN** wrote of his early research into religious boarding schools in East Java. Nathan has completed his year of fieldwork and reports on a school system in which the children's day begins at 4am and finishes 17 hours later.

An overburdened public school system, coupled with perceived shortcomings of western society, has resulted in an increasingly large number of Indonesian school students finding solace in pesantrens, a boarding school system where the focus is on religious instruction and general education.

As a PhD candidate in political science, I returned to Darwin recently after spending a year in two boarding schools where I studied the routine of students and the link between the schools and politics.

In March 2006, I began a PhD in which I am examining the political role of Islamic boarding schools in Lamongan, East Java. I chose as case studies a school within the traditionalist Nahdlatul Ulama organisation and one with the reformist Muhammadiyah organisation.

I began my research at these boarding schools in late December 2006 and recently completed my fieldwork. By living in these schools and observing the daily living routines of the head-master *(kyai)* and the students *(santri)*, I was able to employ qualitative and participant observation techniques to conduct my research. In this system, the headmaster is a religious scholar and determines what is taught at the schools.

One of the most striking and obvious features of the schools is that the students' entire lives revolve around Islam in both practise and theory.

That is, the students practise and observe all the rules and laws of Islam, and on the theory side they recite, memorise and learn about their holy books, the *Quran* and *Hadith*.

The typical daily routine of students consists of waking up at 4am and performing their morning prayer an hour before sunrise. This is followed by Quranic studies, known as *pengajian*.

Students then have breakfast before starting their formal school classes at 7am. In both boarding schools I visited, the curriculum includes a combination of religious and secular subjects. The schools teach English language, mathematics and science, which are filtered through and must be compatible with existing teachings and beliefs.

Classes are suspended at midday when the students perform midday prayer *(salat duhur)*. This is followed by lunch and rest before mid-afternoon prayers *(salat asa)*. Later, the students take part in a variety of activities including sports and other games. At sundown the students perform the *salat magrib* prayer. They have dinner and perform their final prayer *(salat isa)* an hour after sundown before continuing with Quranic studies until about 9pm.

ABOVE
CDU PhD candidate Nathan Franklin with students from his English class in East Java.

PHOTOGRAPHS
Courtesy of Nathan Franklin

LEFT
Nathan Franklin, with former Indonesian President Abdurrahman Wahid and his Presidential advisor Datok Ravi (left).

This is the routine I observed from Saturdays to Thursdays, with Friday being their day of rest. Friday is the only day the students do not attend school.

I also paid much attention to the headmasters who are instrumental in determining the direction and functioning to the school.

Their beliefs and ideas are transmitted to the students, maintaining a circle of reproduction and inculcation of Islam. This tradition goes back centuries as the religious boarding school system is the oldest form of Islamic education in Indonesia. In addition, I would often interview and speak with the headmasters and students to try to understand their view of the world.

The schools are becoming popular in rural Java for a variety of reasons. There are shortcomings in the Indonesian Government's ability to provide education, particularly to the poor. But parents are turning to the schools not simply because of a lack of money. The number of schools being funded by the Government cannot keep pace with the pressures exerted on it by the sheer size of the school-age population.

The province of East Java has a population of 37 million people.

That's nearly double the population of Australia in a single province. The island of Java has a population of 140 million while Indonesia, as a whole, is home to 250 million people.

And for another large group of parents, the decision to send their children to boarding school is driven by religious interests rather than finances. These parents prefer to send their children to boarding schools to protect them from unnecessary distractions and from the influences coming from an increasingly modern or western-influenced style of living.

Students of the Nahdlatul Ulama boarding schools are more fanatical in their following of their headmaster compared with the Muhammadiyah school students who are taught to be critical of their teachers. Generally, the two schools were very similar in daily routine and hold relatively moderate views of the world.

After I spent time gaining a solid understanding of the boarding school system, I turned my attention to local and national politicians who came from both secular and Islamic parties.

I was fortunate enough to meet a former Indonesian President, Abdurrahman Wahid (nicknamed Gus Dur) on several occasions, as well as Nahdlatul Ulama chairman Hasyim Muzadi, Muhammadiyah chairman Din Syamsudin, and a number of other important politicians and religious figures. These meetings all provided important insights into Indonesian politics, religion and the role of the boarding school system within this developing country.

The schools, and principally the headmasters, often play a mediating role between the rural masses and the political parties. This is not to say, however, that all are directly involved in politics. But many headmasters are approached by political parties to help garner support during elections.

Since Indonesia has become a democracy, elements such as the boarding school system are having an increasing role within the political life of the country. I foresee that Indonesian politics has the potential to become more religiously conservative as the Indonesian Government accommodates pressure to preserve Islamic values, but the state's formation will more than likely remain secular.

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One day in the life of a pesantren student

4.00AM	pre-dawn prayers
5.00	Quranic studies
5.30	shower
6.00	breakfast
7.00	school classes
12.30PM	classes end
1.00	midday prayer
1.30	lunch, rest, sport
3.00	mid-afternoon prayers
3.45	English classes
5.00	showers and rest
5.30	Islamic text study
6.00	evening prayer and Quranic recitation
7.30	final daily prayer
7.40	dinner
8.30	religious studies
9.30PM	sleep or further Quranic recitation

Charles, My Hero

‘On natural selection and the characteristic qualities of the greater number of sailors’

In 1843 Lt John Lort Stokes returned to England, completing his third voyage and 18 years service on board *H.M.S. Beagle*. Meanwhile, his shipmate on the *Beagle’s* second voyage, Charles Darwin, had formed his ideas on natural selection while editing the 19 volumes of *The Zoology of the Voyage of H.M.S. Beagle*. It was a momentous time for these two young men – just imagine what they had to talk about, had they met. Extracts from the correspondence, diaries and journal of Charles Darwin – *in italics* – are juxtaposed against items from John Stokes’s journal, *Discoveries in Australia*, to create an historic meeting – which never took place.

ABOVE
Dr Nigel Turvey runs businesses which improve the environment, and is an award-winning author. His last contributions to Origins *were the stories Storm chasers and A lifetime of chance in* Origins *2006 edition 2.*

TEXT
Nigel Turvey

Our old shipmates are squandered in the four quarters of the world — Usborne is gone with FitzRoy to New Zealand — Wickham & Philip King married in Australia. — I suppose we shall have the old Beagle *at home again before long. — I should like once again to step on her decks.*

We were borne up the Thames on a flood-tide and a gentle south-easterly breeze; as we sailed past the singular beauty of Kentish copse and meadow, thatched farmhouse and byre, my soul was filled with all those nameless feelings of home which such vistas are so well fitted to call forth. And I, Lieutenant John Lort Stokes, Surveyor and Commander of *H.M. Sloop Beagle*, led the company in a service of thanks to our Lord for delivering us back home, in good fettle and safe from harm.

I have lately heard that the Beagle *has arrived safe and sound in the Thames but I have heard no news of the Officers.*

I had a little time until our Lords of the Admiralty were to be gathered at Greenwich, so I determined to pay a visit to my old friend and shipmate, Charles Darwin, at his new residence at Down House in Kent, for I had fresh news of the naming of Port Darwin, in his honour.

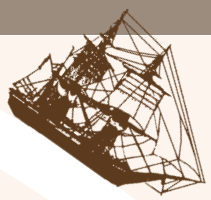
We like our new purchase of this place very well: it is not perfection, but there will always be drawbacks about every place … Our removal has answered very well; our two little souls are better & happier — which likewise applies to me & to my good old wife.

Charles and his young wife Emma greeted me on my arrival at Down – it warmed my heart and drove the cold autumn fog from my bones. We were soon seated for dinner and, with Charles impatient to hear my news, I began my narration in the settlement of Victoria at Port Essington on the Cobourg Peninsular which I vouchsafe shall become a veritable emporium trading the riches of a hinterland, as yet *terra incognita,* with the wealth of the Indian archipelago – the portent of which is evinced by the Macassar proas which visit the Port, some 14 in number this last season.

Charles was enthused by news of this vision-splendid, and paused in his dissection of the roast beef to extol the Empire.

Australia is rising … It is impossible for an Englishman to behold these distant colonies, without a high pride and satisfaction. To hoist the British flag seems to draw as a certain consequence wealth, prosperity and civilisation.

When we left Port Essington I took a small boat, crewed and provisioned to explore in detail. In the evening we made landfall and scrambled with lanterns up a cliff, but had to wait until the first streaks of dawn to see a wide bay stretching far away between two white cliffy heads – a most agreeable vision. The unusual geology of the headlands brought to mind our old shipmate, Charles Darwin, who had tutored me in the classification of rocks, and so it was that on Monday 9th September 1839 the substantial body of water was named Port Darwin in his memory. With the abundance of the archipelago to its north and of the interior to its south, the resultant wealth and new settlements will doubtless be a beacon for scholarly pursuits and scientific endeavours in the region – as befits the name.



Charles confessed he was deeply touched by the affection I carried with me from the crew of the *Beagle*, so that when we embraced he displayed more than a little lachrymosity, as if all the endured privations of his voyage had been washed from his memory.

I had completed my mission – I was glad indeed that I had made this journey.

Clear skies on Sunday morning tempted Charles and I into a brisk walk across the Downs to share fond memories of the *Beagle* – the little sloop in whose 90 feet of keel some 70 souls were habited together; we were always grateful for our small shared space in the poop cabin.

I often have the most vivid and delightful pictures of what I saw on board the Beagle *pass before my eyes. — These recollections & what I learnt in Natural History I would not exchange for twice ten thousand a year.*

But I must confess a great disquiet about the health of my friend — our short venture from Down made him very weary indeed; he is daily in much pain and administers himself such tinctures which I declare would bring a strong bo'sun to his knees.

… I am sorry to say quite a different person in strength to what I was on board the good old Beagle.

Back at Down I joined Charles in his study. All around his quarters lay the spoor of the scientist: animal specimens in vials and glass bell-jars, plants in pots, drawings of the most peculiar fishes, birds, and other animals that inhabit the nether reaches of God's earth, numerous leather-bound volumes, a chronometer and barometer to reckon the time and weather for this little ship of science, a fine iron hearth, and good leather couches so he may continue his terrestrial voyages in comfort.

It was here that Charles showed me his crowning glory — the fifth and last part of *The Zoology of the Voyage of H.M.S. Beagle* which he had just completed editing. I marvelled at the exquisitely coloured engravings of birds which transported me back to the Galapagos Islands, so perfect was the detail of their plumage and the vegetation — they were the work of Mr John Gould, and it was he who had discovered that a number of the birds which we thought to be of different genera were all species of finches, yet each bore marked differences in physiognomy.

… in the thirteen species of ground-finches, a nearly perfect gradation may be traced, from a beak extraordinarily thick, to one so fine, that it may be compared to that of a warbler.

Charles then became suddenly animated and, speaking in a conspiratorial whisper, told me of his new theory — that each new species of finch was created through a process of selection according to nature which he called Natural Selection.

… I am almost convinced (quite contrary to opinion I started with) that species are not (it is like confessing a murder) immutable … I think I have found out (here's presumption!) the simple way by which species become exquisitely adapted to various ends.

I could not immediately grasp his theory so at odds with the palpable evidence of our Creator; it seems that, over this past six years, we have been on separate voyages – mine to chart new coastlines, and Charles to chart new theories. But this morning, as I was leaving Down, Charles bade me a fond farewell and conferred on me a grand compliment which assured me, lest I held any doubt, of our enduring friendship.

… I have too deeply enjoyed the voyage, not to recommend any naturalist … to start on travels … the effect ought to be, to teach him good humoured patience, freedom from selfishness, the habit of acting for himself, and of making the best of every thing, or in other words contentment. In short he should partake of the characteristic qualities of the greater number of sailors.

This evening my thoughts returned to the *Beagle*, and I was distressed to hear gossip in the Woolwich taverns that she is to be sent to moorings in the marshes near Foulness to provide accommodation for Excise men. She will do it well, for this little ship has never shirked from sheltering men, but I fear she will rot away for lack of honest work in the dank confines of that marshy backwater.

As for me, until my next Commission, I will put to record my recent voyages on the *Beagle*, but I will miss the sea and its perils and the close-knit family of seafarers — such as I have lived amongst for more than half my born days.

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ANTENNAE

This article, in a much longer and referenced form, won the Charles Darwin University Essay Award *of the* Northern Territory Literary Awards 2007 *and first appeared in the collected short stories, essays and poems of the awards published by the Northern Territory Library.*

WEB BYTE

Find John Lort Stokes Discoveries in Australia, *published in 1846, at Project Gutenberg EBook #12115* www.gutenberg.org

The Complete Works of Charles Darwin Online are available at www.darwin-online.org.uk

The Darwin Correspondence Online Database can be found at www.darwin.lib.cam.ac.uk

Donor-funded project under the microscope

ABOVE
Helen Ashwell takes notes while interviewing village health volunteers, Southern Highlands Province.

BELOW
An example of a "successful" healthy village environment, East Sepik Province.

Just what makes for successful health education delivery in developing countries? Helen Ashwell investigates the question in her PhD.

TEXT
Robyn McDougall

As a health worker and trainer in developing countries for 40 years, Helen Ashwell has had plenty of opportunity to reflect on the elements of success and failure in health care programs. Now, the long-time nursing practitioner is testing some of the principles that underpin community health promotion initiatives in developing countries.

"Over the years, I realised that most illnesses were preventable if people made changes to their environment, sanitation and hygiene," Ms Ashwell said. The problem, though, was how to raise community awareness of the underlying causes of illness and to change the approach to health-related projects in developing countries?

After decades working and consulting in Ghana, Papua New Guinea, China and Indonesia, Ms Ashwell had seen time and again that some programs to improve health worked while others did not.

As a nurse and midwife in Ghana, she learned early on that individuals needed to take an active role if they were to avoid many of the illnesses found in developing countries. "As a foreigner, I was conscious of the huge cultural and language barriers faced in attempting to change hygiene and sanitation practices," she said.

"I grappled with problems of traditional beliefs and local treatments that often complicated illness. My western public health knowledge was often contrary to local practice."

But she gleaned the importance of local people hearing health messages in their own language and without cultural barriers. She trained educated local men and women as primary health care workers, and semi-literate women as traditional birth attendants.

"A combination of health interventions over the next six years influenced a change in the community's health, most significantly an 80 per cent improvement in the nutritional status of children under five years of age," Ms Ashwell said.

RIGHT
Helen Ashwell travels back to base camp, with her research assistant Doreen Dawadawareta, after community group discussion, East New Britain Province.

PHOTOGRAPHS
A. Dio (right)
M. Kehalie (opposite top)
Helen Ashwell (opposite bottom)

Against this background of decades of trial and error as a community health practitioner, her PhD research involves assessing how to implement donor aid-funded projects for community development and health promotion at village level while still meeting Australian Government requirements. She assessed the efficacy of the AusAID-funded Papua New Guinea Women and Children's Health Project which was designed to encourage community involvement in improving the health of women and children.

She collected data in 93 communities across 10 provinces, in the process of understanding how the community action participation and village health volunteer program activities influenced interaction between the community and rural health workers.

"Qualitative data suggested healthier lifestyle practices had contributed to improved physical health, and social and economic well-being. New health knowledge initiated changes in attitude and behaviour which led to improvements in environment, sanitation and hygiene practices."

Ms Ashwell said she observed that changes in one community positively influenced nearby communities. Key factors influencing success were a health-motivated person who acted as a catalyst for change, empowered leadership through a new community governance structure, effective visual tools, and village health volunteers linking the community and rural health workers.

"Failure was attributed to poor understanding of community development, limited information sharing, a 'top down' approach, and weak community leadership," she said.

"Sustainable self-reliance in health can be achieved through community-led and maintained activity.

"The vision of 'healthy villages' in PNG has been passed on to individuals and communities. People are continuing to empower others to act for change and become self-reliant in health."

Backing a winner

After a number of years of consistently high-quality, policy-relevant investigation, CDU's Gambling Research Group has established itself as a leading national voice in gambling research.

TEXT
Richie Hodgson

PHOTOGRAPHS
Barry Ledwidge

The School for Social and Policy Research's Gambling Research theme was conceived to address tensions generated by an activity that is economically prolific yet causes significant social harm.

Theme leader Dr Martin Young said that credible knowledge of gambling prevalence and its social consequences in the Territory was critical to the informed debate of relevant policy and regulation. "Combining some of Australia's leading gambling researchers, this program aims to position the Northern Territory as a leader in evidence-based gambling regulation in complex multicultural settings," Dr Young said.

"The research program consists of a number of different projects grouped in key areas. As a body of work, these projects broadly explore the ways in which the consumption of gambling affects people and the places in which they live."

Despite the identified need for such knowledge, no substantial effort to understand gambling impact and prevalence in the Northern Territory had been made before 2005. This led the school to initiate and pioneer a research program that has since produced methodologically robust results, which have been published in a number of reports and peer reviewed journals.

The group currently is conducting the first detailed exploration of the effects of commercial gambling on Aboriginal people in northern Australia and is endeavoring to answer questions raised by findings to date, such as the socio-economic impact of gambling in Territory communities, and the behaviour patterns of problem, regular and non-regular gamblers.

Dr Young said that given the Territory's unique setting and diverse population, the team's research was able to explore the social outcomes of gambling in a unique regulatory, geographic and demographic context. "There are not many urban centres in the Territory and gambling in remote areas often falls outside of mainstream regulation," he said. "Of particular interest are the ways in which different subgroups of the population gamble, the levels of gambling accessibility afforded to vulnerable groups, and the social consequences of gambling including, but not limited to, problem gambling."

Dr Young pointed to the groundbreaking work of doctoral scholar Marisa Paterson as one of a number of projects currently attracting national attention. Marisa is investigating Australian Aboriginal perspectives on gambling in a West Arnhem Land community. Her work, which represents the most comprehensive anthropological study undertaken into Australian Aboriginal perceptions of gambling, has revealed that social structures and gaming rules created within the community dictate gambling behaviour. These rules are in place despite Aboriginal card games falling outside of mainstream government regulation and industry commercialisation. "This is original research. Not only is this the first detailed research into Aboriginal remote area gambling, but it is also challenging the way we all should respond to it," Dr Martin said.

The group is also involved in a research project investigating the gambling patterns of highly mobile groups in Queensland, including tourists, tourism industry workers, and mining and construction workers.

ASP: Unlocking the secrets of snakebite

There are fundamental questions about the treatment of snakebite in Australia that remain unresolved or for which the current evidence is limited. In many rural regions of Australia, encounters with snakes are still very much part of life and although snake envenoming is uncommon, deaths continue to occur in this country.

The Australian Snakebite Project (ASP) is a prospective study of snakebite that now involves more than 100 hospitals around Australia. It started as a prospective study of snake bites at Royal Darwin Hospital by Professor Bart Currie almost 20 years ago. In the past five years, the study has expanded around Australia with the major collaborators being Menzies School of Health Research (CDU), the Emergency Medicine Research Unit, Fremantle Hospital and the University of Western Australia, and Calvary Mater Newcastle. All state poison information centres and clinical toxicologists throughout Australia are involved in the study, resulting in recruitment of more than half the major snake bites and snake envenomings throughout the country.

> 'These tests will enable better definition of what dose of antivenom is needed to treat patients.'

The study has developed laboratory assays to measure the quantity of snake venom in the blood of snakebite victims and to compare venom levels in patient blood before and after various treatment, such as the administration of antivenom. These tests will enable better definition of what dose of antivenom is needed to treat patients who are envenomed by Australia's most important snakes, including brown snakes, tiger snakes, taipans, death adders and black snakes. The study then aims to develop evidence-based guidelines for the dose and timing of antivenom.

This has been achieved already for brown snakes where ASP has shown that two vials of antivenom are sufficient to neutralise the effects of venom. The publication of this in late 2006 and 2007, and the ongoing study has resulted in a rapid change in practice throughout Australia. More than 50 per cent of cases now receive the smaller dose of two vials with significant cost savings and potentially decreased risk of allergic reactions from antivenom.

In addition, the study will provide important information on the use in Australia of pressure immobilisation first aid for snake bite. Recently the project has received a grant of almost $700,000 to undertake a randomised controlled trial of fresh frozen plasma in snakebite coagulopathy. This study will further increase our understanding of other potential treatments that can be used for snake bite.

The study aims to include many of Australia's regional and smaller hospitals where snakebite is not uncommon. This makes ASP unique in that it is a multicentre study which primarily involves regional hospitals rather than major tertiary teaching hospitals in large cities. Snake bite is an acute and transient condition so patient recruitment, data collection and any interventions need to be undertaken rapidly to ensure the success of the study.

The investigators have developed novel research techniques to overcome these difficulties allowing the recruitment of patients around Australia via phone, with faxing of study information and a national 1800 telephone number and fax number to expedite collection of data.

The Australian Snakebite Project will bring good science, hopefully, to the treatment of snakebite around Australia that will be more effective, safer and potentially cheaper.

TEXT *Geoff Isbister* PHOTOGRAPH *Courtesy Menzies School of Health Research*

RIGHT
Menzies School of Health Research student Elizabeth Canale tests the effectiveness of pressure bandaging following snakebites. She is pictured with Northern Territory snake catcher Rex Neindorf.

ANTENNAE
Associate Professor Geoff Isbister is a Senior Research Fellow for the Tropical Toxinology Unit, Menzies School of Health Research, funded by an NHMRC Clinical Career Development Award. He is also a clinical toxicologist at Newcastle Mater Hospital and the NSW Poison Information Centre.

Bringing on the bamboo boom

China's dramatic economic development during the past 20 years has transformed the lives of more than 300 million, poverty-stricken people, but another 100 million people continue to live in extreme privation. PhD candidate Nick Hogarth is investigating how a simple plant might alleviate poverty in one corner of the country.

TEXT
Robyn McDougall

PHOTOGRAPHS
Nick Hogarth

ABOVE
The bamboo goes through preliminary processing on Liulong bamboo farm.

OPPOSITE
PhD candidate Nick Hogarth talks to bamboo farmers about the bamboo shoot production process.

Sustained industrial development in the People's Republic of China during the past few decades has hoisted the country to superpower status. Economic reforms in the late 1970s moved the country from a centrally planned economy to one that is market-oriented. This revolution has helped to raise hundreds of millions of people from a life of poverty, but remote areas of the country are straggling on the long march to prosperity.

Of China's estimated 1.3 billion population, or one-fifth of the world's population, more than 100 million people continue to live in extreme poverty. And few counties in the vast country have been left behind economically to the extent of Tianlin County, in China's thickly forested mountains in the south.

This isolated area in Guangxi Province, about 150km north of the border with Vietnam, has long been known as the "backwaters" of China. It's here that almost 250,000 people, mostly ethnic minorities, live a subsistence existence. It's where road access is poor and drinking water can be difficult to find, and where the per capita GDP is just AUD$1.20 a day.

While some benefits of China's economic boom are beginning to trickle down to remote areas, with improvements to infrastructure, increased off-farm income opportunities and expanding markets for forestry products, the need in Tianlin County remains great. Road access to the rugged area is poor, health facilities either don't exist or are under-performing, and education is beyond the reach of many families.

But a versatile plant that's been used in China for thousands of years may offer a lifeline out of poverty for the people of Tianlin. A PhD candidate from Charles Darwin University's School for Environmental Research, Nick Hogarth, is working to determine the potential of bamboo to contribute to economic development and alleviate poverty in the county. He is investigating improvements to the current use of bamboo resources and the expansion of production to improve farmers' livelihoods.

Nick, who has spent much of the past 18 months in Tianlin County, is surveying 240 households in six villages as part of his fieldwork. "Each family generally has access to a small plot of rice, some vegetables, chickens and pigs, and a small area of land for growing a cash crop such as bamboo shoots, tung-oil seeds, tea-oil seeds, aniseed or timber.

"Living conditions can be harsh… The villagers in my survey are predominantly subsistence agriculturalists with low cash incomes," he said.

WEB BYTE
Visit www.cifor.cgiar.org to find out more about the Center for International Forestry Research and the Poverty and Environment Network.

> ‘These villagers are predominantly subsistence agriculturists with low cash incomes.’

And it’s the bamboo shoots that Nick sees as holding the greatest potential.

“Bamboo is a part of every-day life for most people in my survey. There are many native species growing wild which are harvested for a plethora of subsistence uses, including construction material for houses and fences, baskets, farm tools, forage for livestock, kitchen implements, handicrafts, fuel and medicine.

“Increasingly, though, bamboo is being grown in plantations as a cash crop.”

The area under bamboo cultivation in Tianlin County expanded five-fold in the past decade to 20,000 ha today, due mostly to a poverty alleviation project called the Liulong Farm Ecological Migrant Project. This project centred on the production of Badu bamboo shoots, a popular food source in China since the Qing Dynasty, and more recently a food in demand by the Japanese and Taiwanese. While the Liulong Farm project has delivered some economic improvements to the lives of the locals, Nick hopes his research will make the county’s economic base more secure.

“From 1996 to 2000, more than 20,000 ‘ecological migrants’ were relocated to Liulong Farm from surrounding impoverished areas that had very little prospect for economic growth and livelihood improvement,” Nick said.

“There has been much reported success with the project, with most migrants’ incomes increasing dramatically, and overall livelihood improvement. But there are many problems and risks associated with the migrants’ new lives, and problems in production mean the supply of raw bamboo shoots still cannot meet the demand from Japan and Taiwan,” he said.

“Bamboo shoot production at Liulong Farm has been decreasing in the past few years, further increasing the gap between the supply and demand.”

The drop in production is ascribed to a pest which damages up to one-third of new shoots, coupled with unsustainable harvesting techniques.

Nick is analysing the bamboo market chain and the current management systems and will propose changes, where necessary, based on best management practices.

“Given the large demand for bamboo shoots, there is potential for significant impact from my research,” he said.

But collecting the data is no simple matter and requires collaboration with local organisations.

“I’ve been working with a team of 10 postgraduate students from Guangxi University and a skilled research assistant/translator. I also trained six local forestry officers from the Tianlin County Forestry Bureau as enumerators to implement the household surveys. Local forestry officers were essential given their familiarity with the remote and poorly accessible villages, their established networks, and their ability to speak the local language, Zhuang,” he said.

Apart from the specific objectives of his research, Nick’s data also will contribute to an ambitious international research program called the Poverty and Environment Network (PEN), administered by the Center for International Forestry Research.

The centre is an international research and knowledge institution that contributes to conserving forests and improving the livelihoods of people living in the world’s tropical regions. Its headquarters are in Indonesia with regional offices in Brazil, Cameroon, Zimbabwe, and Burkina Faso in west Africa. The objective of PEN is to inform and improve forest policy formation and implementation, and to influence mainstream policies towards rural poverty alleviation on a regional and global scale for the benefit of forest-dependent people.

Nick’s is one case study in more than 35 others across 25 countries that will contribute data towards a common data bank, making global and continental-level analyses of forest-poverty relationships possible.

“This will make PEN one of the most comprehensive, comparative quantitative reviews of the role of tropical forests in poverty alleviation worldwide,” he said.

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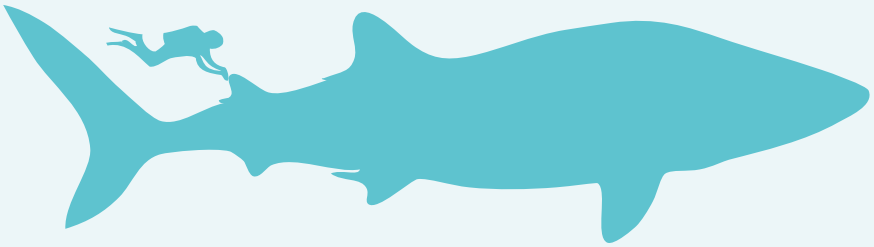


Protecting the whale shark

A pilot project equipping Indonesian fishermen with underwater cameras has led Charles Darwin University researchers, in conjunction with the Australian Institute of Marine Science (AIMS), to better understand migratory patterns of whale sharks.

TEXT
Jason McIntosh

ABOVE
Bajo fishermen during an interview about whale sharks, Tanjung Pasir, Pepela Rote Island.

PHOTOGRAPHS
Daniel Dwyer

Bajo fishermen, from settlements in Timor and Roti Islands of the Nusa Tengarra Timor (NTT) province of Indonesia, were approached by CDU researchers last year as part of a project tracking shark movements between Australia and Indonesia. Bajo are one of the most widespread and dynamic maritime-adapted ethnic groups in eastern Indonesia. For more than a century, they have fished in waters that are now part of Australia's exclusive economic zone.

Whale sharks are a popular drawcard for eco-tourist ventures at Ningaloo Reef, off the coast of Western Australia, and are sighted regularly by Indonesian-based fishermen as the sharks migrate north and northeast through the Timor Sea and beyond. This occurs during the annual east monsoon season between August and November.

Researchers Natasha Stacey, Conrad Speed and Daniel Dwyer, of CDU's School for Environmental Research, travelled to Roti and Timor Islands in early July last year to consult with the fishermen.The team worked with Bajo and other groups of Indonesian fishermen to document customary beliefs and practices *(adat)*, and knowledge of whale sharks *(kareo dede)*.

Bajo do not hunt whale sharks as it is forbidden by customary law.

As part of the pilot project, fishermen accepted cameras and photographed whale sharks sighted in the region. Their photos are now being assessed by AIMS researchers to determine if particular whale sharks were previously recorded at Ningaloo Reef.

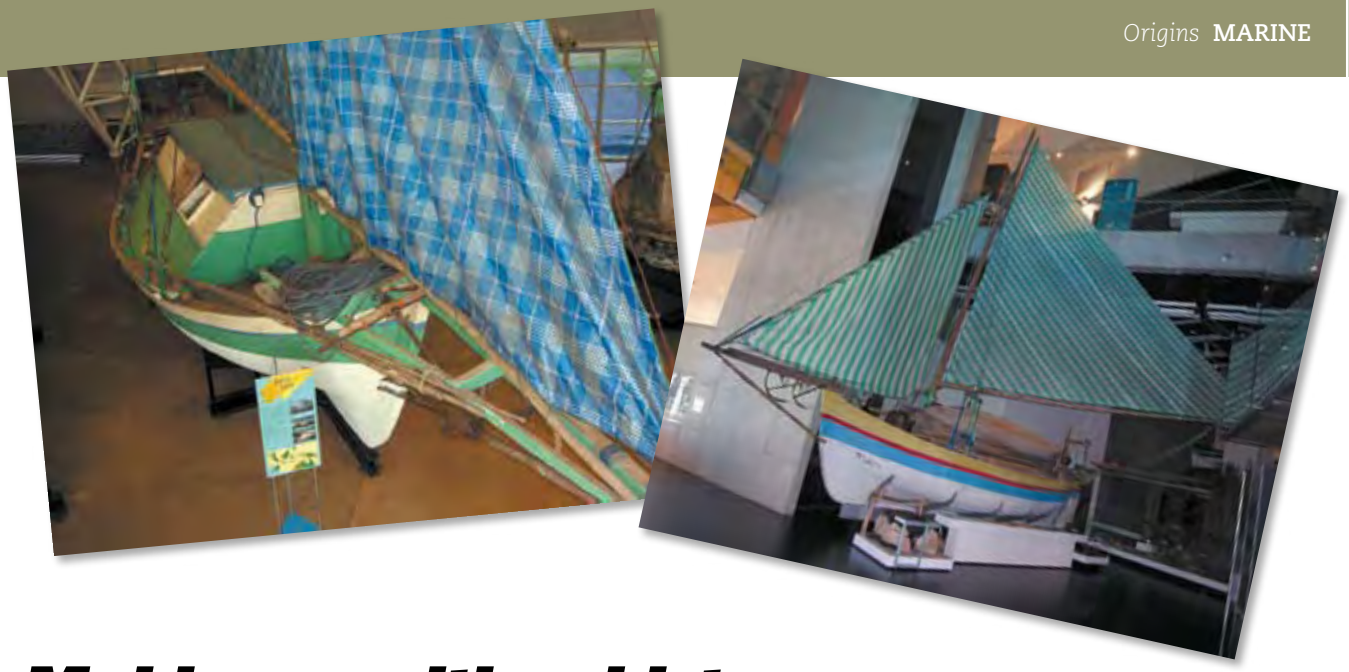
The possible confirmation of whale sharks in the region highlights the potential for engagement of local people in ongoing documentation and monitoring of the sharks in eastern Indonesia. Research associate Johanna Karam assisted in the preparation of the final report and said the pilot project was successful for all involved. "It was a great, low-cost, pilot project that demonstrated the value of working with local fishermen to gain a more complete and thorough insight into the migratory patterns of marine species," she said.

CDU and AIMS, in partnership with Bajo communities, hope to expand the project to further engage local fishermen to monitor whale sharks as they travel from Australian through to Indonesian waters. Threats to whale sharks from commercial fishing in eastern Indonesia appear to be minimal due to the Bajo people's belief systems forbidding their consumption and a lack of appropriate whale fishing technology. "But we need to develop an early intervention practice, such as early education, that could hinder the market taking hold," Ms Karam said.

Researcher Dr Natasha Stacey said the project highlighted potential opportunities for small-scale, eco-tourism projects in Kupang Bay with fishing groups who had been displaced from activities inside Australian waters and in nearby Nemberala village on Roti Island. "A range of potential benefits, costs and impacts exist in relation to marine ecotourism, both for the conservation of whale sharks and in improving the livelihoods of local communities, and need to be considered," she said. "This project has shown how a combination of local knowledge and new technology can lead to cost-effective monitoring and good science."

The final report was submitted to the Commonwealth Department of Environment and Water Resources (DEWR) early this year, which funded the pilot project.

WEB BYTE
The Whale Shark (Rhincodon typus) *Recovery Plan 2005–2010 can be found at:* www.environment.gov.au/biodiversity/threatened/publications/recovery/r-typus



Making maritime history:
Indonesian fishing boats in Australian museums

TEXT
Paul Clark

PHOTOGRAPHS
Courtesy the Museum and Art Gallery of the Northern Territory

The apprehension, confiscation and, in most cases, destruction of about 2000 Indonesian fishing boats for breaches to Australian fishing regulations over the past 25 years has arguably been one of the most taxing aspects of Australia's bilateral relations with Indonesia in recent times.

Rarely in the past 10 years has a month gone by without some mention in the Australian popular press of an Indonesian fishing boat incursion into Australian waters. Along with news footage of Bali bombings and air crashes, the Australian media representations of these "illegal" boats constitute a major element of the visible history of Australia's relations with its nearest neighbour.

Against the broad background of geo-politics, border protection and diminishing marine resources, this research explores the transformative processes entailed in the apprehension, acquisition and display of three specific fishing boats that escaped destruction, and found their way instead into the permanent collections of three Australian museums.

Previous studies of Indonesian boats usually have focused on architectural, technological, ethnographic or economic perspectives. This study is the first of its kind to look closely at Indonesian boats and their place in Australian museum collections.

Using a case study approach, together with Arjun Appadurai's notion of the social life of objects, these sloops (single-masted, fore-and-aft sailing boats) or perahu lambo as they are known in Indonesia, are examined and compared as artefacts that have entered the museum environment from their largely unknown "lives" in another contemporary context.

The emphasis of the study is on museum appropriation of material cultural objects and the transformation that takes place as the item travels through a processes of acquisition, accession, registration, conservation, interpretation and finally to its "rebirth" as an exhibit in a definitively Australian public display.

The thesis also examines some of the implications of these "histories" for current debates concerning curatorial practice and museum collection policy, and makes some recommendations for future directions.

WEB BYTE
Visit the Maritime History and Archaeology Collection of the Museum and Art Gallery of the Northern Territory at www.nt.gov.au/nreta/museums/collection/history/maritime.html

ANTENNAE
Paul Clark is curator of Maritime History and Archaeology at the Museum and Art Gallery of the Northern Territory. He is also a Master of Arts student at CDU through which he is researching the depiction of Indonesian fishing boats in Australian museums.

The Maritime Gallery in the Museum and Art Gallery of the Northern Territory houses the largest museum collection of south-east Asian historic boats and ethnographic watercraft in Australia and possibly in the world.

Australia's choice: back from the brink

A new form of environmental capitalism must emerge if Australia's way of life is to continue, argues Associate Professor Corey Bradshaw.

TEXT
Jason McIntosh

PHOTOGRAPHS
Courtesy Corey Bradshaw

Australia is the lucky country. It's lucky not simply for the immense resources at its disposal, but because the country still has an opportunity to invoke radical change in how those resources are used.

Associate Professor Corey Bradshaw has just spent an hour talking about a subject close to his heart: the actions that are needed to save the planet from human destruction.

It's a sobering assessment in which much of the world's population spends the bulk of the day trying to survive, while for the lucky few energy can be and is directed to the creation of wealth.

Dr Bradshaw's research interests concern the dynamics of animal and plant species and their implications for extinction, and population management covering psychology and ecology, conceptualised within a broad understanding of politics, economics and, dare I say, a comforting grip on reality.

Many Australians relieve their environmental guilt by cycling to work or taking their reusable cloth bags to the supermarket, but most of us know that this is simply not enough in the face of the larger forces that are contributing to the demise of the planet.

Dr Bradshaw argues that hacking away at the world's lungs — the forests — represents one of the most significant and disturbing contributors to the destruction of the earth.

And these carbon banks, which he argues are worthless now under the western world's current economic structure, must be viewed and valued as prime commodities by future world economies if the worst ravages of climate change and ecosystem degradation are to be avoided.

In that perfect world, the farmers of forest-rich countries would tend their forest as they now do their cows, while other markets could sell solar, geothermal or other non-biological energies to the global market.

On top of this, greater consideration needs to be given to the calculation of carbon expenditure when determining the true cost of goods and services. Until carbon expenditure is tied to a product in all its phases, including development, transport and use, exploitation of so-called environmentally friendly products would continue, he said.

In Australia, consumers often prided themselves in filling their new (relatively) fuel-efficient cars with "bio"-enriched fuel, even though it is sourced from tropical lands that were once covered by some of the most expansive carbon-sucking forests in the world.

Dr Bradshaw encourages the forced marriage between economics and the environment as a fundamental and necessary step in addressing the cancerous situation the planet is in.

"Carbon-trading markets are a good first step, but the frightening pace of climate change makes concepts like 'carbon-neutrality' simply not enough. We need to incorporate the very value of biodiversity and the ecosystem services it provides into a workable economy."

OPPOSITE
Corey Bradshaw with two southern elephant seal (Mirounga leonina) *pups at Macquarie Island station, Southern Ocean, where he is researching the consequences of environmental degradation in regions least affected by humans.*

He sees himself as a constructive scientist using empirical principles to maximise "conservation benefits and find trade-offs to work toward this goal".

Curbing and eventually reducing human population growth, once the domain of disease and drought, is another fundamental problem which is exacerbated by economic policies geared towards population growth, Dr Bradshaw said.

While Australia's population is constrained through choices made by individuals, he points out that this country cannot point its fingers at our northern neighbours as the sole source of our own destruction.

Australia still cherishes an identity delivered from the sweat of farmers' brows as they modify landscapes with species such as cattle, sheep, cotton and rice, even although these animals and products are completely unsuitable for Australia's low-yield soils, variable climate and sensitive hydrology.

Is he concerned when Australians who, amongst the pressures of interest rates, bills, work, worrying about their children, sometimes make a token effort in their purchasing and consumption habits?

"We have to contextualise a drive to self-betterment within the systems that we have," he said.

Defining himself as a realist "most days", Dr Bradshaw's accent suggests an upbringing beyond Australia's shores. He grew up in the Rocky Mountains in western Canada and as a youngster dined regularly on moose and black bear.

"It's an ironic way of getting into this business, but I learnt the precariousness of living off the land and maintaining a sustainable and healthy lifestyle as what you might describe as a passive conservationism," he said.

A passion for science eventually led to research positions in Canada, New Zealand and Australia. A career turning point, however, came while he was working in the Antarctic.

"It was there that I realised the true value of and my passion for strong empirical science as I was forced to consider the consequences of environmental degradation in the regions supposedly least affected by humans," he said.

And what would he like his lasting legacy to be? "I want to be seen as someone who provided the sound basis to make constructive, positive policy decisions for politicians, industry leaders, and visionaries who have the ability to create real political and economic change," he said.

"Empirically supported scientific evidence is the only way to do this because it's difficult to argue with numbers."

ANTENNAE
Corey Bradshaw was a Senior Research Fellow with CDU's Institute of Advanced Studies until recently. He is now Research Director of Marine Impacts at the Research Institute for Climate Change and Sustainability at the University of Adelaide.

The Battle of Broome

The Japanese air attack in the Battle of Broome in 1942 was quick and deadly. In 20 minutes, 100 people had lost their lives and 15 flying boats were on the seabed. Maritime archaeologist and PhD candidate **SILVANO JUNG** investigates the people who were on the doomed flying boats that morning and records the condition and extent of the surviving archaeological material from that event.

Some 66 years ago, on the morning of 3 March 1942, nine Imperial Japanese Navy Mitsubishi "Zero" fighters and a reconnaissance aircraft sped on their way from Roti in West Timor to attack Allied aircraft in Broome (Rubibi – the traditional lands of the Yawuru people), in Western Australia. On their arrival, it is recorded that the Japanese pilots were shocked at the sight before them: 15 flying boats were on Broome's Roebuck Bay with no discernable defence. The ensuing Battle of Broome was a spontaneous and fast encounter that is generally believed to have lasted for only 20 minutes, with both protagonists unaware of the other's presence and disposition until the moment of contact. It is important to consider that although the Japanese knew that Broome was being used as the aerial evacuation point, they were unaware of the presence of so many flying boats on Roebuck Bay until the morning of the air raid.

In the terror, pain, killing and bloodshed that ensued during their attack on the flying boats, the Japanese were probably also unaware that many of the Dutch flying boats had refugees onboard, mostly women and children fleeing the fall of Java in the Netherlands East Indies — NEI (now Indonesia). The total number of casualties may never be known, but something like 100 people died during the attack. Most of the bodies were never recovered.

The aerodrome at Broome was the planned target of the Japanese air raid and, contrary to popular belief, not the town itself. The aim of the air raid was to neutralise the aerodrome and to destroy all aircraft in the area in order to close the aerial escape route from Java in the NEI. The rapid Japanese expansion into the NEI forced the evacuation of thousands of Dutch civilians and Allied military personnel by sea and air to Australia. The Java airlift to Broome, however, finished on 27 February 1942. The Japanese invasion of Java on 1 March 1942 forced the remaining naval aviation units of the Marineluchtvaartdienst (MLD), the Royal Air Force (RAF) and the United States Navy (USN) to evacuate to Australia. The evacuation point for these units was also Broome.

While two flying boats of the USN and two Short Empire flying boats (one operated by the Royal Australia Air Force — RAAF and the other by the British Overseas Airways Corporation — BOAC) were already in Broome on the evening of 2 March 1942, 11 Java-based flying boats were en route to Broome, arriving there early in the morning of 3 March. The sight in Broome's Roebuck Bay resembled a floating armada, juxtaposed for only a short time. Within hours, all the flying boats and all the aircraft at the aerodrome would be destroyed. While nothing remains of the terrestrial sites

LEFT
From left: Elly, Piet and Sara Koens, Indonesia 1939-1940. They were on board the Dutch Dornier flying boat serial # X-1 in Broome. They all survived the air raid.

PHOTOGRAPH
Courtesy Elly Doeland-Koens

OPPOSITE LEFT
Silvano Jung holds a model of a PBY-4 Catalina flying boat of the United States Navy Patrol Wing Ten, plane #6 which was lost at Broome.

PHOTOGRAPH
Douglas Hobbs

OPPOSITE RIGHT
Aerial view of Royal Air Force Catalina serial No. FVN, exposed during a king spring low tide in Roebuck Bay, Broome. Five of this flying boat's crew were killed during the air raid.

PHOTOGRAPH
Courtesy Silvano Jung

destroyed at the aerodrome, in the sea the flying boats endure, as well as another two land-based aircraft, an American and Japanese, that are yet to be found. One Zero, flown by Lieutenant (Junior Grade) Osamu Kudo, flying low over the aerodrome, was shot down by Lieutenant Gus Winckel, of the Royal Netherlands East Indies Army Air Force, and crashed into the sea unseen. Kudo is recorded to have shot down an American B-24 "Liberator" LB-30 transport aircraft as it took off from the aerodrome just before the Japanese arrived. The Liberator crashed somewhere off Gantheaume Point with about 33 military personnel on board, many of whom were medical evacuees. Only one person, Sergeant Melvin Donoho of the US Army Air Corps, survived the crash after a long swim back to shore.

In maritime archaeology, the integration of historical and archaeological data generally focused on historic shipwreck sites to enable research into past lifeways. The sea, however, holds many aspects of past human behaviour that relate not only to shipwreck sites and the societies that built those ships, but also to aviation. This study shows that the application of a combined study of written and oral historical records, together with archaeological data, can provide insights into understanding the cultural material left in the archaeological record of a recent past event in Australia. In this instance, an assemblage of 15 flying boat wrecks left on the bottom of Roebuck Bay tells a story of how they were lost and what has happened to them since their sinking.

Archaeology, however, does not concern itself with material culture, but with what the material culture can tell us about the people who created it. The aim of this thesis was to compile information on who the people on the flying boats were and to record their stories of the air raid. In this way, people could be linked to a particular flying boat, in effect, creating a passenger/crew list per machine or wreck site. Despite many flying boat wrecks having been located and utilised as a fishing resource for many years, little is known about their operational service histories and the circumstances of their loss. Historical research, in this thesis, of the operational service lives of the Broome flying boats has shown that the flying boats were historically significant machines in their own right and not just because of their association with the air raid at Broome. The RAAF Short Empire flying boat, before being pressed into military service, for instance, was the first flying boat to bring mail to Australia from England. Furthermore, one of the Dutch flying boats, the Dornier Do 24 serial number X-1, was the prototype of that flying boat model. In one of history's paradoxes, more Dornier Do 24s would be built by the Germans, once they had captured the aircraft factories in the Netherlands, than had been built for the MLD.

This thesis shows that the surviving flying boat wreck sites represent a significant archaeological resource that provides insights into the air raid, that is, site formation processes of a new class of archaeological site – submerged aircraft. Archaeologists can use this data to predict wreck site location and likely condition. Ten of the 15 flying boats in the bay have been found, but this thesis indicates that there are at least another four sites to be located. Today, the wreck sites are important places not only for tourism, but also as a memorial to those who lost their lives. This is significant to the survivors and to generations to come with a link to this event in Australian aviation history. One of the tasks for archaeology is to provide these people with an authentic experience of the wreck sites by formal wreck site identification that links people to the material record in Roebuck Bay.

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ANTENNAE
At the invitation of the Royal Netherlands Embassy in Canberra, Silvano Jung will present his PhD findings during a seminar in May at the National Aviation Theme Park Aviodrome at Lelystad Airport, near Amsterdam. He also will take his first flight in a Catalina flying boat, a veteran of World War II, while in the Netherlands.

Borders and bounders on the high seas

Australia's emergence as a modern nation and its subsequent claims to areas of sea to its north have brought great hardship to traditional fishers from the Indonesian archipelago and changed the way they earn a living. Dan Dwyer investigates one group of long-distance voyagers, the Madurese, as part of his PhD research.

TEXT
Robyn McDougall

PHOTOGRAPH
Courtesy of Dan Dwyer

The waters to Australia's north have been part of a trading network that stretches back 2000 years. The reefs and isolated islands that litter the region have provided a rich harvest of sea products for traditional fishers living along the Indonesian archipelago.

Over the centuries, maritime voyaging and the associated trade networks have become more intense. Australia's formal claim to sections of the sea while under early British rule, however, has added a significant complication to the welfare of the fishers as well as influenced a change in their economic activities.

One group of long-distance voyagers, the Madurese from the small Madurese islands off eastern Java, form part of the once extensive but now dwindling fleet of indigenous sailing boats that plied the length of the archipelago, fishing, trading, collecting and transporting the natural products of the region.

Dan Dwyer is investigating the precarious position of this small impoverished ethnic group which has been caught at the expanding maritime boundaries of Australia.

Mr Dwyer said Ashmore Reef, 150km south of the island of Rote and about 610km north of Broome, has been the focus of tension between the two countries, but was not considered to have any economic significance in the early years after European settlement of Australia. Great Britain took possession of the reef in 1878.

"Tension between Australia and the traditional fishers began relatively recently," Mr Dwyer said. "Laws were enacted regulating activities in the remoter regions of both Western Australia and South Australia's Northern Territory (as it was known then), but distance and cost meant that these areas, especially the seas, were effectively beyond control until well into the 20th Century."

Madurese boats, which were collecting beche-de-mer (trepang) were found regularly at Ashmore Reef throughout the 20th Century. Large numbers also had been reported up to the time of the Japanese occupation of Indonesia in 1942. It appears that Indonesian fishers were tolerated in the area until Australia had finalised the negotiations with Indonesia on seabed boundaries.

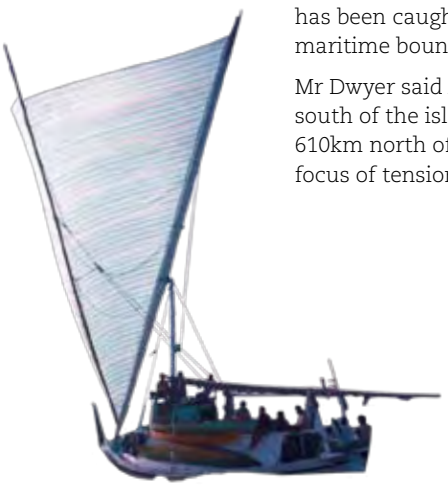
"Australia wanted to maximise access to fossil fuel deposits in the continental shelf, and did not want to muddy negotiations with broader issues such as the access rights of indigenous fishers," Mr Dwyer said.

A Memorandum of Understanding which the two countries entered into in 1974 appeared to give Indonesian fishers rights to the area, but in reality the movements of these fishers were limited. Australia had created the Ashmore Reef Nature Reserve in which the fishers could use very restricted technology.

"In 1974, under the MOU, Australia recognised Indonesian fishers' right of access to some of the off-lying Australian islands and territorial waters in the Timor Sea including Ashmore Reef, Cartier Island, Browse Island and Scott Reef.

"The long-practised activities of the fishers, previously carried out in international waters around uninhabited islands and virtually ignored by Australian authorities, were not considered illegal or wrong by the fishers.

"After the expansion of Australian control, the same activities were deemed criminal by the Australian Government. Parallels have been drawn between the dispossession of Aborigines of their lands by the notion of *terra nullius,* and the prohibitions placed on these fishers," Mr Dwyer said.



History of exclusion

1968
Australia unilaterally extends the fishing zone in seas around its territory from three to 12 nautical miles.

1974
Indonesia and Australia enter into an MOU, giving Indonesian fishers rights to Ashmore islands, in theory. MOU recognises fishers' right of access to some of the off-lying Australian islands and territorial waters in the Timor Sea, including Ashmore Reef.

1979
Australia declares the 200 nautical mile Australian Fishing Zone (AFZ), limiting fishers' activity outside the 12 mile limits negotiated around these islands under the MOU.

1983
Australia declares the Ashmore Reef Nature Reserve and uses the Convention on International Trade in Endangered Species, further restricting fishers' activities at Ashmore.

1985
First arrests of crews on non-motorised vessels in the expanded AFZ.

1989
Australia and Indonesia refine the MOU, defining an area for fishing, often outside the fishers' traditional waters. Boats with motors and navigation aids entering prohibited waters are seized by Australian authorities.

1995
First boats carrying refugees arrive on Ashmore Reef.

The impact on the Indonesian fishers was swift and severe. Their home economies, based in part on these long-distance fishing and collecting voyages, were forced to adapt to new conditions.

Not only were the fishers regularly arrested at Ashmore Reef and, in some cases, their boats destroyed by Australian authorities, but they also were forced into other means of making a living – through helping refugees on to Australian territory.

"Illegal actions, such as motorised poaching (of sea products), and the crewing of vessels delivering refugees to areas where the fishers have recently been denied reasonable access, are seen as the desperate and almost unavoidable responses to the changing Australian regulations," Mr Dwyer said.

"These regulations dispossess the fishers of their long-held fishing grounds and increase their social and economic marginalisation."

Even in good times, the Madurese fishers could look forward to only modest profits from their four-month round voyages. Mr Dwyer said that figures from 1996 showed that the profit from such a voyage could be as little as 500,000 Rupia (A$295) per crew member. If weather conditions were bad, there would be no profit at all. Although currency values and sale prices have changed over time, data collected during the past six years produce similar income figures. In 2002, the average income per individual across a fleet was A$445. This is a very significant contribution to the incomes of the fishers' families.

The economic conditions on the Madurese islands were so precarious that, in many instances, the men needed to take to the ocean to limit the burden on their own communities.

"The removal of the under-utilised labour of the men, especially during the long dry season, to lighten the burden they place on the limited food stocks of the coast communities of eastern Indonesia provides part of the economic rationale behind the voyages," he said.

The thesis argues for a recognition of the economic importance and social viability of the activities to the fisher group and the need for a more engaged and sympathetic interaction with these and other fishers to bring about positive, long-term outcomes to the political and ecological concerns raised by their activities.

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Working in reverse to move forward

Charles Darwin University's printmaking studio, Northern Editions, is proving a rich environment for Indigenous artists. The studio recently hosted a week-long, printmaking workshop for five Indigenous artists from the Keep River and Kununara regions of Western Australia. And the learning has definitely been two-way. The artists are all represented by the Waringarri Arts Centre in the heart of Miriwoong country at Kununurra in the east Kimberley.

TEXT & PHOTOGRAPHS
Raquel Dubois

During the workshop, the artists experimented with various printmaking methods, and learnt to use techniques that complement their individual styles. They were guided by Northern Editions workshop manager and master printmaker Gertjan Forrer, printmaker Jacinta Numina-Waugh and visiting printmaker Dian Darmansjah.

Artist Maryanne Sturt, who has painted from a young age, said that participating in the workshop had developed her patience. "I would say I'm a fairly patient person, but making these plates has meant I have had to control my urge to finish off a piece so that I can start on something else. The process is much more involved than I first expected."

As with all artistic endeavours, printmaking has its own set of challenges. A significant one for most artists is that they must visualise their subject in reverse as the final image is depicted as a mirror-image of what is created on the plate. For Waringarri artists concerned with painting their country as a map in their mind, this consideration is essential. Daisy Bitting, who paints her mother's country, from Bullo River across to Jamunjung in the Northern Territory, was surprised that she had to imagine her country in reverse. "It's all backwards," she said with a smile. Daisy was born at Legune Station in the Keep and Victoria River area of the Northern Territory. As a young girl growing up on a remote cattle station, Daisy often walked from station to station in the company of her elders, listening to their stories and learning about her country.

Also attending the workshop, along with Daisy Bitting and Maryanne Sturt, was Maryanne's husband of 17 years, Ronnie Yudun, and Gloria Mengil and Jerita Mengil. Gloria and Jerita are part of an artistic dynasty. Jerita's grandmother, Judy Mengil, also paints at the Waringarri Arts Centre, and all three women depict their family's traditional country, Binjin

Art in the making

Printmaking is a centuries-old, hand-made practice which can encompass a wide variety of techniques to achieve a final image. In an etching, the artist paints, draws, or scratches their designs directly on to a metal plate, mindful that the final printed image will appear in reverse, a mirror image.

With the technical assistance of printmakers, the artist selects the medium or tool to use that will create either a positive mark (thus exposing the plate) or negative mark (thus protecting the plate) when it is dipped into acid. The exposed areas of the plate are etched and will hold the ink while the smooth protected areas are wiped clean of ink and reveal the colour of the paper below. Generally, each plate will be inked with a single colour. Artists wanting multi-colour images will make separate plates for each colour in collaboration with the printmakers. When each colour plate is put through the press, impressing its image on to one sheet of paper, the resulting single image can be an exquisite master-piece of colour, tone and technique.

OPPOSITE
Maryanne Sturt at work in Northern Editions printmaking studio.

(Bucket Springs) depicting landscapes from the Keep River National Park area in the Kimberleys.

Artist Ronnie Yundun worked for many years as a stockman at the Carlton Hills Station in Western Australia, which is also where he was born. Ronnie married Maryanne, already an established artist, in 1992. He began painting in 2005, and now paints his traditional country as well as depicting law and culture. Ronnie said that the work he created often represented the country as he remembers it "back then, when I was young, not how it is now". Using his fingertip, he maps out where the new roads and diamond mines are, and even the location of some of the filming for the Baz Luhrmann movie, "Australia". (The other artists proudly announce that Daisy Bitting appeared as an extra in the film.) Ronnie said he hoped his paintings would encourage his children and grandchildren to carry on the traditions and stories of his people.

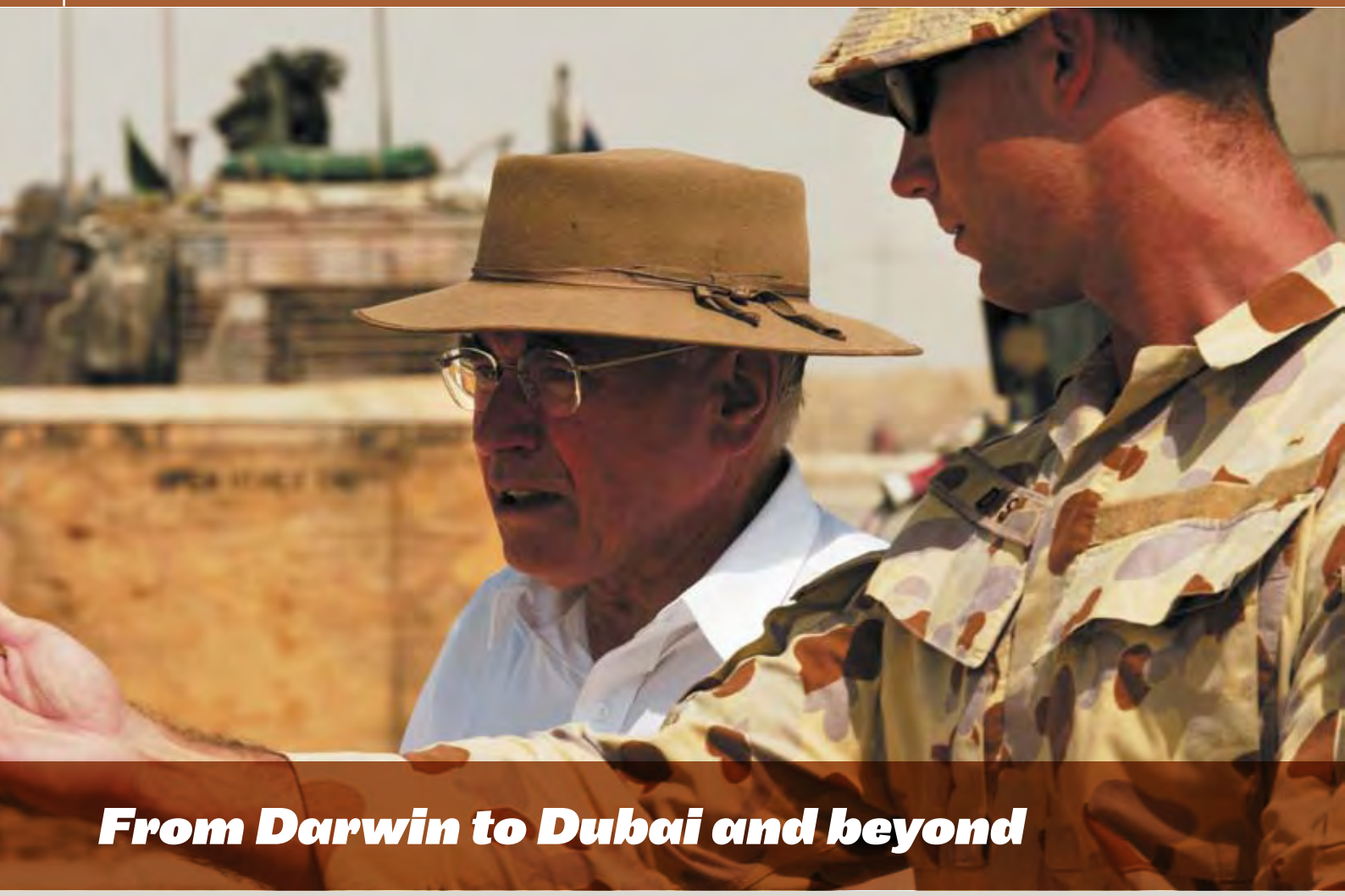
The artists used two etching methods to create their images during this workshop. Both techniques involved painting designs directly on to a zinc plate. The difference in results depends on the material used to paint. The first is an enamel water-based paint or bitumen. These acid-resistant materials are applied like paint and adhere to the zinc and protect it from the acid bath. The image is created by acid etching and pitting the metal around the design and creates a negative mark. The second is a "sugar lift" technique where, after processing by printmakers, the painted mark exposes the zinc to the acid and leaves a positive mark where any choice of colour ink will be applied. Artists often use an example of their artwork to explain to printmakers the designs, colours and effects that they want to create in printmaking. These examples are used only as guides and throughout the plate-making process, artists will frequently adapt their image to some extent so it is complemented by the printing process.

WEB BYTE
Visit the Northern Editions online gallery at www.northerneditions.com.au

To make the process even a little more intriguing, an artist will work with printmakers to alter and adapt the way they are accustomed to developing an image in order to create their desired effect in printmaking. For example, some of the Waringarri artists wanted an outline of crisp white dots in their prints that characteristically encompass a field of flat, earthy colour. In their painting, these white dots would be applied as the final touch to a canvas. However, in their etchings, from a technical point of view, the printmakers suggested it was most effective to paint these "white dots" first with an acid-resistance substance. In the final print, these white dots appear where the un-inked paper shows through the image and, as requested, "white dots" succinctly outline important features of the image.

The rapport and respect between artist and printmaker is essential in making prints and the artists adapt quickly to the new medium. Conveying all the complex printmaking terms and techniques, however, is not always possible in the space of a week-long workshop, according to the manager of Northern Editions, Emma Fowler-Thomason. And there can be communication difficulties, as well. "Printmakers have found that visual communication is often more reliable than verbal and they have developed many flexible ways to solve communication challenges quickly over the years," Ms Fowler-Thomason said.

Many elements of the printmaking process have been adapted by the printmakers in collaboration with Indigenous artists to assist them to create works of art that highlight their unique style and to convey their visions of their country and culture.



From Darwin to Dubai and beyond

Charles Darwin University graduate Paul Daws has found his niche in strategic financial management, a career which is worlds away from his time as Captain of Australian Forces in Iraq.

TEXT
Richie Hodgson

PHOTOGEAPH
Courtesy of Paul Daws

At 29, Paul Daws has embraced adventure since leaving Australia's northern shores.

Although it has not been so many years since his graduation from CDU, his career has taken him from Iraq to London and the Middle East.

By anyone's measure, Paul's journey so far has not been short on excitement, variety or national significance.

Paul can now be found in Dubai, working as the commercial manager with the internationally respected global provider of integrated risk solutions, Olive Group.

With a portfolio including the management of operations in Iraq, Afghanistan, Europe, United Kingdom and the United States of America, his work is considered essential to numerous multinational companies.

The well-travelled business graduate, however, is quick to remember where his journey began and the dramatic changes his career has brought to his life.

"Looking back on my career so far, I couldn't have imagined I'd be in the position and location I am now," he said.

"Dubai is a far cry from the suburbs of Darwin," he said, in something of an under statement.

‘Being a part of Goldman Sachs’ $32 trillion a day Foreign Exchange Division opened up a whole new world to me.’

OPPOSITE
Former Australian Prime Minister John Howard listens to a briefing from Captain Paul Daws, of the Al Muthanna Task Group, during his visit to Camp Smitty in Iraq in July 2005.

While studying for a Bachelor of Business at CDU, Paul doubled as an officer with the Australian Defence Force, playing a major role in Australia’s efforts in Iraq.

Despite undertaking and passing the arduous Special Forces selection test, Paul decided to take a high-level position in Iraq instead of applying for selection in the Special Air Service Regiment, Australia’s best known and most elite Special Forces. It was a tough choice, but he’s glad he made the decision he did.

“The prospect of being a part of such an elite group of soldiers responsible for reconnaissance and counter-terrorism was extremely hard to pass up,” he said.

“Retrospectively, taking the promotion to Captain of Australian Forces in Iraq was the right decision given the role I played in supporting the strategic and macro-level project work on the reconstruction of Iraq.

“It was personally rewarding and has been invaluable to me professionally.”

In his position, Paul was a large part of the effective development of Middle Eastern relations with all levels of society, including the Iraqi Prime Minister, heads of government and tribal leaders, to achieve successful community development outcomes.

Since wrapping up his service in 2005, Paul has worked for some of the biggest names in world finance and investment, including UBS and Goldman Sachs.

It was the position he held as senior analyst with Goldman Sachs’ Foreign Exchange Division which he regards as one of his more challenging experiences.

“Being a part of Goldman Sachs’ $32 trillion a day Foreign Exchange Division opened up a whole new world to me and effectively put my foot in the investment banking and wealth management door,” he said.

In his current role with the Olive Group, Paul is responsible for the $400 million a year turnover of financial management and reporting of Olive Group’s mainline business.

With one of his key responsibilities being the overall maintenance of financial responsibility for projects in the Middle East and North Africa regions, he points to his time in the armed forces as a catalyst for the position he now holds.

“Being stationed in the Middle East definitely gave me the ability to communicate effectively with people of these regions and reach arrangements of mutual benefit.”

Is he bright? Naturally.

Is he articulate, poised and likeable? Oh, yes.

But Paul acknowledges the influence of his military training in developing some of these personal attributes.

“Assimilation is very important for any field of endeavour, and that means an ability to communicate and make educated and critical decisions quickly.

“That’s one major thing that my time in the forces taught me and it has proven invaluable.”

With such a heady start to his working life, it’s difficult to imagine that Paul has much down time. But he attacks his leisure time as passionately as he does his career.

An accomplished marathon runner, Paul makes the most of the pain, sweat and tears associated with training and competing in some of the world’s most gruelling marathons by using the events to fundraise for worthy causes.

Inviting Paul to imagine his life 10 years down the track is a big ask considering the enormous changes in career, location and outlook that the past 10 years have delivered.

“I’ll be keeping busy,” he says simply.

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Taking it to the top

The University of Oxford, in the United Kingdom, and the Northern Territory might be worlds apart for most people, but one talented Territorian calls them both "home".

TEXT
Richie Hodgson

OPPOSITE TOP
Tanzil Rahman (right)

OPPOSITE BELOW
Jazz performance is among Tanzil Rahman's top five passions.

PHOTOGRAPHS
Courtesy Tanzil Rahman

Tanzil Rahman's outstanding academic achievements are forging a very real link between Australia's adventurous outback and one of the world's leading academic institutions.

During the past three years, the Sanderson High School graduate and Commonwealth Scholar has been undertaking pioneering research into the global market for skilled migrants, as a part of his Doctor of Philosophy.

Located in Oxford's School of Geography, Tanzil's research seeks to consider government policy factors that influence skilled migrants in their choice of destination country, including taxation and wages policies, and access to citizenship, social services, health-care, and tertiary education.

"Competition for skilled migrants between Organisation for Economic Co-operation and Development (OECD) countries is not new, but increasingly fierce – being almost analogous to similar competition for foreign direct investment in decades past," Tanzil said.

"Growing numbers of educated, able and mobile individuals effectively traverse the world looking for places to settle and build within. The challenge for national governments, then, is to find ways to attract and retain these top-flight people in a highly competitive and lucrative international marketplace."

Tanzil's journey to the first university to be established in the English-speaking world began in a much different place. Karama, in fact.

Tanzil grew up in Darwin in the '80s and '90s after his grandparents decided to emigrate from Bangladesh to Australia as a result of the Bangladeshi Liberation War of 1971.

"There wasn't much of a subcontinental community in those days let alone a Bangladeshi one, but the strong multicultural base of Darwin is what attracted my family to Darwin in the first instance," he recalled. "We grew up in Karama, loved it, and are still there to this day."

A member of Sanderson High School's inaugural year 12 graduating class, Tanzil recently had the opportunity to go full circle with his high school experience. "Much to my surprise, I got a call from Sanderson inviting me to act as their 2007 year 12 graduation ceremony keynote speaker. It was a tremendous honour to be able to give back something to an institution that gave so much to me," he said.

Academic excellence, coupled with his love for the saxophone, seemed to go hand-in-hand throughout his early years. An outstanding jazz saxophonist, Tanzil was the first person from the Northern Territory to gain entry into the elite jazz performance program at the Sydney Conservatorium of Music.

"Music has been the undercurrent to everything I've done and has afforded me a lot of opportunities. Being a musical scholar at various times allowed me to get my foot in a lot of doors."

While Tanzil's musical achievements include being appointed as Oxford University Orchestra's principal saxophonist and a concerto soloist for the Hertford College Orchestra and the New College Orchestra, he speaks with most fondness about his time served as musical director of the Oxford University Big Band (OUBB).

"The opportunity to work with the calibre of musicians in the OUBB was amazing. Over the last few years I've lead them on tour through Spain and India and performed for high commissioners, jazz legends and even royalty!

"What's more, I've always dreamed of attending the legendary Montreux Jazz Festival. This year I'll actually get the chance to not only attend but also perform at it because of the OUBB."

Before moving to England, Tanzil graduated from the Sydney Conservatorium of Music in jazz performance, and obtained a law degree with first class honours and an economics degree with first class honours from the University of Sydney. His thesis on welfare reform in a north Australian context earned him the university medal.

He has worked as an adviser, consultant and policy analyst for the Australian Government, as well as in corporate law on mergers and acquisitions and *pro bono* appellate court immigration cases.

A finalist in the 2005 Young Australian of the Year Awards, Tanzil is also the first Territorian to be awarded a Commonwealth Scholarship for his Doctorate at Oxford, an institution widely regarded as being at the forefront of learning, teaching and research.

"The interdisciplinary culture associated with Oxford, coupled with the concentration of amazing researchers, inspires you to want to live up to the outstanding research achievements of the university across so many fields," he said.

High on his list of favourite honours outside the classroom are his exploits on England's hallowed cricketing grounds. A self-confessed cricketer whose "ambitions far exceed his abilities", Tanzil has joined the ranks of few Australians as a captain of the Hertford College 1st XI and a member of the Authentics, Oxford University's 2nd XI.

So what does the future hold for our prized export?

With such an impressive list of academic and artistic achievements, the opportunities would seem endless. Though the call to work abroad with organisations such as the World Bank or OECD beckons, one suspects Tanzil's strong desire to make Australia his home professionally might eventually see him in politics.

"Politics has always been a keen interest of mine. And where better to begin a career in the decision-making process than the place I'm most passionate about? Darwin."

At 29, Tanzil Rahman has long since expanded his horizons from Australia's northern waters. He is quick to remember, however, where his journey began and despite his long list of accomplishments, has managed to keep both feet firmly on the ground.

"I'm always glad I grew up in Darwin. Anyone who knows me knows where I'm from and what it means to me. It's a beautiful place that has opened up many doors for me and I sincerely hope it continues to do so."

Making a difference

The new Bachelor of Humanitarian and Community Studies is striking a chord with young people as they begin to question some of the practices that drive mainstream society. Course co-ordinator DAN BASCHIERA reflects on the twists and turns in his own life that helped to develop his humanitarian position.

INTERVIEW
Robyn McDougall

PHOTOGRAPHS
Dan Baschiera

What influences led you into social work? Growing up in East Africa and being exposed directly and indirectly to the violence of poverty, hunger, colonial oppression and corruption were primary influences in my early humanitarian concerns. My original plan had been to study medicine, but after recovering from a severe industrial accident in 1974 I was introduced to social work. I found the ethical and humanitarian criteria I was looking for in social work. One of the greatest influences was the way the Wa-Chagga people of the Kilimanjaro district in northern Tanzania supported me as a community when, at 16, I had to leave school to manage the constructional engineering contracts of my father's company after he fell ill with a brain aneurism. Taking charge of a large workforce in remote East Africa at the age of 16 was a significant learning experience. The Wa-Chagga workers and workers from other tribes banded together to make sure our contracts were met. It was here that I learnt the true value of human communication and compassion.

What motivates you to devote so much leisure time to humanitarian causes?
Caring for what is around you and in what you can do to help remove violence, in its many forms, I believe is a true expression of our humanity. The ability to develop and sustain harmony in our global society is a pathway to social maturity. Sadly, our western individualist society is caught up in the self-centredness of commercialism and economic rationalism where success is measured in our opulence and how much money we make. The social immaturity of this is now reflected in global warming. Both philanthropy and a humanitarian conscience are very healthy pathways to self-growth and learning. I guess it was this and the potential for learning that's motivated the voluntary work I've done with Red Cross and the NT Emergency Services. It's continued through my current voting membership of Medecins sans Frontieres (MSF) and the humanitarian mission work my partner and I have shared in Sierra Leone.

You had a central role in closing Australia's last Aboriginal reserve. How did this come about?
In 1979/80 the last Aboriginal reserve was still operating in Carnarvon, Western Australia, where I had just started as the community's first social worker. The reserve was a disgusting form of subtle colonial apartheid that needed to be addressed. We were lucky when Carnarvon flooded in 1980 and converted the reserve into a potential health crisis so the Aboriginal community was evacuated. In the interim, the sitting member informed me that the then Prime Minister Malcolm Fraser was going to visit Carnarvon and would like to see me. I replied: "If the Prime Minister of Australia wants to see me, he will have to catch up with me down on the reserve, because that's where I would be helping the community get back on its feet." The sitting member was flustered by this, saying I couldn't do that to the PM. I replied: "Too bad, too sad." The next day I'm up to my ankles in mud, filth and faeces in the middle of the reserve, when this entourage of white limousines pulls up



Q&A

and a gaggle of ministerial minions starts to hover around the cars. All of a sudden, this large man strode out from the gaggle. The gaggle tried to follow him but retreated to the cars as their feet sank ankle-deep in muck. The large man kept on striding towards me. It was the Prime Minister walking across the mire as if it were a muddy paddock back on his farm. We shook hands and said "g'day mate". There was nothing much else to say. The PM was having a good look at fourth world Australia. He shook his head and I said: "Yes, mate, I know. Welcome to Australia." He gave me a funny look and that humanitarian nod of acknowledgement, and we parted company. A few weeks later an executive from the departmental headquarters in Perth rang to ask if I knew anything about the significant federal funding they had just received to re-house the Aboriginal community in Carnarvon... This funding was to close the last reserve and integrate its population with the general Carnarvon community. Unfortunately, I had left Carnarvon by the time the funds came through. Covertly racist influences meant the money was used not to integrate, but to build a "separate" suburb for the Aboriginal community. In some ways, you only win a little.

You've just established the first Bachelor of Humanitarian and Community Studies to be offered by any Australian university. What inspired this development?
Basically, it was a case of identified need. When I sat for the MSF logistician's entry exam, the examiners were astonished at my high mark (a result of my African apprenticeship). Later, while training and, in turn, providing training at the MSF training college in Bordeaux, France, I realised that no one was providing this type of training in Australia at a degree level. Within a year of my return from the MSF Mission to Sierra Leone, I took up my current position here at CDU. It was at CDU that the vision of a humanitarian degree started to take shape in the brain-storming discussions I had with our social work co-ordinator, Associate Professor Deb West.

Do you envisage climate change having a substantial impact on the social work profession with regard to humanitarian work?
Certainly. We really do not know the impact of climate change, but we can forecast huge population movements after disasters compound on disasters. Australia needs to get its head around the fact that we will not have to deal with military conflicts but with social and environmental conflicts. A wave of 200,000 refugees in boats on our northern coastline could happen next month. Recently in Thailand I stood in a refugee camp of 50,000 people, and wondered how we could cater to such a number in Darwin. The problem with climate change is not the change itself, it is our slowness to respond to it. Jacques Yves Cousteau predicted all this back in the 1960s, but the politicians kept saying: "No, it's all scientific bull. Don't listen to scientists, listen to us, the politicians. We know what's good for you." I fear that now we could be just a little too late.

Do you think there is more compassion in the West now than in the past?
This is possibly the case with our younger generations coming through. I think the interest being shown in the degree reflects the developing social maturity in our society where people, in particular young people, are beginning to question the aggressive self-centred drive in our mainstream society. People are looking for real and genuine meanings in life as distinct to the artificial commercialism and entitlement psychology they are bombarded with day in and day out.

If you could change one thing about our world, what would it be?
Our future.

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Donors dig deep

A vacant block of land on the Casuarina campus is on its way to becoming a cool sanctuary for staff and students, and the wider community.

TEXT
Robyn McDougall

PHOTOGRAPH
Richie Hodgson

ABOVE
Serhat Abdurazak

The Indonesian Garden project will feature a Pendopo, a striking Indonesian wooden pavilion, shady tropical trees, water features and carved stone statues.

The Director of Development, Serhat Abdurazak, said that the project had attracted donations locally, nationally and internationally. "But a project of this size requires a good deal of assistance and CDU's still seeking donors to provide financial or in-kind support such as paving, the water feature, fencing, outdoor furniture and other fittings," Mr Abdurazak said. "It will be a distinctive educational, cultural and recreational resource and the concept is attracting significant interest. The Administrator of the Northern Territory, Mr Tom Pauling, and the Indonesian Consul, Bapak Harbangang Napitupulu, inspected the site recently. "The garden will help to strengthen ties between CDU and the Indonesian community both in Darwin and in Indonesia, and it will also be a fantastic place for musical performances," he said.

The project has received generous support from the CDU Foundation, the Consulate of the Republic of Indonesia in Darwin, and the Indonesian Embassy as well as from businesses in Darwin and in Indonesia, such as Garuda Indonesia. "Of course, all our supporters will be recognised formally on a specially designed donor recognition board in the garden." He said he expected building work to begin in the next few months.

The Indonesian Garden project is one in a suite of projects being developed through the University's Foundation and the External Relations and Development Office.

"Our donors are helping to provide scholarships, critical equipment, academic initiatives and cutting-edge research," he said. "Some people prefer to tie their donations to a particular project, such as a scholarship, and that's great, but others choose to give more generally to the University.

"Generous acts from the wider community are critical to the development of all Australian universities now, but more so for ours. As the Territory's only university, we're asked to meet a huge range of needs in the community. We're a dual sector university and engage in more than 100 locations across the Northern Territory. CDU really is a 'University without walls'. We're on the farms, on campuses, in the city, around the bush, and at small centres. On top of that, this is a university that embraces on-line delivery methods."

And according to Mr Abdurazak, the impact of donations is immediate and makes a real difference to students' lives.

"Last year we received two amazing in-kind donations: An Isuzu truck valued at $84,000 and Caterpillar engines valued at $70,000," he said. Heavy vehicle and automotive apprentices are learning their trades with the tremendous help of these companies. "Support for critical equipment in any of our higher education and vocational education and training areas is a very practical way of helping our students."

Mr Abdurazak said that while the rate of giving was rising among Australian people and businesses, the "Giving Australia" report into philanthropy showed the education sector received only 6.6 percent of individual donations and 5 percent of business donations. "We need our community's increasing support to help us deliver the very best quality education available anywhere in the world."

See page 48 for giving opportunities.

WEB BYTE
For the summary of findings of the October 2005 "Giving Australia: Research on Philanthropy in Australia" go to www.acoss.org.au/upload/publications/papers/301__Giving%20Australia%20Summary.pdf

Jan Billycan
Kirriwirri 2007
screenprint

IMAGE 55 x 73 cm
PAPER SIZE 70 x 100 cm

PUBLISHER
Northern Editions at CDU and Short Street Gallery
COLLABORATOR AND PRINTER
Bobbie Ruben, Northern Editions
PHOTOGRAPH
Anne Chivas

LIMITED EDITION

Jan Billycan's lively and exuberant screenprint, *Kirriwirri*, depicts an important cultural site and the place where she was born. *Kirriwirri* is located in Illyarra country in the Great Sandy Desert, Western Australia.

"This place is the birth place of my father's clan," Billycan said. "Our clan is also named *Kirriwirri*. There is a big *warla* (mud flat) at this place. This is what this painting is about." Billycan's screenprint also depicts the *tali* (sand dunes) and *jila* (living water), familiar features of her desert topography.

The emphatic gestural lines and vibrant colour of Jan Billycan's *Kirriwirri* is indicative of much Bidyadanga art. The community of Bidyadanga, located on the West Australian coast about 200km south of Broome, was established in the 1970s after drought and equal pay conditions forced the relocation of the Yulparija people from their country in the Great Sandy Desert.

The Bidyadanga artists began painting in 2003 and, more recently, were introduced to the medium of print-making when Charles Darwin University printmaker Bobbie Ruben conducted a one-week print workshop at Broome's Short Street Gallery in September 2006. This workshop took place not long after the artists had returned, freshly inspired, from a trip to their desert country where the old people took their children and grandchildren to see and experience their heritage.

Jan Billycan was born c.1930, grew up in Ilyarra country and has lived in the Bidyadanga community for 30 years.

As a respected *maparn* (medicine woman), Billycan sees a deep meta-physical connection between the body and the land. It is a relationship she does not discuss but is an important element to consider in understanding her artwork.

Jan Billycan's first solo show was held at William Mora Galleries in 2007 and was featured in the inaugural 2007 National Indigenous Art Triennial: Culture Warriors, at the National Gallery of Australia. This screenprint was exhibited in August 2007 by Northern Editions, CDU and is held in a number of major public and private collections, including the CDU Art Collection.

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> “Tourists just freak out and love it when the community comes along and shares dinner with us.”

The real deal lures desert travellers

People from the remote community of Titjikala are helping to give tourists an experience in the Simpson Desert that they'll never forget.

TEXT & PHOTOGRAPHS
Jason McIntosh

OPPOSITE PAGE
Susan Amungara and Margaret Campbell at work in the resort kitchen.

ABOVE
Traditional Owner Joe Rawson in the Gunya resort dining room.

It's around lunchtime and I'm standing in the kitchen — or what might be better described as a glorified caravan — of central Australia's most exclusive resort, comprehending the $1300 a night privilege of staying in raised safari tents and sharing a meal with the locals. I'm visiting the community of Titjikala, about 120 kilometres south of Alice Springs, home of the Gunya resort which attracts tourists wanting the "ultimate Indigenous experience".

Alice Springs-based hospitality lecturer Hayley Tobin invited me to join her as a guest of community member Joe Rawson to see the positive results of her training and to learn more about local engagement in the resort. The arrangement is striking in its simplicity with four, solar-powered, raised luxury tents providing panoramic views of the Simpson Desert, nestled behind the main community. An equally simple dining hall and kitchen caravan are the only other facilities on site.

But what draws tourists — and during winter months the venue is literally booked out — is the authenticity of their experience. Up to 15 guests stay at one time, soaking up life as they've probably never known it, digging out witchetty grubs, cooking kangaroo and learning about local culture and customs through tours and talks.

But Joe Rawson said eating with the local Indigenous community was the most surreal experience for the tourists. He cited wide-eyed Germans sharing a meal with an even wider-eyed cross-section of the community. "They (tourists) just freak out and love it when the community comes along and shares dinner with us, and many tourists just want to talk and ask us questions while we eat," he said, smiling.

WEB BYTE
Check out Gunya Titjikala at www.gunya.com.au

It's clear this closeness with Indigenous culture and remoteness from civilisation are the two major drawcards for guests who stay in the cooler winter months between May and September. But the benefits of the resort extend far beyond a free meal for the locals. The resort provides an opportunity for locals to apply their formal learning in real jobs.

Gunya Titjikala is a joint venture between Gunya Tourism and the Titjikala Aboriginal Community with each having 50 percent ownership in capital, profit-sharing and management committee seats. It was created by former Macquarie Bank head Bill Moss, who saw the opportunity to provide a viable income for a local community and the cherished Indigenous interaction wanted by tourists.

Community locals are employed to take on most jobs you'd find in a regular hotel: cleaning, guiding, cooking and managing, under the supervision of Joe and indirectly through Gunya's Sydney-based manager, Paul Conlon. Ongoing training provided by Charles Darwin University is building the skills of locals. Hospitality lecturer Haley Tobin has created a custom cooking training program that sees students learn fundamental cooking skills relevant to the resort using a mix of traditional and European foods.

The first batch of students includes Joe and three women who are clearly interested in the end result of their studies. Jo said the enthusiasm of these initial students was the key to getting people engaged in training.

"At first, people were reluctant to work there but once there they saw other community people getting paid, have more food and enjoy the pride in their work, they didn't want to miss out," he said. "Remember, tourism is a new concept to people down here, so it's a big step for them."

Two Titjikala locals, Susan Amungara and Margaret Campbell, greeted me with broad smiles and showed me around the resort. They'd dressed up for the occasion and clearly were proud to point out the events and activities that had been prepared for the guests. These women were confident and proud, two elements which are often lacking in other communities which are struggling to find a sense of purpose or focus.

Joe is convinced training role models are the key to motivating others into further study.

"These two women are excellent role models because others in the community see their income, pride and self-esteem, and make the link between training and outcomes," he said.

It also makes Hayley's job more enjoyable. "Training people who want to learn gives me a great buzz because I know they inspire others to go down the same path," she said.

OPINION *Indigenous water: not just a matter of engagement*

The May Charles Darwin Symposium examines the topic "Water in the Top End". JOE MORRISON considers one vital aspect: the connections between Indigenous people and water.

RIGHT
Joe Morrison

PHOTOGRAPH
Richie Hodgson

Indigenous people's complex historical connections to water have been, in many instances, understated, unrecognised in legislation, and furthermore, relegated to the marginal position of being but a mere part of the environment. This position presents a long hard road ahead if Indigenous people are to equitably share in any benefits that may arise from the commercial use of water. There are, however, potential opportunities on the horizon that will dictate whether Indigenous people in northern Australia will be further marginalised, or in fact, be the rightful drivers of the development of the north. Water reform will require the full recognition of Indigenous rights and aspirations if it is to play the role it aspires to in northern development. However, the rush to develop water allocation plans can, in fact, set us further back into despair.

As a basis, I believe that the foundational issue of Indigenous disadvantage will require meaningful long-term partnerships in order to pave better futures for our children. Engagement in water reform can be part of addressing this disadvantage, whereby real outcomes are achieved to lift Indigenous prosperity.

For the last 17 years, I have been involved in advocating Indigenous engagement in resource management as the basis for Traditional Owners to control how and where development and the use of their resources occur on their country, on their terms. A long road it has been, but necessary if Indigenous people are to develop the required capacity to deal with rapidly emerging programs, policies and practices, whilst dealing with the general dysfunction that plagues our communities.

The North Australian Indigenous Land and Sea Management Alliance takes a pragmatic approach to the requirements of Indigenous people in northern Australia. It operates on the basis of a culture-based economy, one that is defined by Indigenous people, for Indigenous purposes. It aspires to new ways of engagement and maximising the benefits that flow from existing industries, and further emerging industries, such as carbon abatement and water use.

I believe that the approach to water reform must be multi-faceted and will require substantial community input, which remains a fundamental plank in how we operate. I am mindful that policy development, advocacy and our inherent rights need to be informed by the realities of life in our communities. The establishment of a community-based network of regional facilitators and the Indigenous Water Policy Group will ensure that all governments and the increasing volume of research being conducted, consider community aspirations, requirements and ways in which commercial use of this valuable resource will help to bring Indigenous people into the 21st Century economy. The nexus between policy reform and community engagement requires careful consideration and support.

In concluding, I believe that practical engagement, with a policy approach, is the future to addressing water reform and further, Indigenous disadvantage. There is little doubt in my mind that our inherent customary position on water can in fact benefit everyone, not just a few, which I fear will be the case if water reform is allowed to proceed in its existing form. A new level of optimism about water is arriving for Indigenous people. Let's hope that the research community, governments and policy makers are ready to work with Australia's first people on equal terms.

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ANTENNAE
Joe Morrison is the foundational director of the North Australian Indigenous Land and Sea Management Alliance.

WATER IN THE TOP END

Opportunities and Constraints

What are the opportunities for and constraints on water use?

Should we continue to think of the NT as a frontier with boundless possibilities?

We have an obligation to frame the future of water use in the Top End.

South eyes off Top End's water

The use of water in the Top End is bound to be a contentious topic at the May 2008 Charles Darwin Symposium. The scarce resource is a potential lightning rod for conflict between economic uses, environmental concerns, and cultural values.

TEXT
Richie Hodgson

With about two-thirds of Australia's surface water in the north of the country, there is a common misconception among people in the southern states that the north's water is being wasted because more of it is not being used in large-scale agriculture, pastoralism or domestic and industrial supply.

This situation has for more than a century resulted in calls for development of the water resources of northern Australia, particularly for agriculture. The long-lasting drought in southern Australia during the past decade or so, and the prospect of more droughts as Earth warms, has triggered a renewed interest in the development of northern waters for agriculture and possibly other uses. Southern Australia is in a water crisis largely of its own making. Water has been used in a profligate manner for decades, to irrigate crops that return little per input of water, for example. However, with the Federal Government spending $20 million over five years to explore an expansion in agriculture, industry and tourism in the Top End, it seems as though everyone is looking northwards for answers.

Deputy Vice-Chancellor, Research at Charles Darwin University, Professor Bob Wasson explains that the knee-jerk reaction either to move the water south or to move farmers north is understandable but ultimately imprudent.

"Water in the Top End fulfils important ecosystem and industry functions and our agricultural industry can grow without repeating the errors that have damaged farming regions in southern states," he said. "If we were to go ahead blindly we would just duplicate the water over-extractions and difficulties in the south. The idea that water in the north is going to waste is very much based on a narrow view of economics," Professor Wasson said. "The northern tropical savannas are the most ecologically intact in the world. Their conservation benefit is, therefore, of international significance. Rivers are in the main unaffected by large-scale withdrawals for irrigation, they are mostly undammed, and unaffected by high human-caused sediment and nutrient loads. And they are important for recreation, fish stocks, and are of great cultural and livelihood value for Indigenous people. Therefore, the waters of the north are already being 'used'."

Opportunities exist for further agricultural development, but the opportunities are limited often by poor soils, lack of dam sites, poor infrastructure, and variable rainfall. Irrigation can overcome variable rainfall, but it depends on groundwater because of the limited number of dam sites. But groundwater is also limited, so irrigated agriculture can only be developed so far. "The Top End experiences up to nine months of essentially no rain, and although there are significant amounts of water during the wet season in the north, major rainfall and riverflow occur in only about three or four months of the year," he said. "Add the fact that many of the soils in the Top End are ancient and highly weathered and aren't very productive, the idea of large-scale agricultural ventures becomes rather bleak."

The opportunities for a carbon market in the savannas seems to be considerable, but to be successful this will require minimal disturbance by clearing weed invasions that produce large hot fires which release carbon, and careful fire management overall. The role for the knowledge and practices of Indigenous peoples in this management is clear. But ongoing connection to country by Indigenous people is largely outside the Western market, so is difficult to consider solely within the framework usually applied by government officials. "New ways of thinking about these relationships are needed, and good beginnings have been made," Professor Wasson said. Ideally, further economic development of the Top End should minimise disturbance to savanna ecosystems (to maintain biodiversity and soak up carbon) including rivers and wetlands.

"Rivers should be allowed to flow freely to the sea so that the largely undisturbed estuaries of the north can continue to function as healthy ecosystems, and provide fish for both commercial and recreational benefit. There are many difficult issues to wrestle with, many countervailing interests, and genuine excitement and concerns about the future," Professor Wasson said. "Unlike in southern Australia where development in many instances was unplanned, or planned on the basis of poor knowledge, we have an opportunity in northern Australia to get it right — whatever it may be." And while there may be opportunities for agricultural development in northern Australia, the Top End should not be a means of avoiding solutions to critical water supply management problems throughout the Murray-Darling Basin and other southern areas.

Crisis, what crisis?

The 'water crisis' conjures different images depending on where in Australia the words are spoken, but for one fresh produce company, it's more a matter of 'crises'. FELICITY ROBSON**, of Oolloo Farm, explores how the operation is adapting.**

How is Oolloo Farm Management dealing with the "water crisis" in Australia? Well, it depends on which "crisis" we're talking about: Floods wiping out our winter lettuce and cabbage production in the Gippsland in 2007? The Australian avocado season starting with a splash as rain continues in north Queensland, preventing harvesting and cutting transport connections for any produce that can be picked? That the processing operations in Brisbane are exceeding the 25 per cent reduction in usage targets set for south-east Queensland businesses as part of water management plans put in place more than 18 months ago? Autumn melon production in central Queensland being all but destroyed in the February floods?

Fortunately, mango and melon production in the Territory has not been adversely affected by the "water crises" … yet.

While water is a major focus of activity on-farm, it is widely acknowledged that managing energy, waste and packaging must also be a priority in realising our broader sustainability goals. In our experience, water is just one issue in the broader sustainability debate. It's one that cannot be dealt with in isolation and must be managed as part of a committed approach.

Due to the nature of operations, Oolloo and its affiliated businesses can play a significant leadership role in sustainability throughout the horticultural supply chain. This leadership position includes participating in forums such as Woolworths/AFGC Carbon Footprinting research initiative, Australian Industry Groups' Water Users Forum, Australian Food and Grocery Council Sustainable Practices Committee, Ti-Tree Water Advisory Committee, Queensland Environmental Reference Group, and the NT water symposium.

A 25 per cent reduction in water usage across our processing sites has been achieved in the past two years, and further reduction plans are in place. All farming sites concur with water licence parameters, in line with state and territory government regulations. Current efficiency projects include upgrading irrigation systems. The spread of both product mix and geographical diversity of our operations means that trials can be carried out with a broad range of methodologies.

Adaptation and implementation of best practice has far-reaching impact due to the scale of the Oolloo enterprise. The Ti Tree melon operation has been highly effective in managing its water usage, using 50 per cent less water than recommended for the first production season. Yield and quality were not impacted adversely.

OneHarvest reviews and continually improves its environmental management systems, with the objective of improving overall environmental performance. This process is incorporated into the quality management systems that drive compliance.

In February this year, we embarked on a project to implement Horticulture for Tomorrow's Environmental Management Systems across all sites, creating the benchmark in environmental management in horticulture.

The Oolloo philosophy on water usage in the Territory is simple. We advocate that all users must be accountable for any allocation and use world's best practice in systems, technology and methodologies. Water trading should be for environment and economic development only, not for capital gain. Incentives for water efficiency and conservation must be considered as part of the allocation process.

Water is a public asset. We must be in the business of ensuring sustainability for future generations. This is how we're dealing with the "water crises".

WEB BYTE
Visit Oolloo Farm Management at the OneHarvest site www.oneharvest.com.au

ANTENNAE
Felicity Robson is general manager of corporate affairs and sustainability for the OneHarvest group of companies. Oolloo Farm Management is the farm development and management arm of the vertically integrated organisation.

PHOTOGRAPH
OneHarvest

Water management: A sound science

At a time of increasing awareness of the value of water across Australia, it is vital that public debate, policy and management decisions about our tropical rivers and estuaries are informed by sound science.

PHOTOGRAPH
Julien Olden

ABOVE
The bright green squares of the Katherine sewage ponds, with Katherine River in the top right corner.

Around 70 per cent of Australia's fresh water lies in the rivers and groundwater systems of northern Australia, from Cape York in Queensland to Broome in Western Australia. Supporting grazing, mining, fishing, agriculture and tourism, most of these rivers' floodplains, wetlands and estuaries are in a healthy state. The region is home to the world's oldest living culture and Indigenous Australians actively manage much of the landscape using traditional knowledge and customs.

There are, however, significant gaps in our current knowledge. To help manage the opportunities and expectations for northern Australia's rivers and water resources, a coordinated research effort that brings together social, economic and environmental disciplines is needed.

Recognising these needs, a consortium led by Charles Darwin University, CSIRO, Griffith University, Land and Water Australia, the North Australia Indigenous Land and Sea Management Alliance and the University of Western Australia has come together under a new, $30 million research initiative.

The director of the Tropical Rivers and Coastal Research Hub at Charles Darwin University, Dr Michael Douglas, said the consortium was providing the science and knowledge essential for all stakeholders.

"Drawing together more than 70 of Australia's leading social, cultural, environmental and economic researchers, the Tropical Rivers and Coastal Knowledge (TRaCK) research initiative aims to provide the science and knowledge that governments, communities and industries need for the sustainable use and management of Australia's tropical rivers and estuaries," he said.

More than 20 research projects will be conducted over the next four years, directed towards seven interconnected themes:

ABOVE *Irrigation channels at Kununurra* PHOTOGRAPH *Michael Douglas*

ABOVE *The Daly River* PHOTOGRAPH *Julien Olden*

'In tropical systems, the sources of organic matter that drive the food webs are largely unknown.'

Values and assets: Working closely with landowners, land managers, industry and community groups, researchers are examining the full range of values associated with tropical rivers, for example by assessing the effects of water use decisions on social, cultural, economic and ecological values.

Classifying tropical rivers: Researchers are developing a physical classification system to characterise river landscapes in northern Australia, based on their flow patterns and how they form and evolve. This work will help knowledge gained from research in one catchment to be transferred to other similar catchments in the region.

Material budgets: Researchers are developing models to predict the effects of land use and climate change on the sources, amounts and movement of water, carbon, sediment and nutrients.

Foodwebs and biodiversity: In tropical systems, the sources of organic matter that drive the food webs are largely unknown. Researchers are identifying these sources, developing models that predict the effects of land use and developing tools for determining environmental flows and monitoring biodiversity and ecological condition.

Sustainable enterprises: Researchers are identifying sustainable and culturally appropriate uses of riverine and coastal resources which offer opportunities for innovative enterprise development in remote and regional communities.

Evaluating scenarios: By pulling together information from across the research projects, TRaCK researchers will develop tools that explore the implications of change for our tropical rivers and estuaries. Predictions based on realistic scenarios will help inform public debate, stimulate community action and assist policy makers to explore solutions for conflicting community needs.

Communicating and integrating:
To ensure that findings are accessible and able to be used, TRaCK is synthesising knowledge from its research and tailoring it to the needs of local communities, natural resource management groups and government policy-makers.

Work on TRaCK's research projects began in 2007, with major funding received through the Australian Government's Commonwealth Environment Research Facilities Programme, the Raising National Water Standards Programme, Land and Water Australia and the Queensland Government's SmartState initiative.

NT drips with opportunity

The Northern Territory is one of the few tropical regions in the world controlled by a wealthy, developed country. This means the NT Government is able to protect and develop such a region largely free of the pressures faced by other governments in the tropic zone. Dr Daniel Connell, from the Australian National University, will explore this topic during the first Charles Darwin Symposium for 2008, on May 30 at the Casuarina campus.

Dr Daniel Connell said that when the Northern Territory agreed to the National Water Initiative in mid-2004, it committed itself to prepare development plans in consultation with the community that would balance social, economic and environmental concerns. "It is in a position to avoid the narrow irrigation focus that has so often dominated discussions about development in the past." He said the Symposium, entitled "Water in the Top End: Opportunities and constraints", would be a great opportunity for creative thinking. "At this stage, development in the Territory could go in a number of different directions. It has the chance to avoid the mistakes made elsewhere, so it is very important that all the major community groups get involved.We have to ensure that people have adequate water supplies. As cities and towns across Australia grapple with tight water supplies, governments are turning to new, and in some cases, radical solutions that include recycling waste water and converting sea water," Dr Connell said.

Meanwhile, Territory residents and industry enjoyed extensive water supplies and few restrictions, but how long would it be before other states demanded access? "Adelaide's crisis is a case in point with water reserves now 54 per cent, dropping nearly 30 per cent since November 2007."

The State Government is now considering tapping into the already depleted Murray Darling river system as a last-ditch effort to maintain supplies.

At the Symposium, Dr Connell will explore the critical role of strong governance and an understanding of competing cultural priorities as critical in maintaining water supplies across Australia. He also will outline his road map to effective water management in Australia, taking into account the competing priorities of user groups and strong management abilities of Australian government.

Dr Connell's most recent research identified failings of the Federal Government's National Water Initiative (NWI), a framework for water reform signed by all state and territory governments 10 years ago – because jurisdictions weren't prepared to deal with the whole-of-system approach required by the NWI. Dr Connell pointed out the enormous opportunity and responsibility of local government to develop and maintain successful water policy.

"One thing that really strikes me in the NT is that it is one of the few tropical areas of the world that isn't under enormous pressures … and struggling under weak governments, so we really have no excuse to fail in good governance in securing efficient water access for future generations," he said. "If we can't look after the Northern Territory, we can't ask anyone else."

Dr Connell said strong governments were still failing on water policy and there was little excuse for failure.

He will discuss the governance of water and of institutional responses to drought and the predicted impacts of climate change in the world's northern and southern temperate zones including southern Australia, southern Africa, south-west USA, the Mediterranean rim and northern China. Without strong governance "it's almost impossible to control the issue" when immediate water access prioritised medium and long-term preservation of supply.

"Environment and resource security are continuing to climb, so there is a huge amount at stake here," he said.

Asked if he believed in a national policy of water restriction, Dr Connell argued that solutions should be created for the individual circumstances of towns and cities. "Piping in water from inter-state to solve the problems of another may not be the most logical step forward. But we require a big shift in the way Australians use water if they're going to have enough in their old age and for future generations." He said Australia's water crisis was challenging to fix because of the competing demands, but believed there was a strong inertia by government to fix the problem. "It's a highly challenging and difficult task to do but there are many hard working and sincere people in government out there trying to make a difference in very difficult circumstances," he said.

Dr Connell, who is an experienced journalist and author, also will speak about his recent book *Water politics in the Murray-Darling Basin,* based on his PhD thesis which examined the National Water Initiative and the institutional arrangements in place in the Murray-Darling Basin. "Dealing with water issues is basically about dealing with cultural values and coming up with a workable compromise," he said.

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TEXT
Jason McIntosh

PHOTOGRAPH
Courtesy Daniel Connell

WEB BYTE
Go to www.cdu.edu.au *for the Charles Darwin Symposium May 2008 program.*

BIOSKETCH

Dr Daniel Connell holds a joint appointment at the ANU's Crawford School of Economics and Government and the ANU Water Initiative. He is developing courses that focus on water governance in large hydrological systems and public participation in environmental policy. He is also conducting a comparative study of institutional responses to drought and the predicted impacts of climate change in the world's northern and southern temperate zones.

In 2007 he completed a project funded by Land and Water Australia that assessed water planning in Victoria, South Australia and the Daly River catchment in the Northern Territory against the criteria set out in the National Water Initiative. The project concluded that none of these jurisdictions yet has the institutional arrangements that make possible the whole-of-system planning and management required by the NWI. Previously he worked as a journalist in the ABC, Department of Foreign Affairs and Trade and the Murray-Darling Basin Commission.

New from CDU Press

Investing in Indigenous Natural Resource Management

M.K. Luckert, B.M. Campbell, J.T. Gorman and S.T. Garnett, editors
paperback
ISBN-13: 9780980384642

This book assesses the case for investing in Indigenous natural resource management (NRM) in tropical Australia where Indigenous people provide a number of public goods relating to environmental management for which they are not remunerated.

The presence of Indigenous people on country should be viewed as a national asset. While the health of Australia's Indigenous people remains unacceptably poor, individual and collective engagement with ancestrally significant land and sea is known to improve health outcomes, and support individual autonomy and social cohesion through cultural practices. This book brings together a broad suite of authors with an understanding of Indigenous NRM and associated economics. Indigenous NRM emerges as a keystone policy area that could allow integration of many policy fields commonly considered in isolation.

The editors have wide experience in the fields covered by this book. Professor Marty Luckert, from the University of Alberta, has offered insights into the economics of environmental management around the world for decades.

The remaining editors all herald from CDU. Professor Bruce Campbell has an international reputation for his work on livelihoods among the rural poor. Julian Gorman has played a key role in fostering wildlife-based industries among Indigenous people in the monsoonal tropics of the Northern Territory. Professor Stephen Garnett has broad experience in management of tropical environments, particularly northern Australia.

The Crisis in Timor-Leste: Understanding the past, imagining the future

Dennis Shoesmith, editor
paperback xi+108pp
ISBN-13: 9780980384628

Charles Darwin University researchers have an ongoing and active interest in the developing nation East Timor. In November 2006, the University presented the symposium entitled The Crisis in Timor-Leste: Understanding the Past, Imagining the Future. This book offers a collection of papers which originated in that symposium.

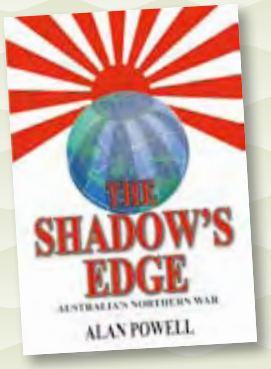
The collected papers address the historical, social and political causes of unrest in Timor-Leste, explaining the violence and rebellion of 2006 in a larger context.

By doing this, they identify ways to respond to the causes of unrest, particularly the social and developmental strategies the East Timorese can pursue to negotiate the transition to a stable, democratic and viable state.

The publication is edited by Dennis Shoesmith, Associate Professor of politics at CDU. He has worked as a consultant in Timor-Leste with the United Nations and AUSAID.

Contributors include James Cotton, Jennifer Drysdale, Steven Farram, Trevor Le Lievre, Andrew McWilliam, Ron May, David Mearns, Rod Nixon, Kate Reid-Smith and Dennis Shoesmith.

The volume is presented in four parts: Challenges to the state, challenges to civil society, Timor-Leste and the international community, and the challenges of growth and development.



The Shadow's Edge: Australia's northern war
A revised edition

Alan Powell
paperback 366pp
ISBN-13: 978-0-9802923-7-4
ISBN-10: 0-9802923-7-9

As the conquering Japanese forces approached Australian shores in World War II, the population of the north became the first in the history of European Australia to face the full impact of modern conflict. This book is about a war zone and its people.

The zone is Australia's Northern Territory (7th Military District), extending into western Queensland and the Kimberley district of Western Australia, following the course of military control.

The defensive and offensive conflicts fought by Australian and allied armed forces based in this area might have formed a small part of a very large war, but they represented the first time in European Australian history that some of its people faced destruction, dispossession and the blind sweep of death. In that sense, Alan Powell says, it is the only war we have.

Black and white Australians, Americans, British, Dutch and others defended the north against the approaching Japanese forces. Although it was small in global terms, the organisation of the northern war was still far too complex for comprehensive coverage in a single book.

Alan Powell says that readers should not expect more than the essentials for understanding the political, strategic and tactical decisions which can be found elsewhere, mainly in the admirable series of Australian official war histories and the books of David Horner. No more than a few of the multifarious armed services units and the tens of thousands of servicemen and civilians who lived, worked and died in the north could be mentioned. They have a common experience, however, which this book aims to distill.

Alan Powell is Emeritus Professor of history at Charles Darwin University.

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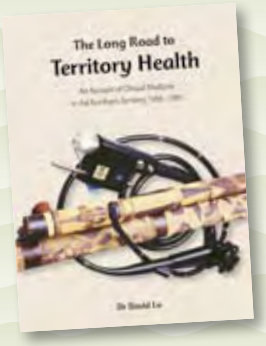

The Long Road to Territory Health: An account of clinical medicine in the Northern Territory 1965–1985

David Lo
51pp
ISBN-13: 978098029231
ISBN: 0 9802923 1 X

The health of the Northern Territory population is a theme that echoes farther back in our public discussions than the current national debate might sometimes suggest. The health of Territory people absorbed policy-makers, health professionals and the community decades ago, just as it does today.

The years spanning 1965 to 1985 are of particular interest in the history of the population's health. Those years brought great change across the Northern Territory including changes in the health of the population. Written by a long-serving Territory doctor, this book provides an intriguing insider's account of the Northern Territory's health during that time.

The Long Road to Territory Health provides a useful profile of the health of Indigenous and non-Indigenous people in the Territory. David Lo makes this subject accessible to a wide audience by offering personal accounts of the Territory, the evolution of its health services, and its health professionals.

He includes a section on major ailments occurring in the Territory, providing an interesting and useful summary for anyone interested in this population's health. The book offers a practical introduction to clinical medicine in the Northern Territory and guides readers to other works for further reference.

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