



TAKING ON CANCER

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EVIDENCE FOR EARLY LIFE

Astrobiologist Professor Kathy Campbell is part of an international research team which has discovered exciting new evidence for life starting on earth millions of years earlier than previously thought.

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FAREWELL TO PROFESSOR NICHOLAS TARLING

UniNews pays tribute to well-known figure Nicholas Tarling, Emeritus Professor of History, who died suddenly last month. Read a touching obituary by one of his former students, Professor Paul Clark, inside

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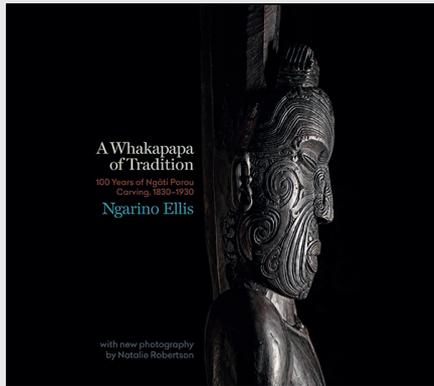
BUDGET 2017

After the 2017 Budget announcement, Honorary Associate Professor Susan St John takes a critical look at the effects of recent economic policies on social inequality in New Zealand.

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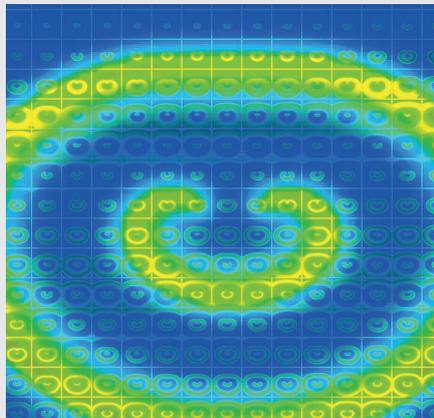
PROUD NIGHT FOR NGARINO AND AUP

In a double win for the University, AUP's *Whakapapa of Tradition: 100 Years of Ngāti Porou Carving, 1830–1930* by Dr Ngarino Ellis (Art History), won the Judith Binney Best First Book Award for Illustrated Non-Fiction at the 2017 Ockham New Zealand Book Awards last month. Auckland University Press had four books shortlisted, including Emeritus Professor Warren Moran's *New Zealand Wine: The Land, the Vines, The People* and Peter Simpson's *Bloomsbury South: The Arts in Christchurch 1933–1953*.



BEAUTIFUL BIOLOGICAL ART

Dr Peng Du, a director and the lead engineer for FlexiMap, a spin-out company at Auckland's Bioengineering Institute (ABI), creates art works out of his company's research to understand the stomach and intestine by measuring its bioelectrical activity. The image, *right*, called 'Re-entry' happens when abnormal activity in the stomach causes bioelectrical activity to loop back onto itself. It shows a mosaic of the initiation and maintenance of a re-entry event. For more on the art project Peng initiated at Bioengineering see: www.art-of-bioeng.squarespace.com



WRITERS' EVENT ATTRACTS CROWDS

Divisions across gender, race, geography and class was the theme of the well-attended University of Auckland Festival Forum event at the Auckland Writers Festival last month. *The Great Divide* featured Australian journalist Stan Grant, American writer Susan Faludi, British author John Lanchester and our own Dr Paula Morris (Faculty of Arts), with convenor Andrew Johnston. Panelists grappled with reasons for and solutions to the 2016 nationalist, populist 'revolutions' in the US, the UK and Europe.



GRAD GALA WINNER SPARKLES

An "assured and compelling" rendition of Tchaikovsky by pianist Sara Lee won her first prize and \$6,000 at the annual Graduation Gala Concerto Competition last month. The South Korean-born undergraduate from the School of Music delighted a packed crowd at the Auckland Town Hall with her performance of the first movement from Tchaikovsky's much loved *Piano Concerto in B flat minor*. Sara is currently taught by Associate Professor Rae de Lisle in the School of Music.



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COVER PHOTO: Dr Francis Hunter from the Faculty of Medical and Health Sciences. Photo courtesy of The Cancer Society Auckland-Northland.

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REWARDING EXCELLENCE

Recognition for the many remarkable achievements of our staff, the 2017 Vice-Chancellor's Excellence Awards were held in the new Pavilion last month.

The awards this year were presented in three categories: Professional Staff Excellence; Health, Safety and Wellbeing and Environmental Sustainability.

Vice-Chancellor Professor Stuart McCutcheon said he had received a record number of nominations this year, 40 in total.

"Many of the nominations came from cross-faculty and service division teams, providing a great example of the collaborations occurring across the University."

Award winners for 2017

Leadership Award: Antoinette Kesha from Organisational Performance and Improvement.

Customer and Stakeholder Experience Award: The Digital Student Data Project Team from Organisational Performance and Improvement, IT Strategy, Policy and Planning, Academic Services and ITS: Colin Williams, Andrew Georgetti, Henry Bell, Gary Tomlin, Hilda Ho, Penny Moonsammy, Niall Redmond and Raewyn Knight.

Enabling People Award: Faculty of Arts Shadowing and Mentoring Working Group;

Laureen Boucher, Ashleigh Fox, Rosalind Henshaw, Kalindu Maddugoda, Nina Riikonen and Ursula Taylor.

Community Engagement Award: The Education and Social Work Inaugural Showcase Event Team from Strategic Engagement and the Faculty of Education and Social Work: Sharon Roux, Kate Backler and Helen Pengelly.

Delivering Results Award: The School of Chemical Sciences Technical Staff Relocation Team from the Faculty of Science: Alistair Mead, Pooja Yadav, Roger van Ryn, Tony Chen, Stuart Morrow, Tasdeeq Mohammed, Radesh Singh, Sreeni Pathirana, Jan Robertson and Tim Layt.

Health, Safety and Wellbeing Award: CAI Technicians and Facilities Team from the Faculty of Creative Arts and Industries: Peter Cleveland, Kenneth Murgitroyd, Steve Lovett, Joe Makea, Daniel Swain, Scott Facer, Franca Bertani, Ellen Portch, Tom Whelan and Ross Collinson.

Environmental Sustainability Award: Faculty of Science Sustainability Network.

Highly Commended awards

Excellence in Leadership: Claire Philipson and Sharon Peace;

Excellence in Customer/ Stakeholder Experience: Chip Mathews;

Excellence in Enabling People: Katene Paenga;

Excellence in Community Engagement:

Audrey Brooks;

Excellence in Health, Safety and Wellbeing: Raymond Dixon.



Winners of the Community Engagement Award: From left: Sharon Roux, Kate Backler and Helen Pengelly with Vice-Chancellor Professor Stuart McCutcheon.

TVNZ SERIES

The University is partnering with TVNZ on a new, interactive series which asks big questions about where New Zealand will be in 20 years and what we should be doing now to shape the 2037 we want.



Hosted by celebrity clinical psychologist Nigel Latta and respected broadcaster John Campbell, *What Next?* will air at 8.30pm on TVNZ1 between Sunday 11 June and Thursday 15 June.

Using research from the University's School of Psychology, and including results from a recently released national survey, the five-part series will explore issues like the preservation of the environment, the direction of the economy, the possibilities and challenges of technology and how we can adapt to, and manage, looming social issues.

Following the broadcast there will be an interactive online 'after show' to keep the discussion going, featuring Professor Shaun Hendy, pictured above, from the University's Department of Physics.

Director of the Centre of Research Excellence Te Pūnaha Matatini, Shaun is a regular contributor to public debate on science issues and a strong advocate for the New Zealand science and technology sector.

Viewers can engage with the series and complete the survey on multiple platforms, including online with the live television screening, available via TVNZ 1.

DREAM OF SPINAL CORD RECOVERY BEHIND GENEROUS GIFT

For 28 years, eminent neuroscientist Professor Louise Nicholson – now Professor Emeritus – has given the gift of her passion and expertise to her colleagues, her students and the community.

Now, as she retires, her greatest hope is that a cure for spinal injury will be achieved within her lifetime. With this in mind, she has decided, with her husband Jon, to donate \$1 million to the University.

This, the largest gift ever presented to the University by a retiring staff member, will help enable work in her field to continue by endowing funds for a PhD student working on spinal cord injury and repair at the Spinal Cord Injury

Research Facility, which she was instrumental in establishing.

Louise is seen (right), proudly leading the procession at last month's Autumn Graduation – a very special time for her in more ways than one. Her grandson Taylor was capped that day, marking the fourth generation of her family to graduate from the University. Taylor was wearing the trencher of his grandmother (Louise's much-loved mother, the late Beryl Green), who graduated in the early 1940s.

For more information about Louise, her brilliant career and her generous gift, see the story on the Staff Intranet news.



WHAT'S NEW

BIG CITIES, BIG IDEAS ON SHOW

The opportunities and challenges of big cities was the theme of the 2017 Research Excellence Awards, also held in the Pavilion last month. Outstanding University research achievements from the past year were showcased at the event, which was attended by Science and Innovation Minister the Hon. Paul Goldsmith and hosted by Deputy Vice-Chancellor (Research) Professor Jim Metson.

Projects focused on issues like environmental sustainability, public wellbeing and energy efficiency and research teams were on hand to answer questions on everything from the ethics and effects of wild bird feeding to methods for purifying water more efficiently.

The Vice Chancellor's Research and Commercialisation Medals went to Photon Factory founder Professor Cather Simpson (School of Chemical Sciences and the Department of Physics, joint appointment), structural steel expert Associate Professor Charles Clifton (Civil Engineering), and Telemetry Research and PowerbyProxi founding scientist



Associate Professor Patrick Hu (Electrical Engineering).

University Research Excellence Awards, worth \$5000 went to: Professor John Windsor, Associate Professor Anthony Phillips, Dr Max Petrov and Mr Scott Aitken (Surgery, Faculty of Medical and Health Sciences); Dr Danny Osborne, Professor Chris Sibley and Associate Professor Nickola Overall, Drs Sam Manuela, Carla Houkamau and Tim West-Newman (Psychology, Faculty of Science); Professor Gary Barkhuizen (Cultures, Languages and Linguistics, Faculty of Arts) and Professor Helen Sword (Centre for Learning and Research in Higher Education, Faculty of Education and Social Work).

Early Career Research Excellence Awards, worth up to \$25,000 went to: Dr Timothy Angeli, Auckland Bioengineering Institute; Dr Maria Armodian (Faculty of Arts); Dr Francis Hunter, (Faculty of Medical and Health Sciences); Dr Jenny Malmstrom (Faculty of Engineering); Dr Ritesh Shah (Faculty of Education and Social Work) and Dr Gabriel Verret (Faculty of Science).

Above left: Deputy Vice-Chancellor (Research) Professor Jim Metson and Science and Innovation Minister Hon Paul Goldsmith tour the displays. Left: Professor Grant Covic (Electrical and Computer Engineering) showcasing inductive power transfer technology to the Minister and University Chancellor Scott St John.

THE FINAL FRONTIER?

Dr Francis Hunter is a Research Fellow at the Auckland Cancer Society Research Centre, University of Auckland. He has just won an Early Career Research Excellence Award which joins an array of national and international accolades for his work. He is currently working with a team led by Professor Bill Wilson on a multi-million dollar research project to develop new drugs to combat head and neck cancers.

Cancer. A word accompanied by an icy blast of fear. It can end lives fast and brutally, or agonisingly over time.

And up until quite recently, the toxic cocktail of therapies used to fight it often left the patient wondering if the treatment wasn't worse than the disease.

So when a young and academically distinguished Francis Hunter was deciding how he wanted to spend his life, finding a cure for this most tenacious of killers topped his list.

"I was doing an undergraduate degree at Auckland in molecular biology," he remembers. "In my second year I had a 'eureka moment' about cancer and the magnitude of the problem. I was a young person with the ability to make a difference – and treatments for cancer pose a complicated intellectual challenge."

And in an alignment of fates, top University cancer researcher Distinguished Professor Bruce Baguley was a family friend.

"As a young child I attended an open day at the [Auckland] Medical School, and I remember meeting and talking with Bruce about his work on cancer."

Francis' own life was touched by it when, the day before a big exam, his father had a cancer diagnosis. Fortunately, he says, he received excellent care and has since recovered.

Completing a PhD at Auckland in molecular medicine in 2014, Francis, now 31, gained a place on the Dean's List for the excellence of his doctoral research.

His focus has been on employing cutting-edge genetic technologies to understand precisely how drugs and radiation work in cancer treatment.

His ultimate goal is making treatment more precise and personalised, and therefore more effective.

Part of the complex jigsaw is getting a better understanding of the genetic basis for treatment responses in cancer.

"No two tumours are the same," say Francis.

IN BRIEF

BLOSSOMING CAREER

Professor Jo Putterill from the School of Biological Sciences has been appointed as Director of the Joint Graduate School in Plant & Food Science. The School is a partnership between the University and Plant & Food Research. Gaining a PhD from Auckland in 1990, Jo is passionate about developing a pipeline to attract the brightest and best students towards a career in plant and food science. Her research speciality is the investigation of how the timing of flowering is controlled in plants in response to environmental cues like temperature and day length. Flowering time is an important trait for plant yield and productivity, and Jo is currently collaborating with PFR scientists to understand flowering control in kiwifruit and kiwiberry.

NEW LOOK WEB PAGES

The result of months of work, the newly designed pages for 160 academic programmes will be launched by the team at the Web Presence Improvement Programme (Web PIP) in this month. The new programme pages will improve the user experience, hold all key information in one place, reduce effort and increase accuracy by using a single source of truth. The new pages deliver on the website vision to attract high quality prospective undergraduate and postgraduate students, both locally and internationally. Go to: www.auckland.ac.nz/webprogramme or contact webprogramme@auckland.ac.nz to find out more.



How they behave comes down to a whole range of factors.

Each individual cancer possesses different biological characteristics, even cancers of the same organ. These differences are caused by the mutations and chemical changes to DNA that occur during cancer development, as well as the distinct populations of cells that reside within tumours.

While Francis is currently working across a range of cancer-related projects, his most ambitious, and potentially world-changing, is a three-year programme now in its second year, to get a cancer drug to the stage of a clinical trial by the end of 2018.

This is where the mysteriously named CRISPR-Ca9 comes in, a unique technology that enables geneticists and medical researchers to edit parts of the genome by removing, adding or altering sections of the DNA sequence.

Applying this technology to drug development

allows Francis and his team to identify genes that control the sensitivity of tumours to treatment.

Inside the mass of many tumours, there are areas of low oxygen where blood is not getting through, called hypoxia.

One might think this is a good thing. But it doesn't work like that, says Francis.

"Hypoxia is a major clinical problem. If the tumour mass has an ineffective blood vessel network, there is a non-functioning delivery of oxygen and therefore the cell is resistant to killing by radiation and chemotherapy."

It is hoped that the drug currently in development by the Auckland team – which involves Professor Bill Wilson, Francis, graduate students, technicians and other colleagues – will diffuse from the blood stream into the hypoxic regions of the tumours where they're 'switched on' and therefore become toxic to cancer cells in these regions.

Francis is the first New Zealand scientist to be

selected for a three-year term on the Associate Member Council of the American Association for Cancer Research (AACR), the largest organisation of its type in the world, with a global membership of 37,000 clinicians and scientists.

In this role he frequently attends international conferences on cancer research, the most recent being in Washington DC in April, attended by 20,000 delegates.

A regular public speaker on cancer research, he believes it's a duty of researchers in his position to spread the word.

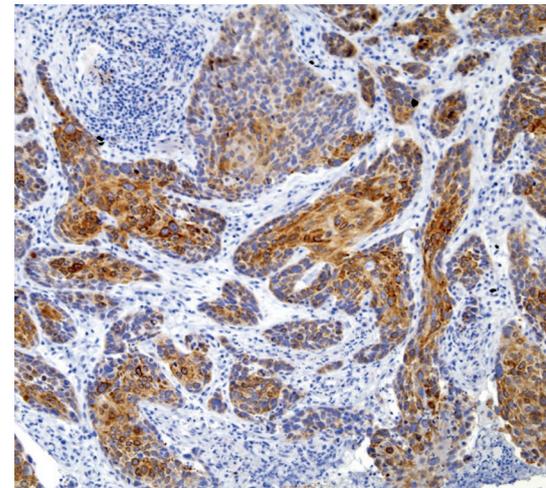
"We are funded by the Health Research Council [which manages the Government's annual investment in health research], and I think it's really important that people know how we're spending their money and what progress we're making."

It seems cancer sufferers in 2017 have good reason for hope.

Thousands of brilliant minds all over the world are, like Francis, devoted to beating this scourge, and they're making stunning breakthroughs.

Watch this space.

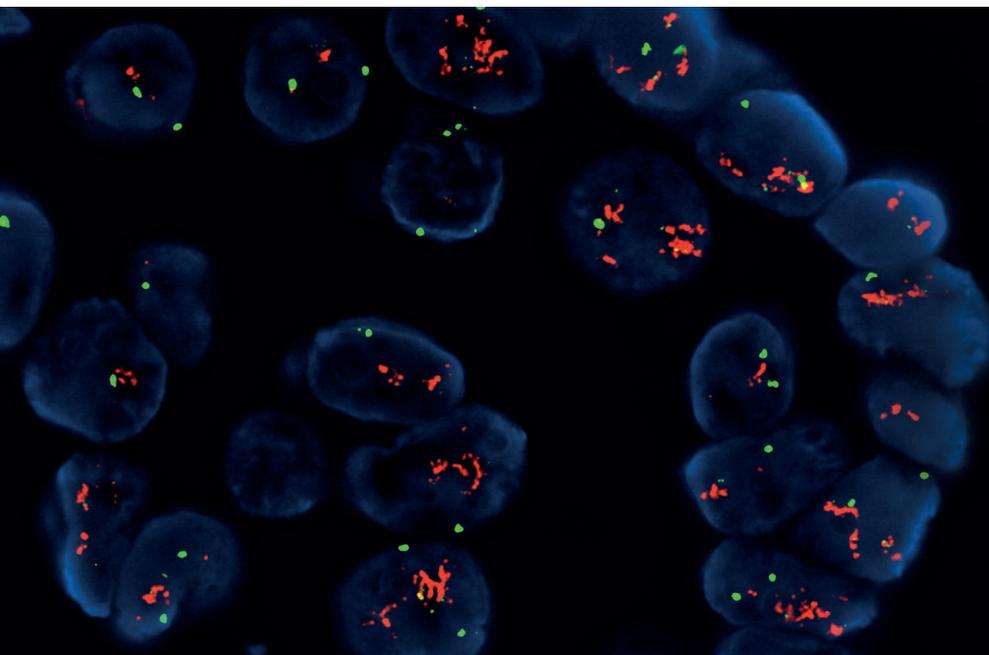
■ Julianne Evans



Top left: Dr Francis Hunter in the lab.
Photo Cancer Society Auckland-Northland.

Above: Immunohistochemical staining for P450 oxidoreductase expression in a whole-section from a carcinoma of the hypopharynx.

Left: Breast cancer cells showing amplification of the HER2 oncogene (red fluorescence).



MY STORY

STAFF PROFILE

Mabingo Alfdaniels teaches Dance Studies

Mabingo Alfdaniels did his BA and his MA in Dance at Makerere University in Uganda, followed by a Masters in Dance Education at New York University, which he completed on a Fulbright Scholarship. He is now doing a PhD in dance pedagogy in the Faculty of Creative Arts and Industries, and is a Professional Teaching Fellow in Dance Studies.

Where were you born and where did you grow up?

I was born in Buwama, central Uganda, close to the shores of Lake Victoria, just three minutes from the lake by car. I lived in one of about 40 or 50 homesteads in a rural village called Mbuukiro, where the main activity is farming. My family was Roman Catholic and we come from the Baganda people of central Uganda.

Tell me about your childhood

I came from a very large extended family and I loved spending time with them, especially with my mother, whose name is Joyce Nakawombe, and my father, Mathias Tulabiddaawa. I went to primary school in the village, which meant I was living at home – not going to boarding school as some of my siblings did. I enjoyed the way my parents prepared me for the world outside. They set out to instill in us a sense of responsibility, hard work and empathy. My father always said: “The time will come when you will face the world almost alone and now is the time you need to build the character for that.”

What did you enjoy learning?

My parents always encouraged us to question and verify everything – and that meant challenging us to seek knowledge from different sources and to learn about different ways of thinking. At home we had no access to TV or screens – only radio. But my father would always go out and buy newspapers – in our language and in English. He would give them to me to read after he’d finished. Then he would ask me: “Mabingo, what do you think?” We talked about all sorts of things – about politics, international news, arts, music, history, always questioning and trying to expand my thinking in different ways.

Where and how did you learn to dance?

Probably I started to dance before I was born – at least, that’s what my mother tells me. And when you grow up dancing it becomes a habit. That was the world in which I lived and



Mabingo in the poster image for *In Transit*. Photo Paul Simei-Barton

throughout my childhood I continued to dance, sing and tell stories.

Did you always want to have a career as a dancer?

No, as a child I wanted to become a Catholic priest. Then at about 13 I wanted to be a lawyer. Then, when I was accepted to university in dance, I started to think of it as a career that could include teaching and research and scholarship.

Did you have a favourite teacher?

When I joined college and started to pursue dance I met Professor Moses William SSerwadda at Makerere University. He is my hero. He identified the potential in me and at every point where I lost confidence he was always there to support and guide me emotionally, academically, intellectually and spiritually.

Tell me about when you decided to go to university

My two parents are well-known, profoundly-committed teachers. My family valued education and the search for knowledge. Growing up, I always envisaged not only attending university, but also excelling at it. My parents always showed me that it was possible. They did not have much money, but they saved a lot and sacrificed much to send us to school.

How was it when you first went to study in New York?

At first I felt that sense of alienation because of being separated from my communities back home, and because of the feeling of always being reminded that I was “the other”. I learned that when you’re living in a culture that’s very different from your own you have to accept to be vulnerable and to put yourself in other people’s shoes – so then you can open up to other people, adapt to new cultures and embrace new experiences.

What are you doing now?

I’m studying for my PhD and I’m a Professional Teaching Fellow in East African dance. I also run workshops and community outreach projects, and recently I’ve choreographed and have been playing music for a production called *In Transit* [which had its world premier at the Mangere Arts Centre on 4 May].

Do you think what you do can change people’s lives?

I think it not only can but has changed people’s lives. First by expanding their skill sets and their knowledge of different types of dance. Second, by helping them understand the continent and the people of Africa in a more real way than what they learn from watching TV news, which is usually about wars or disease or famine or disaster. Through music and dance and story-telling I can introduce new narratives that help people move past the stereotypes and find different voices and different ways of experiencing the cultures. Often they start wanting to visit Africa or engage in positive ways with African people and experiences.

What are you most proud of?

That I’ve been able to contribute to a movement that seeks to expand the presence of dances and music from Africa in academia globally.

What do you love doing?

I think I’m in my element when I’m teaching a class because I see people finding different ways of growing, doing, thinking and becoming. When I’m writing it’s also exciting because I enjoy participating in processes that generate new knowledge.

To discover more about Mabingo’s work, see the Autumn 2017 issue of Ingenio magazine on the University’s website under News and Opinion>University publications.

OBITUARY

Nicholas Tarling 1931 – 2017

One of the University's most tireless servants and well-known figures passed away suddenly on 13 May. Nicholas Tarling, Emeritus Professor of History, retired 20 years ago after more than three decades of enormous contributions as a long-standing Dean of Arts, Deputy and Acting Vice-Chancellor and key member of committees large and small.

In his retirement Nick remained active as a Senior Fellow of the New Zealand Asia Institute, based in the Business School. He gave an extraordinary half-century of vital service to the University.

Appointed to the History Department in 1965, after a brief stint in Queensland following his graduation from the University of Cambridge, Nick established and shaped the teaching of Asia-related subjects in the Faculty of Arts.

At a time when New Zealand public and academia was becoming more aware of our place in the world, Nick played a decisive role in fostering awareness of Asia. In 1974 he was the driving force behind the creation of the New Zealand Asian Studies Society.

As a teacher, Nick was a marvellous performer, capturing his listeners with dramatic gestures, ominous pauses and even the occasional shedding of items of clothing, all the while posing unexpected questions.

His courses on Southeast Asian history, the origins of the First World War and lectures in world history were models of concision, insight and stimulation.

Several generations of students encountered Nick at enrolment in his capacity as Dean of Arts, presiding in an office legendary for its piles of papers and books on every available surface,

including the floor. Nick played a central role in the expansion of the University from around 5,500 students to the 35,000 on his retirement. In this he worked closely with the long-serving Vice-Chancellor, Sir Colin Maiden.

He also helped shape the development of the whole university system in New Zealand, through service on national committees.

Outside of work, Nick was a major contributor to the arts in Auckland and the nation. He became a radio presenter of classical music, a founder of the former Mercury Theatre, trustee of numerous arts organisations, and a respected actor.

He was a well-known regular at classical music performances in Auckland for decades. The University's annual capping revues and outdoor Shakespeare performances were graced for many years by his skills as a thespian, honed regularly in our lecture halls.

A fierce defender of university autonomy and role as critic and conscience of society, Nick was among a key group of academics who resisted in the late 1980s government attempts to consolidate control over the universities.

Somewhat reluctantly retiring in 1997, Nick turned fuller attention to his phenomenal scholarly productivity. His colleagues would joke about "a book a year" only to discover in some years that there were two coming off the presses. His careful studies of imperial policy in Southeast Asia at its height, in decline and during the Cold War drew on his amazing mastery of the British archival records (and what seems to have been chronic insomnia). Already in the 1960s he was writing transnational history long before the term was invented.

As editor of the two-volume Cambridge History of Southeast Asia, Nick brought together a network of colleagues and students, many of whom

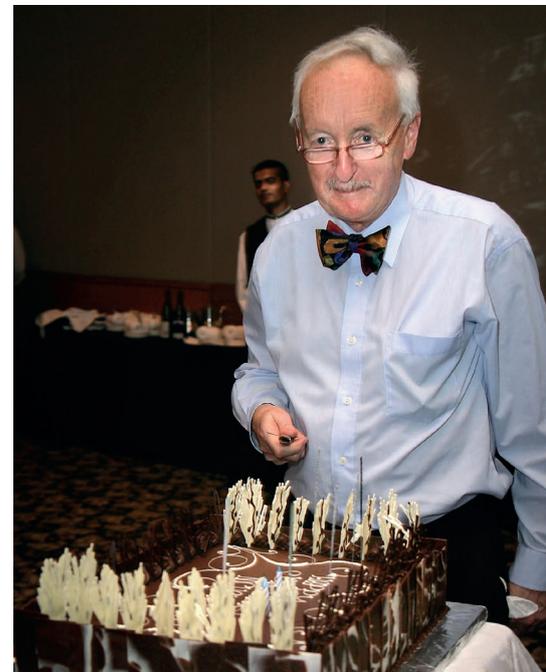
gathered in Auckland for a conference to mark his 75th birthday. In 2015 the University celebrated Nick's 50 years here with a display of (at least) 50 volumes written by him.

For his former students like myself, Nick remained a source of wise counsel and friendship. He died doing what he loved, swimming at Narrow Neck Beach, just metres from his home on a beautiful late autumn afternoon.

The University is hugely in his debt, as we honour his memory.

A public commemoration of Professor Tarling's many contributions to the University and the life of Auckland will be held later in the year.

■ Paul Clark is Professor of Chinese in the School of Cultures, Languages and Linguistics, Faculty of Arts.



WHAT'S ON CAMPUS

ISLAMIC LAW EXPERT

What: Reinterpreting Islamic law
Faculty of Law Public Lecture by Professor Raj Bhala.

When: 5.30pm on Thursday 8 June
Venue: Lecture Theatre OGGB4, Owen G Glenn Building, 12 Grafton Road.

As a sacred legal system, Islamic Law has prescribed sources for its rules. Four of them are agreed on, but additional sources are disputed. This lecture will begin with an analysis of the conventional and controversial sources.

It then will provide poignant examples of how they are used – and abused – in practice, such as domestic violence, abortion, laws of war, and terrorism.

PIANO PRIZE

What: Llewellyn Jones contest
Friday 9 June at 7.30pm
Piano Composition Prize

Venue: Music Theatre, School of Music, 6 Symonds Street.

The Llewellyn Jones Piano Composition Prize is an annual event established to foster the composition and performance of new music for the piano.

Hear talented students compete for prize money. Free admission.

LIFE BEYOND EARTH

What: Dean's Lecture Series: Breakthrough Initiatives: The Search for Life in the Universe, Faculty of Engineering

When: 8 June 2017, from 5.30pm – 6.30pm
Venue: Fisher and Paykel Appliances Auditorium. Location: 12 Grafton Road.

Dr Pete Worden will be joined by Jamie Drew from Breakthrough Initiatives, an exciting programme founded in 2015 dedicated to the search for extraterrestrial intelligence. Both guests have research backgrounds in space issues and have previously held positions at NASA's Ames Research Center. Join them as they ponder the big questions we all have about life beyond Earth. Registrations are essential. Go to: www.eventbrite.co.nz



NEW EVIDENCE OF EARLY LIFE ON EARTH

A study of hot spring deposits in New Zealand and Australia provides new evidence that life existed in these environments around 3.48 billion years ago, millions of years earlier than previously thought.

This startling find has been unearthed by an international research team including University of Auckland astrobiologist Professor Kathy Campbell (School of Environment).

Evidence of life from thermal hot springs – a key site of discovery for scientists because we know they host a diverse range of microbial life living under extreme environmental conditions like those of early Earth – has previously only been dated to 400 million years ago.

The new study extends that by more than three billion years.

It was published last month in *Nature Communications* and subsequently appeared in news media all over the world.

“It’s a significant finding and one that re-opens one of the biggest debates in science and that is,

did life begin on land or in the sea?” says Kathy.

“This work is also highly relevant to Mars exploration. One of the key aims for NASA’s 2020 Mars rover landing is the search for fossils in ancient (more than 3 billion years old) volcanic hot springs which we now know once existed on the martian surface.”

The research team examined and compared bio-signatures from hot spring deposits of only a few thousand years old in the Rotorua area to very similar rock textures newly found in the 3.48 billion-year-old Pilbara Craton of Western Australia, and discovered the existence of a mineral deposit called geyserite, forming around the spring vents and pools from approximately 100 °C fluids and only found in terrestrial hot springs.

Previously, scientists studying the Pilbara Craton thought it was an ancient marine environment but the presence of geyserite indicates it was in fact a hydrothermally-formed volcanic crater, so any bio-signature evidence found associated with very old geyserite is evidence of terrestrial – not marine – life.

The scientists discovered stromatolites, layered mounds of sediments that are produced when microbes are present.

Along with other microbial bio-signatures, the study indicates that a diverse range of life existed in these hot springs 3.48 billion years ago.

The oldest accepted evidence of life on Earth so far was discovered in shallow marine rocks in Greenland which have been dated to about 3.7 billion years, and many scientists believe life must have begun in the oceans.

Others are holding out for an on-land origin, a topic of debate in scientific sessions at the Astrobiology Science Conference held in Mesa, Arizona, recently.

The oldest life on land previously recorded was in organic-rich ancient soils and ponds in Africa dated at between 2.7 billion to 2.9 billion years ago.

The latest study therefore extends the geological record of life on land by more than 580 million years.

Above: Professor Kathy Campbell at Pilbara, Western Australia.

REDISCOVERING OUR MEDICAL HISTORY

University of Auckland Arts student Erna Battenhausen is shining a fresh light on some of New Zealand's most important medical artefacts.

Last summer Erna, who has a BA in Anthropology and Art History, worked at Auckland's Museum of Transport and Technology (MOTAT) as a University Summer Scholar.

Under the direction of Professor of History, Linda Bryder, she was tasked with researching objects from MOTAT's collection that could form the beginnings of an online Auckland Medical Museum.

Among the most significant was the Melrose Heart Lung Machine, brought to New Zealand by Sir Douglas Robb and Sir Brian Barratt-Boyes, and used in ground-breaking open heart surgery in 1958.

"The surgery which, repaired a hole in the heart of an eleven-year old girl, Helen Arnold, was the first of its kind in New Zealand and made headlines around the world," says Erna.

In 1962, Barratt-Boyes, using this machine, applied a masterful technique for replacing a heart valve with a human donor and set the international standard for aortic valve surgery.

Erna has tried to place each object in a wider historical context.

For example, she worked on an iron lung built at Auckland Hospital around 1935 using an electric motor and vacuum pumps from a milking machine.

Iron lungs were a common treatment for polio, which affected nearly 10,000 people in New Zealand between 1915 and 1961.

"Understanding what polio patients went through pre-immunisation puts into perspective the importance of modern developments in medicine and public health," says Erna.

She has also studied a Dutch-manufactured incubator with proven links to the history at St

Vincent's Home of Compassion in Herne Bay, which was run by the Sisters of Compassion, whose founder was Mother Mary Joseph (Suzanne) Aubert.

"Now that its provenance has been more clearly defined it is evident that this machine could have major historic and social significance to Auckland, and New Zealand as a whole."

In keeping with MOTAT's vision, Erna's research has also unearthed stories of Kiwi ingenuity such as the Green lane Hospital technicians who deftly altered the Melrose Heart lung machine's oxygenator which was rotating at too high a speed when it first arrived

Says Dr Bridget Mosley, Registrar of MOTAT's Collection Inventory, "Supporting learning and development is important to MOTAT and Erna's research will add to our understanding of the significance of the collection and how we interpret it for visitors."

Erna has finished her Summer Scholarship and is now employed two days a week at MOTAT while continuing to study for a Masters in Heritage Conservation specialising in Museums and Cultural Heritage.

She is doing on-going research that will contribute to MOTAT's wider understanding of its whole health sciences collection.

"I am passionate about this sort of thing," she says. "I really believe in looking to the past to shape the future."

Adds Professor Bryder: "University Summer Scholarships open up some fascinating and valuable opportunities for students."

The Melrose Heart Lung machine will feature in the Auckland Medical Museum Trust's first exhibition, *Brave Hearts - The New Zealand Cardiac Story*, a mobile pop-up exhibition where visitors will be part of a journey through New Zealand's cardio-vascular medical history, past, present and future.

Brave Hearts will be open to the public at MOTAT from 18 August 2017.

UNINEWS highlights some of the University's people and stories that have made the headlines in the past month.

Our academics on Newsroom

Distinguished Professor Margaret Brimble talked about her drug discovery work on Newsroom last week, with the news site also featuring a story and video on research by Professor Paul Kench on the resilience of coral reef islands under threat from sea level rise.

New Scientist review

Professor Michael Corballis' new book, *The Truth About Language*, was reviewed in *New Scientist*, while Senior Lecturer James Russell discussed the Pest Free 2050 initiative in the *London Telegraph* and *Washington Post*.

Plastic disaster

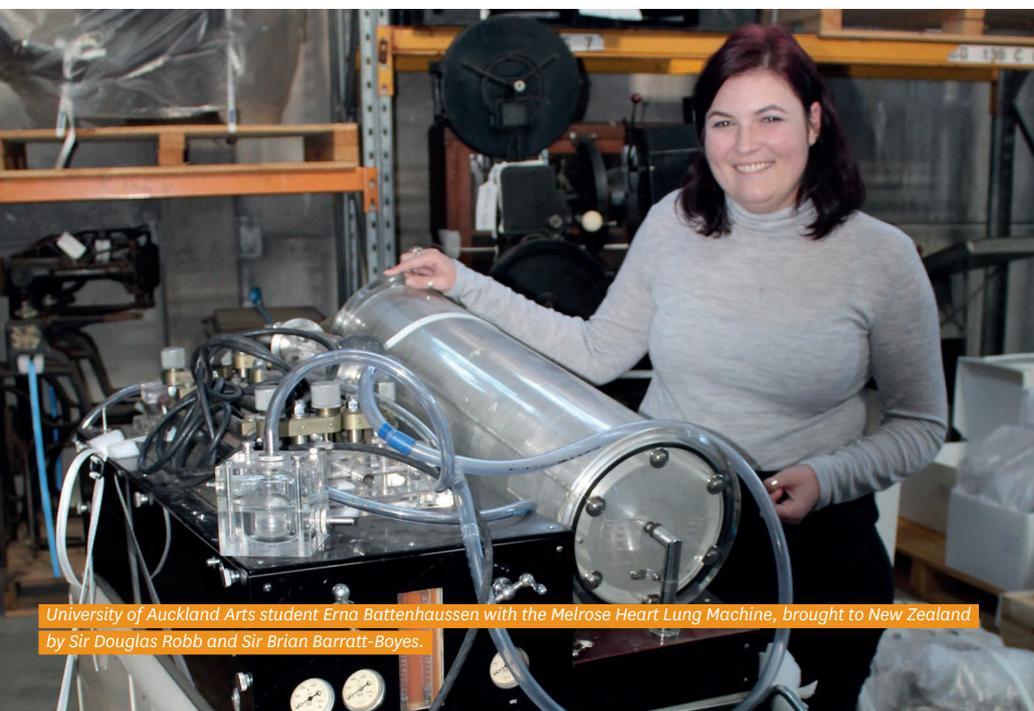
Senior Lecturer Melissa Bowen discussed the discovery of 38 million pieces of plastic on a remote uninhabited island in the Pacific ocean on Newshub - the story also ran on the NBC news site in the US.

Te Whainoa graduates with mana

Arts graduate Te Whainoa Te Wiata featured on *Te Karere* (TVNZ) in an in-depth interview on his life, work and haemophilia - all in te reo.

In-depth on Liggins

Professor Frank Bloomfield, director of the Liggins Institute, gave a wide-ranging 18-minute feature interview with RNZ Nights presenter Bryan Crump on crucial research underway at the Institute and its campaign launch event, *The Night of the Dames*.



University of Auckland Arts student Erna Battenhausen with the Melrose Heart Lung Machine, brought to New Zealand by Sir Douglas Robb and Sir Brian Barratt-Boyes.

FROM THE ART COLLECTION

Artist and 2017 Distinguished Alumna Lisa Reihana is currently representing New Zealand at the 57th Venice Biennale in Italy with a panoramic video installation entitled *Emissaries*.

It is her most ambitious project in a long, illustrious and innovative career with digital media.

Ten years in the making, *Emissaries* is a remarkably complex digital animation that has undergone a number of modifications for the Biennale

since it was last shown in Auckland, including incorporating Aboriginal figures.

Captain James Cook – (Female) can be contextualised into research and experimentation for *Emissaries*. In 1804,



Frenchman Jean-Gabriel Charvet created printed and hand-painted wallpaper inspired by European exploration of the Pacific.

Titled *Les Sauvages de la mer Pacifique*, it is this wallpaper which was the inspiration for Reihana's video installation.

Charvet used travel drawings by French explorers Jean-Francois de la Pelouse and Louis Antoine de Bougainville, as well as Cook, as reference material.

The first of Cook's voyages to the Southern Seas was undertaken to measure the Transit of Venus - a venture necessary in controlling trade routes throughout the world in the 18th century. The tacit mission was the search for the

imaginary *Terra Australis Incognita* - the great unknown Southern Continent.

Reihana has transformed the original wallpaper scene into a stage of wonder by bringing the figures represented to life. Engaging in a method of practice which she describes as *kanohi ki te kanohi* (face to face interaction), she builds respectful relations of reciprocity with the actors she photographs.

Reihana suggests decisions of inclusion and exclusion which are not arbitrary but political. By tackling the problems of representation (who and how do we see?) she joins other contemporary Māori and Pasifika artists in reclaiming, reimagining and retelling "historical" narratives of foundational events.

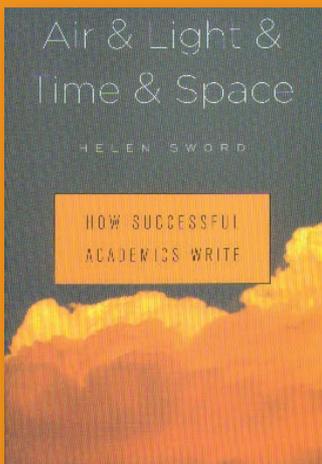
Reihana's work is simultaneously contemporary, historic and mythological; a whāriki, or weave of technology, and a re-appropriation.

Reihana's work is included in a display of taonga from the University Art Collection at Old Government House as part of the Matariki (Māori New Year) celebrations from 6-26 June 2017.

■ Sam Melsler, Gus Fisher Gallery assistant

Image left: *Captain James Cook - Female (In Pursuit of Venus)*, 2015, photograph, 1520 x 1080mm by Lisa Reihana.

WHAT'S COMING OUT



Air & Light & Time & Space

"Helen Sword does it again," writes Distinguished Professor Brian Boyd (English, Drama and Writing Studies) of Professor Helen Sword's latest book, subtitled *How successful academics write*.

"In an age of academic doom she inspires... She makes you want to consume creative academic writing - not just hers - and to try to

produce nothing less."

Renowned cognitive scientist, Steven Pinker, agrees: "Helen Sword delightfully shows that, contrary to lazy opinion, academics do not have to write in soggy, wooden, leaden, stuffy, turgid or bloated prose."

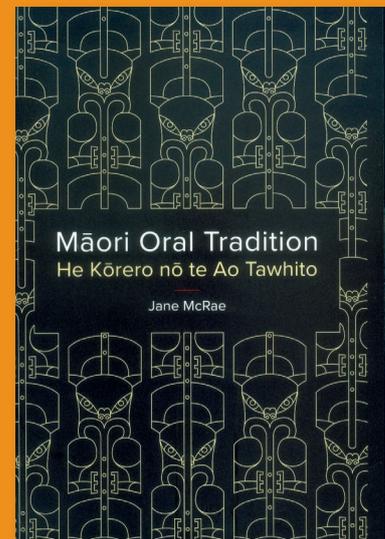
To see how not to write like this, read this essential new guide for writers aspiring to become more productive and take greater pleasure in their craft. *Air & Light & Time & Space* is hot off the press from Harvard University Press.

Māori Oral Tradition

Māori oral tradition is the rich, poetic record of the past handed down by voice over the generations through whakapapa, whakatauki, korero and waiata.

A voice from the past, this remarkable record underpins the speeches, songs and prayers performed on marae and the teachings of tribal genealogies and histories.

This book, *Māori Oral Tradition: He Kōrero nō te Ao Tawhito*, written by Jane McRae, former lecturer in Māori Studies, and published by AUP,



introduced readers to the distinctive oral style and language of the traditional compositions, acknowledges the skills of the composers of old and explores the meaning of their striking imagery and figurative language.

Unravelling Sustainability and Resilience in the Built Environment

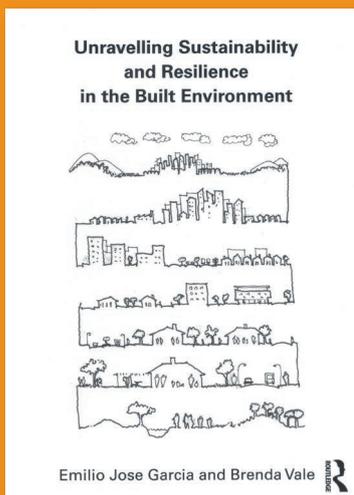
Māori Lecturer Emilio Jose Garcia (Architecture and Planning) and Brenda Vale. Routledge, 2017.



New *Ingenio* out now

The cover story for the latest *Ingenio*, the University's alumni magazine, features three of our five Distinguished Alumni for 2017: Erna Takazawa (pictured above); Lisa Reihana, whose work is discussed on the facing page, and well-known broadcaster Carol Hirschfeld. For this and other stories - for example on the meaning of happiness, the creative process of writing graffiti, and some of the ways to save our news, see the Autumn 2017 issue of *Ingenio* on the University's website under News and Opinion > University publications.

An essential read in our increasingly urban world, Garcia and Vale explore what the terms sustainability and resilience mean when applied to the built environment. Crammed with case studies which highlight the principles of both concepts, they champion the case that sustainability in urban settings would benefit from a proper understanding of resilience.



CLASSIFIEDS

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AT OCKHAM RESIDENTIAL we believe Auckland is one of the most beautiful cities in the world and a wonderful place to live. Founded by alumni of the University of Auckland, Ockham is committed to ensuring urban regeneration in this beautiful city is world class. See our stunning new project in Grafton, Hypatia, at www.ockham.co.nz

THREE-BEDROOMED-ONE-BATHROOMED HOUSE IN ST MARY'S BAY: With view of harbour and Rangitoto. Great for kids, big backyard garden full of fruit trees, flowers, and BBQ. Fully furnished/equipped. Retains original charm with updated electrical work, bathroom, appliances and internet. Available for long-term lease 8 July, contact mattazook@gmail.com

FULLY-FURNISHED STUDIO APARTMENT: With balcony overlooking the harbour and University at 14 Waterloo Quadrant. Five-month let, possibly longer, from 26 June. Secure access, 25m heated pool, gym, TV, Netflix. Water included in rent but not power, phone, WiFi. \$420pw or with carpark 480pw. Call John 021 2637393.

HOUSE-SIT: Ideal for visiting academic or relatives visiting Auckland for the July school holidays. Available 22 June to 22 July. Central location, Mount Wellington. Convenient modern house, 3 bedrooms, 2 bathrooms. Bus and train nearby. Please phone 021 688 558 or email j.goddard@sanctamaria.school.nz or jennyanne321@gmail.com

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WRITING RETREAT: Peace and seclusion in a rural Swanson valley, only 30 minutes from Auckland city. Write, relax & restore, or energise in an oasis of green. Studio ensuite, balcony opening onto expansive lawn. WiFi and breakfast included. Non-smoking NZ\$70.00/night (2 night min. stay) or \$450.00/week. Contact Lois 021716020 / lhannahbiz@gmail.com

MISCELLANEOUS

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DIGITAL PRINTING: Course books, presentation and display prints, conference printing, pull up banners, posters and flyers. Barny Hards is our specialist university print advisor. Contact him at barny@newcomb.co.nz. Newcomb Digital, 2A Augustus Terrace, Parnell. Phone 303 2878. Approved 'preferred supplier' to the University of Auckland.

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'TOUGH LOVE' NOT WORKING

In response to the 2017 Budget, Susan St John takes a critical look at the effects of recent economic policies on social inequality in New Zealand.

My life as a researcher into family incomes began in the 1980s when the Rogernomics revolution was just stirring.

The justification of this radical new direction was that lower wages would make us more competitive, lower taxes and benefits would encourage work effort, and ordinary people would be better off through the trickle-down effect.

The underlying "tough love" ideology was that people should stand on their own two feet and not expect the state to cushion them. The means to achieve this transformation were the loosening of union power, employment contracts, low flat tax, small government, user pays, and social assistance of all kinds to be paid "only to the poor".

The imagery of "middle class capture" drove an ever tighter targeting of social provision, so that those who could pay, would pay. The welfare state was no longer about social security. Nor was it social insurance to protect middle income people from the many vicissitudes of life that private insurance could never meet.

But there was a fly in the ointment. If social assistance is to be confined to the poor, how is it to be reduced as people earn extra income to prevent it going to the rich?

The implication of tight targeting worried Treasury greatly because overlapping clawbacks can leave almost nothing in the hand.

The sum of tax and other losses as a fraction of the extra dollar earned is the Effective Marginal Tax Rate (EMTR). The EMTR for those who live at the margins of benefit thresholds can be over 80%. For low income "working" families the EMTR

can be far higher than the top tax rate paid by the well-off. Throw in commuting costs and childcare, and it is not worth taking on any extra work to get ahead.

The "welfare only for the poor" policy reached fever point in the 1991 budget that promised that the nasty side-effects of high EMTRs would be cured.

Social welfare benefits were cut, and families were going to have all their social provision managed by the use of smart cards. The family's income was to be aggregated (somehow) on the card and social provision like student allowances, family payments and healthcare reduced at a constant rate per dollar when they earned extra income.

As a young researcher I was deeply troubled by this grand design and not surprised when the technocratic "solution" of the smart card proved unworkable and was abandoned. But what was shocking, was that the reforms of low tax, low benefits and tight targeting was never revisited. Instead we were left with vicious EMTRs that trap people in poverty.

Many "working" families are now repaying large student debts at 12 percent of earnings above a low unindexed threshold of just \$19,084. That already makes their tax rate 30%.

For income above \$36,350, they lose Working for Families at 22.5%, making their tax rate 52.5%, or 64.5% if they earn over \$48,000.

They may also lose their accommodation supplement at a rate of 25%, and there may be other losses such as child care subsidies and child support to pay, leaving very little for all the extra effort. Over time, poor families use up their assets and go into debt to feed and clothe their children. At the other end of the scale wealth compounds. We see the end result in wide wealth disparities,

social erosion and ever higher social costs. Policy makers of the early 1990s need to own their delusion that smart card technology would solve the perverse cumulative effect of tight targeting policies.

It was obvious the 1991 budget was the recipe for a divided nation. It gives me no pleasure now, 26 years on, to see how the problems have intensified under today's relentless focus on "target efficiency".

Many families, including even those in full time work, are in dire circumstances as indicators such as trends in third world diseases, dental extractions for children under three, suicides, use of foodbanks and homelessness attest.

In Auckland one of the key barometers of social distress is the demand for food parcels at the Auckland City Mission. Since the early 1990s the growth has been steadily upwards doubling over the past seven years. To live happily in New Zealand people must have enough money and enough time. The older population do manage better than young families.

The supportive programmes for the old such as wage-linked universal NZ Super and the Gold Card are successful and laudable. Today's policies for families are absolutely not.

Budget 2017 will either make things worse - as has been the pattern for the last eight years - or signal that tightly targeted social provision will be moderated, for example by tinkering with frozen thresholds.

The monumental task ahead, for the next government, is to unpick the underlying ideology and reverse its detrimental effects.

■ Susan St John is an Associate Professor and Director of the Retirement Policy and Research Centre at the University of Auckland Business School.