

THE UNIVERSITY OF AUCKLAND ALUMNI MAGAZINE

Ingenio

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—
SPRING 2019
—

THE FUTURE OF FOOD

*EATING SMART
FOR THE PLANET*

Phenomenal result
Campaign exceeds all
our expectations

Fine tuning
Composing a curriculum
for a modern musician

Rocketing along
Auckland space projects
taking off

BIG PICTURE



SPRING ON CAMPUS

The University of Auckland City Campus grounds are a picture in spring. Photographer Elise Manahan captured this tui among dozens flocking to the Taiwan Cherry (*prunus campanulata superba*) tree. Later the birds will seek the nectar from the kowhai as they come into flower.

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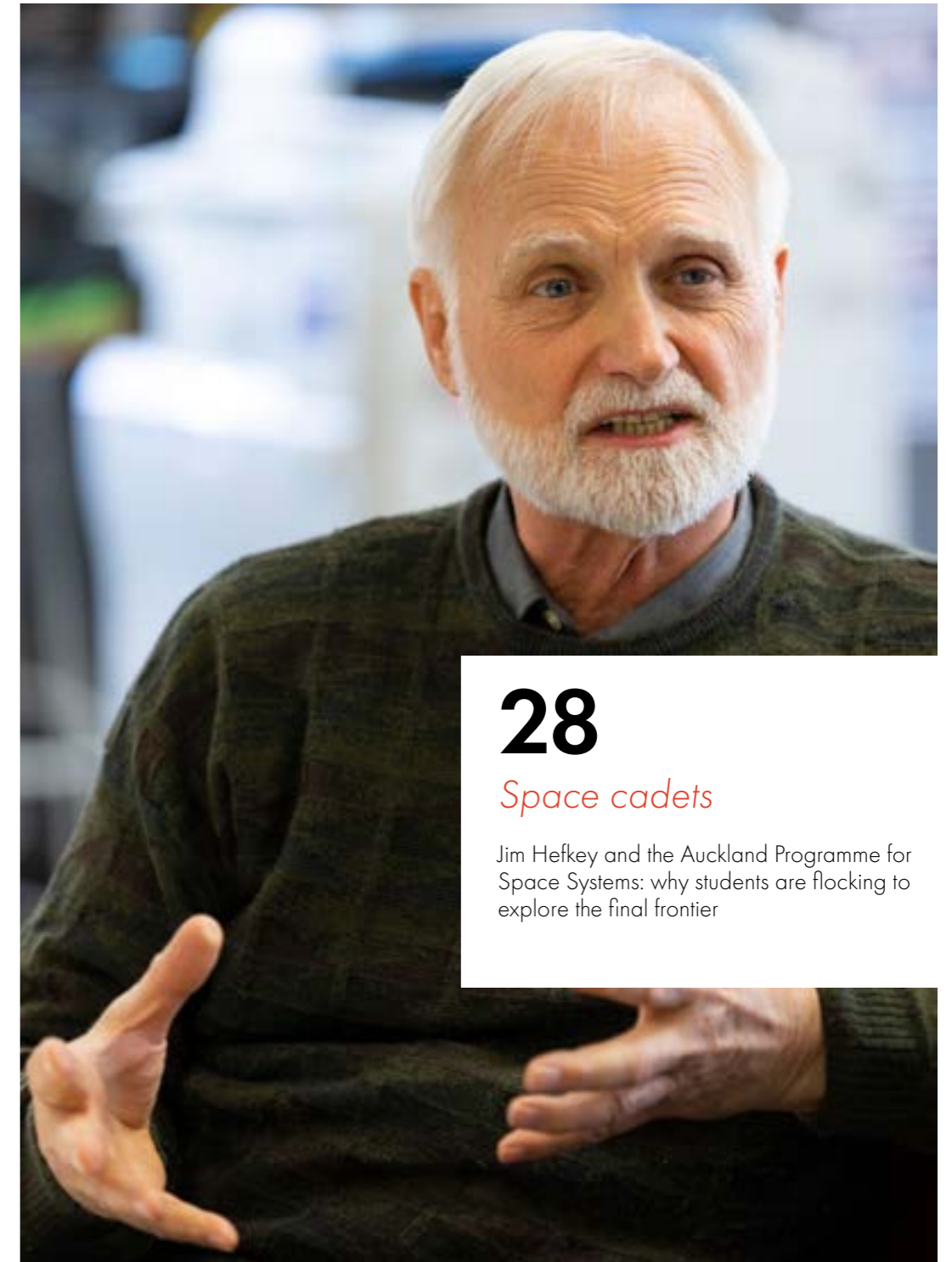
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INVESTMENT IN OUR FUTURE

In many universities around the world, the 'impact agenda' is becoming an important issue, reflecting the desire of those who invest in the universities – particularly governments and their funding bodies – to be assured that their investment is having a positive impact.

While the desire to see a 'return on investment' is understandable, it can be problematic for the universities. This is so for several reasons. First, the impact we have on our graduates is not immediate, but lasts through their lifetime and is often intergenerational. Second, even a major new research finding will often take many years before it has an impact on society. For example, a new therapy will have to go through exhaustive testing before it can be made available for clinical use. And third, each new finding depends on the knowledge creation that has gone before it, often over a long period of time, but without which that finding would not have been possible. In short, attaching a particular impact to a particular investment is extraordinarily difficult.

An alternative approach is to look more holistically at the impact of a whole institution. That was the approach taken by the 2019 inaugural Times Higher Education (THE) University Impact Rankings to assess the performance of each university against some of the 17 United Nations Sustainable Development Goals. The University of Auckland was ranked No 1 internationally, reflecting the strong desire of our people to make a positive difference to the lives of others in New Zealand and around the world.

Increasingly, our ability to make a difference depends not only on the investment by government and students, but also on the willingness of our alumni and friends to support



us. This has been the basis of the For All Our Futures campaign, which has sought to increase alumni engagement and generate financial support for our students, teaching and research.

It has been stunningly successful, not only in meeting its direct objectives, but also in further enhancing the impact the University has on society. One hundred stories of that impact were highlighted to our community over the final weeks of the campaign. There could have been many hundreds more and each would illustrate very well how this University makes a difference.

What the campaign has shown incontrovertibly is that philanthropy has become a powerful vehicle for the University to achieve many things that would otherwise not be possible.

Because of the investment of our donors, the University is a different and more capable organisation. That investment in the creation and dissemination of knowledge, and in the support of our students, will produce dividends for many years to come. And for the hundreds of stories of impact there are hundreds of donors who contributed to them and to whom we owe a great debt of gratitude.

At the founding of the Auckland University College in 1883, the Governor, Sir William Jervois, noted the importance of "placing the advantages of a university education within the reach of every man and woman of Auckland". Today he would have said, "of New Zealand and the world" and he would surely have referenced our research as well as our education. The work of our staff and students has, over many generations, had a huge impact.

Thank you for helping us make a difference.

Read about the 100 impacts at tinyurl.com/CampaignImpacts

STUART McCUTCHEON

Vice-Chancellor



THE UNIVERSITY OF AUCKLAND CAMPAIGN FOR ALL OUR FUTURES



Campaign

The University's Campaign For All Our Futures has been an unprecedented success – raising an extraordinary \$380,271,165 to fund research, fuel innovation and support students.

The campaign was publicly launched in September 2016, to raise \$300 million to answer important questions for the future of New Zealand and to actively engage with at least 50 percent of the University's alumni. By the end of the campaign on 31 October 2019, the fundraising total had exceeded its goal by \$80 million and 60 percent of alumni were actively engaged.

"The campaign has highlighted the power of partnerships and philanthropy as we address the challenges and opportunities of the modern world," says Vice-Chancellor Professor Stuart McCutcheon. "I sincerely thank the thousands of people who have contributed to this outstanding success, our staff for conducting and supporting wonderful teaching and research, our alumni for demonstrating the lifelong benefits of a University of Auckland degree, and our many friends and donors for making the work of this extraordinary institution possible."

At a "thank you" event for key supporters on 21 November, Health Sciences student Tahirah Moton spoke about rising from a background of family breakdown and foster homes to successfully undertaking university study, thanks to a scholarship from the Ralph and Eve Seelye Charitable Trust. She has now been awarded a prestigious Kupe Leadership Scholarship.

Alumna Dr Emma Scotter, head of the Motor Neuron Disease Lab at the University's Centre for Brain Research, talked about the Aotearoa Fellowship that funded her return to Auckland from a research role at King's College London. She now receives support from the Motor Neuron Disease Association of NZ, Marcus Gerbich and Dr Amelia Pais-Rodriguez, and the Freemasons.

The fundraising total was made up of 23,592 gifts, large and small, from 7,236 donors. Almost all were given for a specific purpose, nominated by the donor. Many of the major gifts were for medical research, including the largest-ever gift to the University, from the Hugh Green Foundation (see story on page 10). Numerous gifts supported donor-funded student scholarships, which trebled in number over the course of the Campaign. The very last gift was an online donation of \$220 towards the Student Emergency and Wellbeing Fund, from an Australia-based alumnus.

The campaign began by asking multiple questions, reflecting important needs across society. By its close, many of these "Can We" questions had been turned into "Together, we have..." statements and history had been made, as For All Our Futures became New Zealand's largest-ever fundraising campaign.



BEYOND EXPECTATIONS

Three years ago, the University of Auckland publicly launched its ambitious For All Our Futures fundraising campaign. The focus was to ask some of the biggest questions facing society today and to answer them, in partnership with our supporters.



Photo: Elise Manahan

Powerful partnerships

There have been more than 23,000 gifts to the For All Our Futures campaign and thousands of people have benefited, from students and faculties to the community, the country and ultimately the world. *Ingenio* talks to three pairs of donors and recipients.

DONORS

JOHN AND LEONIE HYNDS

Recipients: Unleash Space at the Business School; Peter Rachor, Hynds Entrepreneurial Fellow

◀ If you're the type who walks with your eyes fixed on the pavement, the name 'Hynds' may be familiar. It's all over our streets, embossed on many metal drain covers. The Hynds family, through the Hynds Foundation led by John and Leonie Hynds, are major donors to the University, but their money most certainly isn't going down the drain.

John Hynds' company, Hynds Pipe Systems, was formed in 1973 and specialises in waste management. In 2017, the Hynds Foundation was one of six founding partners to provide large philanthropic gifts to set up the Unleash Space for five years, in the Centre for Innovation and Entrepreneurship (CIE). The Hynds family gift was also used to fund the Hynds Entrepreneurial Fellow, leading to the appointment of Peter Rachor, who was director for entrepreneurship and innovation at the University of Portland in Oregon for 11 years.

"We're so grateful to John and Leonie," says Wendy Kerr, director of CIE. "Being able to employ someone like Peter Rachor allows us to teach concepts of innovation and entrepreneurship to students and staff."

Peter, whose remit is to work with every faculty, is based in the Unleash Space on the corner of Grafton Road and Symonds Street. Within that area is the lively Maker Space, filled with useful tools and gadgetry, and there's also the Collide Space. Everything is funded by donors.

"At the heart of the Unleash Space is that

feeling that it's everyone's space," says Wendy. "Leading universities overseas have innovation hubs and we've been able to replicate that here, thanks to philanthropy. In the Maker Space, anyone from any faculty can join, do a training session and then use the machines."

There's everything from sewing machines to 3D printers and a laser cutter. Student 'creative technologists' are employed to assist.

"When you have an idea in your head, it's intangible," says Wendy. "But when you make it, it becomes tangible. That's a really important part of the innovation and start-up process."

In the semester breaks, CIE runs experiential programmes such as Get Good Done (a social entrepreneurship programme), Summer Lab (for budding entrepreneurs) or Solve It, the corporate innovation challenge. Hynds was a sponsor in the 2018 Solve It challenge, in which companies gave students a tricky problem. Over the two-week break, students worked on how to get the public to learn about wastewater.

"The winning team came up with an interactive manhole cover they made on the laser cutter. It's on display in the Maker Space."

Wendy says CIE also runs workshops for the Hynds Company. "Our collaborators designed a drainage pipe and made the prototype on the 3D printer in an afternoon. Hynds' innovation manager said normally they'd have to cast it in three and a half tonnes of concrete!"

"The physical space and programmes around it allow us to have a much deeper partnership with Hynds. We help them solve problems, too."

John Hynds says even though he left school at 17, he always had an innovative streak. "I wasn't so good with schoolwork, but I have a capacity to dream. Hynds is a creative and innovative company. Our Smarter Water project, led by my

son Aaron, is a good example of linking modern technology with traditional infrastructure."

John and Leonie met at Manurewa High School. Its students and staff visit Unleash Space and the University offers advice on how to run the Maker Space at Manurewa.

"Our Maker Space at Manurewa High School has inspired the students to develop their creative minds and understand entrepreneurial activities," says John, who is also chair of the Manurewa High School Business Academy.

He says there are important reasons for providing philanthropic support. "New Zealand can't rely on being a commodity provider. Our future depends on our ability to innovate and be creative, to think laterally about solutions the world needs. Philanthropy not only provides money or resources, but it also gives us the chance to spend personal time with people to guide and influence the best result."

DONORS

ERIC AND PATRICIA TRACEY

Recipient: FMHS

In London, at the Cricket World Cup final in July 2019, Eric Tracey's pride in being a New Zealander pumped through his veins.

Alumnus Eric, a business graduate who lectured at Auckland in 1972-73, has had a successful career with Deloitte and he and wife Patricia have lived in London for many years. He is chair of the NZ UK Link Foundation.

"I'm very proud of being a New Zealander and constantly want to live up to what being a good Kiwi requires. We were at the Cricket World Cup final. The Black Caps were magnificent in the way they played and in how they handled two ties being a defeat!"

Eric was the New Zealand Society UK's New Zealander of the Year in 2014 for his contributions to New Zealand trade and business, sporting and fundraising causes. One of those causes is the University of Auckland.

"It's good to do something that could make the world a better place," says Eric. "I'm grateful to New Zealand for my education. Kiwi values are at the heart of my life, so I enjoy giving back a little through philanthropy and charitable work."

In another role, as chair of the UK Friends of the University of Auckland, he met Professor John Fraser, Dean of the Faculty of Medical and Health Sciences (FMHS). Around that time, Patricia was facing a serious health battle, with a 'superbug' in her leg following surgery.

"Patricia was on antibiotics for nearly six years fighting this superbug, which had attached itself to the prosthetic in her leg," says Eric. "The bug developed a film over it, which prevents



John Hynds, left, and the Hynds Entrepreneurial Fellow, Peter Rachor. Opposite page: Wendy Kerr with student creative technologists in the Unleash Space. Photos: Elise Manahan

antibiotics from getting to it. The antibiotics were stopping it spreading, but unable to kill the bug."

While in Auckland, Eric told John about Patricia's situation. "I referred him to some excellent infectious disease specialists in Auckland who advised what could be done," says John.

The situation also got them talking about the need for more research on such infections. John presented Eric with a project in 2018 that was particularly relevant to Patricia's condition. "The Traceys immediately and enthusiastically supported it because they could see the direct relevance," says John. "Their generous donation provides long-term support for a research fellow."

Eric says when the For All Our Futures campaign began, it was a "bit of a no-brainer" to want to support it. "Patricia and I knew first-hand there's a need for research in the area of infectious diseases."

The Traceys' funding means Dr Ries Langley is now working on developing a new type of prophylactic vaccine that will reduce a patient's risk of staphylococcal infection following surgery.

"*Staphylococcus aureus* is by far the most common bug in post-surgical infection," says John. "It's one of the best at developing resistance to antibiotics, so if you're unlucky enough to get infected with a resistant strain, such as MRSA, antibiotics just don't work as well."

John says the Traceys are now family friends. "One of the pleasures of being a Dean is getting to know people like Eric and Patricia. They provide tireless ambassadorial support for the University and have a real love of New Zealand. They are lovely positive people – so down to earth – and Eric is an avid supporter of the Black Caps. He delights in telling the story of how he became 12th man for the Black Caps in 2004!"

Patricia and Eric Tracey donated to fund research for a cause close to their hearts.



\$16.5m brain boost

Anyone who met Hugh Green will remember his big personality. For a modest man he lived on a large scale, coming from an Irish family of eight children, farming large cattle, making his fortune from big property development projects after settling in New Zealand.

So it's appropriate that the Hugh Green Foundation has now made the biggest-ever single donation, of \$16.5 million, to the University of Auckland.

Before Hugh's death in 2012, he came to greatly admire the work of Distinguished Professor Sir Richard Faull and his team at the Centre for Brain Research (CBR). The Foundation's first donation helped start the Hugh Green Biobank in 2011. One of a handful of institutions worldwide that's able to grow human brain cells, the Biobank uses these cell-culture methods to develop new drugs to treat brain disorders, such as Huntington's disease.

In late October, the Foundation signed a gift agreement for \$16.5 million to fund the Hugh Green Biobank in perpetuity, and for a new Hugh Green Foundation Chair in Translational Neuroscience. The significant donation will allow the CBR to develop a brain-drug discovery facility, using human brain-cell cultures to identify and develop effective medications for brain disorders.

The University sincerely thanks the Hugh Green Foundation for its partnership and generosity. Researchers look forward to developing new treatments to help the millions of people living with brain diseases.

Hugh's largesse continues with his family and the Foundation's commitment to philanthropy. He once said: "My real happiness is family, the farms, the cows and people.

"You come in with nothing and you go out with nothing and you just need the bare essentials while you're here. And that's how I've lived my life."



Life-changing generosity: The late Hugh Green was a huge admirer of the work being done at the Centre for Brain Research. The Hugh Green Foundation has now donated \$16.5m to the Centre.

DONORS

CHARLOTTE LOCKHART AND ANDREW BARNES

Recipient: Patricia Pillay, Kupe Leadership Scholar

Student Patricia Pillay is doing her masters in anthropology and is one of 14 Kupe Leadership Scholars who receives financial support from donors for one academic year. The scholarship also provides leadership development and mentoring, in Patricia's case from acclaimed anthropologist Professor Dame Anne Salmond.

Patricia's scholarship has been funded by Charlotte Lockhart and husband Andrew Barnes, founders of New Zealand trusts business Perpetual Guardian, who are also supporting an architecture student with a Kupe scholarship. As employers, they recently shifted their staff to a four-day working week.

Charlotte says they like their staff to help out in the community.

"We encourage them to use one day every quarter for a charity or community programme. Being engaged with the community gives us a great basis for life and sets a good example for our children."

That's one of the drivers for the couple's giving. Says Charlotte: "Andrew is an immigrant to New Zealand and firmly believes that if you

live there, you have won the lottery of life and those who have the capacity should give back, whether it's financially or through your time."

Patricia was happy to learn Andrew has a deep interest in archaeology. "He and Charlotte really wanted to support an anthropology student because their insights into human behaviour translate to the workforce."

Charlotte says insight can help build a leader. "A good leader is prepared to stand out and try new things, be different and care for others. Andrew and I value leadership in New Zealand and being part of something like this programme is important to us."

Patricia, who went to Avondale College, is the first in her family to go to university and says the scholarship meant she could continue her study.

She also feels privileged to have a mentor like Dame Anne. "She's very supportive and has given me valuable advice about keeping my doors open and expanding my connections on a global platform. She's also offered words of wisdom about studying overseas and the value of bringing that knowledge back to Aotearoa."

Patricia is also learning from archaeologist Dave Veart, who has a masters in anthropology and law from Auckland and is a former staff member. "Dave was involved with the Ihumātoa situation and explained why it's significant. He's been teaching me about legislation and applying what you learn in uni to real-life issues."



Top: Charlotte Lockhart and Andrew Barnes. **Above:** Anthropology student Patricia Pillay with one of her mentors, Dave Veart.

Guest columnist: Dita De Boni

MORAL OBLIGATIONS

Silicon Valley is a place of enormous innovation, free-thinking and wealth. Living there, one imagines, is a bit like paradise on earth: low taxes, exciting work with lots of free pizza and unlimited sick leave, and hobnobbing with some of the most exceptional brains in the world.

Hedonistic, cerebral wonderland it may be, but it seems that living in Silicon Valley is not enough for some of its more restless residents.

If the stories are to be believed, many of them spend years plotting and planning to live completely free of government oversight in more remote corners of the world.

Seasteading was until recently a very real fascination with those from the Valley of Silicon: an extreme libertarian fantasy of island states where those with enough money lived out of reach of authorities. We've all heard about Elon Musk's fantasy of establishing a colony on Mars. The latest would-be colonisers from Silicon Valley belong to the Open Lunar Foundation, a group of tech mavens and engineers who want to establish a "harmonious human settlement" on the moon. The single-digit billions price tag seems to be no matter at all.

It is little wonder that students and postgraduates from New Zealand flock to put themselves in the middle of Silicon Valley, where they can observe not just brilliance, but the application of that brilliance to the market.

When students are also placed within spaces where genuine innovation and entrepreneurship occur, it shows them what can be achieved with the right machinery in place – where ideas really are valuable, and nurturing them a genuine and tangible business goal.

I believe, though, that the students need to understand that with enormous freedom and influence comes enormous responsibility. It is not clear that the pioneers of Silicon Valley always understood that – and some perhaps still don't.

There's probably been little reason for some to imagine they need to think too deeply about the ramifications of the technological advances they unleash on the world.

Mark Zuckerberg did not realise, when he set about connecting college students over 'TheFacebook' in 2004, that one day his platform would be used to help manipulate the public into voting for Brexit or a Trump presidency. He did not realise that one day people would be able to download and watch the

real-life massacre of 51 Muslim New Zealanders – and be part of an instantly connected movement spreading hate and racial vilification across the world.

The problem goes far beyond Zuckerberg. Take, for example, the way the extremely valuable personal data collected by many of these sites is being made available to all sorts of bad actors.

There's also the issue of where much of the seed and expansion funding in Silicon Valley comes from. According to a recent *New York Times* article, there's plenty of it coming from the likes of Saudi Arabia, which only recently and brazenly assassinated a journalist it did not like.

Increasingly, Silicon Valley bigwigs are being forced to wake up to the ethical dimensions of their enormous omnipresence. At a recent San Francisco conference on the future of artificial intelligence, for example, Microsoft openly debated the idea of not selling facial recognition technology to some clients, and Google discounted selling a face ID service at all, for supposedly ethical reasons.

It's not too cynical to surmise they are jumping before they are pushed. They are appointing 'chief ethics officers', they are meeting with Prime Minister Jacinda Ardern and promising to take down their most egregious content more quickly; they may even be half-heartedly agreeing to pay some sort of tax in the countries in which they make their highest profits. This may be more a result of being smart and future-focused than out of a genuine sense of moral obligation. Nevertheless, it addresses a growing stain on the amazing reputation of Silicon Valley, which has given so much that is positive to humanity.

It is now time for all of us, from the tech mavens to the tech users and the fledgling entrepreneurs, to look more closely at the human legacy of what is created in that amazing place.

About the writer:

Alumna Dita De Boni (BA, Italian/Russian) is a senior journalist with The National Business Review and has worked in print, television and radio journalism for more than 20 years.

"Silicon Valley bigwigs are being forced to wake up to the ethical dimensions of their enormous omnipresence."

THE FUTURE of FOOD

Our relationship with food, the why, what and how is a buffet of conundrums, contradictions, consumer anxiety, cultural mores and demographic change. Gilbert Wong looks at the forces shaping the future of food and how the University's research is contributing to what's likely to be on our plates in 2030.



Consider the following. One in ten New Zealanders is going (mostly) meat free. By some estimates, 70 percent of millennials are cutting back on meat in their diet. Millennials, those born between 1981 and 1996, make up an increasingly dominant percentage of the global population, and more than half the populations in Asia.

But in 2018, New Zealand's beef exports earned more than \$3 billion. About 47 percent of New Zealand's beef goes to the United States where most of it gets turned into meat patties. In the US, 100 million hamburgers are consumed each day.

The often contradictory messages from demographics, consumer behaviour, export dollars and influencer comment tell different stories, but they are all about the future of food.

Dr Rosie Bosworth, a University of Auckland alumna who featured in the 40 Under 40 in 2017, is a future of foods strategist. Rosie is adamant that it is time for New Zealand to "stop polishing the wrong paradigm". The future of food comes down to what people choose to eat and she says global population shifts mean the immediate future will be dominated by millennials, estimated by Ernst Young to make up 75 percent of the global workforce by 2025.

She says the relationship that millennials have with their food has three big drivers: health, ethics and environment.

"When it comes to animal agriculture, New Zealand has a better system than most of the developed world but, even so, agriculture has a huge impact on our environment. Millennials and, to a lesser degree, baby boomers, are very conscious of the role of animal protein in our health.

"At the same time we're seeing the rise of conscious consumers who are after ethical, sustainable and healthy options for protein, often with impactful meaning. This is what millennials want and they've moved beyond the commodity play of just buying food, they want their food to be a values-driven experience," says Rosie.

Hot on the heels of the millennials are Generation Z, those born since 1997. They are estimated to surpass millennials as the dominant societal cohort by 2030.

"Gen Z are saying there are new ways to produce food that don't have the environmental, ethical and sustainability baggage," says Rosie.

"Why would you choose animals when there is a yummy, nutritious alternative that has the same sensory experience, that's produced in your own country and exacts no cost to a living animal?"

The University of Auckland's Professor Boyd Swinburn, co-chair of the Lancet Commission on Obesity, says New Zealand can help lead the change in diet and environmental sustainability.

"Food systems are central to our wellbeing as New Zealanders. They are by far the biggest

contributor to our diseases and premature death and they are our biggest source of environmental damage.

"At the same time they contribute enormously to our national wealth and diverse cultures. New Zealand can and, I think, should, become a world leader in developing healthy, sustainable, equitable and prosperous food systems."

Global food giants are hedging their bets. Tyson, the biggest meat producer in the US, has created an alternative protein nugget and a blended patty that combines beef with pea protein. At a branch in Atlanta, the fast-food giant KFC recently decided to trial a new line of nuggets and wings made from plant protein. Cars and queues blocked streets. The meatless nuggets and wings sold out in less than a day.

French dairy and drinks giant Danone has made a decisive shift towards plant-based products. Chief executive Emmanuel Faber told the *Globe and Mail* this year, "There is a huge trend of people moving to less animal protein and more vegetable protein. We believe this flexibility in diets is fundamental for the future, for the health of the people and also for the health of the planet."

"We're seeing the rise of conscious consumers who are after ethical, sustainable and healthy options for protein."

– Dr Rosie Bosworth, future of foods strategist

The Intergovernmental Panel on Climate Change recently released its *Climate Change and Land* report that covers food production and security. The report is decidedly big picture, with mind-boggling estimates of environmental loss. Agriculture utilises about 70 percent of the world's fresh water. Soil on tilled fields is being lost at 100 times the rate it is being formed. About 25 to 30 percent of food production is lost or wasted. Meanwhile, two billion adults are overweight or obese and 821 million are undernourished.

The report's big takeaway is that the window is open to reduce climate change by diversifying food production systems and what we eat. It says: "Balanced diets featuring plant-based foods ... and animal-sourced food produced in resilient, sustainable and low greenhouse gas emission systems present major opportunities ... while generating significant co-benefits in terms of human health."

Joanne Todd (opposite page), the director of High-Value Nutrition, says as part of the criteria for funding, a business must provide evidence of how it responds to the UN's Sustainable Development Goals. Photo: Elise Manahan

◀ The EAT-Lancet Commission on Food, Planet and Health was published in January. *Food in the Anthropocene: The EAT-Lancet Commission on Healthy Diets from Sustainable Food Systems* is the work of 37 world-leading scientists from 16 countries. It distils a large body of research on the environmental impact of various diets and outlines a preferred future of food as one with far less meat. It says: “Most studies conclude that a diet rich in plant-based foods and with fewer animal- source foods confers both improved health and environmental benefits.”

The report comes up with a “planetary health plate”, the best diet for human health and environmental sustainability. Half the plate would be vegetables and fruits, the other half would be food made from whole grains, plant protein and unsaturated plant oils. Completely optional are modest amounts of animal protein.

The EAT-Lancet report concludes that business as usual for food production and diet is not an option. “Without action, the world risks failing to meet the UN Sustainable Development Goals (SDGs) and the Paris Agreement, and today’s children will inherit a planet that has been severely degraded and where much of the population will increasingly suffer from malnutrition and preventable disease.”

New Zealand’s red-meat interests have not been sitting on their hands. Beef and Lamb NZ commissioned Antedote, a San Francisco innovation consultancy, to look at how our red meat sector should respond to the rise of alternative proteins. *The Future of Meat* is an engaging overview of the threats and opportunities.

The report acknowledges how consumers increasingly want food that is healthy, sustainable and ethical, a trend driven by the backlash against “broken food systems, e.g. factory farming and big food”. There is the common echo about



the influence of millennials and those who influence them directly via social media feeds. For example, the tennis powerhouse Williams sisters, Serena and Venus, promote a vegan diet in training to boost performance. The alt-meat supporters include billionaire influencer Bill Gates, who has said: “The future of meat is vegan.”

Dr Rosie Bosworth says the relationship millennials have with their food has three big drivers: health, ethics and the environment. Photo: Billy Wong

The report does find a silver lining in the otherwise gloomy scenario it paints for the meat industry.

The authors argue: “The same considerations that are leading consumers to consider alternative proteins are the ones that give us confidence that there is a strong opportunity for New Zealand red meat. There is a desire for better food at all levels, which supports a strong future for ‘real’ red meat.”

Take this counterfactual: in our biggest beef market, the US, and second-biggest market, China, consumers are happily chomping down quality red meat, with sales of grass-fed beef from New Zealand doubling every year since 2012 to the US, with China on a similar trajectory.

If the future of food is more accurately framed as the clash of proteins, alt protein versus meat, a glimpse of the future for New Zealand comes with the lesson that not all of our beef is created equal and it doesn’t have to be consigned to the fast-food hamburger chains of the US. Firstlight Foods has pioneered the development of a Wagyu-cross beef with a network of Kiwi farmers. The cattle are raised on pasture to create quality beef cuts that have collected international awards.

The twist is that grass-fed Wagyu cuts also deliver a bounty of complex lipids and healthy omega-3 fatty acids, the so-called ‘good fats’ that help prevent heart disease.

Another company looking at the future of food is a2 Milk™ which, on the basis of a different protein in its milk, has grown into our biggest listed company. A clinical trial at the University of Auckland’s Liggins Institute in 2018 found that a2 Milk™ was at least as effective as lactose-free milk at preventing or easing some symptoms of lactose intolerance.

Firstlight Foods and a2 Milk™ are examples of New Zealand businesses to benefit from research funding from High-Value Nutrition (HVN), one of two National Science Challenges (NSCs) hosted by the University of Auckland. In 2014, 11 National Science Challenges, each a nationwide research collaboration, were established to tackle the biggest science-based issues and opportunities facing this country. HVN’s job is to deliver the research required to switch us from being a largely commodity food producer to one that exports high-value premium foods for health and wellbeing.

The University also hosts A Better Start, the NSC seeking to lift the health and life outcomes for children.

The idea to “let food be thy medicine”, attributed to Hippocrates, has been updated for the 21st century as the prime research driver for HVN and over ten years it will have invested \$69m in top food and nutrition scientists. HVN’s focus is on foods for affluent consumers in China, where eating specific foods for health reasons is commonplace. So it has invested in research at the Malaghan Institute in Wellington, led by Dr Olivier Gasser, to look at the impact of diet on lung health. The aim is to create foods to help the

good people of Shanghai breathe a little easier in pollution-shrouded winters.

A second major programme, Digestive Health, is led by Dr Nicole Roy at Massey University. Her team is looking at the links between diet, metabolism and the microbiome to understand irritable bowel syndrome which affects around one in three people worldwide.

Another strand is Metabolic Health. Professor Sally Poppitt, director of the Human Nutrition Unit at the University of Auckland, leads a team looking for early predictive markers of Type 2 diabetes in a common Chinese body shape, known as ToFi, ‘Thin on the outside, Fat on the inside’. Despite a low body mass index, many people of Chinese heritage store unhealthy fat and face a high risk of diabetes. The estimate is that more than 300 million people in Asia have Type 2 diabetes. Early predictive markers for diabetes would be valuable intellectual property for future foods from New Zealand.

The fourth main strand of research, Infant Health, led by Associate Professor Clare Wall of the Faculty of Medicine and Health Sciences, is looking at ways to determine how complementary foods could boost the microbiome of infants to improve immunity and reduce infection.

China’s diet now resembles what has become the bane of Western countries.

China has 17 cities with a GDP higher than \$US140 billion, while New Zealand’s national GDP is about \$US205 billion.

China’s big problem is that it needs to feed a fifth of the world’s population and has only one tenth of its farmland. About 57 percent of its population now live in cities and their affluence is rising. As it rises, their diet now resembles what has become the bane of Western countries, much more processed food, a dramatic rise in consumption of pork, red meat and dairy and, with that, an epidemic of obesity and diabetes.

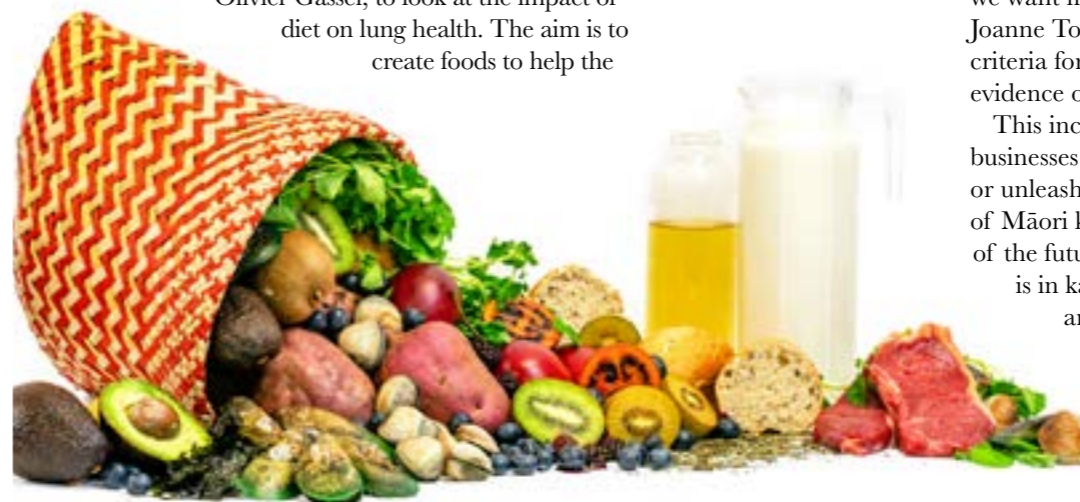
Little of this looks sustainable, which is why High-Value Nutrition supports food businesses that tread more lightly on the environment. “Sustainability is very much part of the mix we want in every business we work with,” says Joanne Todd, director of HVN. As part of the criteria for funding, a business must provide evidence of how it responds to the UN’s SDGs.

This includes working with innovative Māori businesses to ensure that Vision Mātauranga, or unleashing the science and innovation of Māori knowledge and resources, is part of the future of food. A recent investment is in karengo (seaweed) with Ngāi Tahu and Wakatū Incorporation, the Cawthron Institute, AgResearch, the Malaghan Institute and Hokkaido University. ▶

ALTERNATIVE PROTEINS: WHAT EXACTLY ARE THEY?

	Beyond Burger	Impossible Burger	Memphis Meat	Insect flour	New Wave (seafood)
What	Plant-based burger	Plant-based burger	Focus on chicken	Ingredient added to bars, cakes	Plant-based shrimp
Technology	Mixing known plant-based ingredients together to create a beef patty form	Extracting protein molecules from plants and building a product from the protein molecules up	Cellular based (stemcells harvested from animal tissue are multiplied in the lab. Sometimes called ‘clean meat’)	Raising, roasting and grinding insects such as crickets into flour	Protein from seaweed and soy turned into a shrimp alternative
What experts say about the nutrition	Good source of protein, although not a direct substitute	Not as good as real meat as a result of processing	Not as good as real meat as a result of processing	Good source of protein to add to the mix in diet	Not launched yet

Source: *The Future of Meat* (report by Antedote)





◀ Traditional sources of nori (*Pyropia spp*) are in short supply because of reduced harvests in the Northern Hemisphere through climate change. One day the partners want to harvest, process and export karengo, an indigenous seaweed, as a premium and sustainable food with evidence-based health benefits.

HVN has adopted a wait-and-see approach to alternative plant proteins that mimic animal meat. “We’re not going down that road, because we need to look at what New Zealand can do at scale and efficiently.”

Joanne agrees that the trend towards alternative proteins in the US is driven by millennial behaviour, but also by factors New Zealand lacks.

“They can do it because they have the money to do it and the land to grow it.”

Even if the Canterbury Plains could grow peas to turn into Beyond Burger patties, any harvest would be dwarfed by production from the American Midwest. It is not in HVN’s brief to invest in commodity foods either. As well as the karengo, HVN has looked at hemp seed, a rich source of protein when made into flour.

“We’re definitely open to looking at emerging protein sources, but they have to be ones that New Zealand can grow sustainably.”

Speaking as a nutritionist, Joanne urges consumers to think hard about their food choices. Plant-based “meat” is derived largely from imported pea protein and so comes with food miles. The Impossible Burger, showcased by Air New Zealand, comes with a long ingredient list of additives. She says the need to know where our food comes from works both ways. “On one hand you have a beautiful, tasty beef burger you know is grown on grass and on the other hand you have ... what exactly?”

“We need to look at what New Zealand can do at scale and efficiently.”

– Joanne Todd, director of High-Value Nutrition, Liggins Institute

The question of how millennial and Gen Z behaviour will shape the future of food is not clearcut, say researchers from the Department of Marketing at the Faculty of Business and Economics at the University.

Dr Jenny Young researches consumer behaviour, including decision-making for food, and works with Dr Joya Kemper, who has a special interest in the marketing of social and environmental issues and the rise of ethical consumption.

“Millennial and Gen Z generations

are definitely driving changes regarding sustainability and animal rights issues,” says Jenny.

“They are the ‘loud voices’, linked by their experience of technology, but they are also diverse groups who are fluid, hard to define and fragmented to reach. Within these cohorts, there are the socially aspirational, but many also simultaneously hold personal aspirations, seek convenience and are open to temptations.”

They are embracing vegetarianism, veganism or ‘vegan-ish’ diets, and see lab-grown meats as appropriate for fast-food industries and to feed those who don’t think about where meats come from. At the same time, Jenny says, deciding what to eat is complex, so it’s difficult to generalise.

“Let’s not forget the older generations with buying power who are now living longer and will continue to have a strong influence on the market well into the 2030s,” she says.

“Among the baby boomers there have always been ethical and pro-sustainability consumers. Many mature consumers are following healthier eating patterns as they age, embracing plant-based diets or cutting back on red meat.”

But she says our attachment to meat remains strong because of taste, tradition and nutritional benefits. For some, there might be conflict between their desire for meat and concern over animal rights. Other consumers are divorced from this and believe they are entitled to eat meat because we’re omnivores and that it is irreplaceable.

In the face of bombardment from the media and social networks with often contradictory information about the latest trending diet, dilemmas on what to eat will continue.

“We also need to consider how changes filter down to consumers who may not be as involved. Food decision-making is often done in a low-involvement state, but it has an immediacy day to day,” says Jenny.

Unfortunately, unhealthy packaged foods still proliferate, with nearly 70 percent of supermarket foods classified as ultra-processed by the University of Auckland’s inaugural “State of the Food Supply”.

Jenny has interviewed people before they enter a supermarket about their beliefs and views on the environment and desire for sustainability. When they leave, the contents of their trolley clearly contrast with what they have said. Consumer behaviourists call this the “attitude behaviour gap”.

“People might have great intentions but convenience beckons and those intentions, don’t translate to behaviour,” she says.

Joya suggests that widespread changes in diet, such as reducing red meat consumption as advocated by the EAT-Lancet report, would require a complex mix of initiatives, from



Jenny Young, left, and Joya Kemper urge New Zealand to be a global leader for sustainability and ethical farming. Photo: Elise Manahan

information campaigns to change social norms, to a regulatory framework. Germany, Brazil and Sweden have established guidelines for sustainable food consumption to give legitimacy to those wanting to change behaviour.

Alongside this, policymakers can consider limits on marketing and advertising, to taxes on unhealthy foods as part of national strategies to reduce obesity.

However, she says, New Zealanders value personal responsibility highly and any such strategy risks being dubbed an initiative of the nanny state. The push and pull between consumers and markets, the battle between good intention and habit, the ethical and sustainability struggle between alt protein and animal meat will all shape the future of food. How should New Zealand react to this menu of possibles and probables?

The Future of Meat report’s advice: “This is a wake-up call to ensure we understand what is important to premium consumers, that we protect our natural food production systems and products, and do more to ensure that our customers and consumers recognise that New Zealand’s red-meat farmers are in the natural foods business.”

HVN’s Joanne Todd says for New Zealand farmers to forget about animal protein would take a generational shift. For her, the future is for New Zealand to be a country that produces a wide range of premium foods in a pristine and sustainable environment for affluent consumers. In the meantime, innovation is needed and that’s where work being done at the Liggins Institute comes in.

“At High-Value Nutrition, we hope to change the culture of the food and beverage industry to

“People might have great intentions but convenience beckons and those intentions don’t translate to behaviour.”

– Dr Jenny Young, Marketing, University of Auckland Business School

really show the value and necessity of investing in research and development,” she says.

Rosie Bosworth sees alternative protein as a disrupter as potent as the internet. She says New Zealand needs to get behind more research and development, foster more start-ups and generate support for those who want change.

“We have five to ten years in this market, so let’s use the cash cow to fund the new paradigm. Your first reaction is to defend, but we need to be more far-sighted than that. We need to find a new identity. Holding on to the old one means economic suicide.”

Jenny Young sees the continuing fragmentation of food markets with tradition and innovation both driving the way we will eat.

“There are vastly different segments – polarised values – so consumer-centric insights are crucial. Being a leader on sustainability, respectful marketing and ethical farming is the best position for New Zealand for the wild ride ahead.”

Turn to page 18 for *The Next Generation*.

THE NEXT GENERATION

“Are we breeding a generation who are used to consuming only soft foods?”

– Associate Professor Clare Wall, Faculty of Medical and Health Sciences

If today’s children are tomorrow’s food shoppers, what do we know about their diet and the foods they might favour? Associate Professor Clare Wall of the Faculty of Medical and Health Sciences leads the nutrition department.

“The infant diet has changed in a similar way to the adult diet,” she says. “More processed food, more salt, more sugar, more fat.”

Parents do their best, but as the infant grows up, it naturally becomes more and more part of the family and its food environment. “There’s less time and so it becomes harder to prepare separate meals for infants.

“Your food preferences and behaviour start in early childhood. Often if a child has done well, they get a sweet, so we associate lollies with being good. The foods we crave are the ones that influence our pleasure,” says Clare.

If you happen to be raised in a family with limited access to healthy foods, it is harder to change your eating habits as an adult.

“We have overweight children who will grow up to be obese adults.”

Clare is one of the authors of *Infant Feeding in New Zealand*, commissioned by the Ministry of Social Development. Prior to the report there was no national data collected on what the country’s infants are eating. The data comes from the Growing Up in New Zealand study, hosted by the University of Auckland, which has followed a cohort of 6,432 children since birth. Those children are now ten and the study has produced a wealth of data and insight into their lives. The report looks at what families actually do when compared with a set of ideal infant feeding guidelines from the Ministry of Health. The good news is that, on average, these infants are okay. About 94 percent are eating three or more solid meals a day at nine months

of age, and more than 80 percent of infant meals had no added sugar and salt. The bad news is that almost half of the nine-month-olds had tried sweets, chocolate, hot chips and potato crisps and only about a third were eating vegetables or fruit twice or more daily as recommended.

The contemporary young Auckland family lives life in a blur of working parents, day care, commutes from hell, drop-offs and pick-ups. Convenience, in all spheres of life, including cooking, becomes highly desirable.

But convenience can have unwanted consequences. Clare and Professor Bryony James, from the Faculty of Engineering, are investigating potential effects on a rising trend in convenience food for infants: puree foods in plastic pouches.

“The idea is that the product is only to be used by squeezing it into a bowl and eating it with a spoon, but people give it to infants to feed themselves,” says Clare.

But slurping your food means not developing the dexterity to manage a spoon. As well, puree is more energy dense and processed than a whole food, such as a slice of apple. Clare and Bryony have designed a trial to test whether infants feeding from pouches can change the development of a child’s bite. A good bite is essential for the development of jaw muscles and teeth, which in turn are important for language development. Delayed language development and motor skills have big implications for brain development and learning.

“So, the question is, are we breeding a generation who are used to consuming only soft foods ... who are missing development windows?” asks Clare.

From Clare’s perspective, the food business pull is often much stronger than consumer push. The time-poor family faces a barrage of marketing, and what’s best for baby is not always the same thing. The marketers are already looking closely at the next generation of consumers. Babies born since 2010 have earned themselves a cohort-defining descriptor, ‘Generation Alpha’.

Although they are true digital natives, growing up with iPad, Siri and Alexa, they are inheriting a troubling epidemic: obesity. New Zealand has the third-largest percentage of overweight or obese children in the OECD, after Greece and Italy. About a third of our children are overweight, with about one in ten classified as obese. The World Health Organisation is concerned that by 2025, there will be 70 million overweight or obese infants and young children. As they age, they face higher rates of heart disease, diabetes, degenerative disease of the joints and some cancers. For Generation Alpha, faced with climate change, global obesity and malnourishment, the future of food looks to become more complicated than ever. Siri is unlikely to have the answers on what to do about it.

Saving art

By Linda Tyler

“It’s really important to bear in mind the intentions of the artist.”

Top: Sarah Hillary with Colin McCahon’s Upland Road Chapel windows – a huge conservation job to reattach paint to the glass surface. Below: Sarah meticulously restoring artworks.

Auckland Art Gallery’s Principal Conservator Sarah Hillary is a heroine of art. She’s been hard at work in the conservation laboratory at the Gallery, saving neglected works of art for 36 years. Some of her high-profile rescues include repairing canvases damaged during thefts – works by James Tissot and Colin McCahon – while her research into painting techniques has identified several fakes, some in public collections.

International journals have featured her in-depth research in technical art history, which involves the scientific analysis of artworks to establish how and when they were made. Her meticulous work contributed to a re-evaluation of the painting of Saint Sebastian by Italian 17th-century master Guido Reni that’s held in the Auckland Art Gallery. That painting is now considered to be the original work while others that exist in galleries around the world are copies.

As well as being an exhibiting artist at the Anna Miles Gallery in Auckland, Sarah regularly contributes to the exhibition programme at the Auckland Art Gallery. Her displays provide insights into how paintings are made, showing how microscopic analysis of minute cross-sections can reveal the number of layers of paint on the surface of a painting.

“I showed visitors to the Frances Hodgkins exhibition how techniques of analysis revealed a figure painting beneath a still life, and how the artist built up her surfaces with up to 40 layers of oil paint,” says Sarah. “Similar techniques also revealed the use of photography to produce Gottfried Lindauer’s startlingly accurate portraits ... we examined them under infrared light.”

Sarah’s collaborations with researchers at the Tate Gallery in London and the Getty Conservation Institute in Los Angeles have contributed significantly to the understanding of how artists based in Aotearoa used modern materials to produce their work.

All this has taken years of training. Excelling academically at high school, Sarah enrolled at university directly from sixth form. She began her medical intermediate year at Otago in 1974, but her study was interrupted by the death of her mother, Louise, and sister Belinda in a plane crash in Nepal in 1975. They’d been on the way to meet up with Sarah’s father, Sir Edmund Hillary. Later, Sarah studied psychology and chemistry for an undergraduate degree, but switched to the University of Auckland to get married and be closer to family. It was there she graduated in art history. Volunteering at the Auckland Art Gallery, she applied for the Conservation of Cultural Materials course at the Canberra College of Advanced Education where she completed a Masters of Applied Science.

“That gave me a grounding in the three areas of object, paper and painting conservation, which was vital before I could do what I do.”

She then specialised in painting conservation. “I decided to return to New Zealand in 1983 to take up an internship, working with the incumbent conservator at the Auckland Art Gallery, and was later given a permanent role.”

After working on numerous paintings from provincial and regional galleries as part of the gallery’s Northern Regional Conservation service, Sarah won a Getty Advanced Internship at the Williamstown Regional Art Conservation Laboratory in Massachusetts in 1986. Returning to work at the gallery, she now manages a staff of six and knowledge of her skills has spread through the conservation service the gallery provides for artworks owned by other institutions, corporations and members of the public.

“It’s important to keep learning,” she says. “I update my knowledge by going to conferences and scientific meetings. There are always new techniques or improvements.”

Her working methods must also adhere to international standards: each examination of a painting’s surface under raking light reveals every scrape and accretion recorded in a condition report. “It’s also really important to give careful consideration to the treatment approach ... to bear in mind the intentions of the artist and the originality of the artwork.”

Reversibility is also important. “In the future, our understanding of an artwork might surpass current knowledge,” she says. “We need to make sure the treatments we use today don’t hinder the work of conservators in the future.”

MAKING MODERN MUSIC

The School of Music revamped its programme this year aiming to turn out Auckland music graduates with different strings to their bows. Denise Montgomery finds out why.

Associate Professor Martin Rummel hopes that in a decade there will be recognition that recent changes at the University of Auckland School of Music will go down as a turning point in music education in New Zealand.

The school, in Creative Arts and Industries (CAI), underwent a redesign of its Bachelor and Honours degrees and a well-publicised staff restructure. Martin, the Head of School, acknowledges the changes were challenging, but says they

were essential to devise a music degree that creates a versatile music graduate.

“The school was frozen in a time warp,” he says. “The University has now set up a curriculum that is structurally flexible enough to not have to fiddle with it. You can fiddle with the content. You don’t have to touch the structure.”

Martin, an internationally acclaimed cellist who has been Head of School since 2016, is leaving the University in February 2020 and believes the school is now well-positioned to attract more students to

a higher-quality degree that prepares graduates for today’s music world. Associate Professor James Tibbles has been appointed to take over as Head of School when Martin leaves.

“Our entire education system was based on the conservatory model, developed in the 19th century,” says Martin. “The model definitely works for a certain type of musician, but that’s maybe about 5 percent of all the people working in the industry. We therefore left 95 percent behind. And we constantly added content without taking anything out, but the degree duration hadn’t got longer.”

The redesigned curriculum began in Semester One 2019 and Martin says the programme aims to give students skills in all areas of music from composition and production to performance, and proficiency with the relevant technology.

“People don’t need to learn to play every single Beethoven violin sonata just because they play the violin,” he says. “For example, as well as playing in a symphony orchestra, a freelance musician might be gigging in a film orchestra, teaching or performing with electronics.”

Martin says it’s also important to bring down ritualised barriers to performance so that the audience don’t worry about not knowing when to clap or what to wear, for example.

“If, after a performance, musicians sit with the audience and interact socially, the performance becomes a part of our communication from one human to another. The big task for the next generation of musicians is to finally throw out the tuxedo.”

A number of new appointments have been made, some from overseas, including internationally recognised composer David Chisholm, a specialist in 21st-century composition training, who is a senior lecturer and composition convenor. He

has created long-form works ranging from orchestral to chamber, choral, electronics, film, theatre, dance and installation and web projects as well as curating festivals in Australia.

Another is Dr Fabio Morreale, a lecturer and co-ordinator

of music technology. Like David, he began in January 2019 and has been researching and teaching courses, such as sound synthesis and generative art, and preparing new courses for 2020. His areas of expertise include music and artificial intelligence, digital musical instrument design and human-computer interaction. He wants to take students beyond the traditional means of music making.

“Computers are used for composing, performing and also analysing music,” says Fabio. “They can be used to analyse quantitatively and are especially useful for pieces that don’t have a typical Western notation that relies on scales. We have a very good musicology department here.

“Artificial Intelligence (AI) can help trace the evolution of a genre to help you understand the practices of performers and composers.”

“The big task for the next generation of musicians is to finally throw out the tuxedo.”

– Martin Rummel, Head of the School of Music

“While that’s great, we are also making students aware of the pros and cons of using AI. For instance, some videos on YouTube have AI-generated soundtracks so people don’t have to pay royalties on real music. They’re not well composed or produced but we’re so used to hearing them.

“Our students need to learn what is good production because we are submerged by very badly produced music all around us.”

Fabio is creating new courses in music computing and musical interface design.

“For example, students will make a physical instrument by themselves through coding and physically crafting. We also have critique of music technology at honours and masters. It’s important students develop an understanding of when music technology is to be used and when we should resist some innovations.”

But when would we resist innovation? Fabio points to the likes of apps sold on the internet that claim to be able to teach music. He’s undertaking research on some of those apps to understand whether they are effective ways of learning music.

Fabio came to New Zealand from Queen Mary University of London, and previously

Tech pick: Dr Fabio Morreale with an augmented pick he made for the electric guitar, called a Magpick.



Above: Head of the School of Music, Associate Professor Martin Rummel sitting at the virtual organ.

Photos: Hiss, Mammitt



Homegrown: Soprano Dr Morag Atchison did her music degree at the University. She's now lecturing in classical voice after years studying and working overseas.
Photo: Elise Manahan

the Interaction Lab of the University of Trento in Italy, his homeland.

He says composers will never be replaced by AI, but do need to learn what they're up against. "So, a simple production of a song can be done very well by an AI system. You just drag and drop your raw track on a website, and then after a few minutes you pay a few dollars and download the produced one."

But Fabio says the difference in quality is dramatic and one of the reasons students need to learn about the capabilities of AI.

"If a student is going to be a music producer, at some point they're going to have to justify to their clients why they should go with a human producer rather than an algorithmically created production."

"For most people, solely performing is not going to be your entire life."

– Dr Morag Atchison, lecturer in voice, School of Music

Lecturer Dr Morag Atchison knows all too well the benefits of working overseas and then bringing your knowledge back home.

The leading soprano, who this year appeared to much acclaim in New Zealand Opera's *The Barber of Seville*, spent seven years in the UK, doing postgraduate study at the Royal Academy of Music then working in London. Now she's teaching classical vocal performance at the University and is also a vocal tutor for the New Zealand Youth Choir and the University of Auckland Chamber Choir.

"It's very hard to just do the pure classical performance degree because, for most people, solely performing is not going to be your entire life," says Morag.

"There's going to be teaching, admin, music technology ... so much more in your portfolio."

"This new degree is a modern degree. You can still do pure performance or composition but you can dabble a bit more. You don't have to stick to classical ... if you want to take a jazz paper or something, that's there too."

"It's really exciting to see the opportunities students are getting and how that's going to knock on to postgraduate study as well."

Martin also sees great benefits in students going away on overseas scholarships and bringing back valuable knowledge.

"We are blessed with a relatively high number of scholarships that support our students to go abroad for short or long-term postgraduate studies, master classes or whatever. They come back and add their new knowledge to the local music scene."

But he says he'd like to see more scholarships available for overseas students to come here to study, for good reason.

"It would be great to see more recognition of what overseas students bring in. If you have a cohort of 120 first-year students, some will be from South Auckland, some from Northland, some from Christchurch, so the socialisation is different but still all Kiwi."

"But if you add a couple of North Americans, a couple of Asian kids or students from anywhere else in the world, you get a completely different cohort."

"It leads to different conversations in lectures, different experiences when they make or compose music together and when they talk about how they create music."

He says despite what some may think, a scholarship for an international student doesn't just benefit that student. It benefits their domestic peers and the school as a whole.

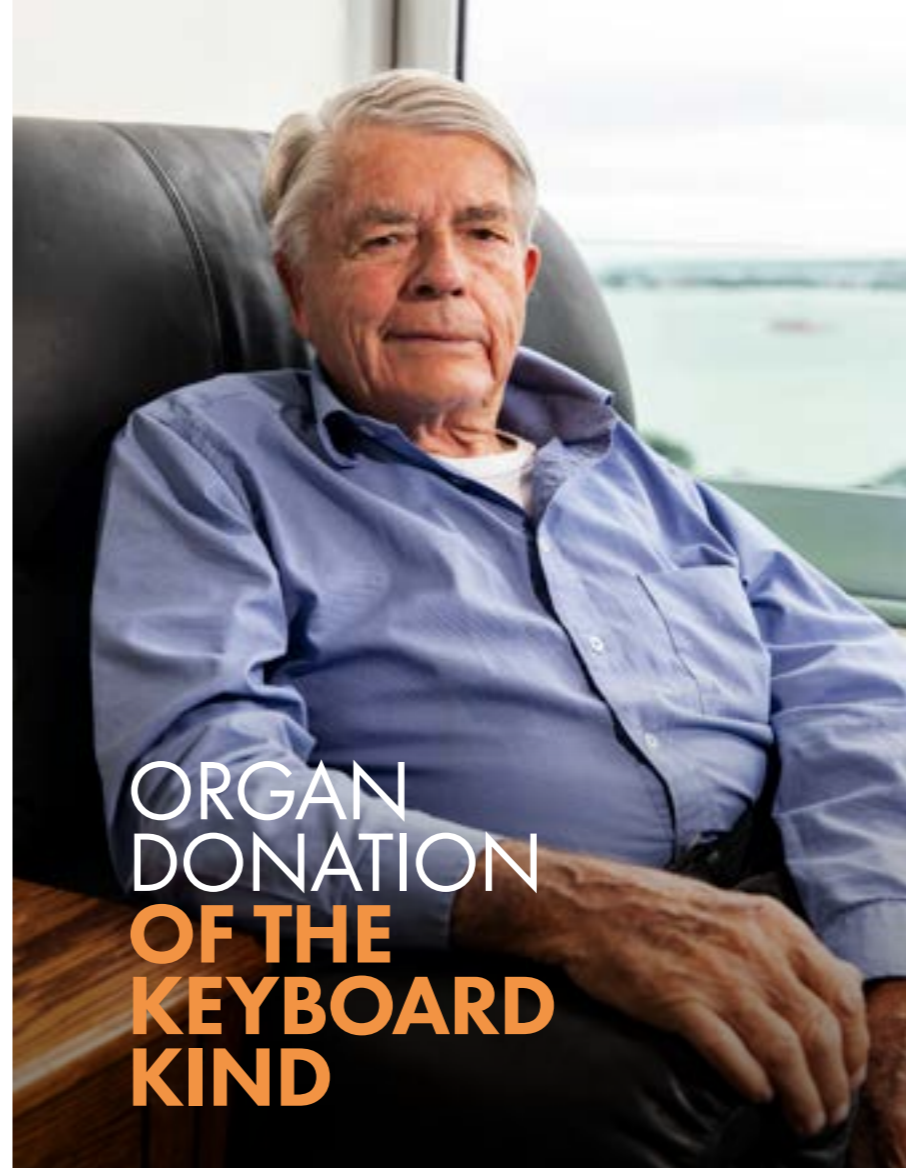
"It means lecturers need to think about how to deal with students from diverse cultural and social backgrounds, so it's a win all round to have different cultures learning here. We end up being more informed and it's richer and more inspiring for everyone."

"And there are more connections to be made in the world. People of different cultural backgrounds work together to create music, musical theatre and other musical genres."

Martin says it's knowledge like this that is needed in a modern music degree, with musicians needing to become skilled at more than one thing.

"That's the fundamental change to what was done for the past 100 years, where people were forced into one choice and told this is who you are for the rest of your life," he says.

"You would get a job as an academic or a music teacher or an orchestral musician, or in a jazz ensemble or, if you're lucky, a solo career. But that's not how it works any more."



ORGAN DONATION OF THE KEYBOARD KIND



Top: Graeme Edwards at home and (inset) with James Tibbles and the virtual organ Graeme bought for the School of Music.

Although at 85 Graeme Edwards listens to music at home with the volume up a few notches, his love of live performance has never left him.

Graeme's passion is chamber music, which his dad introduced to him when he was 14, and his favourite instrument is the organ. With a mother who was a pianist and father who played the cello, he grew up with music.

"I learned piano then moved on to the organ. I was nuts on it. I'd drive around the country, going to churches to try different organs."

The family bought a small pedal organ and, in years to come, Graeme became deputy organist at St Andrew's Church in Epsom. "That gave me access to a very good organ," Graeme remembers fondly.

Even as a young man, Graeme had an astute business mind. Money was tight until he realised playing the organ could change that.

"I started to play elsewhere, such as St John's in Ponsonby. I did weddings and funerals when the chief organist wasn't available."

"I got paid 10 bob for playing at a funeral and 10 shillings and sixpence for a wedding. That doubled or tripled my income. The figure sounds silly now, but that was enough to fill the car with petrol and go to the movies!"

That memory informed Graeme's thinking when he decided to fund the purchase of a virtual organ for the University's School of Music this year. "We give a couple of dollars to quite a few different things and the School of Music seemed to be a very worthy one."

"I was talking to James Tibbles [Head of the Early Music Department] about this idea. I know there are quite a number of technically very competent pianists qualifying, which means it's not that easy to make a living. One or two float to the top ... Stephen De Pledge [now a lecturer at the University] is starting to gain some ground now, but in general, it's hard."

"I thought maybe the organ could give them another income stream ... that they could do what I did. I also thought it's very helpful for the school to be able to offer that facility. Quite a few people have taken to it ... they want to play it."

The organ Graeme purchased isn't just any organ. It's a virtual organ made by innovative Dutch company Noorlander Orgels, and although it has draw stops like a traditional pipe organ it doesn't have pipes. Its computer is loaded with the sampled sounds of the pipes of European organs from across the ages.

Music School Head Martin Rummel says the purchase has delighted everyone, especially Associate Professor James Tibbles, a pre-eminent organist and historic keyboard expert.

"Now we effectively have 17 organs in our theatre," says Martin. "So, if a lecturer is talking about French Baroque music, they can switch on the Couperin original organ from Rozay-en-Brie and say, 'this is what it sounded like'."

Martin says previously students had to go off-campus or to the MacLaurin Chapel. "To integrate proper organ teaching, you need an organ on site. And this is a very special one."

The organ also captures the acoustics of the church in which each organ is found – creating further realism to the soundscape in which the music is conceived.

"It's funny seeing an organ that brings out the same kind of sounds, but doesn't have pipes," says Graeme. "The sound is very true, too."

His late brother, Emeritus Professor John Edwards, who lived in the US, also bequeathed a harpsichord to the School.

The fact that Graeme's father used to play in the orchestra as accompaniment to the silent movies is a sign of how far things have come in music technology, yet Graeme says his passion for music is primal. His favourites are still the Romantics – although it's the Baroque of Bach that tops his list. But he listens to music in digital format through speakers embedded in the walls of his home. Couldn't be more modern.

Graeme also established the Graeme Edwards Award in Organ Studies. The inaugural recipient is Rebecca Soojung Lee.



CANCER CENTRE APPOINTMENT

Associate Professor Michael Hay.

Auckland Cancer Society Research Centre has a new director.

The changing of the guard is under way at the Auckland Cancer Society Research Centre (ACSRC), but the goals remain the same.

Associate Professor Michael Hay has been appointed the new Director of the ACSRC within the Faculty of Medical and Health

Sciences (FMHS), commencing January 2020. Michael joined the ACSRC as a Research Fellow in 1991. With 30 years' experience in medicinal chemistry and cancer drug development, he was an obvious choice for the role.

At the announcement of his appointment, the Dean of FMHS, Professor John Fraser, said he was delighted he'd been able to appoint someone from within the Centre.

"Michael is an outstanding medicinal chemist and a respected senior member of ACSRC. Most importantly, he convinced the selection panel that he understood what would be needed for future success following on from the impressive legacy of Distinguished Professor Bill Denny's leadership as Director."

Bill Denny will stay at the University part-time to continue his cancer research work.

"While change can be confronting, it also offers us an opportunity to renew and refocus our relationships with key stakeholders," says Michael.

"Our primary focus, as a pre-eminent cancer drug discovery centre, remains to bring new cancer therapies to the clinic and to develop drugs that will benefit cancer patients."

The ACSRC is a renowned research lab and has developed 15 drugs to clinical trial.

INTELLIGENCE OF ALL SORTS

New Dean of Law Penelope Mathew is up for any challenge.

Professor Penelope Mathew, an internationally renowned expert in human rights and refugee law, took up her role as Dean of the Law School earlier in the year. Pene moved to New Zealand from Griffith University in Queensland.

She says the legal profession faces a number of challenges in the future, including the impact of Artificial Intelligence (AI). Law firms around the world are already using AI to undertake time-consuming research and conduct due diligence. "We need to ask how will AI affect the legal profession and what the curriculum should look like in order to help students deal with the changing nature of the legal profession," Pene says. "I don't have answers to that yet, but it's a challenge I look forward to grappling with."

Read more about Pene at tinyurl.com/PeneMathew



New Dean of the Law School, Professor Penelope Mathew.

SUSTAINABILITY SUMMIT

Educators say knowledge of sustainability is key to achieving it.

The second national multi-sector summit on the UN Sustainable Development Goals (SDGs) was co-hosted by the University of Auckland with AUT in September. The theme was 'Accelerated Action, Together' and featured a day of panel discussions and addresses from the likes of Russell Norman, Kevin Hague and Jeffrey Sachs.

In the welcome address, Pro Vice-Chancellor Pacific, Associate Professor Damon Salesa, said the University recognises its main mission is to provide knowledge of sustainability and the 17 goals agreed to by people from 194 countries. "We need to educate the leaders of our future and also model sustainable practices."

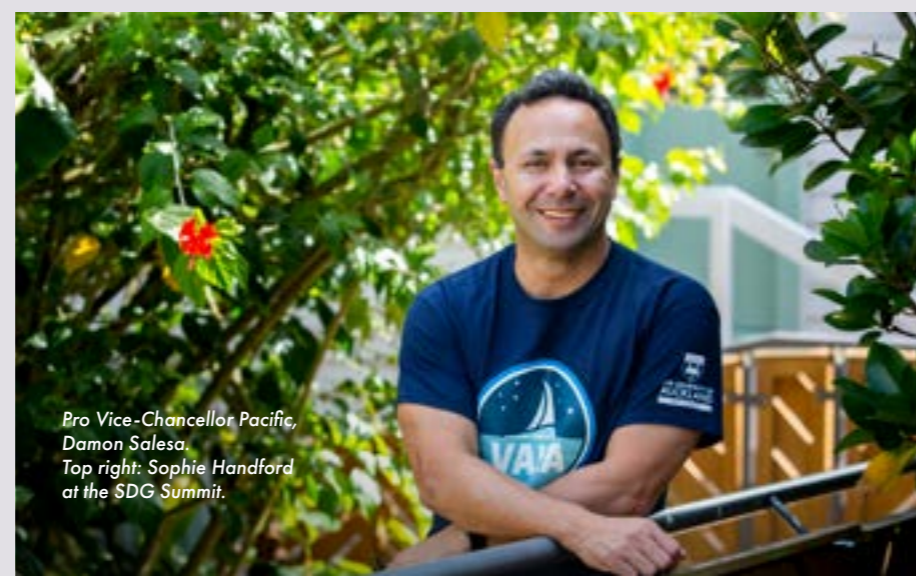
Rt Hon Helen Clark and Dr Dan Hikuroa (Faculty of Arts) gave the keynote addresses. Dan is an earth systems scientist who integrates mātauranga Māori (Māori knowledge) in science. He impressed upon the audience the

importance of including the Māori way of understanding the natural world.

Event organiser Lesley Stone was thrilled so many young people attended. "When I asked Sophie Handford, from Student Climate Action, about how universities could show leadership, she used the University Foundation's divestment commitment as an example."

In 2019, the University of Auckland was No 1 in the world in the inaugural University Impact Rankings by Times Higher Education, which rates universities on how well they are delivering on the UN's 17 SDGs established in 2016.

Event highlights and videos are at sdgsummit2019.org



Pro Vice-Chancellor Pacific, Damon Salesa. Top right: Sophie Handford at the SDG Summit.

COLOMBIAN CONNECTION

PM's scholarship builds Latin American links for Auckland.

Twenty students and two academics left for South America on 3 November for an opportunity of a lifetime. They're undertaking a programme delivered by University of Auckland partner the Universidad de Los Andes in Bogotá, Colombia. It's a four-week intensive course on peace-building efforts across Colombia. The trip was enabled by the University receiving a Prime Minister's Group Scholarship for Latin America that allowed the academics to select students to take on the trip. Most are working towards their Master of Conflict and Terrorism Studies (MCTS).

Dr Chris Wilson and Dr Thomas Gregory, senior lecturers in Politics and International Relations are leading the group. Chris is the coordinator of the MCTS programme.

Thomas says the trip is a fantastic opportunity for everyone to learn about the conflict and peace process in Colombia. "They'll study the

causes and consequences of the conflict, meet with people involved in various peace-building initiatives and may even get to interview former combatants. We have also organised an exciting cultural programme for them, including a trip to the historic town of Cartagena and a game of Tejo with students from Los Andes University – it's like ten pin bowling, but rather than hitting pins, the targets contain gunpowder!"

The relationship between New Zealand and Colombia is gaining importance, indicated by the opening in 2018 of the New Zealand Embassy in Bogotá. The agreement with Los Andes is the University's first exchange agreement with a Colombian university.

Dr Chris Wilson, left, and Dr Thomas Gregory have taken a group of students doing Conflict and Terrorism Studies to Bogotá. To find out about the PM scholarships to Latin America, see tinyurl.com/PMtoLatinAmerica



RESEARCHERS RECOGNISED

Researchers from the University were prominent at the Royal Society Te Apārangi Honours event. Distinguished Professor Jane Harding earned the highest honour, the Rutherford Medal, for her pre-eminent work determining the causes of newborn conditions. Other winners included Associate Professor Selina Tusitala Marsh, Humanities (Aronui Medal) and Professor Cather Simpson, Science (Pickering Medal). Full list at tinyurl.com/RoyalSocietyHonours



HOADLEY HONOUR

Stephen Hoadley, Associate Professor of Politics and International Relations, has received an unusual award: a classroom in his name, the Hoadley Room. It was bestowed by the Command and Staff College of the NZ Defence Force. Stephen is the only academic and non-career military figure to have a multi-purpose classroom named after him. Since the

1970s he has given lectures on international affairs, organised courses and offered academic advice to the Command and Staff College.

TEACHING EXCELLENCE

Four Auckland academics were among ten tertiary teachers recognised in the New Zealand Tertiary Teaching Excellence Awards. They were Dr Ngarino Ellis (Arts); Associate Professor Andrew Luxton-Reilly (Science); Peter Bier (Engineering), and Andrew Eberhard, Business School (Information Systems). Andrew also won the Prime Minister's Supreme Award. See tinyurl.com/TeachersExcellenceAwards

CHANCE FOR ENTREPRENEURS

Entrepreneur Tony Falkenstein has donated \$600,000 to the University's Business School to fund up to 14 top students to spend time in Silicon Valley. The gift, through the For All Our Futures campaign, consists of \$120,000 a year for five years. See tinyurl.com/TonyFalkenstein

DOCTOR, DOCTOR

Nearly 40 years after graduating as a medical doctor from the University, Dr Louise Webster has become a doctor again – this time in music. Louise is head of several paediatric teams at Starship Children's Hospital, including the palliative care and pain teams and one that provides emotional and psychological support to seriously ill children and families. Louise received the only Doctor of Music awarded at the University's Spring Graduation, for an advanced composition and research programme equivalent to four years' full-time study. She completed it over five years, fulfilling a lifelong desire to master composition as well as medicine.

"Writing music was always something I did on the side. I was a doctor first and a composer second, but now I can say I am both."



DAWN OF A NEW ERA

In March 2020, Professor Dawn Freshwater will take over from Vice-Chancellor Stuart McCutcheon. She talks about her past and her vision.

Professor Dawn Freshwater has been asked a few times about the significance of becoming the University of Auckland's first female Vice-Chancellor. While it's a milestone, she says the appointment of a woman is not entirely unexpected.

"I wouldn't make a particular deal out of it," she says. "New Zealand has a fantastic record of firsts where women are concerned. There is already significant progress addressing gender issues. It was bound to happen at some point."

"The bigger picture is inclusive leadership, not just gender. But I do address the gender issue in my work, for example on the [Australian National Health and Medical Research Council] Women in Science committee I make sure we try to address any imbalance."

She is also a member of 'CEOs for Gender Equity' in Western Australia, and the first female chair of the Australian 'Group of Eight' universities.

Dawn Freshwater (pictured) grew up in Nottingham, England, and the ill-health of her parents meant she had to look after her siblings from a young age. She dropped out of school at 15 to support the family. She was encouraged to return to education several years later – to a nursing diploma, degree and PhD.

"I have very ambitious ideas about what universities can achieve, because education

changed my life – and it also changed my family's life as a result of changing mine.

"I was the first in my family to go to university. It led not only to improved opportunities for my family, but ultimately for my daughter and grandchildren and the people we connect to. In fact, my brother ended up going to university very late in life, so I think we set off a chain of events."

She says mentors' encouragement can be far-reaching, and an important way of supporting Māori and Pacific students in post-secondary education. "Leaders and educators have such an opportunity. Sometimes it's difficult for an individual to carry their own sense of confidence or their own awareness of their capability and the opportunities before them."

"Often as educators we're in a privileged position, such as working with a PhD or undergraduate student or one of our children, to be able to encourage them in a way that can change outcomes."

After several decades working in mental health research, and contributing to hundreds of publications, she's no stranger to hard work and challenges.

"My backstory tells you that. I really like to roll up my sleeves, as you would expect from somebody who's also worked in health."

That could include more research, and you may also find her at the lectern as she did while at the University of Western Australia (UWA) where she worked for the past five years, the last two as Vice-Chancellor.

"It's important because getting myself on the ground brings credibility to what I do and helps me ascertain where the tensions are."

Understanding the impact of education on her own life, she looks at education's opportunities in a wider sense, especially for the disadvantaged. "I see what education can do, not just personally but globally in terms of supporting the Sustainable Development Goals (SDGs). I see the big picture."

She says tertiary educators need to consider the role of their institution. "We have a global civic responsibility and it's really important to strike a balance between serving our communities, serving the region and the nation, but also serving the globe in terms of the SDGs."

She says global rankings of universities, such as Times Higher Education and QS, are important.

"Because we're in a global landscape, we have to make sure we have an internationally renowned reputation. But we need to be strategic about what we want to be known for."

Dawn says there have been accusations of universities being "graduate factories" because of the way in which the sector has grown in terms of volume.

"But the pipeline is actually cradle to grave. We have high-school students coming onto campuses

undertaking a project or they're engaged in some small way and we're also working way beyond the postgraduate sector in terms of continuing professional development. We have to recognise that it's much more than providing bachelor programmes ... we support people who want to study right into their old age."

She is proud that UWA implemented a strategy that addressed real-world issues while still being a research-intensive university.

"UWA students were involved in developing its strategy as well as staff, the community, industry and alumni. We had a distinct focus on our place in the world and people in this region. That's an important thing to think about for Auckland too."

"At UWA, we positioned ourselves as a knowledge hub on the Indian Ocean rim because that was our position. Just as Auckland is strategically positioned in the Pacific to be able to do something really distinct."

On the issue of free speech in universities all over the world, she has said university is all about seeking out people to have difficult conversations with, not people who confirm your world view.

"We've done a huge amount of work on this for the Group of Eight in Australia. My view is that you have to be exposed to ideas that challenge your own views and thinking. If you don't, then you can never really fully articulate the architecture of your thinking and you're also never subjected to scrutiny or interrogation."

"Universities support critical thinking. We subject our own ideas and those of others to scrutiny and interrogation. We may end up thinking the same way as we did in the beginning, but we're much better at articulating why we've come to that point."

Dawn is excited about heading up the University of Auckland and says it's a great time to be living in New Zealand.

"There are many people looking to New Zealand with envy in terms of what it's achieving, both in innovation and punching above its weight for what people view as a small nation."

She will visit Auckland several times before she takes over from Vice-Chancellor Professor Stuart McCutcheon in March and hopes to meet a few people and learn a bit more about her new role.

The seven-time London marathoner is also looking forward to trying out new walks in Auckland, but another marathon isn't an option.

"A marathon takes about 18 weeks' training and a lot of effort. Since I've been in this role, I'm reduced to a few kilometres now and then."

But when it comes to achieving goals as the Vice-Chancellor, she says it's very much a team marathon, not a solo sprint.

"It's the journey, not always the destination. The journey on the way, the process on the way, is just as important. That means bringing people with you, being clear about your purpose and helping people understand why we're on this path."

"It's much more than providing bachelor programmes ... we support people who want to study right into their old age."

SPACE CADETS

There's no shortage of enthusiasts – students and teachers alike – keen to be involved in space research at the University of Auckland. Owen Poland meets some of those launching themselves into the final frontier.

There's something about firing a miniature satellite the size of a cube tissue box into space that captures the imagination, but few would have imagined that a satellite design competition would help propel the University of Auckland to the forefront of space research in New Zealand.

Launched in 2016, the extracurricular Mission Proposal Competition organised by the Auckland Programme for Space Systems (APSS) has attracted more than 400 enthusiastic undergraduates despite the absence of any course credits.

"I just love space, who doesn't?" says science student Julianne McCoun, a member of the winning 2019 Team Koios, whose aim is to create an open-source platform for future competitors. "It really got me excited about being able to inspire and influence the next generation."

As a member of Team Kessler, which won the 2018 competition for its mission

to create an electrodynamic tether that captures and removes space junk, engineering student Jonathon Mace is rapt to be part of a programme that incubates start-ups and "throws people out into the space ecosystem".

APSS Director Jim Hefkey says because we don't know what the future holds, the competition is designed to expose them to new and complex problems. "Space is an excellent analogue for that."

The event requires multidisciplinary teams to identify a societal need and design a solution using a 10 x 10 x 10cm satellite called a CubeSat. The resulting collaboration encourages the development of transferable skills Jonathon is grateful for. "I'm picking up so much that I just don't have the opportunity to learn through my normal degree pathway."

As well as breaking down barriers, Julianne says the multi-faculty approach encourages diversity of thinking – even if



Aiming high: A student works on a CubeSat in the Auckland Programme for Space Systems (APSS) lab.

you don't get along with everyone on your team. "You still have to work with them and that's a really important skill in life."

What sets Auckland's CubeSat challenge apart from similar events overseas is the degree of testing involved before a satellite is launched. Around half the CubeSats sent into space are never heard from again and become "expensive rocks", according to APSS co-founder Professor Richard Easter. "One of the things we've worked hard on is making sure that the payload has been tested and we understand how it's going to behave."

Expected to be launched in early January, the APSS-1 Waka Amorangi o Aotearoa, designed by Team QuakeTec, is the first mission-ready CubeSat. It will test whether ionospheric disturbances can predict earthquakes. As the launch provider, Rocket Lab founder Peter Beck (see page 30) says it's great to see students doing really good spacecraft work. "We'll be supporting the University, making sure we can get students' spacecraft up in orbit and I think it's going to be really exciting to see what comes out."

The APSS has also inspired alumni to get involved. Having graduated with a masters in mechanical engineering in 1962, Dr Neil Paton left for the United States to pursue a career in the space programme and has now resolved to do whatever he can to support what he says are "truly innovative" experiments here.

"Now students in Auckland can aspire to dreams and goals in space research that are almost without limit and never have to leave New Zealand," says Neil.

In 2018, Team Koios were the inaugural winners of the Neil and Louise Paton Family Award after the APSS received a major gift from the Patons.

That opportunity isn't lost on Anastasiya Kiddle from Team Kessler, who sees space as "literally the next frontier", providing "all these chances for us". Likewise, Team Koios leader Matthew White believes New Zealand's space ecosystem is just ramping up and in a few years "it's going to be just crazy exciting because we're going to have so many people involved".

Although the APSS is primarily designed to increase student engagement, it has also boosted collaboration at an academic level and Richard Easter says the CubeSat challenges have grown expertise and driven organic change among staff.

"It's got people talking to each other in ways that might not have been the case."

The extracurricular teaching programme has also been the basis for the fledgling Te Pūnaha Ātea – the Auckland Space Institute at the University – which is developing space satellite missions to service New Zealand's strategic, scientific and economic goals. Likened by Dean of Engineering Professor Nic Smith to "a lightning rod" for the capability that exists across the University, the Institute has been turbo-charged with the appointment of Professor Guglielmo Aglietti as its inaugural Director. Guglielmo is internationally recognised as a pioneering space engineer and principal investigator behind the RemoveDEBRIS mission that deploys state-of-the-art technologies to clear space junk.

As well as offering dedicated student programmes and providing a much-needed pipeline of graduates, Te Pūnaha Ātea will serve as a hub to manage connections with local and international partners – and nurture collaborative links with key commercial partners, including Rocket Lab.

HAMMOND PEARCE

Auckland engineering PhD student Hammond Pearce says it's always been his "ultimate dream" to work at NASA. "They're not just cutting edge because of the science, but also because of the cultural aspects."

NASA, alongside the NZ Space Agency, has co-funded a New Zealand Space Scholarship for high-performing tertiary students to conduct research at NASA's AMES Research Centre in Silicon Valley. Hammond was one of the first New Zealand interns and lived on site for ten weeks this year. He worked alongside a mentor in the Intelligent Robotics Group and looked at different ways to control NASA's SuperBall tensegrity robot, which could eventually be used to explore dangerous planetary environments. He says the experience was invaluable.

"It was a fantastic place to work. Any kind of experience you get working on robotics is very useful to apply to companies and organisations back in New Zealand."

▶ Watch Online

Hammond Pearce talks about the value of his internship at auckland.ac.nz/ingenio



Space awareness: Catherine Qualtrough, John Cater, Richard Easther and Tristan O'Hanlon, the undergraduate co-ordinator for APSS. In front: Nick Rattenbury and Jim Hefkey.

Below: The CubeSat challenges have opened up new channels of communication.



◀ “We’re eager to build New Zealand’s capabilities and we want to be the flagship that brings that expertise together,” says Catherine Qualtrough, Research Operations Co-ordinator.

Work is also well under way on projects funded primarily by MBIE and the Science for Technological Innovation National Science Challenge (SfTI) that target leading-edge technology developments, in collaboration with research partners in Australia, Germany and the US. Led by aerospace engineer Dr John Cater from the Faculty of Engineering and astrophysicist Dr Nick Rattenbury from the Faculty of Science, investigators are looking into the use of Synthetic Aperture Radar to potentially monitor New Zealand’s Exclusive Economic Zone from space. They’re also working on developing electric propulsion systems for miniature satellites and the use of light-metals technology to cost-effectively recover samples from satellites to enable more space science.

Two longer-term goals involve looking for life in the clouds of Venus and pointing telescopes into outer space. John doesn’t see New Zealand launching a rocket to Mars in the next five years. “But we might be able to make an instrument that somebody pays us hundreds of millions of dollars for that makes it to Mars.”

For Nick, the ultimate goal is New Zealand’s first space telescope. “That’s what I want to do, to do astronomy. But to get there, I have to go through a whole bunch of engineering first. I hope I get it done before my career ends.”

Auckland Space Institute: space.auckland.ac.nz
Auckland Programme for Space Systems:
apss.space.auckland.ac.nz

BECK HONOURED

“Think really big” about the issues and theories facing science and engineering and “go after them”.

That was the advice from Rocket Lab founder Peter Beck in September, following his appointment by the Faculty of Engineering as an adjunct professor in aerospace engineering. The appointment is recognition of his outstanding contributions to aerospace, entrepreneurship and technical innovation.

Described by Dean of Engineering Professor Nic Smith as a “unique talent” with “an ability to do the extraordinary”, Peter has an association with the University that dates back to the early part of his career working for Industrial Research Limited and then more recently working on structures for Rocket Lab. Having left school at 17 to take up an apprenticeship rather than study, Peter says it was “truly a great honour” to become an adjunct professor.

“The University is always a go-to place if we have particular questions,” he says. The next challenge is to recover the company’s Stage One Electron rockets for reuse through a narrow re-entry corridor. “We’ll enjoy working with the University on this problem.”

Peter says space has never been more accessible and he encourages everyone to “take the currency that New Zealand has with launch” and leverage those opportunities into some of the big international programmes.

“Crazy ideas are really only crazy ideas until you pull them off.”

Below: Peter Beck, left, and Dean of Engineering Professor Nic Smith.



TIPS ... TO RETHINK YOUR Strategy

By Suvi Nenenon

Professor Suvi Nenenon has seven tips for devising better strategies in business that can translate well into everyday life.



Professor Suvi Nenenon is Director of the Graduate School of Management at the Business School.

1 Fight your biases
We are all prone to cognitive biases. As a strategist, you need to be keenly aware of your biases and fight them at every turn. Was that a genuinely reliable fact or did you just fall victim to a confirmation bias, embracing information that corroborates your existing beliefs while shunning facts that would require you to rethink your world view? Is it really a good idea to continue with that project or are you a walking example of ‘sunk cost fallacy’, not wanting to accept that historical investments are not necessarily any indication of future success?

2 Don’t use the same approach every time
In strategy, it is horses for courses. The right strategic approach is largely determined by your wider context. If your environment is relatively predictable, then go ahead and use your analytical skills to figure out the best course of action. But if your context is highly unpredictable, action trumps analysis. Uncertain situations, peppered with unknowns, call for constant experimentation and the ability to learn from these experiments.

3 Separate actions from objectives
The most common way to go astray in strategy work is to mistake objectives for strategies. Strategy is not an objective. Strategy is a set of cohesive actions to achieve that objective. So, the next time someone presents an objective masquerading as a strategy such as ‘our strategy is to grow’, feel free to speak out. Life is too short for ‘strategies’ that don’t even have the basics right!

4 Question your objectives
Even though objectives are not strategies, you should pay special attention to your objectives and constructively question them from time to time. So, for example, you might want to consider if the best objective for your company is to aim for more revenue or whether a better objective might be to improve customer satisfaction. Or should you finally launch that new product or service?

5 Deliberately do nothing
We tend to have a preoccupation for action. The world is not ready yet ... let’s do something! Any action is better than standing still! However, as a savvy strategist you understand that movement is not always progress. In fact, tremendous amounts of time, money and energy are wasted every year when organisations implement ‘improvements’ that do not improve anything other than the project owner’s personal key performance indicators. Sometimes doing nothing can be the best strategy.

6 Change the rules of the game
Most strategy textbooks follow the same basic formula: (1) analyse your environment and (2) create a strategy where you take advantage of the current lay of the land. But what to do if the current lay of the land is clearly out of whack – killing our planet or leaving millions impoverished? As George Bernard Shaw quipped: “The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.” Sometimes it is possible to craft truly genius strategies by being such an unreasonable (wo)man.

7 Don’t go it alone
The popular press loves stories of heroic leaders who single-handedly save the day, the organisation or even the world. However, it is much more likely that you will come up with a winning strategy if you collaborate with others. It is also quite likely that you will need the help of others – your colleagues, customers, suppliers, friends and/or family – to turn your strategy into reality. The ideal is to trust them to be part of the strategy process in the first place rather than ask them to implement a strategy they were not allowed to be part of creating and therefore don’t believe in.



Feeling the groove

Device for hearing impaired recognised at Design Awards.

Suranga Nanayakkara and (below) the revolutionary wearable device called MuSS-Bits.



A wearable device developed by researchers at the University, which allows the hearing-impaired to feel music, won gold in the Student Public Good category at the recent Best Design Awards. Juan Pablo Forero Cortés, a former Silicon Valley engineer doing his masters here, has been working on MuSS-Bits (musical sensory substitution bits) under the supervision of principal investigator Associate Professor Suranga Nanayakkara in the Augmented



Human Lab at Auckland Bioengineering Institute. He is now working on an improved version. The MuSS-Bits gadget is worn like a watch and has been trialled by Hamilton woman Marama Bowler, who lost her hearing three years ago. It vibrates the beat of the music.

“It is honestly life changing,” says Marama. “Suranga asked me to choose a song on YouTube. The first song that came into my head was ‘Uptown Funk’ by Bruno Mars. The minute it started its first beat, I started crying. It was like I was fully listening to the song.”

Marama, who has been wearing the device for six months, has provided suggestions for the next iteration of MuSS-Bits, including having it accurately inform her of the direction a voice is coming from or the sound of her dog barking.

Suranga, who was the University’s first appointee under the Government’s Entrepreneurial Universities programme, says the team hopes to have another prototype ready early next year that includes Marama’s suggested features. He has been working on improvements to the device since he first came up with the idea while at the Singapore University of Technology and Design. His Auckland Human Lab has a team of 25 from nine countries working on assistive technology projects that make an impact in the community.

MAGGOT FARM CLEANING UP

Student’s pilot plant in India reduces food waste in landfills.

Technician B. H. Srikanth and Neil Birrell inspect larvae at the plant in Kerala, India. The larvae process 200kg of food waste a day.



A treatment plant in India is the first place to use a Kiwi innovation that uses maggots to process waste into fertiliser and chicken feed.

Hexacycle is the brainchild of PhD student Neil Birrell, an entomologist in the Faculty of Science. His idea to use the larvae from the black soldier fly to reduce organic waste

in landfill won the social entrepreneurship category of the University’s Velocity challenge in 2016. Since then, Hexacycle has received support from Velocity to up-scale, taking it from a prototype fly hatchery in Neil’s backyard to India’s first black soldier fly treatment plant.

The treatment plant is in the south-western coastal state of Kerala, with plans to introduce the system to other waste-processing plants in developing countries. The plant processes 200kg of food waste a day, from local restaurants.

“Our pilot plant is entirely sustainable and zero-waste,” says Neil. “The larvae are ground into a high-protein poultry feed for the chickens on-site, and the excrement processed into frass, a type of organic fertiliser.”

Neil set up the plant in India after chatting to a taxi driver on Waiheke Island. “It turned out he owned an import/export business and a plantation in Kerala and had a cousin who owned a large poultry farm,” says Neil. “Six months later, I was on my way to India.”

The taxi driver helped Hexacycle navigate the language barriers. The initiative now has two co-founders in New Zealand, who mostly work on the venture in the evenings. Three employees in Kerala have been trained on rearing the black soldier fly larvae and processing the waste.

Read the full story: tinyurl.com/MaggotFarm

AIMING TO KILL THE PAIN

Treatment for excruciating affliction of the pancreas one step closer.

Dr Jiwon Hong, a Hugo Charitable Trust Research Fellow in the Department of Surgery and the School of Biological Sciences, has received funding to test new drugs for a potentially lethal, abdominal disease – acute pancreatitis. She received a grant from the US-based National Pancreas Foundation (NPF) and that, along with ongoing support from the Hugo Charitable Trust, allows her to carry out world-first, lab-based testing of three new drugs she has already identified in promising pilot studies. If results are positive, the next step will be clinical trials in patients.

Acute pancreatitis is a very painful inflammation of the pancreas for which no specific treatment exists. It comes on suddenly and affects about 2,800 New Zealand adults and is more common in the middle-aged and elderly. The incidence rate (58.4 per 100,000 people each year) is higher than the global incidence

(33.7 per 100,000) and the rate among Māori is worse (95.2 per 100,000).

About a quarter of patients develop a severe form that can cause organ failure, and the risk of death in these patients is as high as 50 percent. “In the past few years, I have been investigating the reasons some patients develop organ failure,” says Jiwon. “New drug treatments are desperately needed.”

Her study will show whether one or more of the three drugs she has identified, which each target a different aspect of inflammation, reduces tissue damage and failure in vital organs. Jiwon is based in the University’s Surgical and Translational Research (STaR) Centre, a multidisciplinary network of researchers and surgeons focused on the development of new treatments. It’s a time when diseases requiring surgical treatment, which include many cancers, account for almost a third of the global disease burden. Results from the drug study are expected in late 2020.



Right: Dr Jiwon Hong, a Hugo Charitable Trust Research Fellow trying to ease people’s pain.

STUDY INTO MĀORI DEMENTIA

Cultural identity is key to helping Māori with dementia.

The largest-ever study of Māori affected by dementia has found the disease is poorly understood and that whānau do not know how to access information that might help.

Researchers from the universities of Auckland, Waikato and AUT and the Auckland District

Health Board held seven hui with kaumātua around the country and interviewed 250 people, eight of them living with dementia, to find out what they knew about the disease and what particular challenges they faced.

Lead author Dr Margaret Dudley, from the University of Auckland’s School of Psychology, says the research was designed to understand dementia (mate wareware) from a Māori perspective, including how whānau were coping with loved ones affected by the disease.

She says the study found the caregiver burden can be greater in Māori communities and knowledge of the disease is poor, with a widespread belief that everyone gets dementia eventually. The study also found that wairua, or spiritual wellbeing, was a key factor in helping those affected by dementia – and their whānau and communities – cope.

“Participation in cultural activities, especially on the marae, seemed to really help people with mate wareware and lifted what they called the ‘cloudiness’ associated with it,” says Margaret.

Care services therefore needed to be culturally appropriate, with cultural identity a key component of management and treatment.

The researchers are developing a tool that will more accurately diagnose dementia for Māori.

Full story tinyurl.com/MargaretDudleyDementiaStudy



Dr Margaret Dudley says the study found wairua is important in helping people cope with dementia.

What do we need to think about as we approach the 2020 CANNABIS REFERENDUM?

The writers' views reflect personal opinions and may not be those of the University of Auckland.

UNRELIABLE MECHANISM FOR POLICY ISSUES

Dr Matheson Russell

Received wisdom treats referenda as the gold standard in democratic decision-making. But this piece of received wisdom is dubious. Referenda are not a reliable mechanism for resolving complex and contentious policy questions (witness Brexit) and, despite what is often claimed, they don't tell us much about 'the will of the people'.

For example, many people won't have strong views about the pros and cons of legalising personal cannabis use. Yet the 2020 referendum will elicit from us a preference, tentative though it may be, and will weigh our preference the same as everyone else's. Even if we do have firm views about the issue, chances are these views will not have been formed on the basis of an independent assessment of the relevant evidence and arguments, but by relying on shortcuts. We will have followed the lead of trusted voices in our social networks or made judgments based on fragmentary information or misinformation picked up through the media. For the few who do the hard work to develop an informed view on the issue, the referendum will misrepresent our views by forcing us to express a yes/no response to a predetermined proposal. A moment's scrutiny and the aura of unquestionable democratic authority surrounding referenda vanishes.

There are more promising democratic processes that can be used if legislators require a more solid democratic mandate. In 2016, the Irish government commissioned 99 ordinary citizens, broadly representative of the diverse Irish population, to consider the contentious issue of abortion law reform. This Citizens' Assembly interviewed experts, heard first-hand testimony, weighed medical, moral and legal considerations, deliberated together and finally drafted a set of recommendations. Irish citizens were able to see people like themselves conscientiously working through a matter of complexity and gravity.

Politicians were impressed by the rigour of the process and the quality of the recommendations. Ultimately, the Citizens' Assembly was instrumental in moving Ireland forward on a deadlocked issue, and abortion laws were successfully liberalised through a constitutional amendment in 2018.

As we head to the polls, we should resist the temptation to treat the cannabis referendum as a divine oracle. Take a moment to imagine how new modes of democratic participation could both improve the quality of political decision-making and deepen our democracy.

Dr Matheson Russell is a senior lecturer in Philosophy who specialises in social and political philosophy, Faculty of Arts.

CHANCE TO PARTNER WITH MĀORI

Dr Lara Greaves

The process may not be perfect, but this may be our only chance for a generation to change a discriminatory law. While we don't know the exact wording of the legislation we will vote on, we know that the current prohibition arrangement disproportionately impacts Māori. Māori are only slightly more likely to use cannabis than others – but are considerably more likely to face prosecution.

Given efforts in the eradication of cannabis crops, particularly in the economically deprived regional expanses of Northland and the East Coast, it is Māori who appear to be taking the risk growing the cannabis that students pass around their Grey Lynn flat with little fear.

Legalisation of cannabis presents an opportunity to partner with Māori and those with, shall we say, the necessary horticultural skills. These people also have existing networks and a customer base, and despite cannabis being illegal, are earning an income.

It is those same people and their families who stand to lose out if cannabis is legalised. Part of building equity into cannabis law reform will involve bringing in those operating outside the current law, to a place

where they are able to operate effectively within it. The Helen Clark Foundation proposed expunging cannabis convictions so people can work in the legal market. But how will they access the resources necessary for licensing and compete with well-funded start-ups? If commercial licences are restricted in number, then one way to partner with Māori would be reserved licences. The flow-on effects could allow for kaupapa Māori education around cannabis use.

Ultimately, the process has not been perfect, but if cannabis isn't legalised in 2020, it is likely that these inequalities will continue. We are now stuck in cycles of successive Labour or National-led governments. Labour will not have the mandate to legalise cannabis if the referendum fails this cycle, and it's unlikely that the next National government would take the lead on legalising recreational cannabis. In the meantime, there's likely to be a trickle of liberalisation until we eventually get there, all while thousands face prosecution.

Dr Lara Greaves (Ngāpuhi, Ngāti Kuri) is a lecturer in Politics and International Relations, specialising in NZ Politics, Faculty of Arts.

BETTER SAFEGUARDING THE YOUNG AND VULNERABLE

Professor Benedikt Fischer

About a quarter of our population is under 18, so parents need to be well informed about the implications for and against cannabis legalisation.

Most cannabis use occurs in those aged 15-29. More than half have tried it and as many as a third may be active users. People don't want to see youngsters experience cannabis-related harm, so parents may be hesitant to support policy changes that – even subjectively – suggest any increase in risk. But it is erroneous to think that the referendum is a vote for, or against, the availability and use of cannabis. Cannabis is already widely available and used, albeit illegally. Rather, the referendum is about whether to bring illegal cannabis use and supply into a realm of legality, with overarching public health goals to regulate key details, to keep those who use it safer and so to protect young people's wellbeing.

While cannabis use results in less severe health harm overall than alcohol or tobacco, it comes with risks such as cognitive or mental impairment, injury or death from cannabis-impaired driving, educational attainment problems and dependence. But science has demonstrated consistently that these are largely limited to those who begin cannabis use early in life, use intensively (daily) as well as consume high-potency (high-THC) cannabis products.

Today's cannabis products are unregulated and of uncertain properties. Most procurement involves an illegal transaction from questionable sources and no teacher or health professional can legally give advice on how to use cannabis more safely. Furthermore, prohibition's consequences mean any young person – but especially the socio-economically marginalised – may become entangled in the criminal justice system as a result of cannabis use, bringing potentially more harm to their life than having a joint.

Extensive work is required to appropriately communicate the rationale and reasons of any cannabis legalisation plan. While legalisation continues to be an informed 'social experiment', we can reasonably expect improved safeguarding of vulnerable young people through a legal, limited cannabis supply regulated for availability and potency, fact-based cannabis education including safer use advice, and removal of arbitrary criminalisation practices. Legalisation mutes the powers of law enforcement on what is really a health and education issue, however the proposed age limit of 20 for use means many young users will be excluded from its prospective benefits. 'Home-cultivation' of cannabis is a misguided concept in a 'public health' framework. Cannabis production does not belong in people's – and especially non-users' – living environments.

Professor Benedikt Fischer is the Hugh Green Foundation Chair in Addiction Research, Faculty of Medical and Health Sciences.

Once a year we meet a new batch of 40 alumni under the age of 40 who are making their mark on the world. Here are just three of those who've impressed.

Sjoerd van Ballegooy

When Sjoerd van Ballegooy was a second-year engineering student, he was offered a summer holiday research project. It involved looking into improving the measurement of water outflow from WaterCare's Cosseys Creek dam spillway. Sjoerd became fascinated by the water resources aspect of civil engineering and in his final undergrad year, he decided to concentrate on water resources engineering. He graduated with first-class honours, which led to his PhD.

He joined environmental and engineering consultants Tonkin + Taylor, and fate intervened. "I was supposed to go into their water resources/dams group, but on the day I started I was 'temporarily' placed in the geotechnical group. Initially, it was tough being in an area I'd not studied, but after a while I learnt the ropes."

Soon he was working on complex projects such as bridge and tunnel design and slope stability, all of which involved an element of earthquake engineering. He became an expert in liquefaction when the Canterbury earthquakes struck in 2010-11 and 900,000 tonnes of liquefaction – 45,000 truckloads – devastated the region. Sjoerd was one of the first geotechnical specialists there and later advised government agencies on how to rebuild.

He also oversaw the development of the Canterbury Geotechnical Database system – an online portal that geotechnical engineers use to share information. The database is now used by engineers and geologists countrywide. Sjoerd used what he learned in the Canterbury and 2016 Kaikoura quakes to help improve resilience in other earthquake-prone areas around the world. In 2013, he was awarded the Queen's Service Order, Honorary Companion for his services to geotechnical science.



Reina Va'ai

Reina Va'ai's family moved here from Samoa in 1993, when she was three, after a cyclone wiped out their home. The family of six slept on the floor of one room in the early days when money was tight. But Reina worked hard and won a scholarship and was accepted into first-year law. "I knew how lucky I was to have this opportunity. My goal was to help others and going into law felt like my calling after an experience in my final year at school.

"We had visited the Otago Community Law Centre and a cleaner came in. Her job had just been terminated at short notice simply because she'd brought her daughter to work as she'd been unable to find a babysitter. The experience made me realise how vulnerable many people are when they are unaware of their rights."

A chance to work for Judge Soana Moala proved a turning point. "Before my interview, I wasn't even looking to practise law. My interests had switched to journalism, but I applied anyway because it was a chance to work for an incredible Pacific woman whom I greatly admired.

"During the interview I told

them they probably wouldn't hire me, given the calibre of applicants they had.

"I told them my weaknesses and pointed out I wasn't a top student. I don't think they knew what to make of me."

She was hired. It was while working for Judge Moala she started blogging about successful Pacific women. That led to a call from the producer of *Tagata Pasifika*, Ngaire Fuata, who offered her a role as a reporter.

But her days as a lawyer weren't over. "I never considered it was possible to have two careers simultaneously. But my boss, Lynn Hughes, the Public Defender for South Auckland, taught me you don't have to fit in a box ... she believed in my ability to work in two very different careers."

Reina has worked on *Tagata Pasifika* at the same time as being a lawyer for two years. She has also written a children's book, *The Inventor*, and directed her first documentary as part of the *Daughters of the Migration* series on Black Ferns captain and police detective Fiao'o Fa'amausili. She has also enrolled in a two-year programme at Cambridge, researching the impact of the criminal justice system on Pacific people. All this has happened before Reina has turned 30.

"I think my superpower is my ability to deal with rejection," she says. "I just don't allow it to upset or deter me."

Pania Newton

Photo: NZ Herald/
Michael Craig

Anyone following the recent occupation of Ihumātao will know the name Pania Newton (Ngāpuhi, Te Rarawa, Waikato, Ngāti Mahuta). She was the voice of calm interviewed by media as the spokesperson for the SOUL (Save Our Unique Landscape) campaign.

Pania, with her cousins, created SOUL four years ago, to protect and preserve the land at Ihumātao. Her quest began after the discovery of survey pegs on the historic ancestral land on the shores of the Manukau Harbour, where Pania had grown up. She was thrust into the national spotlight when thousands of protestors occupied the land, wanting the Government to buy it back from developers. The battle has seen her plans to join a law practice put on hold but Pania's actions have been consistent with her belief in the importance of being a good kaitiaki (guardian).

"Given the cultural significance of this land and its unique history, it was my responsibility to fight for its preservation."

From an early age, Pania was interested in the idea of justice. She wrote a letter to herself when she was nine, declaring she would become a lawyer. Hard work saw her gain a Vice-Chancellor's scholarship in her final year of high school at Te Kura Māori o Ngā Tapuwae in Mangere.

She enrolled in a conjoint Bachelor of Law and Health Sciences degree and graduated in 2015. At the same time, she was completing a bachelors degree in Tikanga Māori and Social Sciences for Public Health. Pania also gained several other qualifications during her time at the University, from Te Whare Wānanga o Awanuiārangi and Te Wānanga o Aotearoa in the fields of Maori Food Sovereignty Practices and Performing Arts.

Pania says her time at the University came with challenges as well as opportunities.

"Coming from a small school, I initially found university quite isolating. But I soon developed a good group of supportive friends and began to get involved in various sporting groups and clubs as well as student politics. Those political groups changed my view of the world and opened my mind to many of the injustices faced in Aotearoa, which greatly influenced my future pathway."

Pania, who says she is committed to her advocacy and her role as kaitiaki, holds a number of board and trustee positions on groups that empower communities to lead healthy lifestyles and contribute to wellbeing.

As well as being involved in the campaign to protect Ihumātao, Pania is an active member of the youth arm of Matike Mai Aotearoa Rangatahi, the Independent Working Group on Constitutional Transformation led by Moana Jackson and Professor Margaret Mutu.

 Read the full 40 Under 40 stories online

These are excerpts of stories about these three alumni. The full stories for all 40 Under 40 achievers can be read at tinyurl.com/Auckland40Under40
Alumni wishing to submit nominations for next year's list can do so there.

BEST OF TIMES

On 24 October, about 360 special alumni – the Golden Grads – attended a special lunch in which they reminisced and kept up their networking. Each year, the University recognises this group of alumni who either graduated 50 years ago or have turned 70.

One such guest was Dr Gordon Nicholls, (BSc, 1946; PhD in Chemistry 1949; Doctor of Science, 1985). Gordon, 93, was the oldest in the room, but wasn't letting that hold him back. "But I did have a bit of trouble finding a car park," the active alumnus said.

Asked what he does in his retirement, he laughed. "I still work! I'm writing."

Gordon was recently inducted into the Paper Industry International Hall of Fame in Appleton, Wisconsin, the first New Zealander to be recognised. He had worked at the Institute of Paper Chemistry in Appleton in the 1960s and 70s. A former student picked up his plaque for him and sent it to New Zealand.

The Golden Grads lunch, held in the Great Room at the Cordis hotel, featured speeches from former Vice-Chancellor Sir Colin Maiden and current Vice-Chancellor Stuart McCutcheon as well as a keynote speech by Dean of Engineering Professor Nic Smith.

An after-lunch performance by soprano Dr Morag Atchison delighted the crowd.

See photo gallery at tinyurl.com/GoldenGradsLunch



Dr Gordon Nicholls: At 93, he was oldest to attend the Golden Grads annual lunch.



AROUND THE GLOBE

Ingenio catches up with three alumni living overseas and finds out what they are up to and where. By Wendy Colville.



JENNY HARLEN SWEDEN AND MYANMAR

“Learning not to let fear get in the way of anything. Always choosing what feels right, rather than what other people think is right. Never choosing the path of most money, but always the path of the most interesting challenge.”

These are Jenny Harlen’s life lessons. The girl from Raumati Beach today runs sustainability businesses in both Sweden and, lately, Myanmar. It’s a place with challenges in spades.

“Myanmar’s a country where more or less nothing works, a political disaster, but the people are the nicest you could meet anywhere.”

Jenny’s businesses focus on making a difference with Bokashi – a composting method that uses a fermenting agent to speed the process and can be done anywhere, in a bucket.



JANE MCGUIRE KETCHUM HONG KONG

A Bachelor of Arts can take you many places – just ask Jane McGuire Ketchum.

Jane is a Hong Kong-based director and regional editor for one of Japan’s biggest financial companies, Daiwa Capital Markets. She admits it’s one of the most unlikely careers for an arts major, but it’s thanks to the grounding she got at the University of Auckland.

“I credit my arts degree with giving me the confidence and skills to take on a number of different and interesting jobs. That’s the beauty of a BA, it prepares you for anything!”

Jane majored in Japanese in the early 1980s, and even then it was an unusual choice. There were just eight in her final year Japanese class.

“At the time, Japan was New Zealand’s largest trading partner and my parents encouraged me to pick up the language because they thought it offered a promising career path.”

Hedging her bets, she added some business and economics papers to her degree.

After teaching English in Japan, and doing a variety of jobs around the world, Jane returned to Japan in 1992. Her fluent Japanese – and

maybe those business papers – landed her a job as a financial editor in the equity research department of an investment company. That led to her current job delivering analysis and content for fund managers. It’s a demanding field, but one in which she thrives.

“The rise of digital technology has led to clients expecting to receive tailor-made, commercially viable research instantly and often on different platforms.”

She lives with her husband, whom she met in Hong Kong, children and two dogs, on the outskirts of Hong Kong.

“Our house is surrounded by country parks, rolling hills and beaches – not a picture many would conjure up when thinking of Hong Kong! Actually, few people realise that about 75 percent of Hong Kong comprises country parks and rural areas.”

Looking back, she says she could never have imagined where that arts degree would take her.

“I feel fortunate to have a job I enjoy and still find challenging, and that allows me to live in one of the most dynamic cities in the world.”

“Few people realise that about 75 percent of Hong Kong is parks and rural areas.”



PETER MATTHEWS JAPAN

Tracing the path of taro around the world has taken Peter Matthews on his own epic journey. Peter is a professor, researcher and curator at the National Museum of Ethnology, Japan (Minpaku) and his work on taro is a way to examine the human journey.

“The essential question that guides me is ‘how can we see the past?’” he says.

Taro is an ancient crop not just used by Polynesians. It has also been a staple in Asia and Africa for thousands of years.

Peter’s first degree was a BSc at the University of Auckland. But an archaeology field trip sparked his interest in the social sciences. He began an MSc on the study of plants and animals as tracers of human migration. With a PhD scholarship in Australia, he focused on taro. Looking back, he is a great believer in keeping your options open.

“I was cutting my own path through the forest,

so to speak. Not any predefined ‘career path’. The concept of planning a career in advance always seemed very strange to me.”

He’s never become fluent in Japanese, but his work is published in English, his wife is Japanese, and his colleagues are multilingual.

He and his wife and son live in an apartment on the boundary of Kyoto City that borders some farmland and they enjoy growing vegetables in a community garden. He continues to examine the complex cultural and evolutionary history of taro, and his work throws up the big questions.

“Seeing the past can be fun, scary and useful. The past is also unfathomable, but I am glad that the metaphorical ocean is deep. Forests can also be deep, but they are too easily cut and burned. Fortunately, they can also regenerate.

“The living world is powerful. I am a pessimistic optimist in the face of climate change.”

“Fortunately, forests can regenerate. The living world is powerful.”



Facebook: UoAAlumni
LinkedIn: Auckland University Alumni and Friends
Twitter: @AucklandAlumni
Instagram: @AucklandAlumni



Sam Lucas on the ground helping educate Malagasy students in Mahanoro.

Book bonanza

The University's inaugural Volunteer Impact Week (VIW) in June saw about 500 people participate in many voluntary events. One of those was donating to the Books4Tonga charity, and the books are now sitting on library shelves in Tonga being explored by readers of all ages.

Thanks to the generous donation of about 7,000 books from the University of Auckland community, Books4Tonga has now established its first libraries in a number of villages. Volunteers were involved in donating, collecting, packing and shipping off the boxes.

Teaching Fellow and Books4Tonga board member Sione Taufu and Group Services team leader Herena Newall at the Business School managed the collection site there as part of the University-wide book drive. "It was just informal networking initially, asking a few people on our floor and around the building if they had books to spare, but we were amazed at the response," Herena says.

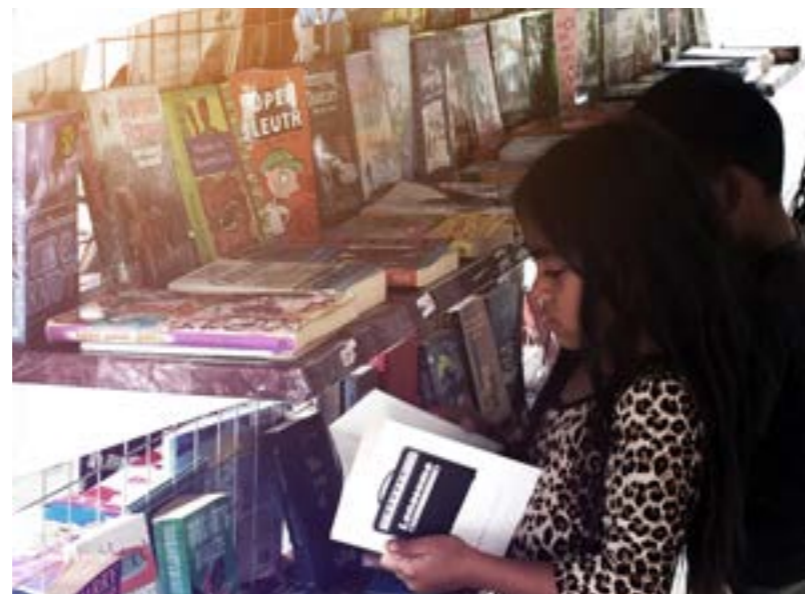
When other sites popped up at other faculties, the donations grew dramatically.

Founder of Books4Tonga Cynthia Wallis Barnicoat says some of the planned 20 village libraries are now up and running, including one in an old store in Nukunuku, on the main island Tongatapu, and one in the storeroom of a hall in Ahau. Local schoolchildren helped stack the shelves and a number of businesses and agencies

from New Zealand, Australia and the US have helped with logistics and transport. "Tongans know that enhancing their English skills can bring better futures, but for many, books are unaffordable," says Cynthia. "Working together we are all changing this."

Alumni Relations Manager Joel Terwilliger says he was blown away by the book drive, and the whole VIW initiative. "It's amazing how when people collectively take action on issues they care about, the impact we can have. Books4Tonga is a good example of how we can change a corner of the world pretty easily. It gives us real impetus to try more events next year."

Stacks: Children in Tonga have plenty of books to choose from after Volunteer Impact Week.



UPDATE YOUR DETAILS TO BE IN TO WIN!

We'd love to keep you informed about all the alumni news and activities in your area. But to do that we need your up-to-date contact details. Then you'll be the first to receive invitations to official receptions, exclusive networking events and opportunities to connect, no matter where you are in the world.

Update your details at alumni.auckland.ac.nz/update and if you do it by 31 December 2019, you'll go into the draw to win one of three pairs of Beats Studio3 Wireless headphones!



Good Onja, Sam

Sam Lucas featured in the University's 40 Under 40 in 2018. Alumnus and journalist Andrew Patterson was inspired by Sam's project in Madagascar, so paid him a visit.

How does a 29-year-old engineering graduate with a major in mechatronics end up in a remote part of Madagascar, teaching English and computer coding?

While Sam Lucas was in Ghana in 2009, teaching English and maths as a volunteer, he was struck by the wasted talent among his students. He returned to New Zealand in 2015 and, despite never having visited Madagascar, he founded Onja (a Malagasy word meaning 'waves') using his savings and money raised by friends and family.

I wanted to experience the project first-hand, so in May I headed to Madagascar. After 36 hours' flying, I touched down in Antananarivo, Madagascar's bustling, chaotic capital, and then endured a bone-shaking seven-hour car trip, before arriving in the small coastal town of Mahanoro where Onja is based.

Sam introduced me to his 26 students and small team of volunteer teachers and staff. The students, aged 17 to 22, had been selected from thousands who applied, so represent some of Madagascar's best and brightest. Despite learning English for less than six months, their basic fluency was already apparent. Many rose at 4am to put in extra study ahead of their 7am classes. It's that kind of determination that motivated Sam to establish Onja.

"Having spent a lot of time in the developing world over the past five years, I have been inspired by the incredible commitment displayed by the students I work with," he says. "It really concerned me that few, if any, would ever be able to attend higher education or find well-paid employment. Knowing that such brilliant minds would easily find work in developed countries, I spotted an opportunity to connect the two."

In exchange for receiving a two-year education, the students agree to work for an outsourcing venture after they graduate. Profits generated by this venture are fed back into funding the school to educate more students.

Establishing Onja hasn't been easy. There's fundraising, the isolated location, being responsible for 26 young boarders, and ensuring the ongoing sustainability of the project.

"It takes unrelenting commitment and belief and a hardworking, trusting team," Sam says. "But I know I'm helping these students develop skills that will significantly impact their futures."

After a month living in Mahanoro, I grew to love the laidback lifestyle, listening to waves crashing on the beach, and the simplicity of a diet of rice, beans and tropical fresh fruit. I also had perfect mobile connectivity, for far less than we pay in New Zealand. It's an example of how technology can drive change in even the world's poorest countries.

Sam's commitment to Onja is the same as that required of a start-up entrepreneur.

"We have developed a proven model that will be able to expand to other countries in the future," he says. "While there are an endless number of challenges, including being separated from friends and family, right now I couldn't imagine doing anything else."

Onja's work helps those like Rinon (right). Sam needs volunteers to teach coding at Onja in 2020. Contact him at onja.org.

RINON'S STORY

My parents are farmers and I'm one of four children. I would help my mother every weekend to take goods to the market to earn money to pay our school fees. In Madagascar, parents are expected to contribute towards their children's education. While I was at high school, our principal asked us to set a goal. Mine was to become a computer engineer even though I knew my family didn't have the money. I received my Baccalaureate qualification, but university was out of the question, so I started working as a teacher to earn a small amount of money. One day I was invited to sit an exam to be part of Onja. I was so happy when I received the call to say I had been accepted. I am now studying hard to become the computer engineer I always dreamed about.



Books

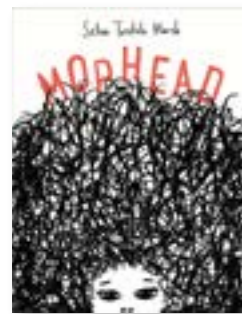


Colin McCahon There Is Only One Direction 1919-1959

Dr Peter Simpson is a former associate professor of English at the University and a Colin McCahon expert. This is volume one of a two-volume work

chronicling 45 years of McCahon painting. It has about 300 illustrations and reproductions of McCahon's work.

Peter Simpson, AUP, RRP \$75



Mophead

This self-illustrated memoir by Dr Selina Tusitala Marsh, associate professor in Arts, tells the story of a 10-year-old teased for her frizzy hair that led to her playground nickname of 'mophead'.

Selina Tusitala Marsh, AUP, RRP \$24.99

The Chinese Dream: Educating the Future

This collection is based on a series of articles written by Dr Michael Peters, former head of the Faculty of Education and an honorary research fellow at Auckland, to explore the concept of the Chinese Dream popularised by President Xi.

Michael A Peters, Routledge Press, \$US47



Females in the Frame: Women, Art, and Crime

An earlier work by alumna Penelope Jackson (Art History), *Art Thieves, Fakers & Fraudsters: The New Zealand Story* entered the world of art crime in New Zealand. Most of the people in it were men, so in *Females in the Frame: Women, Art, and Crime*, Penelope tells the fascinating stories of women involved in art crimes all over the world.

Penelope Jackson, Palgrave Macmillan, RRP \$45



Dragonflies & Damselflies of NZ

New Zealand has 14 species of dragonflies and damselflies and this book is a guide. Photos by wildlife photographer Mike Ashbee.

Milen Marinov and Mike Ashbee, AUP, RRP \$49.99

#NoFly: Walking the Talk on Climate Change



Award-winning University of Auckland Professor of Physics Shaun Hendy avoided flying for a year. The frequent traveller took trains and buses in his #NoFly year and reduced his carbon footprint by 95 percent.

Shaun Hendy, BWB, \$14.99

WIN: COLIN MCCAHON

Email your details to Ingenio@auckland.ac.nz by 27 January with Colin McCahon in the subject line. (One to give away.)

WIN: MOPHEAD

Email your details to Ingenio@auckland.ac.nz by 27 January with Mophead in the subject line. (Two to give away.)

From the Archives

A book of hidden depths



At just 26 pages, this slim book doesn't look like a weighty tome, but it is. It was the 'Secret & Confidential' warning on the cover that grabbed my attention, but the real surprise came when I picked it up in the University of Auckland Special Collections.

The Protection of Merchant Ships Against Moored Mines weighs 400 grams, making it about four times heavier than other books its size. Closer inspection reveals what feels like lead weighting under its cloth-covered rear board. Its purpose became clear when I read the order to ships' captains printed inside: "In the event of probable capture by the enemy, this book must be thrown overboard." The extra weight would have ensured it quickly sunk to the depths.

Published in 1917 during the First World War by British manufacturers Vickers Ltd, handbook 268 is an instruction manual for an 'Otter', a device designed to protect merchant ships against moored mines. The torpedo-shaped Otters were attached to long towing wires which pulled outwards underwater from the sides of a ship, snagging, deflecting and severing the cables of moored mines, safely sending them to the surface.

Thousands of Otters were produced during the war, so there is still a lot more research to do to unravel the full story of this weighted copy of the handbook and how it came to be acquired in the mid-1960s.

By Jo Birks, Special Collections



CITY OF VOLCANOES

Here's a perfect guide to take with you if you're exploring Auckland's volcanoes.

It's been eight years since Bruce Hayward's last handy field guide to Auckland's volcanoes. Since then, science has made exploring volcanoes even more exciting.

Bruce is an honorary research associate in the School of Environment, but is semi-retired.

His new book, *Volcanoes of Auckland: A Field Guide*, is a revamp of the earlier *Essential Guide*. About three quarters of the more than 400 photos, maps and diagrams are new. There's a set of maps for each volcano, showing where all things of geological, historic, archaeological and recreational interest can be seen during a visit.

"It includes pages on the three additional volcanoes recognised by me since the last book was published – Boggust Crater, Cemetery Crater and Puhinui Craters," says Bruce.

The area of greatest advance is new information on the ages of each volcano from studies by the Devora project. Devora stands for DETERmining VOLcanic Risk in Auckland and is a multi-agency, transdisciplinary collaborative research programme led by volcanologists at the University of Auckland and GNS Science. Although Bruce is a geologist, marine ecologist and geoheritage conservationist rather than a volcanologist, he records his observations of the volcanoes of northern New Zealand in his own time and is a friend of Devora.

"Most advances in our understanding of how Auckland's volcanoes erupt and their ages are derived from the Devora programme. There are now only about six volcanoes that haven't been dated. All erupted between 190,000 years ago and 600 years ago. The three oldest are the explosion craters at Northcote-Takapuna Pupuke, Onepoto and Tank Farm/Tuff Crater.

"The youngest is Rangitoto, which erupted in two phases only a decade or two apart, 600 years ago. Suggestions Rangitoto may have erupted on and off for thousands of years are not supported by more recent Devora research."

Bruce's favourite Auckland volcano is Mangere Mountain.

"It is one of the best-preserved and has so many facets to look at and try to understand how the volcano was formed." It is the only one with an extruded lava plug that has been

squeezed out of the vent by the last build-up of gas pressure beneath it – this forms the small hill in the middle of the crater.

"It's also the best volcano for seeing volcanic bombs inside the crater. The bombs were globs of molten lava thrown out by the force of the gas that escaped from around the base of the plug as it was squeezed out of the volcano's throat in the last phase of eruption."

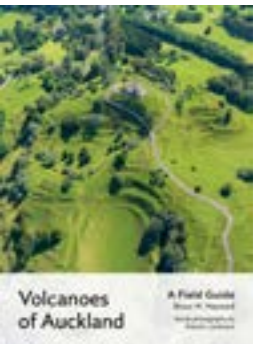
Bruce hopes his book will be very useful for teachers and schoolchildren. "It will help them better understand how volcanoes were formed, how they've been modified and damaged, where they all are, what they look like now and what they can see if they go out to explore them."

The book has aerial photos of each volcano or its site by nature photographer Alastair Jamieson – who has a Masters in Geography from Auckland. It also features old black and white photos and illustrations that show how the land around Auckland's volcanoes has changed.

Volcanoes of Auckland: A Field Guide

Aerial photography by Alastair Jamieson

Bruce W Hayward, AUP, \$49.99



WIN: A copy of *Volcanoes of Auckland: A Field Guide*. Email your details to Ingenio@auckland.ac.nz by 27 January with *Volcanoes* in subject line. (Two copies to give away.)



Enthusiasm eruption: Bruce Hayward talks to school science teachers from New Zealand, Australia and the United States on Rangitoto Island. Top: Mangere Mountain.

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