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
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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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 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 University of Auckland 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 winning team came up with an interactive manhole cover they made on the pavement, the name ‘Hynds’ bug developed a film over it, which prevents ‘superbug’ in her leg following surgery. And Health Sciences (FMHS). Around that time, John Fraser, Dean of the Faculty of Medical Sciences, 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. Patricia have lived in London for many years. He is chair of the NZ UK Link Foundation. '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 Langleyn is now working on developing a new prophylactic vaccine that will reduce a patient’s risk of staphylococcal infection following surgery. "Surgical staphylococcal 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 meeting new people and really getting a sense of people,” 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.”

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In London, at the Cricket World Cup final in July 2019, Eric Tracey’s pride in being a New Zealander pumped through his veins. Alumna Eric, a business graduate who lectured at Auckland in 1972-73, has had a wonderful 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 a great 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 in the way of 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 bag developed a film over it, which prevents 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: “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_collab 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 break, 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 five weeks, 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 very 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. As students and staff visit Unleash Space and the University advises 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.”
**S**ilicon 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 unlined 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 everything one had hoped to see. After my return from the likes of Saudi Arabia, which only recently and brazenly assassinated a journalist, it didn’t look like it.

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 growing stats on the inability to mitigate the reputation of Silicon Valley, which has given so much that is positive to humanity.

The latest would-be colonisers from Silicon Valley seem to be no matter at all. 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 their skills 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 right in the machinery in place — whereas ideas really are valuable, and instilling 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.

Moral Obligations

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**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 have received 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 doing 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 doses 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 more from archaeologist Dave Vearst, who has a masters in anthropology and law from Auckland and is a former staff member. “Dave was involved with the Ihumātao situation and explained what was going on. He’s been teaching me about legislation and applying what you learn in uni to real-life issues.”

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 transform the CBR to develop a 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.”

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**Campaign**

$16.5m brain boost

The late Hugh Green was a master entrepreneur and philanthropist. The Hugh Green Foundation has now made the biggest-ever donation of $16.5 million to fund a brain research centre.

The University of Auckland, Perpetual Guardian, and the Hugh Green Foundation have partnered to create the University of Auckland Hugh Green Brain Research Centre. The donation is the largest ever given to a neuroscience research project.

The University of Auckland Vice-Chancellor, Professor Anne Salmond said the University was “grateful to Hugh Green and the Hugh Green Foundation for its partnership and generosity.”

“People are living longer and longer. The brain is one of the body’s last to go,” Professor Salmond said. “As we grow older, we can’t function as well. It’s about how much longer we get to enjoy our lives.”

The donation will create a brain research centre that will attract top researchers to Auckland. The centre will focus on developing treatments to help those living with brain disorders.

The University of Auckland will also be able to develop a brain-drug discovery facility, using human brain-cell cultures to identify and develop effective medications for brain disorders.

Perpetual Guardian Chief Executive, Andrew Barnes, said the donation was a “true privilege”.

“Hugh Green built a remarkable business and was committed to giving back,” Mr Barnes said. “Given the impact that brain disorders have on all of us, we believe this is the right thing to do.”

The donation will fund the Centre for Brain Research (CBR). The Centre will be led by Professor Anne Salmond.

The Centre will focus on developing treatments for brain disorders, such as Alzheimer’s disease, Parkinson’s disease, and Huntington’s disease.

The Centre will also focus on developing new treatments for other diseases, such as cancer and diabetes.

The Centre will be led by Professor Dame Anne Salmond.

The Centre will be located at the University of Auckland’s Centre for Brain Research.

The Centre will be one of the largest brain research centres in the world.

The Centre will have the latest technology and equipment to conduct research.

The Centre will have a team of more than 100 researchers.

The Centre will have partners from other universities and research institutions.

The Centre will have partnerships with industry, government, and not-for-profit organisations.

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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 1980 and 1996, make up an increasingly dominant percentage of the global population, and more than half the populations in Asia. But in 2016, New Zealand’s beef exports earned more than $3.3 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 influence 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 73 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, unethical 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.”

“This 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.”

Dr Rosas Bosworth
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 calls for 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 calls for 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 proteins 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.”

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 on 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 paradigms, all 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 2019 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 with 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 of Auckland has 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 $60m in top food and nutrition sciences. 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 Olivia Gasser, to look at the impact of diet on lung health. The aim is to create foods to help the

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 Miari businesses to ensure that 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

**ALTERNATIVE PROTEINS: WHAT EXACTLY ARE THEY?**

<table>
<thead>
<tr>
<th>Source: The Future of Meat [Image by Antedote]</th>
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### What

- **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 [plant cells 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
  - Good source of protein to add to the mix in diet
  - Not launched yet

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

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Traditional sources of mori (Pycnopodia) 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 karango, 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 disqualified by production from the American Midwest. It is not in HVN’s brief to invest in commodity foods either. As well as the karango, 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. “One day the partners want to harvest, process and export karengo, an indigenous seaweed, 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 trendy diet, tallies 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 driven in a low-involvement state, but it has an immediacy 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” report. 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. Jenny suggests that widespread changes in diet, such as reducing red meat consumption, are driven by the EAT-Lancet report, would require a complex mix of initiatives, from education 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 probabilities?

Dr 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 – polarded values — so consumers’ 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.”

“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
I f 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 become a healthy 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 and its food environment. “There’s less time and so it becomes harder to prepare separate meals for infants.”

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 losing the battle at the next generation of consumers. Babies born since 2010 have earned themselves a cohort-name, the iGeneration. “So, the question is, are we breeding a generation who are used to consuming only soft foods – who are missing development delays.”

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 shaping 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 in 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 delays?” 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 losing the battle at the next generation of consumers. Babies born since 2010 have earned themselves a cohort-name, the iGeneration. “So, the question is, are we breeding a generation who are used to consuming only soft foods – who are missing development delays?” asks Clare.

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 Organization 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.

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 1973. 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, then 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 Canterbury 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 specialized 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 Western 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 of technology to make sure the treatments we use today don’t hinder the work of conservators in the future.”

By Linda Tyler
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. He 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.”

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’ve 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 the understanding of when music technology is to be used and when we should resist some innovations.”

But when would we resist innovations? 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...
For most people, solely performing is not going to be your entire life.”

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

I lecturers 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 lectures are about how 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 there were forced into one choice and this is told 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.”

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 Noordlander 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 Macaulay 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 funds for the organ. “It is an organ for the School to be able to offer that facility. Quite a few different things and the School of Music seemed to be a very worthy one.”

Graeme also established the Graeme Edwards Award in Organ Studies. The inaugural recipient is Rebecca 30-year-old Lee.
**CANCER CENTRE APPOINTMENT**

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 construed 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.

“We have to be the best cancer centre in the world,” 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.

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**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 196 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.

The University recognises its main mission is to provide knowledge of sustainability and the 17 goals agreed to by people from 196 countries.

“We need to educate the leaders of our future and also model sustainable practices.”

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**COLOMBIAN CONNECTION**

PM’s scholarship builds Latin American links for Auckland.

**NEW DEAN OF LAW**

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

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**INTELLIGENCE OF ALL SORTS**

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

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**Conflict and Terrorism Studies (MCTS)**

Dr Chris Wilson and Dr Thomas Gregory, co-directors of the MCTS programme.

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**MCTS TRIP TO COLOMBIA**

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/PenelopeMathew
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 paradigmatic teams at St Luke’s 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 the five-year programme, fulfilling a lifelong dream to master composition as well as medicine.

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

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 Taiitala March, 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-military personnel 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 Ngatirangi Ellis (Arts); Associate Professor Andrew Luxton-Reilly (Science); Peter Bier (Engineering), and Andrew Eberhard, Business School (Information Systems). Dr Ellis 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 Falkenstein’s Our Future campaign, consists of $120,000 a year for five years. See tinyurl.com/TonyFalkenstein

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.

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 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 esteemed 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 and the people support those 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 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 worldview.

“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 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 we could achieve 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.

“ 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."
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 2010, 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 electrodynamic tether that captures and removes space junk.

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 transferrable skills Jonathan 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 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 Amoranui 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 mechanical engineering. “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.”

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 Bedlington Te Pīhua Awa – the Auckland Space Institute at the University of Auckland to the forefront of space research in New Zealand. The APSS has co-funded a NEW ZEALAND SPACE AGENCY (NZSA) 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 tensile robot, which could eventually be used to explore dangerous planetary environments. “It was a fantastic experience,” he says. “It’s got people talking to each other in ways that might not have been the case.”

As well as offering dedicated student programmes and providing a much-needed pipeline of graduates, Te Pīhua Awa will serve as a hub to manage connections with local and international partners – and nurture collaborative links with key commercial partners, including Rocket Lab.
The CubeSat has been developed to provide a new avenue for New Zealand’s small satellite industry. It also marks a step towards the goal of developing a micro satellite mission, which could be funded by the government. The team behind the CubeSat is working on a new design that would be capable of carrying more scientific instruments and longer life. This would allow for more ambitious research projects and could attract international interest.

The team is also exploring the possibility of using the CubeSat as a test bed for new technologies. They are looking at ways to reduce the cost of launching small satellites and improve their performance. They are also looking at ways to use the CubeSat as a platform for demonstrating new technologies, such as new propulsion systems and new types of sensors.

The team is working with a number of partners, including the University of Auckland, the New Zealand Space Agency, and the New Zealand Defence Force, to develop the CubeSat. They are also working with a number of other universities and research institutions around the world to develop new technologies and new methods for launching small satellites.

The CubeSat is expected to be launched in the first quarter of 2022. The team is excited about the potential of the CubeSat and is looking forward to seeing it in orbit.
Feeling the groove
Device for hearing impaired recognised at Design Awards.

A wearable device developed by researchers at the University, which allows the hearing-impaired to feel music, was gold in the Student Public Good category at the recent Best Design Awards. Juan Pablo Ferron Correa, 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 Reality 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.

“I am 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.

A treatment plant in India is the first place to use a Kiwi innovation that uses maggots to process waste into fertilizer 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 upscale, trialling 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 plant is entirely sustainable and zero-waste,” says Neil. “The larvae are grown in a high-protein poultry feed for the chickens on-site, and the excrement processed into frass, a type of organic fertilizer.”

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 larvae at the plant in Kerala, and Neil Birrell inspect technician B. H. Srikanth (below) the revolutionary system to other waste-processing plants in developing countries. The plant processes 200kg of food waste a day, from local restaurants.

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ceived 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 contentious policy issues. 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. These recommendations have been widely reported and are 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 and consider the views of others conscientiously working together and finally drafted a set of recommendations 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 and consider the views of others conscientiously working together and finally drafted a set of recommendations 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.

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W

When Sjoerd van Ballegooij 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 undergraduate 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 later, engineering consultants Jacobs. He worked as a technical geotechnical specialist and later advised government agencies on policy and projects. He also oversaw the development of the Canterbury Geotechnical System database – 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 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.

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 policy and projects. He also oversaw the development of the Canterbury Geotechnical System database – 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 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.

Pania, with her cousins, created SOUL four years ago, to protect and preserve the land at Bamitāo. She then went on to complete a law degree in Tikanga Māori and Social Sciences for Public Health. Pania also won a scholarship and was accepted into first-year law. “I knew how lucky I was to have this opportunity,” she said. “My goal was to help others and going into law felt like my calling after an experience in my final year at school.”

She was hired. It was while working for Judge Moala she started blogging about successful Pacific women. That led to a call from the University of Auckland, offering her a role as a reporter. She was hired. It was while working for Judge Moala she started blogging about successful Pacific women. That led to a call from the University of Auckland, offering her a role as a reporter. She was hired. It was while working for Judge Moala she started blogging about successful Pacific women. That led to a call from the University of Auckland, offering her a role as a reporter. She was hired. It was while working for Judge Moala she started blogging about successful Pacific women. That led to a call from the University of Auckland, offering her a role as a reporter. She was hired.

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 alumni can be read at tinyurl.com/Auckland40Under40. Alumni wishing to submit nominations for next year’s list can do so here.

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Dr Gordon Nicholls: At 93, he was oldest to attend the Golden Grads event. 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 so recognized. 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 Atkinson delighted the crowd.

40 under 40

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.
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. Jenny says she fell into a business degree at the University of Auckland. “Straight from school, and without any clear career goals, I just saw it as a way of being able to support myself in the future—someday.” The future had to wait. For five years after graduation she backpacked around the world. There were a few odd jobs and when she met her Scandinavian partner, they moved to Sweden. She found her passion 11 years ago in creating Bokashi Sweden. Getting the business to the point where it’s turning over a million euros annually has been a hard slog, but Jenny runs it now as an online business. That freed her up to focus on “saving souls” in a new place.

“Myanmar is one of the countries that will bear the brunt of climate change,” she says. “It’s very real here, made all the more tragic by the lack of basically any infrastructure.”

She says everything is a challenge. “Language, culture, educational backgrounds, the works. I live in hostel dorms, sleep on bamboo mats in our staff houses, and sometimes end up house-sitting in fancy lakeside houses and apartments with pools. A lot of contrasts!” It’s been a 30 year-plus learning curve, but a rewarding one. Her advice is to learn the elements of business early on, and set your goals. “Having done that, let it all go and do what you think makes sense. Because then, one day, you can look back and see that it really does make sense and that you have lived your life in the way you were always meant to.”

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 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 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.”

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

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

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 perhaps 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.”
T he 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 Stone Tusa 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, but we were amazed at the response,” says Herena. “People were involved in donating, collecting, packing and shipping off the boxes.

Teaching Fellow and Books4Tonga board member Stone Tusa 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 Barnicot says some of the planned 20 village libraries are now up and running, including one in an old store in Nuku’alofa, on the main island Tongatapu, and one in the storeroom of a hall in Atu’u. 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 Terväiläger 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.”

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 25-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 2013 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 literacy 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 feebly, 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 aid in feeding 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 in the product, 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 hairural 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.”
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’s work.  
Peter Simpson, AUP, RRP $75

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 Minas 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 outwardly 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 on the book and how it came to be acquired in the University and Auckland’s volcanoes. Since then, science has made many advances in understanding 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 Auckland’s volcanoes 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, Orewa 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.

“At the Ngaruawahia end of the volcanic belt, as the Book of the Volcanoes, there is a revamp of the earlier Oral History. The book has aerial photos of each volcano or its site by nature photographer Alastair Jameson — 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  
Award photography by Alastair Jameson  
Bruce W Hayward, AUP, $49.99

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Enter your details to Ingenio@auckland.ac.nz by 27 January with Volcanoes in subject line. (Two copies to give away.)

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#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 10-year-old teased for her frizzy hair that led to her #NoFly year and reduced his carbon footprint by 93 percent.

#NoFly: Walking the Talk on Climate Change  
Shaun Hendy, BWB, $14.99

Penelope Jackson, Palgrave Macmillan, RRP $45

Females in the Frame: Women, Art and Crime  
An earlier work by alumna Peupleone Jackson (Art History), Art Thieves, Fakes & Frauds: 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, Peupleone tells the fascinating stories of women involved in art crimes all over the world.

Penelope Jackson, Palgrave Macmillon, RRP $54

The Chinese Dream: Educating the Future  
Selina Tusitala Marsh, AUP, RRP $24.99

Selina Tusitala Marsh, associate professor at Auckland, to explore the concept of the Chinese Dream chronicling 45 years of McCahon painting. It has about 300 illustrations and reproductions of McCahon’s work.

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A 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 #mophead. Hair that led to her #mophead.

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