BUILDING A PYRAMID
Peter Chrisp of New Zealand Trade and Enterprise

POD SQUAD
Heilala Vanilla's Tongan-grown success story

Massey

definingnz

News from Massey University | Issue 20 | **December 2011**

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SPRING CLEAN
TENDING TO OILED WILDLIFE AFTER THE *RENA* SPILL

NEW ZEALANDERS AND ILLICIT DRUGS
In some instances, enforcement may be working

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

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FROM THE VICE-CHANCELLOR

For many New Zealanders, the past 12 months will be remembered as a time of near-uninterrupted cataclysm. First, in November 2010 on the West Coast, the Pike River disaster; then on 22 February the earthquake in Canterbury; then, in October off the coast of Tauranga, the *Rena* grounding and oil spill; and finally, as a backdrop to it all, instalment on instalment of the long-running Global Financial Crisis.

It's a year that was fittingly bookended for me by a visit to Christchurch, post earthquake, to meet with some of the people associated with the university whose lives had been affected, and to Tauranga, where I witnessed the staff of Massey's Oiled Wildlife Response Unit caring for hundreds of birds in preparation for their release.

Could any of these events have been forestalled? The Pike River tragedy and the *Rena* grounding perhaps; the results of official inquiries will tell us. The Global Financial Crisis? New Zealand's economy is tiny and easily buffeted by larger forces; the best we can hope for is to seek counsel from the likes of Massey's Professor David Tripe and maintain a prudently regulated banking and financial environment. The Canterbury earthquake? Sitting on a plate boundary, New Zealand is always going to be seismically active – though no-one had thought Canterbury particularly at risk.

In the end there is only so much you can do. The forces of nature will bring earthquakes and other disasters just as certainly as will mankind's infinite store of folly.

The best we can hope to do is to improve the odds that a given event will not happen and respond effectively when one does.

So how have we done? In Tauranga, if the question is have we looked after oiled wildlife, the answer is strikingly well. Within hours of the news of the Rena striking Astrolabe Reef, the National Oiled Wildlife Response Team was being readied, and within 48 hours the equivalent of a wildlife MASH unit was materialising on Tauranga's foreshore. I cannot say enough in praise of the staff and volunteers of the unit, who put in long hours with great professionalism and dedication. It is work that looks good in front of the cameras, but for most of the time is a smelly and unglamorous round of feeding and cleaning up after birds that would rather not be there.

In Canterbury, it is simply years too soon to say how well we have done. The consequences of the earthquake are ongoing. Nonetheless, the fact that there were formally qualified emergency management personnel – educated by the Joint Massey University-GNS Science Centre for Disaster Research (JCDR) – in the city at the time of the quake and that others were available to fly in was undoubtedly useful.

This is the sort of thing universities are good at: conducting research, disseminating knowledge, and acting as a repositories of expertise that can be drawn on in times of need.

Massey has had a contract with Maritime New Zealand to tend to oiled wildlife since 1996, while the JCDR was launched in December 2006.

When and where will we next have an earthquake? Before the Canterbury earthquakes, Wellington was the leading contender. When you fly into Wellington airport, you can see the line of the Wellington fault incised in the landscape, extending along the Hutt motorway and into the central city. Embedded in the sidewalks of Lambton Quay, in the heart of commerce's Golden Mile, you will find plaques showing the shoreline pre-1855, the year when a major earthquake uplifted the land.

Yet the Wellington region's Emergency Operations Centre's (EOC's) existing building is classified as earthquake prone and elsewhere the National Crisis Management Centre and the Wellington City Emergency Management Office feature as at risk on the latest tsunami inundation hazard maps.

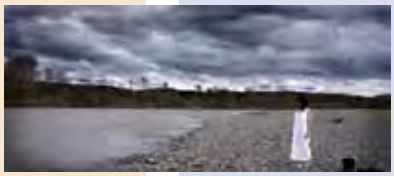
So Massey has put a proposal to the Greater Wellington Regional Council for the development of a $15 million EOC and Training and Research Centre, which would be sited alongside Massey's Wellington Campus, at some distance from the Wellington fault on solid rock above the tsunami zone.

This emergency management hub will be home to a world-class teaching and research facility that, in times of crisis, can be something much more.

The proposal is visionary and prudent and reflects Massey's ambitions to make its expertise available whereever and whenever it is needed. ■

In the end there is only so much you can do. The forces of nature will bring earthquakes and other disasters just as certainly as will mankind's infinite store of folly.

Talking Points



Woman: What is it? Can't stand the smell of me? It's just the smell of the river. Dark. Muddy. Deeper than dying. You'd smell too if you'd been here as long as I have. Thousands of years.

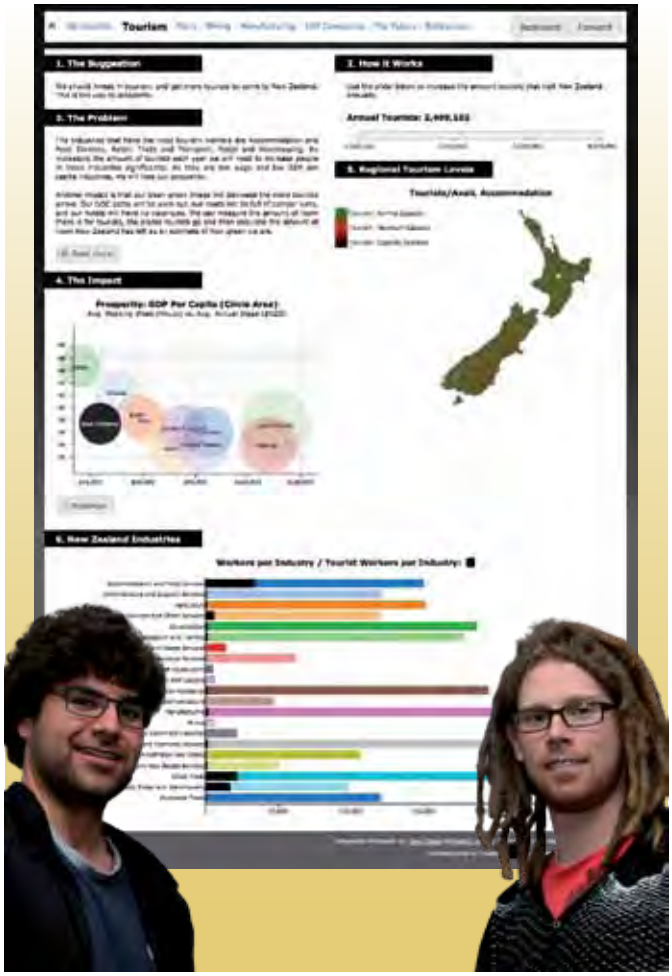
Sophie reacts

Woman: Some of us goes forwards. Some of us goes back. Me? I've lived every which way. Now. Then. And ways-away. Time when there was nothing but the river here. And the fish a-teemin'. Time when the river will rage and weep tears all about. Furlongs and furlongs. Be here when they're all gone too. People's just a tiny scrap of it all. You forgets. You think you's important. River's here long, long before people. And long, long after people's gone. Rushin' an' a tumblin' on. Rushin' an' tumblin' on.

An excerpt from *The River*, a play by Angie Farrow. Here 'The Old Woman of the River' speaks to a mute girl, Sophie, part of a highly physical scene in which the ghosts of the river become both the children of the woman and the river itself. The Manawatu River, which flows between the city of Palmerston North and Massey's Manawatu campus, has become increasingly degraded in recent years by pollution and agricultural run-off.

Professor Ian Yule, seated on a quad bike attached to a C-Dax Pasture Meter, a tool for measuring on-farm pasture growth. The meter, which Yule devised with the help of PhD students Robert Murray and Hayden Lawrence, was the 2011 winner of the environment and agriculture category at the New Zealand Innovators Awards. The meter can be towed at speeds of up to 20 kilometres per hour and is capable of taking up to 200 measurements a second. The resulting data map can be used to budget feed for stock and calculate the optimum amount of fertiliser.

Vice-Chancellor Steve Maharey signs a tripartite agreement with Shanghai Jiao Tong and Ningxia Universities during a visit to China in 2011. Massey also has tripartite agreements with Peking and Shi He Zi Universities, and Peking and Inner Mongolia Universities. Massey currently has agreements with more than 190 institutions covering a variety of relationships from collaborative research, to teaching, articulations, study abroad, and staff and student exchange.



Doing the numbers

What would happen if New Zealand brought in another 400,000 tourists? Would we become markedly more prosperous? What would be the impact on the environment? What about mining? Can we dig and drill our way to the good life?

Now you can test these propositions and others on a remarkable, new, highly interactive website put together by Graham Jenson and Alex Gibson, PhD student and fourth-year student respectively with the School of Engineering and Advanced Technology.

Jenson and Gibson have taken their inspiration from a series of presentations delivered nationwide by Professor Sir Paul Callaghan, in which he presented the case for investing in high-technology industries rather than low-wage, low-GDP-per-capita enterprises.

"I had seen Sir Paul talk at a conference – and his recent online video went viral to some extent," says Jenson. "It was an excellent talk and Alex and I both agreed with its message, but we wanted to have a look at the numbers."

The pair estimate they spent 100 hours on their entry. "Graham had the nasty part of doing the research and putting the data together," says Gibson. "Then I got to play around with the graphics and the design of it."

The reward? Their site, 100 Companies, won the $10,000 Supreme Data Mashup Award in this year's Great New Zealand Remix and Mashup competition, run by DigitalNZ in association with the National Library of New Zealand.

http://mash.hashbang.co.nz/

Slimed

For various reasons, the hagfish is not a creature with a large fan base. First, there's the dentition: two pairs of raking, comb-shaped teeth. Then there's the way it defends itself: when captured or held, the hagfish or slime eel exudes copious quantities of slime or mucus – as many a fisherperson will attest.

But how do they behave when at home? Now, thanks to video footage gathered by scientists from Massey and Te Papa, we know. The footage shows hagfish scavenging, hunting for prey and repelling attack using the mucus defence.

"Our video footage in New Zealand waters has proven that hagfish secrete slime at an incredibly fast speed when under attack by predators such as large sharks and bony fishes," says the project's lead scientist, Te Papa's Dr Vincent Zintzen.

Any fish or shark that takes a bite at a hagfish – and on the video a fair few do – quickly thinks better of it. The footage also shows that the hagfish is more than just a scavenger: in pursuit of a red bandfish it will burrow into the sand, ingeniously knotting its tail above to give it leverage to pull forth its prey.

"What we have seen helps to explain why the hagfish, a very primitive fish, has endured successfully for around 300 million years," says Professor Marti Anderson, a marine biologist and statistician at Massey's New Zealand Institute for Advanced Study at Albany.

Since 2009, the scientists have deployed cameras at depths ranging from 50 to 1500 metres around New Zealand. So far, more than 1000 hours of footage have been collected off the Kermadec Islands, the Three Kings Islands, Great Barrier Island, White Island and Kaikoura, with surveys to extend in 2012 to the sea off the Otago Peninsula and down as far as the Auckland Islands.

The work has been funded by a Royal Society of New Zealand Marsden Fund Grant to principal researchers Dr Clive Roberts, curator of fishes at Te Papa, and Professor Anderson and by a Te Papa Collection Development Grant. It has also been supported by the Ministry of Science and Innovation via NIWA and by the University of Western Australia.

For information and video visit www.definingnz.com.

Normal bone

Osteoporotic bone

To provide the body with a strong, light frame, our bones are hollow. The dense outer shell, called cortical bone, makes up roughly three-quarters of the total skeletal mass. The fine network of connecting plates and rods inside the cortical shell that makes up the remainder is called trabecular bone. Although trabecular bone is not the only bone type affected by osteoporosis, the sites where trabecular bone predominates are those most susceptible to osteoporostic fracture: the spine, wrists and hips.

Understanding proteins

When the human genome was first sequenced, expectations were high. The age of personalised medicine was upon us. In fact, what happened was that in many ways the frontier simply moved. Now we need to understand proteins. One of them is Gcn2, a protein that resides in all living organisms.

Dr Evelyn Sattlegger and her research group at the Institute of Natural Sciences at the Albany campus, along with collaborators in the United States and Brazil, have discovered that another protein, eEF1A (a protein synthesis factor), keeps Gcn2 in check.

"We've been able to open a door into the complexities of how eEF1A and Gcn2 work together to allow cells to know when they are short of amino acids – the building blocks of proteins needed for almost all biological functions – and how to cope with the problem.

"Knowing how cells detect and regulate amino acid levels will be very useful, particularly because Gcn2 is implicated in a number of diseases, and in diverse processes like long-term memory function, viral defence and silencing the immune system," she says.

"In particular Gcn2 has been proposed as a promising target for anti-cancer drugs."

Published in the *International Journal of Biological Chemistry*, Gettin' Hungry: Regulation of Cellular Starvation Response by Translation Elongation Factor was the paper of the week for 21 October 2011, ranking it in the top 1 percent in terms of overall significance.

Good bones

It has been called a silent disease, because by the time it announces its presence by way of a bone fracture, osteoporosis is usually well advanced. Currently, once past the age of 60 around 56 percent of New Zealand women suffer osteoporosis, and around 20 percent of New Zealand men.

Why so many more women? In a word, oestrogen. Oestrogen, the hormone that determines a woman's secondary sexual characteristics and her menstrual cycle, also regulates the mechanisms surrounding the replacement of bone, exerting a protective effect. So when the ovaries, the primary source of oestrogen, shut down at menopause, the fall in oestrogen levels has repercussions for bone health.

"The rapid and progressive bone loss associated with oestrogen deficiency at menopause, followed by sustained bone loss with aging, leads to vulnerability to osteoporosis," explains Professor Marlena Kruger of the Institute of Food, Nutrition and Human Health.

One treatment is oestrogen replacement therapy, but it comes with a catch: long-term use has been linked to breast cancer.

There may be alternatives. Some plant-based foods such as soy contain oestrogen-like molecules called phytoestrogens. Can women eat their way to better bone health? New Zealand's Ministry of Science and Innovation and the Japan Science and Technology Agency are to spend $500,000 on a project to develop food products that can deliver plant-based oestrogen to menopausal women.

The study will evaluate the effects of pairing these soybean isoflavones with New Zealand food components to aid metabolism. To date, the evidence surrounding the use of phytoestrogens has been mixed, says Kruger, as they are not fully metabolised, especially by Caucasian women.

"However, recent research indicates that gut bacteria can be manipulated in order to modify the metabolism of the isoflavones in the large intestine."

Ultimately Kruger hopes to work with New Zealand food manufacturers to develop functional foods that curb osteoporosis.

Kruger will partner with Dr Yoshiko Ishimi from Japan's National Institute of Health and Nutrition, and a post-doctoral fellow from Japan will work at Massey for the duration of the study.

The way to a cricket's heart

When it comes to the matter of sex, is the male the searcher or the searched for, and what makes the difference?

Among bush crickets the decider seems to be food. If the male can offer up a generous gift of food, the female will do the searching. If not, it is up to him.

Jay McCartney of the Institute of Natural Resources and international collaborators (from Canada, Australia and Germany) studied the behaviour of 32 different species in the bush-cricket genus Poecilimon.

In Poecilimon, the species exhibit one of two mating strategies: females search for calling males, or males search for calling females.

How does the gift of food come into it? The spermatophylax, the casing produced by the male that holds his sperm and ejaculate, is edible, a "nuptial gift" the researchers call it.

The researchers found that the taxa in which the males produced a "significantly larger nuptial gift" were the ones where the female tended to be the searcher.

Are the crickets so very different from us? McCartney is not sure. "Nearly all vertebrates have some variation on this; males hold a territory or are the best fighters that hold some resource, etc. Even humans," McCartney told Jennifer Welsh of the website *LiveScience*. "Males that are likely to be wealthy or show that they have great resources are always preferred."

The evolution of Sex Differences in Mate Searching when Females Benefit: New Theory and a Comparative Test, J McCartney, H Kokko, K-G Heller and DT Gwynne, Proc. R. Soc. B, published online 28 September 2011.

Why a little RED TAPE may be good for you

Those lengthy and sometimes costly resource consent processes about which firms so often complain may not be all bad: for publicly listed firms they appear to be associated with a strategic advantage that makes them more valuable on the stock market.

Carolyn Wirth, a senior lecturer in finance, studied the impact of expected environmental regulatory delays on capital expenditure announcements. She found that companies that expect longer regulatory delays achieve higher-than-expected returns – and this held true after controlling for a variety of factors including firm size, project size and nature of the project.

She speculates that the firms may be benefiting from such things as early mover advantages, increased reputational benefits and superior environmental management systems.

The source data for the study was drawn from the records of 55 firms (including energy, healthcare, consumer goods and services) from 1992 to 2007. For an average firm undertaking a 'long time to consent' project, the net benefit was estimated to be in the range of $18 million to $23.4 million at 2007 prices.

"I'm not suggesting that long delays for resource consent processes are good for the business community as a whole, but my research shows there can be advantages to some firms," says Wirth.

The Economic Impact of Capital Expenditures: Environmental Regulatory Delay as a Source of Strategic Advantage? Wirth, G Carolyn, Chi, Jing and Young, R Martin, 24 November 2010, Finance and Corporate Governance Conference 2011 Paper.

The good oil

The health-giving benefits of omega-3 fatty acids have been further endorsed by an international study.

Led by Professor Bernhard Breier, of the Institute of Food, Nutrition and Human Health, researchers from Germany, Australia and New Zealand fed omega-3-rich diets to two groups of mice, one group bred to be naturally lean, the other obese, and measured the change to metabolic responses. The result? In both groups of mice – though more markedly in the group bred to be lean – the omega-3-rich diet reduced cholesterol and improved insulin action and fat metabolism.

This is the first study to provide direct evidence of the role of omega-3s in the metabolic processes specific to the metabolism of blood sugar and fat.

Professor Breier says omega-3 fatty acids have been found to stimulate the process known as the insulin signalling cascade, which improves how blood sugar is used in the body.

At a time when many nations, including New Zealand, are afflicted by burgeoning rates of obesity and type 2 diabetes, the study's findings may have lessons for public health policy.

Omega-3 fatty acids are found in oily fish such as salmon and sardines, as well as walnuts, eggs and flaxseed, and have been shown to help prevent heart disease and stroke as well as play protective roles for healthy bones and healthy muscle.

Cornell University industrial design student Lauren Thomas (at left) is singing the praises of Wellington, where she is on a student exchange. "It is saturated with art and design, and has a rich urban culture comparable to that of cities 15 times its size." And she is just as flattering about her classmates. "The most striking thing about the Industrial Design department at Massey is how the students are both fiercely competitive and tremendously supportive of each other. Normally when there is this much explosive talent in a small studio class, you'd expect students to eat each other alive, but instead we're more interested in learning from each other and encouraging one another's individual development."

In the United States, Lauren's counterpart, Wellington fashion student Victoria Green (below centre), is having an equally rewarding time. The Cornell campus, she writes, is large and inspiring, with beautiful old architecture and gorges running through the campus grounds. She is loving the mix of cultures that Cornell attracts and, when not in class, she is working in the costume and scene shop in the theatre department making costumes and sets for student-directed plays.

More than 70 universities have student exchange agreements with Massey.

Finding our way

Increasingly the world is outliving its eyesight. In the United Kingdom it is estimated that one in 12 people will have serious sight loss by the age of 60, rising to one in six by the age of 70, and once past the age of 80 one in every two people will be vision impaired.

This matters more than it did, for New Zealand, like most Western nations, is supporting increasing numbers of older people.

"We need to find ways to ensure that people who stay at home and age in place do so successfully without being at risk of injury and social isolation," says Professor Steven La Grow (pictured), whose School of Health and Social Services is jointly hosting the 14th International Mobility Conference, and whose speciality is rehabilitation for the blind.

Fortunately, as the profile of the population ages, technology is advancing apace. Such things as computers, e-readers and global positioning systems (GPSs) are materially improving the quality of life for the visually impaired.

Accessible global positioning systems (AGPSs) – GPSs that offer synthetic voice output and screen readers, and may take the form of software on a cellphone or of dedicated hardware – are of particular interest to La Grow, who has been leading a study into their use by a sample of 300 blind people.

"They take almost all the anxiety out of travel. We have found that the most valued aspect of the AGPS is the 'where am I?' button. Press the button and the AGPS will give you your relative location on the street, telling you the house numbers, the direction you are travelling in, and the name of the next intersecting street."

The conference, which will address the issues involved in orientation and mobility for those who are blind or have low vision, will feature around 150 presentations from speakers in 20 countries including Australia, Canada, Denmark, France, Germany, Greece, Hungary, Israel, Japan and South Africa. Massey is joint host of the conference with the Royal New Zealand Foundation of the Blind, Vision Australia and the Kairanga Lions Club.

Massey's orientation and mobility programme, now celebrating its 20th anniversary, is the only one outside North America to be accredited by the Association for the Education and Rehabilitation of the Blind and Visually Impaired.

The 14th International Mobility Conference, Palmerston North International Mobility Conference, Palmerston North Convention Centre, 13–16 February 2012.

25

Massey University School of Aviation, celebrating 25 years of serving the global aviation industry

One of the School Aviation's $8 million fleet of Diamond training aircraft in the skies above the Manawatu. Each aircraft is equipped with a state-of-the-art Garmin 1000 cockpit display system and with Spidertracks, a real-time tracking system developed by Massey University mechatronics graduate James McCarthy.

In 2012 the Massey University School of Aviation celebrates its Silver Anniversary, marking the occasion with two-day celebration in Palmerston North on 20-21 April.

During its 25 years of existence, the school has educated and trained thousands of 'aviators with a difference'.

The Massey Aviation Institute opened in 1987 with 28 students on the first course. This year, 326 students are studying towards a Bachelor of Aviation Management, 130 are studying towards a Bachelor of Aviation – Air Transport Pilot, 37 are pursuing postgraduate degrees and six are working towards doctorates.

"Our school is one of the few tertiary education institutions in the world that combines professional training for pilots with university accredited academic qualifications," says Captain Ashok Poduval, who has headed the school since 2005.

"We know it takes more than stick and rudder skills and flying hours in the log book to produce a high-calibre aviator."

The school's graduates are now employed around the world and throughout the aviation industry. They have become pilots, air safety investigators, airport managers, flight dispatchers and aviation consultants.

The celebrations begin with a cocktail function and culminate in a jubilee dinner at the Palmerston North Convention Centre.

To find out more or register, go to http://aviation.massey.ac.nz.

Milestones

1987 The Massey Aviation Institute is launched. An Australian company provides the training for the 28 students who enrol in Massey Course Number 1.

1990 Massey Aviation Institute becomes the Massey School of Aviation. A Diploma in Aviation is established and the school moves to a refurbished facility on the Manawatu campus.

1993 Indonesia-based Garuda Airline signs a three-year contract under which the school will train cadets for the Bachelor of Aviation degree and convert flight engineers to Commercial Pilot Licence level.

1994 A four-year Bachelor of Aviation degree is approved by the Committee on University Academic Programmes.
Some 67 Massey graduates receive internships with Garuda Airlines, based in Jakarta, operating as first officers with B-737-400 aircraft for two years.

1995 The school moves from the 'rusty old hangar' at Milson to the present purpose-built Milson Flight Systems Centre at Palmerston North Airport.
Contract signed with Xiamen Airlines in China to train cadets to Commercial Pilot Licence level until 2002.

1996 Flight Instructor courses commence annually.
Postgraduate programmes formalised.
Massey Air Transport Pilot Licence programme is recognised by Singapore Civil Aviation Authority for pre-validation of licences for Singaporean Bachelor of Aviation students.

1998 School moves its headquarters and academic unit to the Albany campus.
Ardmore Flight Systems Centre is set up for pilot training and Bachelor of Aviation students attend lectures on the Albany campus.
Palmerston North Bachelor of Aviation programme and Milson Flight Systems Centre remain active. With two operating sites, the school becomes the largest flight training organisation in the Southern Hemisphere.
The school buys Spidertracks tracking system units developed by Don Sanbrook and Massey mechatronics graduate James McCarthy to combat radar blackspots.
The school's fleet of single-engine aircraft now permanently fitted with this safety device.

2001-02 Two courses for 43 students held at Ardmore to instrument rating level for the China Aviation Flying College.

2002 Bachelor of Aviation Management introduced.
Flight crew development major of Bachelor of Aviation restructured into four parts, renamed air transport pilot major and compressed funding to enable the four parts to be completed in three years approved by Tertiary Education Commission.
Bachelor of Aviation Management offered in Singapore through the Singapore Aviation Academy.

2003-04 Headquarters return to Aviation Way in Palmerston North with closure of Ardmore Flight Systems Centre.

2005 Captain Ashok Poduval appointed General Manager.

2006 Headquarters and Academic Unit moved to the Social Science Tower on the Manawatu campus. Albany aviation offices closed.

2007 Dmitri Zotov becomes the school's first aviation PhD graduate.
Tertiary Education Minister, now Massey Vice-Chancellor, Steve Maharey opens the new Frasca Truflite flight simulator.

2009 Fleet of 12 Diamond DA-40 and two DA-42 aircraft purchased at cost of $8 million to replace the Piper Warrior (PA-28) and Seneca (PA-34).
First Massey Bachelor of Aviation – Air Transport Pilot graduates inducted into the Jetstar pilot internship programme as first officers.

2011 Air New Zealand announces School to be a training partner. The School of Aviation has 326 students taking the Bachelor of Aviation Management programme and 130 studying the Bachelor of Aviation – Air Transport Pilot degree. There are 37 postgraduate students and six PhD students.

Robodan: rise of the machine

Jennifer Little meets a competitive rugby player with a difference

In 1997 a computer called Deep Blue took on the world chess champion and won. In 2011 a computer called Watson took out the game show Jeopardy. Now the question was whether a goal-kicking robot could humble a kicker with a pedigree, All Black legend and representative of all humankind Andrew Mehrtens.

Albany campus mechatronics lecturer Associate Professor Johan Potgieter was on the side of the robots – or of one robot in particular, Robodan of Massey's Albany campus, weighing in at 60 kilograms, powered by compressed air, and finished in gleaming muscle-contoured aluminium.

Also on the side of the machines would be Woderwick, from Massey's School of Engineering, and Advanced Technology and, hailing from the University of Canterbury, an unnamed mechanical kicker.

The play off would take place in October in Auckland's Victoria Park before an audience of school kids and media.

But as the play-off neared, Potgieter and his team had a problem: owing to a wiring control problem Robodan had yet to kick a ball over a set of goalposts.

They knew he could kick, but not how far or how high.

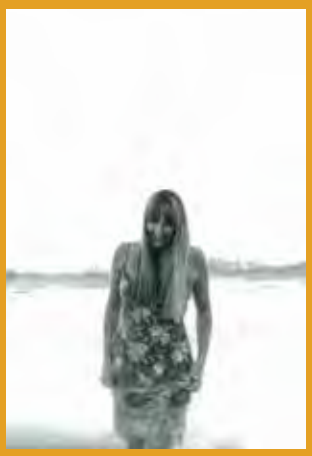
The idea of the challenge began in a Jetstar lounge. Potgieter, then-Chief Executive of the New Zealand Information and Communication Technologies Group Brett O'Riley, manager of Kiwibots New Zealand Chris Hamling and several Massey engineering students on their way home from launching a Vex Robotics programme in Lower Hutt got chatting over drinks (Vex Robotics, the United States-based international 'sport for geeks' robotics game, is played in schools all over New Zealand.)

Creating a robot that could kick a rugby ball would, they figured, be a great way to promote their homegrown 11-13 October event – the inaugural Schools' Robotics World Cup held in the Cloud during the Rugby World Cup.

When Potgieter returned to Albany, he recruited three second-year visiting French engineering interns (Romain Martin, Paul Metzler and Antoine Gosset from ENSIL National Higher Engineering

Hallmarked

The 2011 inductees into the College of Creative Arts' Hall of Fame are Collette Dinnigan, Arthur Riley, Joseph Churchward and Mark Elmore.



Australia-based fashion designer **Collette Dinnigan**'s collections are stocked in 145 stores in Britain, Europe, Russia, the United States, Japan and the Middle East. Her delicate dresses are frequently seen at red carpet events and have been worn by Angelina Jolie, Charlize Theron, Halle Berry and Kate Hudson. Dinnigan studied fashion design at Wellington Polytechnic, completing a certificate in clothing and textiles in 1984.

Arthur Riley founded the Wellington School of Design in 1886 when he was in his mid-20s. Riley, who was a leading advocate of planned technical education, argued that vocational training could not be left to chance if New Zealand were to compete internationally. He saw art as an inextricably vital part of daily life and industry.

School in Limoges) for the project. "The approach that I had from the beginning was that it had to be a student project. It had to be something young people did, firstly for their learning experience and if it didn't work we could say it was an experiment."

Using a computer design package, the students worked out the kinematics of motion and the forces involved in a leg kicking a ball, while postgraduate students built a prototype.

Robodan is controlled by a Seimens XYZ programmable logical controller – like those Fonterra uses in milking machines – and powered by compressed air from dive cylinders channelled through secondary cylinders – "like secondary lungs" – into pneumatic rams.

But the things that lend Robodan his personality are those other special touches: a leg taken from a mannequin and, courtesy of Massey product development lecturer and television star 'Dr Robotech', alias Chris Chitty, an animatronic torso and a face with moving eyes.

The morning of the kick-off arrived. Potgieter and his team scrambled to get Robodan into goal-kicking form. Close by, Woderwick was kicking ball after ball with practised ease.

Then Ian Savage, the head of the Rugby World Cup's official ball supplier Gilbert, appeared and was quizzed. Should Robodan hit the ball with the toe or the side of the boot? Where should the ball be placed? At what angle?

"As soon as he told us these things, we got Robodan to kick the ball successfully," says Potgieter.

The results? A 5-all Robodan-Mehrtens draw.

As for Woderwick, although he had cleared the goal posts beautifully during the warm-up, he had sustained injuries, beginning to lose oil and air, and in the contest he struggled with accuracy and distance. Nor was Canterbury's team a contender.

The project has spawned more research. "We want to find out whether toe-kicking, like the great All Black kicker Don Clark did, is the best form of kicking," says Potgieter.

Post-Rugby World Cup, Robodan has joined the celebrity circuit. He has been invited to corporate and robotics events and is to demonstrate his skills at the Rugby Sevens tournament in Wellington in February.

Then he will enter retirement, joining the rugby immortals in the Rugby Museum in Palmerston North.

"I wanted to build an artefact," says Potgieter. "Something for future generations."

www.definingnz.com

Joseph Churchward, founder of Churchward International Typefaces, is a Samoan-born graphic designer whose typefaces are known worldwide. A notable first was Churchward 69 used by Woolworths, and his hand lettering was used to help create the mastheads for *The Evening Post* and *The Dominion* newspapers. He has close to 600 original typefaces to his credit, Churchward, 78, continues to create new fonts from his Hataitai home. He won the Designers Institute of New Zealand John Britten Award in 2009 and received a Queen's Service Medal in 2010. Churchward attended the Wellington Technical College in 1948 where he gained an Art Distinction Award in Lettering.

Industrial designer **Mark Elmore** is one of the driving creative minds behind many of Fisher & Paykel's consumer products, one of them being the iconic DishDrawer, which is sold in 27 countries. The DishDrawer's success has brought in millions of dollars to the New Zealand economy, created jobs and, ultimately, allowed Fisher & Paykel to stay in New Zealand, where it is now the sole remaining New Zealand whiteware manufacturer. Elmore was recently awarded the John Britten Black Pin at the New Zealand Designers Institute BEST Design Awards.

Emergency management hub proposed for Wellington region

Emergency management specialists from the Joint Centre for Disaster Research (JCDR) at Massey University have invited the Wellington region's emergency planners to join forces in a purpose-built $15 million complex to improve preparedness for disasters.

The proposed 2000-square-metre disaster-resilient building would be sited on Massey's Wellington campus and be a venue for academic staff, students and emergency managers associated with the council's regional Emergency Management Office to gather for training programmes, and in the event of a disaster such as a tsunami or earthquake, to offer immediate incident response.

Currently the Wellington region's civil defence headquarters is housed in a building classified as earthquake prone. Moreover the current National Crisis Management Centre and the Wellington City Emergency Management Office fall within zones of risk on tsunami inundation hazard maps. Wellington's last major quake was in 1855.

Dr David Johnston, the Director of the JCDR, which is jointly run by Massey with GNS Science, believes Wellington's Mt Cook campus has compelling merits. "It's outside a likely CBD red zone-type area, is on solid ground and is not prone to liquefaction, and is away from the tsunami zones but close to a hospital."

The complex would also offer university students, studying courses such as the Graduate Diploma in Emergency Management, the opportunity to interact with emergency management practitioners dealing with the day-to-day issues involved in planning for real-life disaster scenarios.

Appointments

Professor Theodore (Ted) Zorn has been appointed Pro Vice-Chancellor of the College of Business. Currently head of the Department of Management Communication at the University of Waikato, Zorn will take up his appointment in 2011.

Zorn, who has a PhD in communication (1987) is from the University of Kentucky, Lexington and has worked in New Zealand since 1994.

Zorn is the author or co-author of five books. His teaching was recognised with the Waikato Vice-Chancellor's Medal for Teaching Excellence in 2004.

Accolades

Professor **Harjinder Singh**, co-Director of the Riddet Institute, has been awarded the **Shorland Medal** by the New Zealand Association of Scientists. Singh, who holds a Fonterra Chair in Dairy Science at Massey, is a world authority on milk proteins and their relationship to dairy technology and processing. His work has been characterised by innovation as well as the ability to translate laboratory-based findings to the food industry. The Shorland Medal recognises a major and continued contribution to basic or applied research that has added significantly to scientific understanding or resulted in significant benefits to society.

Professor **Geoff Jameson** has been awarded the Marsden Medal by the New Zealand Association of Scientists. The Director of the Centre for Structural Biology, Jameson is one of the leading crystallographers in the world. Under his leadership, the centre has thrived with new X-ray equipment and high-field NMR spectrometers being added to the suite of techniques available in-house.

The Marsden Medal is awarded for a lifetime of outstanding service to the cause or profession of science.

Massey University researcher Associate **Professor** Shaun Cooper has been awarded the **New Zealand Mathematical Society Research Award** by the **Royal Society of New Zealand**. Cooper, of the Institute of Information and Mathematical Sciences at the Albany campus, has established himself as a world-class expert in number theory. He is especially recognised for his research emanating from the work of the Indian mathematical genius Srinivasa Ramanujan. Massey alumna Professor Christine Winterbourn was awarded the Rutherford Medal, the supreme award in New Zealand science.

Pyramid scheme

Peter Chrisp, the Chief Executive of New Zealand Trade and Enterprise (NZTE), is a strong advocate of lifelong learning, and he practises what he preaches. **Jane Tolerton** meets the man charged with lifting New Zealand's exports to 40 percent of GDP by 2025.

Peter Chrisp sees his learning as a pyramid, with the time he spent studying sociology at Massey providing its firm foundation.

First he did a BA with a double major in sociology and geography. "When I finished, I quickly put my head up and looked around the world and realised a first degree wasn't going to cut it. So I did a Masters in sociology with a heavy bent towards statistics."

Then he started work – and kept studying.

"I feel learning is like a pyramid.You have to concentrate on the base but then you have to push up. Massey gave me a good base to my pyramid. But I didn't have enough financial and hard management skills, so I had to push out the middle of my pyramid to give me breadth.

"So I made a commitment to do a new round of learning every year, topping up some of the harder management disciplines – law, marketing, management, accounting and finance. But by then it was sitting on a big foundation of social knowledge and a certain amount of conceptional ability.

"Not long after I graduated I thought, 'Why didn't I do law or accounting?'. But when I took on different roles in my business career, the understanding of people became really fundamental. And when I started working overseas the ability sociology gave me to understand social, political and cultural contexts became very useful."

At the beginning of last year his own long-time cultural context had been that of the large global company. He was running Oslo-based Norske

"... when I started working overseas that ability sociology gave me to understand social, political and cultural contexts became very useful."

"There's a New Zealand dairy farm 550 kilometres down a dirt road. You can see these inspired New Zealand leaders building this world-class dairy farming operation in the backblocks of Brazil. It's a great image of what we can do."

Skog's operations in this part of the world from Sydney.

Near the end of 2010, he arrived at the Wellington HQ of the Government's national economic development agency to take up the challenge of working with New Zealand companies to achieve the goal of boosting the country's exports from 30 percent to 40 percent of GDP by 2025 – with an annual budget of just $200 million.

Almost straight away, he asked the State Services Commission for a full review of NZTE. "There was some surprise about that. It was a bit like asking for a root canal," he said in a recent interview with National Radio's Kathryn Ryan. But the report's criticisms of the agency's leadership, governance and financial efficiency meant that he could make swift and meaningful changes.

The report said that the agency lacked focus and spread its resources too thinly over too many projects. Now targeting is tighter and fewer grants are given to companies. Chrisp likens the old regime to an "ATM machine – you pull a lever and get some money to develop your market". The new model is "co-investment". And the agency has put a particular focus on the knowledge and scientific innovation sectors.

This year Chrisp set out to visit as many of the agency's 'customers', New Zealand's private sector export companies, as possible, getting around about 70. There are 13,000 companies that export, but only 700 with revenues of more than $3 million per annum.

He's also visited 20 countries – markets for these companies.

"What we do is join companies to markets and grow companies into markets. You're trying to create real value. You have to see the two sides of the equation. It's all about having insights. I don't have much insight sitting here in Wellington. I'm a kinaesthetic learner, so I like to get my hands on stuff. I was in Brazil a few weeks ago. There's a New Zealand dairy farm 550 kilometres down a dirt road. You can see these inspired New Zealand leaders building this world-class dairy farming operation in the backblocks of Brazil. It's a great image of what we can do."

It was at Massey that he discovered that learning was something he really enjoyed – having arrived at the Palmerston North campus in 1980 from Gisborne's Lytton High School, choosing the university because his brother had studied business there and his sister teaching.

"There was a strong academic community, and they fostered among their students a real desire to learn. I had absolutely amazing lecturers – including Graham Fraser, who was professor of sociology, Brett Wheeler, Steve Maharey and demographer Paul Spoonley.

"I became very interested in just learning. I was a very curious learner and a very serious student. I knew this was an opportunity to learn, so I got stuck in. I squeezed the juice from the lemon."

The social side of life was equally engrossing. "I had absolutely fantastic friends – as you do at university. We had a house at the end of Tiritea Valley, up into the hills behind the university. So we lived close to the outdoors. For example, we had very low water pressure, so we used to wash in the stream. We explored the Tararuas right behind the house, getting into the bush, finding our adventurous selves."

He still did not have a career path planned when he finished his BA. "I've only ever looked at the next few years and done what interests me and what my passion has been."

His thesis for his Master of Social Sciences degree, deliberately chosen to boost his statistical skills, came from a research project in which he and other team members surveyed 1000 people for three hours each – to see whether someone's economic position determined their political, social and educational attitudes. They found that the attitudes of people from a higher class position followed a pattern to a greater extent than those from a lower class position, for whom what mattered just as much were factors such as their gender and where they lived.

On graduating, he could have gone into the Ministry of Foreign Affairs but he plumped for a job as a union advocate. His parents had a strong social conscience; his father Michael Chrisp, a lawyer, had always worked on a range of "public good activities" and his mother was active in Save the Children. His parents were an inspiration, and a thread through his own career has always been "economic development to help people".

He began work with the New Zealand Engineers' Union the year the economy really started to change.

"The country went on a deregulation path from 1987, so we had seven years of structural adjustment in the economy. We lost 50,000 manufacturing jobs in five years as tariffs came down.

"So you had these companies struggling to adjust, and we in the union used to sit down and say, 'What are the conditions you need for growth?'. We could see the benefits of things like upskilling. So there was an overlap of interests in that period between the union and companies to develop these companies, because otherwise they would have closed. I talked with a lot of companies about their survival even though I worked for the union."

He met and married paediatric nurse, and later midwife, Judith Corcoran while they were both working in Wellington, and now they have three children. "It has been a team effort with Judith all the way through."

The first of their 16 moves in 17 years was to Whakatane, where Chrisp joined Fletcher Challenge Paper. At the Kawerau paper mill, he found that his job was, in many ways, similar to his previous one.

"We were feeling the cool winds of international competition, and we had to make adjustments. We had to change – get the labour costs down, the plant modernised and the quality of the product up. So I went from one situation where I was focusing on the survival of lots of companies to [focusing on] one company – and then, when Norske Skog bought Fletcher Challenge Paper, [to focusing on commercial enterprise] on a global scale. The common thread in my career has been the survival and growth of companies – and now this country."

From General Manager at Kawerau, Chrisp moved to Norske Skog's headquarters in Oslo, Norway, taking up a global role as Senior Vice President Business Improvement, covering businesses in South America, Asia, the Middle East and Europe.

From there he moved to Sydney, to run Norske Skog Australasia including Australia, New Zealand and part of Asia. It was there that he was phoned by the chair of NZTE, Jon Mayson, who had been CEO of the Port of Tauranga in Chrisp's Kawerau days, and asked to apply for the top management role at NZTE.

His initial response was a firm no. "I was sitting there one day minding my own business and got the call. I had a great job, the children were in great schools, and we were trucking along pretty well. I said, 'Thanks, but we're here for a while'.

"Then I got thinking about it. The thing I liked about it was that it was domestic and international. There's a big, fascinating world out there and connecting this country to it is fundamental to what we have to do, and this role pitched right into that zone. And it was an opportunity to make a contribution to my country."

He changed his mind while camping with his extended family at Lake Taupo, a long-standing tradition.

"We were at the lake and I was thinking that ultimately we wanted to come back to New Zealand, and if we stayed in Sydney once the children were into senior school, they'd get deeply rooted in Australia, and if that happened we'd have to come back without them.

"It was the most difficult decision I have ever made, but the right one. It was a decision to re-ground the kids in New Zealand, so they wouldn't forget where they come from and who they are.

"I read a sign on the wall in the Villa Maria board room recently: 'There are two questions in life that you have to answer: Where are you from? and Who are you?'. Those are the two foundation questions. Knowing where you are from and having that affinity with where you're from – the whakapapa, the grounding. For me that's important."

Spending time with the family is how Chrisp relaxes. "My sons and I have a mission to jump off the Seatoun wharf 50 times over the summer. We've got a chart up in the garage. That's my relaxation – hanging out with the kids in the outdoors, doing a bit of camping." He also jogs most days: "That's my foundation stone; I've always done that."

And he still finds time to do his annual instalment of pyramid building.

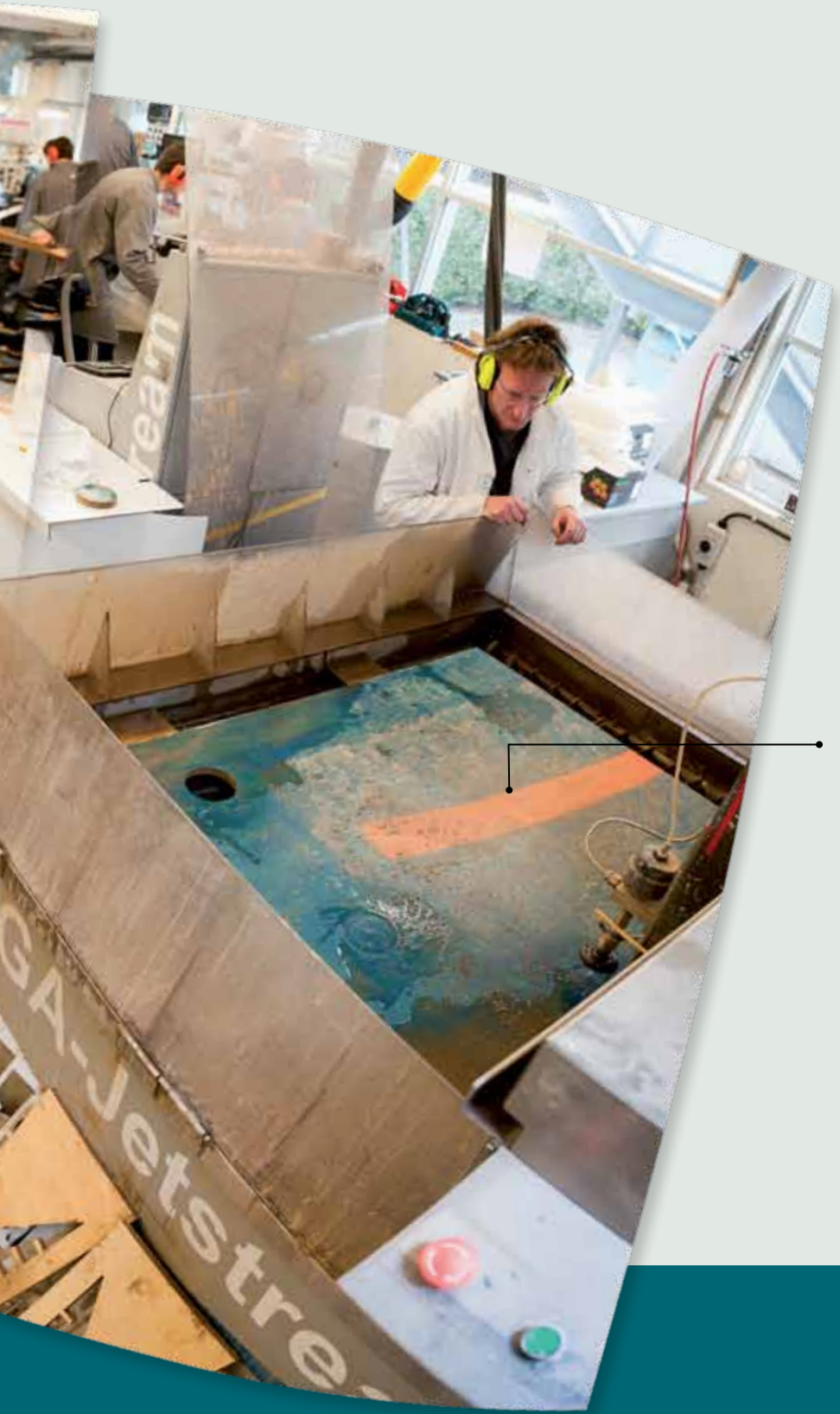
"I made the commitment that I'd do a new round of learning every year, but changing jobs also counted for that. And having a child was a new learn, so I didn't try to do it in a year when we had a baby. A university paper or executive short course doesn't sound like much. But if you do that every year from age 25 to 49, that's 24 pieces of learning on the way through. The whole point is the world's moving so fast, you've got to keep building your pyramid." ■

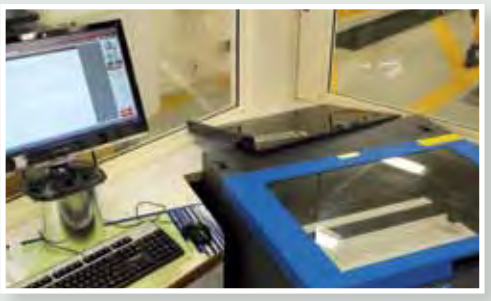
"Knowing where you are from and having that affinity with where you're from – the whakapapa, the grounding. For me that's important."

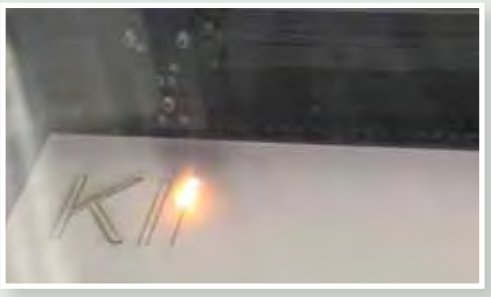
TOOLS OF TRADE

In a world that is more and more virtual, there remain disciplines that are defiantly linked to the material world. Computer simulations will only take you so far. Sooner or later there needs to be a physical prototype; nothing else will convey that visceral understanding of how a product will look, feel and handle. Hence the Institute of Design for Industry and Environment's workshops embrace all manner of workshop equipment, from the saws and drill presses you might remember from woodwork at school, to the most up-to-date 3D printers. Seen here are Lyn Garrett, co-ordinator for the industrial design major, and exhibition system design and manufacture specialist Peter Fraser in front of one of the workshops as fourth-year students prepare for their end-of-year exhibition, *Exposure*.

Alexander Wastney's sports therapy table won the 2008 Dyson Product Design Award.







A computer-directed, high-power laser burns and vaporises a stencil for a third-year student's design project.

Employing a high-velocity jet of water mixed with abrasives, this water jet cutter is capable of precision-cutting sheet metal several centimetres thick.

A computer numerical control milling machine is used to sculpt complex three-dimensional objects for rapid prototyping. This is a subtractive process: material is cut away. The Industrial Design workshops also offer access to additive processes in the form of 3D printers.

Steven Wyeth's prototype fire fighter's hose nozzle, which he dubbed the Minotaur, attaches to a custom-designed front-mounting harness. The Minotaur won a gold at the 2011 Designer's Institute of New Zealand Best Design Awards.

Industrial design graduate Nicholas Couch won the 2011 James Dyson Award for this recyclable shoe, which enables its wearer to swap soles and gradually transition to the 'barefoot' style of running.

lather rinse repeat

At around 2.20am on 5 October, the 236-metre cargo vessel *Rena* struck and grounded on Astrolabe Reef about four nautical miles north of Motiti Island and 12 nautical miles off the coast. The following day four dead birds were seen floating in the slick of oil close by. They were the first of many casualties. The National Oiled Wildlife Response Team was immediately mobilised, setting up camp alongside a wastewater treatment plant in what would become a long-term operation. In early November, journalist **Jennifer Little** spent time with the unit.

Patient 13754 is well scrubbed, round-bellied and hungry. The little blue penguin swiftly gulps down his seventh anchovy in a row, hand fed to him by his two helpers.

Meal over, shortly he and three or four others of his kind will be bundled into a specially made mesh-covered, wooden wagon and wheeled out of the clean bird tent, past the whiteboards with their feeding schedules, medicine charts and weight-gain data, to one of nine outdoor pools for the daily one-hour swim.

It is day five of his stay, but although he is now healthy enough, he is not yet seaworthy. His rescuers have done their bit, cleaning him of oil, feeding him generously and keeping tabs on his weight and wellbeing.

Now it is his turn. Only he can preen his densely packed feathers back to the natural waterproof state that will keep him buoyant and warm in the chill of the ocean. The preening may take hours or even days.

Once he is done, he will take up residence in one of the purpose-built outdoor enclosures the volunteers have dubbed 'penguin palaces'. And then? When the risk of further oil spills is at an end he will be returned to the wild to nestle in the rocks at the base of Mount Maunganui.

It takes a community to save a penguin. The National Oiled Wildlife Response Team has 140 people in Tauranga, individuals who have temporarily left jobs, homes and families to relocate under contract to Maritime New Zealand. They include veterinarians, ornithologists and a variety of other specialists who have been trained in how to capture and treat oiled birds while inflicting the least amount of trauma. Seven have flown in from overseas, with the United States-based International Bird Rescue and Oiled Wildlife Care Network being well represented. »»»

It takes a community to save a penguin.

Left: Commonly known as the little blue penguin or korora in New Zealand and as the fairy penguin in Australia, *Eudyptula minor* is the smallest of all penguins, standing between 35 and 40 centimetres tall. This oil-coated bird would not last long in the wild. The oil makes the bird's feathers permeable to water, explains wildlife veterinarian Brett Gartrell. When in the water, the penguin is no longer naturally buoyant; when it returns to land the oil-sodden feathers no longer keep the cold at bay, and when it preens its feathers or feeds on oil-contaminated prey it ingests toxic hydrocarbons, damaging its red blood cells, liver and kidney. Gartrell delivers a grim prognosis: "If they don't drown straight away, its usually a combination of effects."

Maritime New Zealand

Above: The *Rena* aground on Astrolabe Reef.

Maritime New Zealand

The *Rena* spill attracted international media interest. Here Dr Brett Gartrell, head of the New Zealand Wildlife Health Centre, gives a daily briefing.

Maritime New Zealand

"Ghost-busting eh?" tease a couple of skateboarders in shorts as we head for the track around the Mount, the focus of the oil spill. "Nope, looking for penguins," replies team leader Dave Richards, local businessman and seabird enthusiast, who is fetchingly clad in the uniform of a penguin rescuer: white biohazard suit, orange high-vis safety jacket, tramping boots and headlamp.

Richards, with his teenaged children Bekki and Ben and assorted helpers, is on his 17th such mission in less than a month to find and rescue oiled penguins.

It is 7.30 in the evening and sunset is nearing. Out at sea the little blue penguins are starting to head ashore after their day's fishing to nest or feed their chicks.

Richards' mission is to catch oiled penguins, on their nests, tucked away in the crevices among the boulders, or as they make their way homewards across the shoreline.

Under starlight and a half moon, the rocks are black and slippery with oil and the nests are well hidden. When there are eggs, as is often the case,

Some of the 1400-or-so dead birds picked up around the East Coast shoreline. Among the casualties are little blue penguins, diving petrels, gannets, fluttering shearwaters and Bullers shearwaters. The actual death tally is likely to be much higher. Wildlife veterinarian Dr Brett Gartrell puts the number of bird deaths attributable to the *Rena* spill at perhaps14,000.

Maritime New Zealand

the volunteers must still take the oil-covered birds to be saved, knowing that this year's young will be lost.

Another team is performing the same duties on nearby Rabbit Island, where the rescuers, having been dropped off by boat, will camp overnight. As well as penguins, the island has been home to an estimated 700 pairs of diving petrels – but many are among the dead. (Smaller response centres have also been established on Motiti Island and Te Kaha further south.)

When a searcher finds an oiled bird, a cell phone call to a Department of Conservation co-ordinator in a back room of the Mt Maunganui Surf Club prompts a driver to come by on a quad bike. Oiled birds are taken in plastic pet-carrying containers to the intake tent about 10 minutes' drive away.

The intake tent is one part of what has become a sizeable operation. Situated on the outskirts of Tauranga next door to a rubbish tip and Baypark speedway stadium, in one month it has grown from one container and two tents to a complex of 10 tents, nine pools, 10 aviaries and shelters for a staff café, supplies and pathology.

The intake tent is where assessment and triage are carried out, the decisions taken about which birds are likely to survive and the order in which they should be treated. It is where one black and bedraggled penguin will acquire the tag that will be used to track his progress: 13754.

Penguin 13754 makes it through the initial assessment. But not all do, says Australian-native Gartrell, who grew up on a New South Wales orchard and sheep farm then worked as a vet in private practice in Sydney, Brisbane and Hobart for 15 years before moving to New Zealand.

"Birds with fractured wings or legs, or that are very badly oiled, we may decide it's better to euthanise them than put them through the stress of trying to save them when there is no hope they'll get through."

Birds that make it past the first hurdle are superficially decontaminated with absorbent pads designed to soak up oil from the surface of feathers. They'll get lubricant put in their eyes to protect

Above: The tents and birdlife recovery tools of the Oiled Wildlife Response Unit alongside Tauranga's wastewater treatment plant.

Maritime New Zealand

Below: Kerri Morgan delivers a briefing soon after the Oiled Wildlife Response Unit's arrival.

Maritime New Zealand

Penguins are taken through the various stages of cleaning.

Maritime New Zealand

Vet Janelle Ward with a New Zealand dotterel at the Wildlife Response Centre. While little blue penguins have been assigned the status of 'lower risk - near threatened', the dotterel is nearing extinction, with about 1300 northern dotterels in existence. Hence those dotterels in the vicinity of the *Rena* spill have been captured and are being held in captivity until the risk of oiling has abated.

Maritime New Zealand

their mucus membranes from the toxic and irritant effects of the oil, and their eyes will be flushed out if necessary. Then blood is sampled to check the levels of red blood cells left in their bodies because of the oil's toxic effects on these.

"The test also gives us an idea of the protein in their blood, to give us an idea of how long they've been struggling, and finally we look at blood glucose level – also an indication of when they last had a feed."

It takes only 15 minutes to get results from the on-site lab. Meanwhile, the birds are given fluids to combat dehydration, and saline solution to replenish their salt glands.

In the dirty-bird tent, birds are stabilised. In an environment heated to between 28°C and 35°C, they are fed, given fluids and kept warm.

"At this point we don't try to take off oil, we're just trying to build up their strength, which can take between 12 hours and seven days," says Gartrell. "It's the tent where we see the most mortality."

The birds need to be strong enough to withstand being washed, a procedure that is stressful, exhausting and potentially lethal.

"If you start too early, they'll die during the wash, but if you go too late they'll die because of the oil."

The washing tent is a place of transformation. Each bird is ministered to by two bird washers, in an elaborate process that entails the use of between 500 and 1000 litres of water, ample amounts of

"These are wild birds that are not used to being handled by people."

New Zealand
Wildlife Health Centre

Help save and conserve New Zealand's wildlife

The New Zealand Wildlife Health Centre promotes and implements collaborative investigation and management of wildlife to support the welfare and conservation of New Zealand native fauna. The centre's work includes:

- a rapid response unit to deal with animals affected by oil spills
- a diagnostic service for captive and free-living animals
- a clinic for sick and injured wildlife
- a unit for the health and welfare of marine mammals
- a research unit, which is working to understand, prevent and treat diseases in wild animals.

The centre is supported by the New Zealand Wildlife Health Centre Trust. Donations can be made online at **http://foundation.massey.ac.nz**.

From left: Drying off after washing; the invalids' diet – pureed fish.

Maritime New Zealand

Let loose in the water, penguins dart and dive, delighting spectators.

American-made Dawn household detergent – the best product available, donated and shipped for free by the manufacturer – and piles of towels.

The penguins know no gratitude; for them the experience is simply a further ordeal. "These are wild birds that are not used to being handled by people," says Gartrell. "They're being held under water, and the water is going right down to their skin because it's soapy and they feel like they're drowning. So it's 30 to 40 minutes of being wrestled in soapy water by a large predator."

The soap is rinsed out as a separate operation in an adjoining area. This is a somewhat less stressful experience: the penguin is no longer submerged in water but instead is standing on a solid surface with water flowing from a small hose through its feathers.

An upgrade to a clean tent means the worst is over and everyone can breathe a sigh of relief. "Nothing much happens for a few hours after the rinse. Most birds sleep – even when people are around – which gives you an idea of how exhausted they are," says Gartrell.

Next comes a phase of intensive care and rehabilitation focused on building up their condition and regaining waterproof capacity. Orange pet dryers are positioned over the crates where penguins are housed to keep them warm as they begin preening to rebuild the natural oils in their feathers that keep them afloat in the water. A few have to be re-washed to remove stubborn oil traces or drips from the fish oil on which they feed. Volunteers administer daily doses of an antifungal

drug to prevent penguins contracting the lung infection aspergillosis, which can kill them.

Twice-daily feeding is hands-on and full-on, again requiring two people per bird. One steadies the wriggling towel-wrapped penguin on a knee while the other deftly inserts six to ten fresh Peruvian anchovies in succession down its gullet. The two meals amount to half the penguin's body weight, explaining the 160-kilogram fish supply needed daily at the centre.

Feeding is followed by a swim in one of the common garden portable pools erected in the midst of the centre, fitted with perching platforms so the birds preen as well as swim.

"At this point they are clean but not waterproof. The birds themselves have to get waterproof," says Gartrell. "Their feathers have lots of little barbules, which normally interlock to hold the feathers in place. During the wash procedure, they all get disrupted so the birds have to preen them back into place. That means going over every single feather several times."

Let loose in the water, penguins dart and dive, delighting spectators. Close by, three shags and a shearwater recover in netting-covered pools.

It will take three to eight days of constant feather-coiffing for the penguins to achieve full waterproofing.

"We want the feathers dry to the skin, nothing but fluff," says Michelle Bellizi, a Californian from International Bird Rescue.

A move to a custom-built 'penguin palace' is the next step. Designed and built by Manawatu-based Dwyer Technical Solutions, the five-star 'penguin palaces' have shallow pools for swimming and drained rubber-mat areas for waddling and preening, and are equipped with running water to remove waste, as well as burrows made from upturned fish crates for night shelters.

They can accommodate up to 500 birds, not including the 60 rare, endangered dotterels kept apart in their own aviaries.

Just how long they will be here was uncertain at the time of writing. "We're contracted to be here for as long as there is a serious risk of oiling," says Gartrell.

"Our best guess at this stage [a month out from the spill] is that if the boat holds together and they manage to drain the rest of the oil [350 tonnes] in the tank, we will be able to begin releasing the birds after that."

For now, he is pleased at how well things have gone, and to have entered a post-emergency phase. "The most rewarding thing for me is seeing how well my team has worked. We've had lots of plans and a lot of training in place for this, but there's nothing quite like the real thing," says Gartrell.

"The team has worked brilliantly together doing long hours, sometimes very demanding emotional work."

For penguin 13754, the most pressing concern is the next feed. Anchovies again? ■

The first release of 49 little blue penguins took place on 22 November. Further staged releases will take place over several weeks as the birds are judged seaworthy.

Maritime New Zealand

Pod squad

When an innovative Tauranga vanilla company wanted help with technology, it turned to Massey University for help. Nearly five years on, the resulting relationship is still yielding benefits on both sides. **Bevan Rapson** reports.

Jennifer Boggiss and Telavao Latu (Heilala Vanilla plantation manager) with fresh Tongan-grown vanilla pods.

Heilala Vanilla is hardly a typical company. It has its roots in a Tongan plantation, its headquarters in Tauranga and a market for its fragrant products among the world's most discerning chefs and retailers.

But while its vanilla's aroma carries with it a romantic hint of the tropics, Heilala has had to overcome the typical nuts-and-bolts challenges of any fledgling business.

A few years ago, Heilala's challenge was to find more to do with the beans than merely harvest them and sell them on. It wanted to turn them into high-value products that could be marketed to foodies around the world.

But, as a family operation, it had little scope for research and development (R&D). Unlike large-scale food producers, it couldn't call on an in-house team of food technologists to devise the processes and protocols it needed.

The business had begun when John Ross, a retired dairy farmer, began doing aid work in Tonga and established a vanilla plantation as a cash crop in the village he was helping. His daughter and son-in-law Jennifer and Garth Boggiss became involved and – as former avocado growers – also saw the potential of a product that can fetch prices as heady as its fragrance: as much as $500 per kilogram.

After carefully planting and tending the plants on the island of Vava'u, a supply of beans was established, with villagers employed in the initial processing during which the beans are dipped in hot water, cooled, slowly dried then finally graded.

In Tauranga, Jennifer and Garth Boggiss pondered what might be done with the vanilla. "We started thinking, we've actually got to develop a product range here," says Jennifer. "We're never going to get anywhere fast just selling vanilla pods because then you're just like a commodity product."

It's worth noting at this point that this is clearly a family with a strong entrepreneurial streak, most famously exhibited by Boggiss's brother Geoff Ross, who made his name as the man behind 42 Below vodka. Talking to Boggiss, a former accountant who these days looks after Heilala's marketing, it's pretty obvious that the company was never going to pass up the opportunity to develop products with its vanilla.

But it was starting from scratch in terms of technology. In the venture's early days, product experiments were done in the Boggiss kitchen in Tauranga. They couldn't contemplate having an in-house food technology team. "For a small company to do food tech work, it's very expensive," Boggiss says. "Sometimes you don't get anywhere because you can't afford to make that investment."

But then the couple got talking to a local food technologist working for giant kiwifruit marketer Zespri. Helpfully, she knew that Massey University could sometimes do food technology work for small companies more affordably than would otherwise be possible. She recommended an approach to Associate Professor Marie Wong at the university's Albany campus.

Sure enough, an opportunity was identified for a student to work on a Heilala project as part of her honours-year programme in 2007, establishing a relationship that continues today.

Wong, who was once a Massey technology undergraduate herself, has been on the staff of the university's Institute of Food, Nutrition and Human Health for more than a decade and knows well the mutual benefits that can accrue when advanced students have the opportunity to work on commercial projects. "It's their final project; they're working with commercial objectives and goals and deadlines."

Wong explains how a fourth-year food technology student, Shannon Swan, tackled that first Heilala project, which aimed to devise an extraction process: "She came up with a recommended extraction procedure and also started the product development part of the vanilla paste."

Swan looked at different conditions and also made sure that the process recovered the required amount of vanillin – the main component of the extract. "It basically involved understanding extraction processes, the chemistry, analysing for vanillin," says Wong. There was also sensory evaluation, comparing the Heilala product with another leading vanilla extract product. "It was a full food technology project. There was extraction, there was processing involved, there was analysis and some development work and there was consumer sensory work."

The project was a success: Heilala went on to use and modify the recommended procedure and an ongoing relationship was established. "That formed the basis going forward," says Jennifer Boggiss.

The next project in 2009 tackled a problem Heilala was having with the beans from Tonga going mouldy. "So we had another student look at modified atmosphere packaging for them," says Wong. "The

Unless otherwise noted, all images supplied by Heilala Vanilla

student recommended a packaging process and system and so they have implemented that. They went out and bought the vacuum packer that they needed."

That same year, Heilala was keen to extend its range, so Wong suggested a full product development project, incorporated into a final-year programme in which groups of students work together to develop new products, starting with concepts and going through consumer research and focus group work. Having put proposed products forward to their managers or clients, in the second half of the year they devise manufacturing protocols.

That project helped convince Heilala to go ahead with a vanilla syrup, which can be poured on icecream and pancakes like maple syrup and used in cocktails. "For the syrup project they actually went out and did focus groups," says Jennifer Boggiss. "So that we weren't just developing a product because we liked the sound of it, it actually had some research behind it."

Massey's involvement has coincided with a period of promising growth for Heilala. Jennifer Boggiss estimates that the business has grown by between 60 and 70 percent in each of the past three years.

Heilala's Tongan operation has 2500 plants and a co-operative has been formed with other growers on the same island, increasing the available supply of dried pods. The company scaled back a New Zealand growing operation from 300 in a tunnel house in Tauranga to 25 plants that can still be used for marketing purposes and to supply local chefs. "It's so labour intensive," says Jennifer Boggiss. "It was taking up a lot of our time when we need to be focused on R&D and sales."

These days the company exports to Australia, Singapore and the United States and in a major coup for 2011 has got its products into the prestigious Williams-Sonoma homegoods chain in the US, the first shipment being sent to the retailer in March. Just dealing with a big American corporate has its challenges for a small company: Jennifer Boggiss says the Americans are like New Zealand's big grocery buyers "on steroids".

Heilala's products are in Thomas Dux in Australia and New World stores in New Zealand. It has also picked up business from food manufacturers on both sides of the Tasman, including Serendipity icecream in Australia, and is keen to win over more manufacturing clients. "That's the biggest challenge for us," she says. "Obviously they are the highest-volume consumers of vanilla.

"It's great working with food manufacturers that appreciate and use real ingredients as opposed to the large multinationals that typically use artificial vanilla flavour." She says real vanilla has a cleaner flavour than the artificial products with which most of us have grown up, which often tend to contain sugar and colouring.

But while bigger companies might like the idea of a natural vanilla product, they also need to know exactly what they will be getting from Heilala, in measurable terms. Cue another project for Massey, which will look at what large-scale food manufacturers use now in terms of vanilla and work towards creating a Heilala product that's going to fit into its processing capabilities. Boggiss: "That's the big challenge for us: to grow and to be appealing for those large-scale food manufacturers."

Wong explains that a Master's student, Cameron Fan, is going to formally characterise the Heilala vanilla flavour so that food manufacturers can be advised in clear terms what it will add to their products. Her work will involve a trained tasting panel and instrumental work producing a flavour profile. "It's fundamental research but the end goal for them is to get their product into big manufacturers," she says. "The more information that Heilala have, the better it is for them to go out and market their product."

Heilala is also keen to refine its syrup recipe to remove the need for the 0.25 percent of preservative that has so far been added in manufacturing to give the shelf life demanded by retailers. That has become another Massey project, while yet another is focused on producing a Heilala beverage.

With so strong a relationship, it's not surprising that Boggiss says it's working well for the company. "It has been great. We couldn't have done what we've done without them."

The benefits go both ways. As an innovative, horticulture-related business, Heilala provides exactly the right kind of opportunities for New Zealand food technology students. "It's very New Zealand," says Wong. "Very innovative. And also they have a clear vision of where they want to go but they realise they have to do it in small steps, so it kind of suits how we can provide the research background and the technology.

"They are quite entrepreneurial in terms of what they are doing but they are being cautious in terms of how they grow, which is good."

Heilala's organic credentials and desire to eliminate preservatives also reflect demand shifts that have transformed food technology in recent times. "We are definitely aware in the programme that the drive for innovation is in terms of people's desire for better nutrition, improved health, fewer preservatives," says Wong. "We have to be aware what the current drivers and trends are to make sure the students are aware of these."

Wong says Massey's food technology programme maintains a lot of relationships with the business world, giving students real-world opportunities to develop their knowledge and skills. Many smaller companies have business ideas and know how they can be executed business-wise but they don't have the food technology or the science that they need to get the products on the market.

For the students, it means the chance to work on projects that draw on everything they have learned during their first three years. "It also emphasises that business side, the importance of making it work." They even have to deal with statutory requirements related to labelling. "Students have to do all that, so they understand what they can and can't do and so they've got all the skills when they walk out the door."

Wong agrees that people in food technology have a sense that their work is important for the country's future. Food and beverages, she points out, comprise more than half of our exports. "If we can innovate and put some new, exciting products out there, we hope we're just growing New Zealand exports."

She says there are plenty of jobs available for people qualifying in food technology, especially those doing Massey's unique four-year degree programme. "We know our graduates are snapped up pretty quickly."

For its part, Heilala would like to be doing the snapping up. "One day, we hope, we'll be big enough to take on a graduate," says Boggiss. "That's the ideal."

In the meantime, its benefiting from the enthusiasm of successive waves of students – and, of course, the oversight of staff such as Wong. Boggiss says Wong "knows as much about us as anyone does".

Wong, meanwhile, is pleased that the Heilala work has stepped up to a further level as part of the drive to supply manufacturers: "It's all quite exciting, really."

And personally, she has become a big fan of the company's products and says she has learned to identify the Heilala vanilla flavour, which varies according to where a bean is grown. "I know people say 'oh, they're expensive' [the syrup is around $20 for 500 millilitres, the extract $22 for 100ml and the paste $23 for 100ml]. You only use a little bit and they actually taste really great."

She declares the award-winning Heilala icecream (made by Auckland company Zest) to be "brilliant" and also uses the extract in baking, admitting to being won over back when Shannon Swan, the first student who worked with the company, gave her a bottle of it. "I used that but it finally ran out, so I had to go and buy some." ■

A sensory panel convenes to assess the fine points of vanillas. From left: Vesna Alexander, Pauline Wood and Heather Bunting. *Massey University*

Associate Professor Marie Wong, Dr John Grigor and Master's student Cameron Fan assessing the taste and smell of vanilla. *Massey University*

NZFOODAWARDS
IN ASSOCIATION WITH MASSEY UNIVERSITY

How good are Heilala Vanilla's products? Award juries certainly seem to like them. Heilala Vanilla Paste took the Gourmet Award at the 2010 New Zealand Food Awards, an achievement Heilala capped at the 2011 New Zealand Food Awards, where Heilala Vanilla Syrup was declared Overall Section Winner of the KPMG - Food Enterprise Innovation section.

New Zealanders and illicit drugs

The Illicit Drug Monitoring System

The IDMS is an annually conducted series of interviews with frequent illegal drug users ('frequent' meaning the drug is used monthly or more often) in Auckland, Wellington and Christchurch.

Not only are these users able to provide information about the use, price and potency of the prevalent drugs in the marketplace, they are also a sentinel group, able to give early notice of drugs that are beginning to enter the mainstream.

For the 2010 IDMS, the interviewees comprised 130 frequent methamphetamine users, 153 frequent ecstasy users and 128 frequent injecting drug users.

The IDMS is led by Dr Chris Wilkins, a senior researcher at Massey's SHORE Centre. Wilkins' speciality is stateless economic systems. He has a career-long interest in the workings of illicit drug markets.

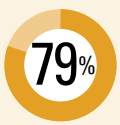
Who are they?

The profiles of the interviewees provide a picture of the wider population of frequent drug users.

Frequent injecting drug users

Mean age **38**

Male **62%**



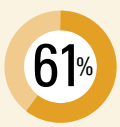
Unemployed or on sickness benefit

Without educational qualifications

Frequent methamphetamine users

Mean age **32**

Male **67%**



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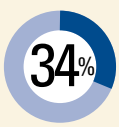
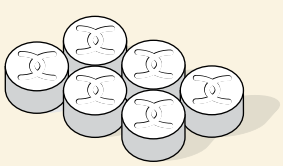


Without educational qualifications

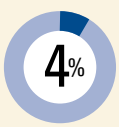
Frequent ecstasy users



Mean age **22**

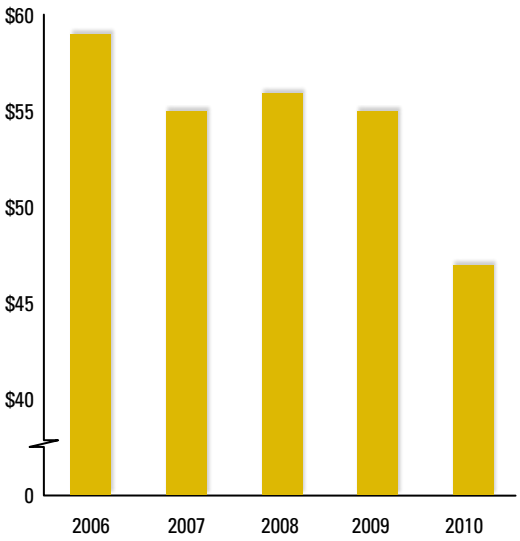
Male **57%**

Unemployment, sick or other



Without educational qualifications

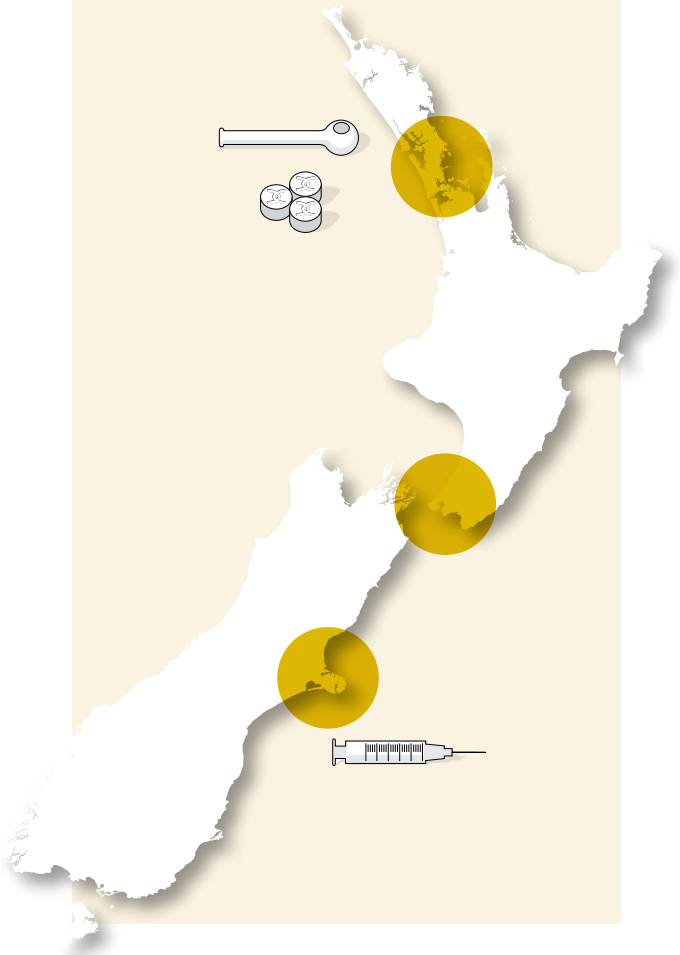
"The problem with BZP emerged in 2003. Then it took three years to get an R18 restriction – until then any 14-year-old could use BZP – and five years to ban it...."

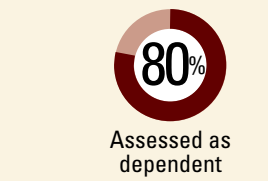


Mean price of a pill of ecstasy by combined frequent drug users, 2006-2009

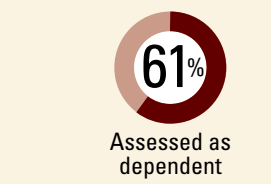
Where are they?

As might be expected, methamphetamine and ecstasy use is strongest in Auckland, while Christchurch has a disproportionately large resident population of intravenous drug users.





Assessed as dependent



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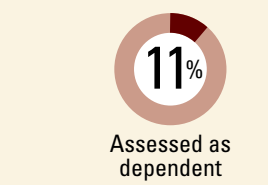


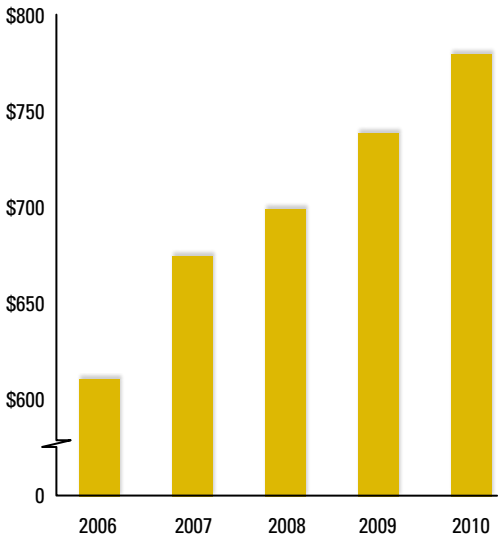
Assessed as dependent

Ecstasy: cheaper and more available – but now more a brand than a single drug; buyer beware

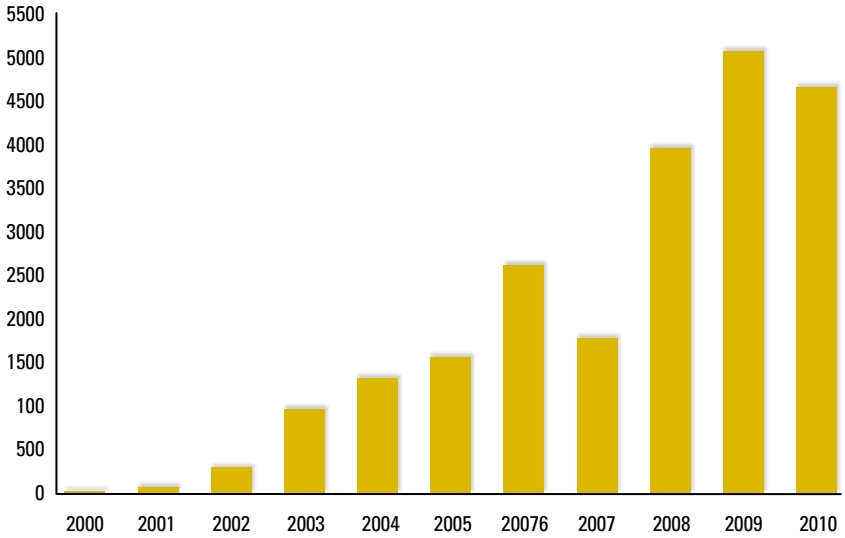
The use and availability of ecstasy have risen in recent years, but this may not be exactly the ecstasy of old. When ecstasy was popularised by the dance movement of the 1980s, the name stood for the drug MDMA (methylenedioxymethamphetamine) or its closely related analogues MDA and MDEA.

But what passes for ecstasy has drifted, and these days, as Wilkins puts it, 'ecstasy' has become a brand used in the marketing of any number of synthetic drugs combined in various ways. Naturally this presents a problems for researchers, who can no longer have any certainty about the drugs that are being taken and, very occasionally, for the exactly the same reason, for users. In September 2011 a number of users of a 'red rocket' ecstasy were treated for the very unecstasy-like symptoms of aggression and irritation.

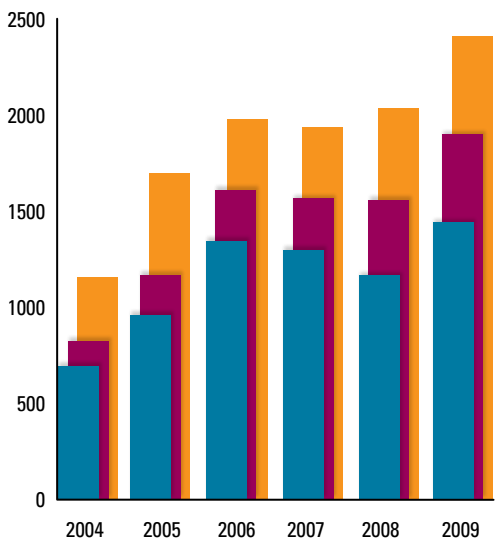
The move away from MDMA as an ecstasy ingredient is entirely rational, explains Wilkins. The chemical precursors for the manufacture of ecstasy are controlled, and advances in organic chemistry have made many other drugs with similar effects – and fewer law enforcement risks – easier to manufacture.



Mean price of a gram of methamphetamine by combined frequent drug users, 2006-2010



Thousands of capsules of pseudoephedrine and ephedrine pills seized in New Zealand, 2000-2010



New Zealand methamphetamine-related convictions, 2004-2009

- Manufacture/equipment
- Supply/trafficking
- Possession/use

Methamphetamine: rising prices and falling purity may mean controls are working

Here is the logic of demand and supply in the illegal drug market: if law enforcement is seizing more drugs and arresting more traffickers, then the people who carry and sell drugs will demand more money to compensate them for the risk of arrest and prison, so successful enforcement should mean higher prices. At the same time, the reduced supply forces sellers to cut the drugs they are selling with adulterants to ensure enough is available for buyers. So successful enforcement should mean lower quality.

Consider methamphetamine use. Because this is an illicit market, direct measures are hard to come by. No industry body tracks methamphetamine production; Inland Revenue has no figures for GST on sales. What can, however, be measured, using the IDMS, are price and purity.

According to the IDMS, in 2006 the average price of a gram of methamphetamine stood at $610 and 64 percent of frequent methamphetamine users were using crystal methamphetamine, the most potent form. Four years later, in 2010, the price had risen to $780 – a 26 percent hike – and the frequent methamphetamine users using crystal methamphetamine had dropped to 23 percent.

What has been happening? Wilkins suggests this is largely a case of learning by doing. New Zealand's enforcement agencies, such as customs and police, are getting better at what they do. Smaller amounts of methamphetamine and the ingredients in its manufacturing, such as ephedrine and pseudoephedrine, are making it past our borders, and dealers and manufacturers are increasingly subject to arrest.

Hence the rise in the number of methamphetamine-related arrests is not a sign of a burgeoning epidemic, but of one that is gradually being brought under control.

According to Wilkins, who has spent his career following the fortunes of illicit drug markets, this sort of success is highly unusual in the annals of drug enforcement internationally. In the United States, says Wilkins, enormous sums of money were spent in the 1980s in an effort to curb the growing use of crack cocaine, despite which the price fell, year on year, during the entire decade.

"To have a case in New Zealand where we have been able to increase the price consistently is unusual. We aren't the US with its enormous land border with Mexico. We have some unique advantages in terms of enforcement. I think that has some interesting lessons in terms of what New Zealand should do for policy."

Wilkins favours a continuing concentration on suppressing methamphetamine, which, as the IDMS shows, is strongly associated with drug dependency, criminality, health risks and social harms.

Keeping up with the chemists: New Zealand needs to maintain tight controls on prescription drugs and to move swiftly to restrict the introduction of new and potentially risky highs

Heroin, cocaine, cannabis: these last-millennium drugs are plant-based products. The drugs of this millennium – the methamphetamines, ecstasy, BZP (benzylpiperazine) and synthetic cannabinoids – are largely man-made, and as organic chemistry advances the illicit drug market is going to become increasingly complex.

Part of that complexity is coming from the diversion of prescription drugs into the black market. Wilkins identifies the increasing availability of pharmaceutical drugs as one of two significant trends we will see manifesting in coming years. This trend is already apparent the in US, where drug deaths, many of them associated with the drugs used in the treatment of pain and anxiety, now exceed road fatalities.

The other allied trend he identifies is the rise of so-called legal highs. Wilkins' frustrations include the way in which new and untested recreational drugs have been viewed as legal by default and the time it has taken to introduce regulation when harms have begun to appear.

BZP, widely sold in the form of party pills until quite recent times, is a good example.

"The problem with BZP emerged in 2003. Then it took three years to get an R18 restriction – until then any 14-year-old could use BZP – and five years to ban it. You can sell a lot of BZP in five years."

With the banning of BZP, its manufacturers turned to Kronic, a synthetic cannabis product. This time the manufacturing and sale of these synthetic cannabinoids were banned in August 2011.

"Drugs like these should be banned until proven safe. It is complete common sense. I call it the reverse onus of proof."

In 2010, 53 percent of the frequent methamphetamine users had sold drugs in the previous month (up from 32 percent in 2008), 31 percent had committed property crime (up from 13 percent) and 14 percent had committed violent crime (up from 6 percent).

But increasingly they were getting caught: 49 percent of the frequent methamphetamine users had been arrested in the previous year (up from 28 percent in 2008).

Wilkins would like to see stronger links in place between drug treatment and the criminal justice system. The IDMS assessed 61 percent of frequent methamphetamine users as being drug dependent in 2010.

"It is kind of pointless putting people through the court system or into prison if they have a problem with any drug, even alcohol, and expect them to change their behaviour," says Wilkins. "A lot of drug users are in a pattern where they go in and out of court over and over again. We have to break that cycle, and the way you do that is to try to address the root problem, which is alcohol and drug abuse.

"We need to use the criminal justice system to try to short circuit the cycle, the way they do it in other countries, and that means having treatment available as part of the penalty, having it available in prisons and having it available when offenders get out of prisons – and we need to use drug testing to make sure that people stick to their promises.

The police are one of the most supportive agencies for this kind of approach. If they are arresting the same guy 10 or more times a year – just over and over again for nuisance or property offences – you are just clogging up the system with someone who isn't going to change."

But not every methamphetamine user is involved in criminality, he points out, and not all necessarily need the help of institutionalised programmes.

"Think about tobacco. Cigarettes are some of the most addictive drugs, but we don't require everyone to go into residential drug treatment to get off cigarettes. There are a number or strategies that draw on their desire to quit and offer appropriate support and mentoring. We offer them nicotine replacement patches and support and relatively inexpensive fixes. That's another complementary approach to addressing the methamphetamine problem – offering options that don't necessarily involve expensive buildings and institutionalised care."

Reasons for modest optimism:

in some ways New Zealand is a special case

There are advantages to being small, isolated and surrounded by sea. New Zealand should count its blessings, says Wilkins. While methamphetamine use is high in New Zealand, the heroin and crack cocaine epidemics that did such damage to communities in the US and elsewhere largely passed us by. And enforcement and drug treatment are able to make a difference.

"The argument from some quarters that enforcement is a waste of time, that drugs will always get through, people on drugs can always get them. The IDMS has shown that isn't the case. If you make an effort, you can influence the market."

For more about the IDMS, including downloadable reports, visit www.shore.ac.nz.

Following my instincts

By Maria Gill

"You're incredibly brave travelling on your own," said the man in the plane seat next to me, pushing his lunch box from his paunch and wiping his lips and then brow with a linen serviette. "Why India?"'

It was 1984 and I was on my way to Calcutta, India's largest city. I was 21 years old, but with my skinny 5'4" frame and tangle of frizzy hair, I might have been a high school student.

"I travelled Europe and Egypt last year and this was the next big trip," I replied. I was a Kiwi girl doing her big OE, ticking off countries and continents. I had worked in a pub in Reading, England to save for this trip to India, and when my two English friends dropped out I saw no reason to postpone.

But it hadn't been easy. The Indians saw every foreign traveller as rich. You had to be if you could afford plane fares and cameras, and as for foreign women, who were known to wear skimpy shorts and tee-shirts in the heat, they were 'loose'. Above all, I was a novelty, a free show, never less than the centre of attention. On train journeys every male face would turn in my direction, open-mouthed and vacant-eyed. At first I would feign indifference, then, furious, I would stare back in defiance, until, embarrassed, they turned away.

"What about you?" I asked. I could tell he was bursting to tell me.

"I'm invited to judge dog shows all over the world," he said in his American drawl. "The Madras competition was cancelled because of the floods so I'm heading to Calcutta early."

I had encountered the Madras floods too.

13 November 1984, Madras (Chenai)

Several hundred miles west of Madras we saw flooded countryside from the bus window. We passed overturned buses, broken dams, and power lines swinging in the wind. The bus spluttered into the depot five hours late. Tania, an Australian backpacker I had met in Goa, and I dashed into the rain and retrieved our sodden packs.

The driver of our cycling rickshaw struggled to keep his bike upright in the wind. He swerved past uprooted trees, over branches and under broken billboards. As we climbed the steps of the YMCA a power box exploded across the road. The YMCA was full. So was the next place.

In the expensive New Victoria I emptied my soggy backpack into the bath. I had nothing clean or dry and there was neither hot water nor electricity. I washed my clothes in the tub and hung them on a line across the room. Then I settled into the most comfortable bed I had slept in for the past two months.

Later, I read about the floods and the thousands of houses destroyed.

Tania and I had got off lightly.

For the next 15 minutes, while the plane lurched towards

Illustration by Marco Ivancic

landing, the American talked of his travels. I half listened. He handed me a small duty-free whisky. "Get these in the hotels," he said. "The dog show people pick up the bill."

"No thanks." I was too dehydrated anyhow. I hadn't peed in days. Some places it wasn't worth risking drinking anything unless it came from a sealed bottle. I remembered the last time I had taken that risk.

9 October 1984, Jodpur

A red-orange sunset coloured the fortress beyond the Jodpur train station. In Kashmir I had befriended Lorraine and Dave, two Australians. Now the three of us battled our way through the beggars, their crippled hands outstretched for money. A taxi driver grabbed our bags and steered us towards a waiting rickshaw. He cycled past four hotels declaring they were full. The fifth guesthouse only charged 10 rupee (NZ$1.20), cheap even for Indian standards. Its paint peeled off plastered walls and rubbish littered the stairwell. Downstairs in the recesses of an ill-lit cafe I drank lassi, a milk fruit drink. Its taste lingered long after. I had no stomach for the dhal and rice, the Indian staple diet.

By the time I rolled out my sleeping bag later that night, I felt nauseated. The next five hours I spent rushing to the toilet or throwing up in a sink. When I returned to my bed I tried to close my eyes but I couldn't sleep. My body ached; my clothes stuck to my sweaty body. I felt myself sinking, diminishing, disappearing.

As the morning dawned my movements slowed, as if I was walking in slow motion. Dave asked if I was all right. "I've been better," I croaked.

"You're really sick – I don't think you should catch the train tonight," said Lorraine.

I panicked. "Don't leave me here.'"

When it came time to leave Dave carried my pack. By the time the train reached Jaisalmer in Rajastan 12 hours later, I had just about recovered.

The plane screeched along the runway and when it stopped some of the passengers clapped. The American and I exchanged smiles. Had that been relief, or was it their first trip?

He told me how much the rich Indians spent on importing the best manicurists, hairdressers and vets for their dogs. I gasped. It was thousands of rupees.

I thought of the poverty I had seen. Everywhere there were the beggars: mothers sitting on the pavement with suckling babies; young children crippled deliberately by their parents to gain sympathy from tourists; heroin drug addicts from Europe, too hooked to remember where they had come from.

I did not think I would harden, but I did. You had to. There were thousands of beggars. Loose change would not change things. Once I took a drug addict to

To find out about studying travel writing at Massey's Albany campus or to read more work, visit albany139326.blogspot.com.

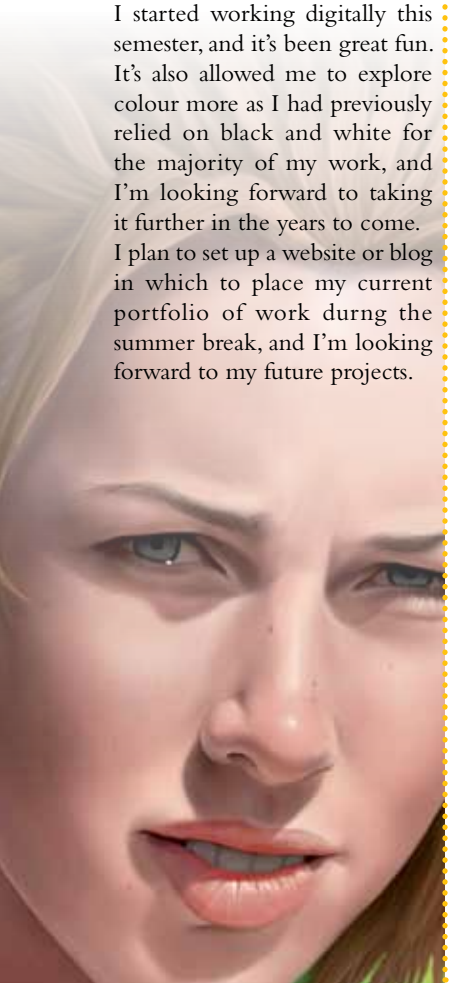
Marco Ivancic

Hi, my name is Marco Ivancic. I'm a 20-year-old student majoring in illustration at Massey Wellington, and I have just completed my third year of Visual Communication Design. In 2012 I will be doing fourth-year Honours in illustration.

I've always enjoyed drawing, even as far back as my pre-school years, and I'm now really enjoying working in the creative field full time.

I started working digitally this semester, and it's been great fun. It's also allowed me to explore colour more as I had previously relied on black and white for the majority of my work, and I'm looking forward to taking it further in the years to come.

I plan to set up a website or blog in which to place my current portfolio of work durng the summer break, and I'm looking forward to my future projects.



a shop and bought him some food. If I had given him money it would have shot up his arm within the hour.

Perhaps sensing my disapproval the American changed the topic. 'I was in Bombay during the trouble.' He picked up his leather briefcase and held on to the rail above, as we moved down the aisle. "After seeing a few killings and burnings from the hotel window, I knew it was time to get out. What about you?"

I knew what troubles he meant. I thought back to the day we found out.

31 October 1984, Bandipur

The housekeeper shouted "Breakfast!" through the key hole. Tania threw a pillow case over to my bed and reminded me we were going elephant riding that morning.

The elephant moved off quietly, plodding through the bushes. Spotted deer (chittal) looked up and unperturbed went back to grazing. My camera lens cap fell over the side. I'll never see that again, I thought. I was not getting off the elephant in case there were some tigers lurking close by. On the handler's command, the elephant stopped, snuffled around for the black plastic, picked it up and handed it back to me.

"Slime, no charge," said the handler with a cheeky grin.

Kingfishers flitted past and red monkeys (bonnet macaque) laughed in the distance. Porcupine quills lay scattered on the forest floor. I was not too disappointed that we hadn't seen a tiger; that might have been scary. The bull elephant charging us the day before when we were on a safari jeep trip had been enough excitement for me.

After we were let off our throne, the Indian elephant's trunk searched my pockets for food. Finding none, she eased her bulky body from kneeling position and clambered after her handler. My travelling companions, Tania and an English couple, Peter and Sue, were as enchanted as I was.

"Wow! Riding an elephant has to be the best thing on this trip so far."

But back at the hotel, something was not right. Huddled in a corner, Sikh men murmured in hushed tones.

Instinctively, we stood at the entrance.

"I'll find out what's happened," said Peter, brushing his wife's arm, as he pushed through our small group.

"What do you reckon?" whispered Tania.

"Isn't white a colour of mourning?" said Sue.

"You reckon someone's died? Who?" I asked. I rubbed the goose bumps on my arms and shivered.

"Someone important," said Tania.

The receptionist bobbed his head in answer to Peter's questions then brought his hands together, as if in prayer, to end the conversation. Peter turned and gestured to us to follow him outside.

"You wouldn't believe what's happened."

"Tell us," urged Tania.

"Indira Gandhi…"

"What, you mean their Prime Minister?" I looked at all their faces in shock.

"Yep – she's been assassinated."

He told us the Tamil Nadu border was closed and buses were being turned back.

"Does that mean we're stuck here?" I asked – though perhaps a tiger sanctuary would be safer than a city in anarchy.

As we were to find out later, Indira Gandhi had been shot by two of her Sikh security guards as she left her private residence. It had happened in the morning but had taken all day for the news to reach us. Sikhs were being hauled out of trains and burned alive. Looting and vandalism were widespread. Shops would be closed for the next two days and people in mourning for the next 12.

I picked up my backpack from the luggage carousal and waved goodbye to the American. Once I had gone through customs I plopped my backpack behind a nun's canvas bag and said hello, at the Airport Hotel reservation desk. The nuns were booking overnight accommodation too. I asked if I could tag along with them. They paid for their hotel voucher and stood aside for me to do the same. The salesperson suggested we go in his cousin's taxi.

"Only five minute," he said.

It seemed like a good idea. It was late and I was tired. The nuns and I squeezed into the back seat and the unmarked car crawled away from the airport. Two minutes later, he stopped outside a large guesthouse.

"You two get out, she stay." The driver pointed at me.

"Aren't I staying here, too?" I asked.

"No, we take you somewhere else."

I looked at the nuns with my mouth open. My mother always said my emotions were displayed openly for everyone to see. My face must have telegraphed 'fear'.

His co-driver grinned and nodded his head.

The nuns beckoned me out of the car. Anger kicked in. I swung my legs out of the car and stood beside the nuns.

"I want to stay at the same place as these ladies!" I said.

"Guesthouse full," the driver said.

The nuns pulled their bag out of the boot. I grabbed my backpack, wrestling it away from the co-driver.

"Then we'll go back to the airport and change hotels," said the older nun.

The driver waved his hands. "Other hotel full."

All my instincts told me they were lying. The nuns and I exchanged looks – from the steely set of their lips I could tell they would stand by me. It seems to be an unwritten code that travellers stick together in rough times – like a support network. Even strangers had helped me when I was in danger...

6 October 1984 Jaipur

Lorraine, Dave and I were booking bus tickets when we saw hundreds of people lining the streets for a festival. There were women and children wearing bright orange and red saris; men carrying temples,

dancing and beating drums; and Indian music blasting out of speakers from shops. Two large elephants adorned with flowers and body paint ambled through the throng of men.

To get a better view we squeezed our way onto the road. A crowd of men, young and old, began jeering at us, touching our bodies. They formed a tight circle around us, their breath close and stale. We heard a young girl screaming and moved towards her until she was wrapped in our circle; better with us than alone. We pushed towards the side – moving like a tide in unison. An old man grabbed my hand and told us to follow him. I knew we could trust him. I held on, Lorraine clung to my other arm and held on to Dave, who had lifted the girl onto his shoulders. The old man led us into a dark shop and told us we would be safe there. "Not good on street with men," he said. I saw our mistake: the women in their coloured saris were on the pavements, while the white-clothed men crowded the streets.

"That was so scary," said Lorraine. Her hand shook as she lifted her cigarette to her mouth.

The young girl's mother rushed in and enveloped her daughter in her arms. She nodded thanks then walked out. The old man told us it was the Festival of Ram. During the day people fasted and prayed for the Mother Goddess. In the evenings they danced and feasted. Had we been in real danger? I'll never know.

The taxi driver and his partner stood over us.

"Well, we're going to find out," I said. I hitched my backpack across my shoulders and headed back towards the airport. The nuns rolled their bag behind them.

"No problem," shouted the driver. "We ask you stay?"

Those slimy tricksters, I thought. I bet there was room at the inn after all. We checked in and discovered the hotel nearly empty. It was another of those times that could have gone drastically wrong if I hadn't listened to my instincts.

16 November 1984, Calcutta – Nepal

The plane soared over snowcapped mountains as it came in to land in Kathmandu. I changed some money, gathered some maps and made for the door. A small Nepalese man touting his hotel encouraged me to go with him. I agreed but was disturbed when he came back in an unmarked taxi with another person in the car. Here we go again, I thought. I had no nuns to back me this time, just my intuition. Should I go in the car? I wrote down the registration number of the car as a just-in-case. The men laughed when they saw what I was doing.

"When I was in India I couldn't trust anyone," I said.

"Aah, but now you're in Nepal. We have plenty of women…" More laughter followed.

Nepal was a different place altogether.

Maria Gill

These days Maria Gill writes full time from her lifestyle block in Matakana. She has a Bachelor of Education degree and Teaching Diploma from the University of Auckland, and a Graduate Diploma of Journalism Studies from Massey University. She has written 10 children's books for the retail market and another 18 for the international educational market. The most recent are *New Zealand Hall of Fame* (2011) and *The Call of the Kokako* (2011), both published by New Holland.

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Road scholar

Jennifer Little talks to travel writing lecturer Jack Ross.

You don't have to duck bullets in Afghanistan to produce good travel writing.

Properly undertaken, a suburban bus trip can be a voyage of discovery, travel writing lecturer Dr Jack Ross tells his students. One of his course assignments is to "take public transport: bus/train/ferry to another part of the Auckland region – write a piece about your discoveries there".

He hopes those who sign up for his popular third-year English and media studies paper, Travel Writing, will come away with an appreciation of how flexible and generously all-embracing the genre is.

The readings for the course are an eclectic mix, spanning the centuries and continents, from *The Travels of Marco Polo* (1300) and poet Matsuo Basho's *Narrow Road to the Deep North* (1694) to Joseph Conrad's *Congo Diary* (1890) and many recent, well known works such as Eric Newby's *A Short Walk in the Hindu Kush* (1985), Hunter S Thompson's *Fear and Loathing in Las Vegas* (1971), Italo Calvino's *Invisible Cities* (1972) and Paul Theroux's *The Happy Isles of Oceania: Paddling the Pacific* (1992).

New Zealand writers include poet Martin Edmond and journalists Colin Hogg and Steve Braunias, as well as novelist Lloyd Jones, whose book *Biografi* – set in Albania and concerning the search for the dictator Enver Hoxha's body double – is a leaping off point for the debate about the boundaries between fact and fiction.

Ross himself has published poetic explorations of journeys to India and a death camp in the Czech Republic.

He encourages students to tap in to their own knowledge, whether art history, economics or sociology, as a framework for opening doors. "Every place is interesting if you look at it in a certain way."

Travel writing, he says, overlaps closely with investigative journalism: both tell stories, proffer insights and reveal ways of life otherwise hidden, ignored or lost.

Misadventure is another fertile source for engaging writing, as epitomised by New Zealand poet, novelist, travel writer and journalist Robin Hyde in her 1939 book *Dragon Rampant*, about her travels in Asia.

"Something went wrong every time she jumped on a train or ship, in China and Manchuria, where she was beaten and abused. It's fascinating and horrifying but you can't put it down."

He is also a fan of anti-travel writing, "where you deliberately go to the most boring, backward and downright disturbing place you can find".

His dislikes? "The where-can-you-find-the-best-daiquiris-in-Bali kind of journalism, which I detest."

Look and feel

New Zealand by Design
Michael Smythe, Godwit
Reviewed by Rodney Adank

When Michael Smythe embarked on writing *New Zealand by Design: A History of New Zealand Product Design,* he must have known he was taking on a considerable project. 'Product design' covers every made object and Smythe, who has practised, written about and lectured in industrial design, has felt duty bound to be conscientious. The result is a remarkable book, but one that at 480 pages, much of it set in a small typeface, is not to be read at a sitting.

Its scope embraces everything from rotary milking platforms (a revolutionary development in both senses) to '60s floral motif crockery; from pre-European Māori adzes to the latest electric Yike bike and Martin Jetpack.

This variety of subject matter makes for the sort of book that will certainly have surprises for the reader. Did you know that in Timaru a fellow called Cecil Wood was making automobiles in the late 1890s? I didn't.

Fancy some nostalgia? Anyone past the age of 30 or so is bound to come across products that summon up the spirit of a time, and baby boomers are in for a particular treat. Remember the '70s vogue for wooden toys, stoneware and the colour orange. How about the Trekka, a locally constructed vehicle with a Land Rover-like body on a Skoda-made chassis?

The book is a reminder of how far we have come. For much as we would like to congratulate ourselves on Kiwi innovation (of which there has never been a shortage), many of the products produced in New Zealand over the decades have been nothing to boast about. From the 1950s up until the arrival of Rogernomics in the mid-'80, tariffs and import restrictions meant that good money was to be made manufacturing goods for domestic consumption that were little better than second-rate copies of overseas models.

And those who raised their sights higher were at the mercy of shifts in bureaucratic whim. Take the Poly1 educational computer of 1981. This was very much ahead of its time and several thousand were sold, only for the enterprise to be sold down the river when the Government reneged on a purchase agreement, a then cabinet minister reportedly saying that he and his colleagues could see no reason why Government should spend money so that teachers could do even less work.

But the post-Rogernomics world of the free market could be just as capricious.

Take the story of Tullen Snips. Tullen was established in 1971, basing the design of its first snips on an Argentinian product. It then serendipitously found itself a market in Europe. As the firm geared up to take advantage, a lucky blunder gave rise to a superior blade-hardening method. By the late 1970s, after its share of trials, the firm was exporting to more than 30 countries and had sold more than 10 million snips and cutters, and the devaluation of the New Zealand dollar in 1984 compensated for the simultaneous loss of export incentives. Why then is Tullen not a force in New Zealand manufacturing to be reckoned with today?

In 1985, Wilkinson Sword's home and garden division bought the company (its interest being a Tullen innovation that would let it make stainless steel scissors with great rapidity), and shortly afterwards Wilkinson Sword's home and garden division was in turn sold on by its owners to the firm Fiskars, representatives of which arrived in New Zealand to inspect their new property.

Their verdict? The techology that Tullen was in the process of introducing to its new factory was a threat to Fiskars' other operations. The Tullen snips and cutters plant was packed up and transplanted to Wales, where the product is still made.

That iconic New Zealand success story Fisher & Paykel is another firm that came close to being taken over and dismembered by corporate raiders in the late '80s.

The good news is that a commitment to the principles of industrial design has entered into our culture, and those New Zealand companies that are succeeding often have a commitment to design at their core. Formway's famously successful Life chair began with a design brief "… demanding intuitive ergonomics, eco design credentials and the capacity to reach a worldwide market". For shower and tap manufacturer Methven, design R&D would create their point of difference. Fisher & Paykel established their international reputation with a product designed from scratch using industrial design processes: the DishDrawer dishwasher.

So does New Zealand design exhibit defining characteristics in the way that say Italian, German and Swedish design does? In the end Smythe plumps

for "an aspiration rather than an observation". New Zealand design is "direct and to the point, and it doesn't take itself too seriously. It offers 'no bullshit' honesty with a twinkle in its eye".

This is clearly a labour of love, well designed and profusely illustrated. I found Smythe's book immensely satisfying, and intriguing, and its content constantly cropped up in my conversations. However, it would have rewarded a more rigorous fact-checking. The book contains a number of errors – one of them misattributing Massey's research centre Affect to Victoria – although to his credit Smythe is maintaining an errata online.

My copy, well thumbed and tagged with Post-it notes, will be a long-term resident of my bookshelf.

ore about *New Zealand by Design*, visit http://designarc.org.nz/.

Rodney Adank is head of the Institute of Design for Industry and Environment.

Paddock to plate

Floreat Scientia: Celebrating New Zealand's Agrifood Innovation
By various authors, Random House
Reviewed by Jacqueline Rowarth

New Zealand's agrifood innovation is very much more than Gallagher's, Trutest and Glaxo; *Floreat Scientia* makes that abundantly clear across sectors and the value chain. As one reads through the history and potential, it is clear that New Zealand agrifood, from paddock to plate and block to bowl, has always pushed the frontiers of conventional practice. Innovation rules – far more than the number-8 wire concept – enabling the New Zealand agrifood industry to meet the needs, wants and desires of the consumer, noting that the list includes 'value' as well as variety, taste, novelty and health.

Within that list can be included 'sustainability'. This aspect is part of the story, and chapters by Dr Bert Quin on fertiliser technologies and Professor Ian Yule on precision agriculture show the importance of their ideas to New Zealand's ability to produce food with minimum environmental impact.

Overall, however, consumers want value, and although value means different things to different socio-economic groups, New Zealand agrifood has continued to meet the range of requirements and expectations. This is why agrifood has remained the backbone of the economy, despite all expectations and government statements to the contrary.

The book is divided into three main sections – Preamble, Innovation: exemplars, and Looking to the Future. The Preamble contains the rationale for the book, a quotable chapter on innovation and economic growth (innovation requires dispersion and absorption, not just ideas) and a brief history of innovation in agrifood. From this platform the exemplars cover meat, milk, mussels, fruit and cereals, as well as pasture and grazing. There is no obvious pattern to the presentation of topics. Lactose comes between kiwifruit and apples, for instance, and spreadable butter between ryegrass endophyte and animal breeding... but for night-time reading it might

be that variety enables interest to be maintained. The exemplar chapters are perfect for school science project information, and for general interest.

The chapters in the third section (Looking to the Future) build from what has already been conceived in the agrifood sector, and is already being done. Genetically engineered plants, functional foods and nutrigenomics have been in the lexicon for some time. Food of the Future (written by Professor Mike Boland) suggests that the most likely changes in food will be towards more foods of vegetable origin as meat extenders or substitutes. For most people this is not an unnatural concept, whereas the snail porridge and bacon-and-egg icecream from the previous chapter might cause some eyebrows to be raised and some taste buds to shrivel...

The final chapter (written by Mark Ward) focuses on how to achieve the future of food and ensure that New Zealand continues to play a major role in its development. Building capability, capacity and international linkages is still the answer.

Floreat Scientia has been written by experts in individual fields. The experts come from Crown research institutes, universities and agrifood businesses. Each chapter is complete unto itself. This leads to a certain amount of overlap in such introductory statements as 'agriculture is and has always been the backbone of the country' but as the book is most likely to be read a chapter or two at a time, overlap does emphasise the importance of the industry.

The Riddet Institute has done a service to the country by bringing these stories together. *Floreat Scientia* should be in all libraries so that everybody in New Zealand has the opportunity to learn easily about the agrifood heritage as well as the great opportunities for the future.

Jacqueline Rowarth is Professor of Pastoral Agriculture, Massey University. She is also President of the New Zealand Grassland Association and a member of the Biological and Life Sciences Advisory Committee of the Royal Society of New Zealand.

Putting things right

A senior lecturer in the College of Education, **Dr Valerie Margrain** is the co-editor of and one of 12 contributors to *Responsive Pedagogy: Engaging Restoratively with Challenging Behaviour.* She talks to **Sue Allen**.

Why is there a need to see the principles of restorative practice applied in our education system?

Just under 20,000 students were stood down from New Zealand schools in 2010, with 70 of them being just five years old, and year on year the numbers are growing. That the overwhelming majority are Māori and Pasifika boys also tells us about the education system's failure to engage.

Then there are the things the statistics don't tell us. Things such as the number of students who have been 'encouraged' to leave particular schools or how many children have had problems during their experiences of early childhood education – where we know many exhibit very challenging behaviours.

Stand-downs seldom solve 'problems', they simply shift them, and they aren't necessarily good for children's classmates. Children who witnesses stand downs, suspensions, exclusions and expulsions may feel less rather than more safe, as they may worry about what will happen when they make mistakes themselves.

My co-authors and I are convinced that there have to be better ways of dealing with challenging behaviours and enabling children to not only progress academically but also adhere to the social norms and expectations that apply during childhood and life generally.

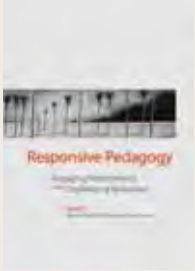
What exactly is restorative justice?

The principles of restorative justice are that wrongdoing must be acknowledged, that the victim's voice must be heard, and that things must be put right. It is an idea originally put into practice within the justice system, but it can definitely be applied productively to schools and early childhood education; these are social settings with rules and obligations like any other. Restorative practices help students, teachers and families to acknowledge responsibility and face up to consequences. They're a way of restoring harmony.

Does this remove the need for more traditional sanctions?

Rules must be clear, consequences evident, and discipline applied. But it would be a mistake to see restorative practices as 'soft' options. Rather than punishments that are isolated from the misbehaviour, restorative approaches include putting things right. This can include repairing or replacing broken property, painting over graffiti, contributing time to environmental projects and helping others.

Facing a victim, admitting fault with honesty, and working with others to find out how things need to be put right require courage. Restorative practices are much more likely to result in change than disconnected, one-off punishments decided by other people.



Responsive Pedagogy:

Engaging Restoratively with Challenging Behaviour
Editors: Valerie Margrain (Massey University) & Angus Macfarlane (University of Canterbury)
Publisher: NZCER Press

Is there a particular formula a teacher should follow?

I think flexibility is critical. There is a continuum of misbehaviour, from classroom goofing off to theft, aggression and violence. While the more severe forms of misbehaviour get more attention, they are less frequent. Teacher responses also range on a continuum, from pre-emptive strategies through to formal conferences and the support of external specialists. Of course, there is no simple recipe. The teacher needs to have a repertoire of strategies to draw on and the skill to decide on the right one to fit the context.

Isn't this just one more thing for teachers to worry about?

Engaging with student behaviour is a core part of the broad curricula focus, and if you aren't engaging with the behaviour of your students it is difficult to be an effective teacher. It is worth any investment of our time to support the development of confident and competent young people.

KIWI:

A Natural History
By Isabel Castro with photography by Rod Morris, New Holland

New Zealand's best-known bird and national icon is the subject of this new and highly accessible title from two experts in their fields. There are five recognised species of kiwi, distributed unevenly in locations throughout New Zealand and ranging from the most widespread – the North Island brown kiwi – to the most endangered (the little spotted kiwi). Along with stunning photographs from award-winning wildlife photographer Rod Morris, native bird expert Dr Isabel Castrol of Massey describes all key aspects of kiwi, from their evolution, prehistory and closest relatives (based on the latest research) to their feeding and breeding behaviour and current conservation issues, making this the perfect introduction for anyone with an interest in these fascinating birds.

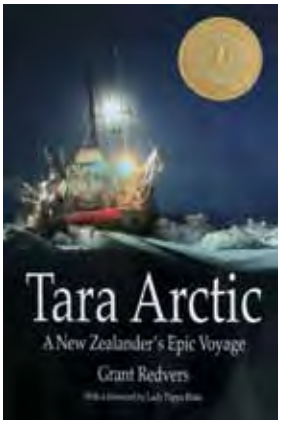
Ice with that?

Tara Arctic: A New Zealander's Epic Voyage
By Grant Redvers, Fraser Books
Reviewed by Malcolm Wood

There is something about the heroic era of polar exploration that resonates still. Names like Robert Scott, Roald Amundsen, Ernest Shackleton and Fridtjof Nansen have a magic to them, and some images too are iconic. One of them is that famous picture of Shackleton's ship *Endurance* hopelessly locked in the pack ice (eventually the ice would win), a spectral vision in the polar night.

So when I saw the cover of Grant Redver's book, I gave it a double take. Here, a little less than a century later and in the other hemisphere was another boat engulfed in ice, its shrouds glittering with ice against the blackness. This was the yacht *Tara*, Redver's home for 18 months: a 25milimetre-thick aluminium hull held in a metre or so of ice above 1000 metres or more of ocean.

It was a boat with a New Zealand connection. Launched as *Antarctica* in 1989, the 36-metre yacht was renamed *Seamaster* by Sir Peter Blake, when it was bought by Blakespeditions, and he was on it at the time of his tragic death in the Amazon. She was then bought by Frenchman Etienne Burgois, and renamed *Tara*. Blake would have approved. Like Blake, Burgois wanted to use the yacht to study and publicise the changes affecting the planet.



Tara's mission became the one for which she had originally been designed. In 1893 Nansen took a specially designed and strengthened ship, *Fram*, and deliberately sailed her into the polar ice pack, where the ice froze about her. Over the next three years, the *Fram* and its surrounding ice were carried hundreds of kilometres by the circumpolar current before being released. The *Tara*, with its hull contour designed to ride up above the ice, was purpose designed to be the 20th-century *Fram*.

Under the aegis of a multination project called Damocles, *Tara* would drift with the ice over two Arctic winters and the intervening summer, along the way taking measurements of atmosphere, ice and sea, publicising the issues affecting the Arctic, and acting as a base camp for an assortment of scientists, journalists and artists, who were carried in and out by plane.

How did Redvers become part of this? In 2004, Redvers, who had worked at Scott Base and had sailed a yacht to the Antarctic Peninsula, hassled the newly formed *Tara* expeditions venture into taking him on as a diver and deckhand during the yacht's docking in Argentina. Although Redvers tends towards self-effacement, he must have been doing something right. For the polar drift, the Kiwi – who in the lead-in to the expedition could "barely speak enough French to order a croissant" – was appointed expedition leader.

Redvers wanted "to really understand the state of environment on a personal level, to feel The Ice was my back garden, not a foreign wonderland".

No doubt he got this. He also got the trials of dealing with Russian bureaucracy and of presiding over a cosmopolitan and sometimes fractious crew of expedition members and two dogs. One crew member had a volatile temper; another took to marathon meditation sessions. Redvers instituted rigorous work schedules, but also made sure that there was time out: there were sports days and birthdays, and a banya – a Russian steam bath – was a popular fixture. Lectures were held. Redvers became a recreational knitter.

Then there were the excitements. The ice around *Tara* broke up a number of times, on occasion taking equipment and, happily temporarily, people with it. Pressure waves threatened to crush the boat (shades of *Endurance*), and over the winter a stalactite of ice many metres long sprouted beneath the hull, crushing a propeller casing. (Redvers went scuba diving to remove the casing.) Leaks filled the yacht's bilges and threatened worse until fixed. Polar bears visited; an expedition dog was lucky to end up with no more than a few stitches after a too-close encounter.

So what is happening in the Arctic? For one thing, *Tara* found that the sea ice is drifting twice as quickly as it did in Nansen's day. The ice is thinning, retreating and getting younger year on year. The evidence all points to dramatic and near certainly anthropogenically generated climatic change.

Meanwhile, in New Zealand the Government has said it will slow down the pace of adoption of an emissions trading scheme, Britain is dismantling its subsidies for solar power, and post Fukushima a number of nations, including Germany, are stepping away from nuclear power.

And much of mankind's activity in the Arctic is about territorial national self-interest, about securing oil and gas resources or newly ice-free sea passages. One of the visitors to *Tara* was a group from a Russian icebreaker, which was returning from having used mini submarines to plant a titanium flag on the seabed.

Redvers' book is a worthy addition to the annals of polar exploration. He is one to watch.

Editor's note: We hope to run a full interview with Massey alumnus Grant Redvers during 2012.

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA

PROTECTING NEW ZEALAND'S WILDLIFE FROM DISASTER

KERRI MORGAN. AVIAN AND WILDLIFE VETERINARIAN. MASSEY GRADUATE 2002.

When Rena threatened New Zealand with potentially our worst environmental disaster, Kerri Morgan and her response team from Massey's Wildlife Health Centre sprung into action.

Kerri's love for animals may have started early but her expertise was gained at Massey University's Veterinary School.

Taught by world renowned lecturers and armed with practical knowledge to take into the world, Kerri is just one of thousands of trail-blazing Massey graduates who are defining a new future for New Zealand.

Read more about Kerri and our other graduates who are the engine of the new New Zealand by visiting engine.ac.nz

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