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# All the same?

## Deborah Russell calls for more thought.

We are all New Zealanders. Everyone should be treated the same. No one should get special treatment.

Sound familiar? They should do; statements like these have been gracing talkback radio and newspapers for a few weeks now. They have been brought into the public arena by Don Brash's state of the nation address to the Orewa Rotary Club. These sentiments all seem quite reasonable, except that they have occurred in a particular rhetorical context. They are about the treatment of Maori, and more particularly, the perception that Maori have been getting special treatment over and above anything they deserve. One respondent to a poll conducted by the New Zealand Herald said, I think they're pushing it too far. We're one country and we should all just live together.



These statements sound like plain common sense, based on fact and on fairness. I think these sentiments are alarming. They are alarming because many people do not quite realise what they are asking for. Underlying these claims are hidden premises, that our most important identity is as New Zealanders, that the same treatment or the same law actually means treating everyone like Pakeha, that anything that singles one group of people out is special treatment. Before we can decide whether we agree with the claims, we should be aware of the hidden claims.

## We are all New Zealanders

Are we all New Zealanders? Factually, this is correct everyone who was born in this country or who has taken up New Zealand citizenship is a New Zealander. The real issue is whether or not we identify as a New Zealander. Ninety six percent of us do, according to the ISSP\* survey carried out by Professor Phil Gendall in the Massey Department of Marketing late last year. (See page 9 of this magazine.) But according to the same survey, 39 percent of us identify as belonging to some other ethnic group as well. That suggests that at least some of us have several identities our identity is layered, not uniform. A moment's thought will confirm this in other respects of identity. Like many people, I identify myself through my work: I am a lecturer in Philosophy. I also identify myself as a wife, a mother, a daughter. None of these identities is mutually exclusive. My most important identities, to me, are as a wife and mother, but that does not mean that the other identities are not important too. However, I reserve the right to determine for myself which of my identities is most important to me. Other people shouldn't tell me who I am.

Identifying as a New Zealander does not mean that we can't identify as anything else. It is factually correct to claim that we all are New Zealanders, but the hidden part of this claim is the bit that implies that we should identify as New Zealanders first and foremost, and that being a New Zealander is the most important part of our identity. If you want to claim that we are all New Zealanders, you should also be prepared to argue that we are only New Zealanders, or that being a New Zealander is the most important part of someone's identity.

## Everyone should be treated the same

This claim seems to be fair, at first glance. We are a very egalitarian nation; we firmly believe that everyone is of equal worth, and that no one deserves anything different based on social position or birth. So everyone should be treated the same. The problem with this claim lies in the many possibilities for treating everyone in the same way. Here are some absurd examples. We could treat everyone the same by amputating everyone's big toes, by forcing everyone to shave their hair, by requiring people to wear only blue jeans, by insisting that everyone must eat only raw food. Here are some less absurd, and perhaps even quite reasonable examples. We could make every person learn a particular language, such as Maori. We could tax away any personal income above say \$20,000, and thus ensure that everyone retains the same after tax income. We could force everyone to stop driving their cars for a couple of days every week.

The hidden premises in the we should treat everyone the same claim are to do with what that treatment should be. I suspect that many Maori would be delighted to be treated in exactly the same way as Pakeha. Then Maori might live as long as Pakeha, achieve the same levels of education and income, be imprisoned at the same rate as Pakeha. As one Maori person put it, Maori want to fail at the same rate as Pakeha. When someone calls for Maori to be treated the same as Pakeha, it is worth turning the call around, and thinking about whether Pakeha would like to be treated the same as Maori, in all respects.

## No one should get special treatment

This claim is a version of the claim about everyone being treated the same, but it differs in that it is targeted at extra funding. The assumption is that Maori get extra money for certain things, just because they are Maori.

As it turns out, we are quite comfortable with the idea of giving people special assistance or extra funding. For example, pupils at rural schools receive almost twice as much government funding as pupils at city schools. Country people pay the same telephone line rental as city people even though it costs a great deal more to maintain lines in the country. We are happy to ensure that people in rural areas get extra funding, because then they can achieve the same outcomes as city people. In some areas, it is worth giving people special treatment because the overall outcome is much better. For example, as a group, men are notoriously bad at seeking medical advice. They just don't want to go to the doctor. But it turns out that if we set up men's health clinics, men are much more likely to attend, and serious problems can be detected much earlier. Even though this is special treatment, the outcome is much better overall. When arguing against special treatment for Maori (and other groups), we need to be sure that they receive special treatment by virtue of being Maori (or whatever), rather than because of a special need.

We need to listen carefully to the claims that people are making, and try to tease out the hidden and unspoken parts of the claims, and test the claims against facts. I think that as university teachers and students and graduates, we have an added responsibility to think very, very carefully about the race relations debate in New Zealand. We are highly educated, and we have extraordinary skills in sifting evidence, analysing ideas, and applying knowledge. The degrees that we work so hard to get are not just job tickets; they are an education. We should be prepared to deploy that education in all areas of our lives, not just our jobs.

Get informed. Too many people have entered the race relations debate on the basis of little information. Get hold of a book such as Michael King's Penguin History of New Zealand (it's very readable) and learn about the history of Maori and Pakeha relations. Read the daily newspapers many of them have done an excellent job of presenting some of the facts about spending on Maori and the foreshore debate and so on. And always, think. Think long and hard about the issues. It isn't easy, but we owe it to ourselves, and to our children, to make the effort to get this right.

Deborah Russell is a lecturer in philosophy.

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Type: Features

Categories: Alumni; Massey Magazine

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# The unmentioned minority

**Just who is driving the one people debate, asks Danny Keenan.**

Have Maori sullied the racial aspirations of ordinary New Zealanders by acquiring privileges and rights to which they are not entitled? And are they, therefore, threatening our longstanding colonial aspiration, that we really are all one people? The current debate about special treatment on the basis of race makes me wonder which sector of New Zealand society has taken up the call to arms.

It all reminds me a little of the infamous Contract with America launched by Newt Gingrich in 1994.

Gingrich was a veteran congressman who waged an aggressive campaign to wrest control of Government from President Bill Clinton.

He delivered a sharp and urgent message to middle America the country was being lost to liberals, trade unions and racial minorities. I was working in the United States at the time.



Who can forget the televised adulation which accompanied Gingrich's sweep to power, and which launched him on to a titanic struggle to unseat President Clinton (he failed).

Gingrich's election rhetoric had sounded like a call to arms, and it was, and a very successful one at that. But to whom was it addressed?

According to American commentators like Michael Moore, Gingrich aimed his message at a newly discerned group that was feeling increasingly disenfranchised and fearful: white male Americans.

White men in the US were rapidly becoming a racial minority. By 1994, they constituted about 35 percent of the country. White women and coloured people were threatening to dominate the arts, sport, entertainment, even politics. Young Americans were perceived to be switching on to the lure of a diverse and vibrant ethnic pop culture.

Although white males controlled about 80 percent of the wealth and power, that was no consoling thought. They perceived themselves to be losing influence and authority.

Worse, white males were increasingly fearful of being swamped by minorities. Their personal aspirations did not accord with the rapidly changing gender and ethnic face of the US; and that face was getting younger.

The privileges and rights to which they believed they were entitled were under threat, said Moore.

So they turned out in their thousands to support Gingrich, delivering him a historic landslide. (He would later be undone by Clinton's soccer moms.)

Ten years on, and one wonders if we are not seeing the Gingrich effect resonating in this country.

Isn't it conservative Pakeha males who feel the most threatened by (or indignant about) Maori receiving any perceived special treatment or rights?

Pakeha males constitute a distinct racial minority. Within our ethnically diverse community, they number about 35 percent of the population.

And, as ethnic populations go, their situation seems to be worsening because Pakeha numbers overall are in decline.

The numbers of Pakeha men winning high honours in the arts, literature, film, music and scholarships have been in decline for years, especially when faced with opposition from women.

And those areas of national prowess much valued by Pakeha men, especially rugby, have long been handed over to Maori or Polynesian men like Tana Umaga.

The Colin Meads icon that once personified male and rugby prowess has long gone.

But if Pakeha men feel their decline, there is some consolation. As with the US, they still control as much as 90 percent of our wealth and power. In this regard, they possess an almost total dominance.

To many, such a dominance of the levers of power seems perfectly normal. It does not really matter that the nation's boardrooms, agencies, local councils and even Parliament are dominated by Pakeha men.

If it were Maori who possessed 90 percent of the wealth and power, what would be the reaction?

Well, Maori once did, but we have seen the result of this already. Wars were started against the tribes in the 1860s, and land confiscations followed.

This was done despite the aspiration, agreed to 20 years earlier, that we were all one people with all the same privileges and rights. As Maori were soon to discover, such rights were easily extinguished through the likes of the 1862 Native Lands Act.

If it were Maori who had such dominance over the levers of power, what would be the reaction?

We have seen the result of this already. Despite the Treaty of Waitangi assurances, Maori were denied access to power for 27 years after the signing of the treaty. This was the same treaty that made us all one people .

When New Zealand won self-government in 1852, Maori were again denied the vote. The vote went to Pakeha males. Fifteen years later, in 1867, Maori were finally granted four special seats. But they were effectively left powerless to stop the erosion of their land and rights. No one was saying that we were all one country in 1867. And, with Dr Brash pointing to the increasingly favoured status of Maori, at the expense of others, we might ask what happens when Pakeha begin to fear the dominance of Maori? We have seen this before.

Historian Alan Ward has argued that the wars of the 19th century were caused by Pakeha fear of Maori a situation common to many colonial societies. Small enclaves of white settlers lived in constant fear of much larger concentrations of native peoples. A war of the races (as it was called here) was the result.

And, as James Belich has argued, the wars were fought to assert Pakeha dominance and sovereignty over Maori.

Is it fair to point the finger at white males? Does such a group even exist, with common interests to defend? Americans like Michael Moore are in no doubt, though we might here shy away from such an identification.

Yet it is the group that consistently escapes the notice of politicians. Instead, attention is diverted to other problem minority groups immigrants, beneficiaries, women and Maori.

As others have said, the politicians stirring up the issue (predominantly Pakeha males) are articulating widely-held sentiments, and that's why the debate is playing so well. And reasoned argument is a good thing. But I have to question whether this particular debate deals with reality or with matters of perception, where reason has little play.

**Danny Keenan** is a history lecturer and the owner of the New Zealand Wars website:  
<http://www.newzealandwars.co.nz>.

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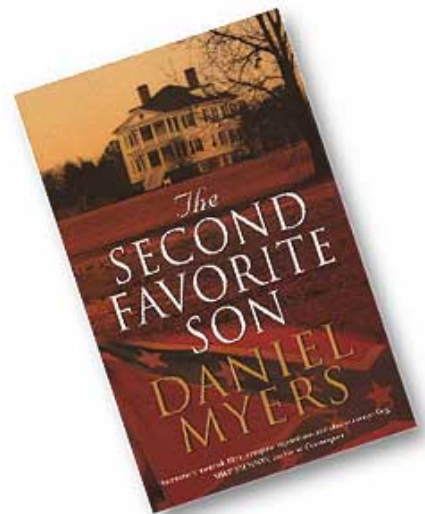
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# The Second Favourite Son

by Dan Myers (Hazard Press, RRP \$34.95).

The present day disappearance of the heir to the Peebles-Packard empire begins this first novel by Massey MA English graduate Daniel Myers.

The Second Favourite Son follows the growing fortunes of the Straughan-Peebles-Packard farming corporation, grown from the soils of the plantations in the south of North America. It tracks the feud that dogs the family through the generations, begun the day matriarch Eulah Mae gave Theo Stokes the slip at the altar in 1784. The novel moves from past to present as the second favourite son Jefferson Davis (JD) Packard is forced to return to the 'slavery' of the family empire he has tried to avoid for all of his 25 years, vowing to uncover the truth behind his brother's disappearance. As he solves the mystery and reclaims his true love we alternate with a past that lays out the history of the dynasty



This is a good, entertaining, fast-paced light read, covering 200 years in 430 pages. The reader is extremely grateful for the Packard/Peebles family tree at the front of the novel the only way one can keep track of the evolution of the empire through the generations, and of the intermarriage of the already close families. A similar genealogy for the opposing feuding family would also have been helpful though perhaps this may have provided far too many clues.

The novel is counter factually set in an disunited United States of America, with a Union in the north and the Confederate States in the south; the African Americans in the Confederacy have fewer rights, lower status and racial undercurrents still run strong. The good ol' Southern Boy still reigns in these parts.

As with many mystery/murder/intrigue/love 'entertainment' novels, the character development here is limited. The eldest son is expected to live and breathe the honour of the family, and though perpetually doomed, is forever blondish, good looking and arrogant with a liking for either drink or devilment, while the second son is likely to be darker, shorter, more sensitive with a dream to escape the 'slavery' of the dynasty and all it represents. And, through the generations it is the second son that forges the lifelong friendship with the plantation's slave leader, or in JD's time, with Dexter Peebles, a private investigator and descendant of Packard slaves. And strong women feature only at the very beginning and the end but again this is the confederacy.

Myers' attempts to portray parallels between the slavery of the Blacks in the Southern states and the first-born son's slavery to the honour and tradition of the Packard family is fanciful or is it supposed to be? Perhaps he is being facetious. If so, he's being a bit clever for this reader.

Myers is originally from Chicago, grew up in California but has lived in New Zealand since 1987. He has worked as a pilot, a flight instructor, air traffic controller, an English teacher in China and a TV gag-writer. A graduate of the university of South Carolina he gained an MA in English from Massey in 2002. He has also taught American literature, creative writing and English language training. Now based in Queenstown, he teaches English as a foreign language.

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# Bartók's Viola Concerto: The Remarkable Story of His Swansong

by Donald Maurice (Oxford University Press, RRP \$155)

This book tells the intriguing story of Béla Bartók's viola concerto, a work unfinished at his death in 1945.

Composer, pianist and ethnomusicologist; Bartók was the most important Hungarian composer of the 20th century, and responsible for the awakening of the interest in Hungarian folk music.

Drawing on interviews and previously unavailable documents, this book discusses the commission of the concerto, its reconstruction, events leading up to the premiere, its reception over the second half of the twentieth century, the revisions, and future possibilities.

While no definitive version of the work exists, this concerto has become arguably the most performed viola concerto in the world. After his death, Bartók's family asked his friend Tibór Séry to look over the sketches of the concerto and to prepare it for publication. While a draft was ready, it took Séry two to three years to assemble the sketches into a complete piece.

For almost half a century, the Séry version enjoyed great popularity among the viola community, even while it faced charges of inauthenticity. In the 1990s, three revisions appeared, one by Donald Maurice. In 1995 the composer's son, Peter Bartók, released a facsimile of the manuscript, opening the way for an intensified debate on the authenticity of the multiple versions. This debate continues as violists and Bartók scholars seek the definitive version of this final work of Hungary's greatest composer.

How should we regard a work unfinished at the time of the composer's death, and later completed by others? Whose work is this viola concerto? Who decides what is authentic? Professor Maurice has, over 20 years, sought answers to these questions.

Opinions range from complete dismissal to a fine but incomplete example of Bartók's final period.

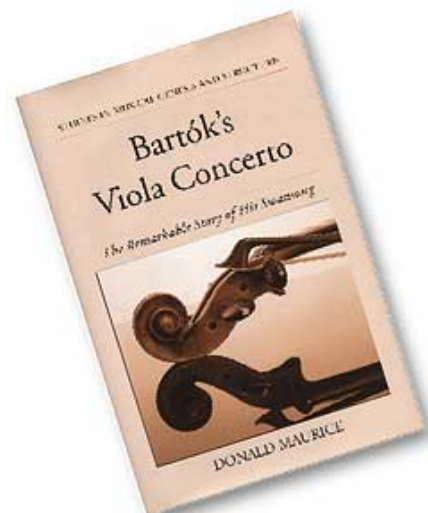
This book will appeal not only to Bartók scholars and violists, but also to fans of musical or literary detective stories.

Donald Maurice is Professor at Massey University's Conservatorium of Music, soon to become part of the New Zealand School of Music in collaboration with Victoria University's School of Music.

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# The Enigmas of Easter Island: Island on the Edge

by John Flenley and Paul Bahn (Oxford University Press RRP \$69.95)

As a child I was captivated by the adventures of Thor Heyerdahl, but while I enjoyed The Kon Tiki Expedition, in which Thor, five crew members and a parrot spent 101 days drifting/sailing aboard a balsa wood raft (towed beyond Peru's coastal currents and carrying modern provisions and a still for making fresh water) before hitting a reef east of Tahiti, it was *Aku-Aku: The Secret of Easter Island* that I read and reread.

The Kon Tiki Expedition was a straightforward swashbuckling adventure intended to provide the proof of Heyerdahl's contention that Amerindians could have settled Easter Island. *Aku-Aku*, recounting Thor's archaeological investigations of Easter Island, was much more intriguing. *Aku-Aku* had family caves containing ancient carvings brought forth only for Heyerdahl's gaze. It revealed an ancient history in which the aristocratic long-ears, of South American descent, were wiped out in a bloody insurrection by the plebeian Polynesian short ears. It was a rattling good yarn. Maybe too good, for Heyerdahl got it wrong.

There is no need to add South American settlement to the mix to explain Easter Island. Polynesian culture does nicely. But the shadow of Heyerdahl stretches longer than that of any of Easter Island's famous statues, and when *The Enigmas of Easter Island* was first published in 1992 it caught criticism from Heyerdahl's legion of followers, who were still smitten with the Amerindian connection.

This second edition adds a decade's worth of research findings to the original book and Heyerdahl, though it is acknowledged that his *Aku-Aku* expedition did a lot of good archaeological work, remains wrong.

So what do we know of the 'mysteries' of Easter Island that New Agers are so fond of? In truth there do not seem to be that many great mysteries left, more riddles and loose ends. Where did the original inhabitants come from? From Polynesia. One could not put it more plainly than Captain Cook, who visited in 1774 (and who had been outsailed by Polynesian double canoes): In Colour, Features, and Language they bear such an affinity to the people of the more Western Isles than no one will doubt but that they have the same Origin,... Why the many hundreds of Moai (the emblematic Easter Island statue)? They seem certain to represent high-ranking ancestors, keeping their memory alive and often serving as their funerary monuments. How were they carved, moved and raised? They were carved from the soft volcanic rock of the Island using stone chisels and the one resource the islanders had in abundance: time. How were they moved and raised? Well, a variety of methods have been shown to work, though many rely on the use of wooden frames, runners and rollers. Which brings us to the most instructive question: what can have happened?

Easter Island turns out to be an environment cautionary tale. Treeless at the date of first recorded European contact, presettlement Easter Island, according to the evidence, was well forested, with extensive stands of the Chilean wine palm.

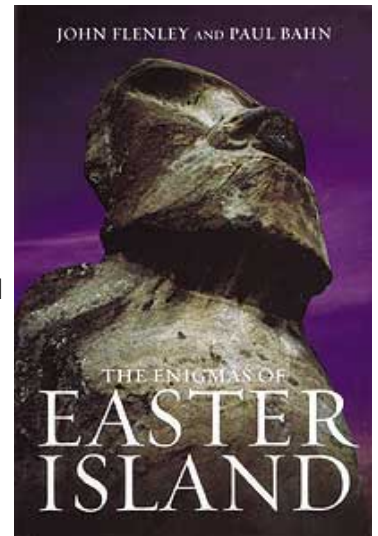
For the first settlers this was a land of plenty. But as the population of their descendents burgeoned that changed. The trees were felled, the once dense seabird colonies destroyed. Polynesians rats did their share of damage, eating the palm seeds. The last forest may have been cut for firewood around 1640. Lacking the timber to build canoes the islanders could no longer fish or travel to gather food as they had. Fertile forest soils were lost, such streams as there were dried up. The population reached carrying capacity, and famine, warfare and the casting down of the Moai followed.

Take what lessons you may.

John Flenley is Professor of Geography and an expert in the vegetation history of Easter Island. He is the recent recipient of the honour of Doctor of Science from Cambridge University.

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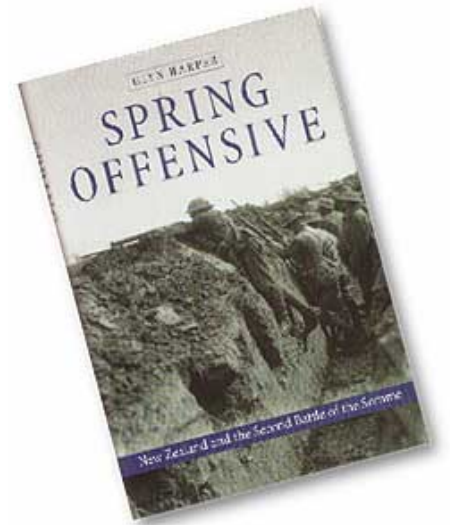


# Spring Offensive: New Zealand and the Second Battle of the Somme

by Glyn Harper (HarperCollins \$45.95)

In February 2003 the end of an era came about when Bright Ernest Williams of the New Zealand Rifle Brigade died. He was the last survivor of the 100,444 New Zealanders who packed up their kit bags and sailed off to do their bit in the Great War. But though those who fought in it are gone, WWI is still very present.

I was most recently reminded of this when I went to see Peter Jackson's *The Return of the King*, for what is that scene in the dead marshes where Frodo gazes down on the face of a long-dead warrior but an evocation of landscapes of the Somme? (Where Tolkien fought briefly before being invalidated out with the typhus-like trench fever.)



As a military historian, Glyn Harper has spent years keeping company with New Zealand's WWI troops. His books include *Massacre at Passchendaele: The New Zealand Story*, *Letters from the battlefield: New Zealand soldiers write home 1914-1918*, and now *Spring Offensive: New Zealand and the Second Battle of the Somme*.

In *Massacre at Passchendaele* Harper gave an account of the events and bungled leadership that took more than 1000 New Zealanders to their deaths in the space of two hours in a quagmire before the small Belgian village of Passchendaele. They died in a squalor of thigh-deep mud, machine guns, and thickets of barbed wire and their valour achieved little. Summon your worst imaginings of WWI and Passchendaele will answer.

In *Spring Offensive*, by contrast, the New Zealanders made a vital difference at a moment when the stalemate had been broken and the German Army had it within its grasp to inflict a decisive defeat on the Allies.

By the middle of 1917 Russia's armies had begun to dissolve and by the time of Passchendaele, late in that year, the new Russian revolutionary government had requested an armistice. Germany was now able to transfer men and artillery to the Western Front, where the French and British armies were in poor shape.

On 21 March 1918 at 4.20am the Germans opened the Kaiserschlacht (Kaiser's battle) or Michael Offensive with a barrage from almost 6500 guns. It was the heaviest artillery barrage of the war, and it was devastating. At 9.30am specially trained storm troops advanced behind a creeping barrage, leaving centres of resistance to be dealt with later. Over the next six days the Germans would advance 40 miles, an extraordinary distance when success was generally measured in yards. The New Zealand division, hurried to the battlefield, came into play on the 26 March. As Harper puts it:

... at a time when well-trained, high quality soldiers were desperately needed, the New Zealand Division, widely acclaimed as one of the best Allied divisions in France, was thrown into the thick of the action in the most dangerous sector of the line. There between Hébuterne and Beaumont-Hamel, they brought the German advance to a standstill.

Harper's account provides both a strategic context for the actions of the New Zealand Division and a detailed battlefield perspective, enlivened with many quotes. Take Thomas Eltringham, a Lewis gunner recalling the close fighting some seventy years later:

People used to say to me, 'Was you scared?' Yes, who wouldn't be? But, I said my biggest worry was not to let my mates think I was scared. Mustn't let them down.

Associate Professor Glyn Harper is the Acting Director of the Centre for Defence Studies.  
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# Molecules made to order

**Organic superglues, disease treatments and better food flavourings: these are some of the projects where synthetic organic chemist Carol Taylor employs her skills.**

Carol Taylor calls herself an architect, engineer and builder. The Associate Professor of Chemistry designs and makes molecules which she hopes will ultimately enable others to make advances in treating diseases, and developing new surgical products.

Providing the atomic infrastructure is the speciality of Dr Taylor's seven-strong team.

A lot of biologists and biochemists are full of ideas but they can't get their hands on the molecules to answer the really interesting questions. What we can contribute is the ability to make things, and I love making things, Dr Taylor says.

She does this from her fourth-floor office at the Institute of Fundamental Sciences. Dressed in jeans and sneakers, surrounded by books and papers, the diminutive chemist explains that once planning is complete sitting at a computer, she'll front up in the lab to make the new molecules, step-by-step, tracking changes using spectroscopy of various kinds.

Instruments like the nuclear magnetic resonance (NMR) spectrometer can give us enough information on an atomic level so we can know, for example, if we've replaced a hydrogen atom with an oxygen. It's an area of chemistry that's more art than most. It's art and science.

The research group has three major projects under way, all focusing on design, synthesis and evaluation of molecules.

Lead-in work was inspired by a sticky protein excreted by blue mussels. Researchers in the USA had determined the amino acid composition of the molecule, The substance, which sticks the mollusc to rocks remains sticky while under water, lending potential for development as surgical superglue, Dr Taylor says.

We've made small versions of the sticky protein but what I have to do now is make it more efficiently and produce a reasonable amount of it so we can do something meaningful with it.

During the mussel protein work we developed skills in the synthesis of amino acids called hydroxyprolines, and this led us almost inevitably to look at collagens, a family of proteins with all sorts of structural roles they make up skin, cartilage, nails, hair and bone.

Collagen can be compared to a piece of rope made up of three strands, intertwined to form a tough fibre. Dr Taylor's team is looking specifically at the role of hydroxylated prolines and their derivatives, which are found in abundance in the collagens.

The challenge at a fundamental scientific level is to understand how the amino acid composition translates to the function of the molecules; for example, what makes them very strong or what happens if there is too much carbohydrate?

The molecules produced in the study, and physical data, will provide a clearer picture of the factors influencing the structure and stability of these proteins, Dr Taylor says.

And when we start to achieve that, we may even glean insight into the molecular basis of some collagen-related diseases, including arthritis and osteoporosis. If we can understand what's going on, scientists are then in a position to try and develop therapies.

Some members of Taylor's team have recently become part of a subcontracted project with the Fonterra Research Corporation on a Foundation for Research, Science and Technology project worth \$570,000 over three years. Initially concentrating on cheese, the team is working on novel flavour compounds that may be used in the food industry.

In 2000, when Taylor moved to Massey University, she received Health Research Council funding of \$340,000<sub>1</sub>



over three years to look at the design and synthesis of molecules that might have an impact on diseases, including multiple sclerosis and asthma. This work is in collaboration with the University of Auckland's Geoffrey Krissansen.

Dr Taylor graduated MSc at the University of Auckland in 1988, having worked with Professor Con Cambie. She used a compound isolated from the native silver pine to produce a molecule of interest to the perfumery industry.

The fascination with organic chemistry grew through two summers (1987 and 1988) investigating the addition reactions of some bright orange compounds with Professor Harold W. Heine of Bucknell University in the US, and continued with a PhD in 1993 from the University of Pennsylvania and a doctoral thesis involving the development of catalytic antibodies for peptide bond formation under Professors Ralph Hirschmann and Amos Smith. During 1993 and 1994 Dr Taylor was a research associate at Princeton University in New Jersey, returning to New Zealand in 1995 to a position at the University of Auckland which involved split teaching responsibilities between the Department of Chemistry and Auckland Medical School.

That was supposed to be 75:25 but I used to joke it was 90:40, she says.

Promoted to Associate Professor last year, she combines her research work with teaching.

Traditionally people talk about an academic position as being 40 percent teaching, 40 percent research and 20 percent admin, but I think the way things are going in New Zealand you are encouraged to excel at one of these things. You have people who do no teaching ... but have other people who do very little research and are committed to teaching. Then there's those of us who are a bit deluded and try to do everything.

Dr Taylor's first academic term this year is immersed in teaching, and she's considering what whiz-bang sideshows she can come up with to capture students who are not chemistry majors. She's also juggling managing her team, securing research funds, organising international placements and scheduling requests from international bodies who have invited her to speak. Last year she did a six-city lecture tour of British universities, ending in Edinburgh, and this year she'll speak at the prestigious Gordon Research Conference on Natural Products Chemistry in New Hampshire in July, then later in the year in Philadelphia at a symposium to honour one of her mentors

I have turned down other opportunities to speak because my teaching schedule doesn't allow it, and I don't have an army of 20 people working for me. I need to spend time at home in Palmerston North working in the lab to produce results.

And I am still teaching because I think students deserve to be taught by research-active people. That's what a university is supposed to be about.

Though her research team is small, Dr Taylor prefers it that way. Because it's hard to organise people's contracts, struggle with management and administration. No one teaches you to be a teacher, manager or accountant.

And I like to keep a pretty close eye on the accounts. We work so hard to get research money and I personally feel a huge amount of accountability to those funding agencies that invest in us so we try to spend the money wisely.

The scientific community and university structure at Massey are incredibly supportive, Dr Taylor says, and it is not impossible to do really good scientific work in New Zealand.

But it's hard to get good people ... One of the biggest problems is getting PhD students because there are too many good opportunities for them to go overseas.

The team is currently composed of two postdoctoral researchers, two PhD students and a visiting student from Germany, with a PhD studentship and research assistant position Dr Taylor is trying to fill. The future looks financially assured thanks to a new Marsden grant of \$585,000 over three years confirmed in September 2003. The project is looking at molecular complexity beyond the genome, in particular how proteins are modified and manipulated during and after their assembly under genetic control.

"We hear a lot about genomics and we can clone the gene and we can manipulate the gene but where's the other information? Getting the DNA doesn't tell us everything. There's the influence of the environmental conditions, the health of the individual for example.

A focus of this work is an unusual amino acid called histidinoalanine. This is an example of a protein cross-link, in which two previously distant pieces are joined together in an irreversible manner.

The formation of this crosslink is implicated in the ageing process, Dr Taylor says, older teeth, for example, have higher levels, and they also occur in cataracts.

The 37-year-old was presented in 2001 with the prestigious Easterfield Medal, awarded every two years by the New Zealand Institute of Chemistry and the Royal Society (London) to a New Zealand scientist who has made a substantial contribution to chemistry research. Eighteen years into her chemistry career, she's as enthusiastic as ever.

Actually making molecules is not a sit on your bum and stare at your computer screen kind of science. It's get into the lab and find a way to make things work.

The thrill when you do find something is tremendous. A really good 'Eureka moment' only happens every five or six years in my experience, but it's really, really satisfying. To have an idea and see it through to completion is unbelievably rewarding.

The process requires real creativity , Dr Taylor says with an obvious passion.

It's the only game in town; it doesn't matter how tired you are or how frustrated you are. It's like a calling. It feels like what you have got to do.

Date: 05/04/2004

Type: Features

Categories: Alumni; Massey Magazine

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# Can the dollar be disciplined?

The dollar reaches a seven-year high against the US dollar. 2003's trade deficit is described as the worst since records began in 1960. Consumers embark on a spending spree while exporters fret. What is happening here? Will the market self-correct, and what chance does the threat of intervention have of working? MASSEY sought the views of Professor Allan Rae and of Chris Nixon, from the New Zealand Institute of Economic Research.



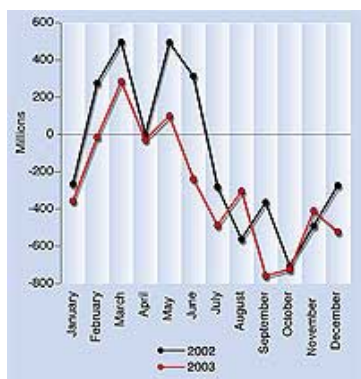
*Is it just the value of the dollar that is creating the trade deficit?*

**Allan Rae:** No, it's a combination of factors. The New Zealand economy has grown rapidly over the last few years and that puts money in people's pockets. So consumer spending is buoyant. And in addition the buoyant dollar brings advantages for people who want to buy imported products in shops in New Zealand. They become cheaper and so become more attractive and this can also add to the trade deficit. Weaker export commodity prices, especially for dairy, have also played a role. This underlines the importance of achieving the elimination of the EU's export subsidies through WTO negotiations.

New Zealand importers, particularly manufacturers who use imported components in their production operations, can also take advantage of the high value of the dollar. They can import components more cheaply, which encourages their own domestic production, and this may boost employment and, in turn, the economy.

*Shouldn't the value of our dollar self-correct as our trade deficit grows?*

**Allan Rae:** In years gone by, a continued trade deficit of this size would lead to a lowering of the value of the New Zealand dollar had it been freely floating and so would have tended to be self-correcting. These days, exchange rates which, of course, are linked with interest rates are much more influenced by flows of international capital than by flows of goods. Overseas investors look around for somewhere to put their dollar. They see that New Zealand has higher interest rates than say, Japan or the US. They're also looking for economies that have some growth and are 'safe bets' from a political point of view. So overseas money flows in and when investors have to exchange foreign dollars for New Zealand currency, the demand for the New Zealand dollar goes up, and so does its price.



If we try to reduce the value of the dollar by lowering interest rates we do make it all less attractive for foreigners. But then even more people will take out loans to buy houses and so on, raising inflation. So there's a lot of domestic balancing to be done.

**Chris Nixon:** There is very little we can do to stop the rise of the New Zealand dollar. In fact, it is not the rising New Zealand dollar. It is more the falling US dollar, as money flows out of the US economy because of its sluggish performance.

In this environment the Reserve Bank's job is to set interest rates to ensure that inflationary pressures do not get out of hand. This means there will always be a tension between lowering interest rates, which will discourage overseas investors (lowering the dollar) and fuel inflation (by encouraging easy credit), and increasing interest rates, which will encourage overseas investors (pushing up the dollar) to choke off inflation.

*Will the Reserve Bank's expressed willingness to become a market player change things?*

**Allan Rae:** I don't think this has much potential to significantly alter the New Zealand dollar value, simply because the Reserve Bank has limited resources relative to other players, including some very large institutional players, who are active in foreign currency markets. Some central banks have tried such approaches in the past,

many without much success despite the large costs involved.

**Chris Nixon:** If the Reserve Bank intervened in the market, modern communication and the ability to move money with a touch of a button would mean that huge amounts of money would be bet against the New Zealand dollar we simply do not have the reserves to sustain defending the dollar. This happened in Europe a number of years ago when the European nations tried to defend their currencies. The policies lasted a few days and the monetary authorities of those countries sustained huge losses.

The main role of current monetary policy is to keep inflation low, not to influence the dollar. The song and dance made about intervention will make no difference over the long run because they can only tinker around the edges. In fact if you look at Australia, where they do intervene around the edges, the ups and downs of the dollar are very similar to New Zealand. So, a big story, but little real impact.



*The failure of the Cancun trade talks can't have helped our trade deficit prospects either.*

**Allan Rae:** I still feel there is reason to hope for a satisfactory outcome. The negotiations are in a more favourable position for us than at this stage of the Uruguay Round, which brought some gains after 1994 (although they were less pronounced than the euphoria of the time suggested). Now we have more recognition by governments of the effect of trade barriers and the benefits of change for poor and rich countries alike.

In this new round lots of proposals were put forward, and more will come. There is an expectation that some consensus will be reached, although the discussions in Cancun were very disappointing. It's been on the back burner for a few months, but we know work is continuing in the background and the agricultural negotiations have just got under way again. Of course it's highly unlikely there will be a result by the original deadline of January 2005. It will be 2006 or 2007, more likely.

**Chris Nixon:** The problem with the instant gratification society we live in is that we want things to happen right now. Trade negotiation delivers benefits over the long haul. The pace is glacial. However the gains are real. The Uruguay Round has delivered real benefits to New Zealand, particularly to dairy farmers, because we have managed to limit the subsidies European farmers get for exporting dairy products. There have been other more subtle gains which are very real but harder to quantify. For example, we no longer have to go cap in hand every year to the Europeans to extend our quota arrangements as we had to in the '70s and '80s they are automatically enshrined in the GATT.

**Postscript:** Willing they may be, but the Government and Reserve Bank have so far judiciously avoided intervening in the market. After the Reserve Bank's announcement the Kiwi dipped to 64 cents against the US currency, but it was back at 66 cents a few days later, driven, so the word was, more by what was happening in Japan and the United States than in Wellington.



**Chris Nixon** studied under Professor Allan Rae at Massey University, graduating Bachelor of Business Studies in 1985 and Master of Business Studies in 1992. He is now Manager, Research Contracts, with the New Zealand Institute of Economic Research.



Massey graduate (Master in Horticultural Science 1970)  
**Professor Allan Rae** is now Director of the University's Centre for Applied Economics and Policy Studies.

He is also a member of several select international research networks. Late last year he was

Chris has been involved in research on agricultural and trade topics for the last 18 years, previously with the Ministry of Agriculture and Fisheries. He describes his role with NZIER as demonstrating to agricultural clients the importance of institutional economics.

He is particularly interested in economic behaviour and why this sometimes deviates from the expected. He has recently completed a book, *New Zealand's Trade Policy Odyssey*, with colleague John Yeabsley, on trade policy and small countries.

appointed as one of 25 Research Fellows with the prestigious Global Trade Analysis Project, based at Purdue University in the USA.

He is also a Research Fellow with the Rural Development Research Consortium at the University of California, Berkeley.

Professor Rae's research combines agricultural and horticultural science with economics and has focused on the effects of restrictive trade barriers on the New Zealand agricultural industry.

He is committed to raising awareness of the role economic analysis can play in decisions affecting agriculture.

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# Accentuating the negative

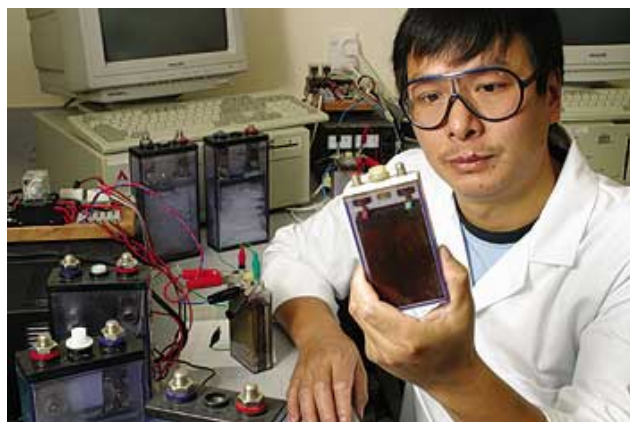
## A Massey-developed battery technology moves towards commercialisation

Inventing a new battery technology is one thing. For two university scientists, breaking into the \$200 billion world battery market is something else.

In 1997 Drs Simon Hall and Michael Liu of Massey's Nanotechnology Centre had begun painstakingly working on the long-standing problem of developing a zinc anode suited to use in rechargeable batteries.

When a zinc anode discharges, the zinc oxide dissolves in the electrolyte and moves around the battery. The problem comes during recharging: the zinc anode takes on a radically different shape, and, what is more, it forms spikes, called dendrites, which can penetrate the walls of the battery. So zinc, which is cheap, power efficient and widely employed in single-use batteries, has been little used in rechargeable batteries. In 2003 Drs Hall and Liu were confident they had an elegant solution and a marketing and commercialisation problem.

Enter Chris Officer, a former Massey staff member, management consultant, e-commerce adviser and alumnus now living in San Francisco. Officer was in New Zealand investigating investment opportunities when he called in to see his brother, Professor David Officer, Director of the Nanomaterials Research Centre, where Hall and Liu were working. Over dinner David told me about his work and Simon and Michael's research. He said their invention was coming up for patenting and they were trying to get together with a commercialisation partner but it wasn't working. I went back to the US and took a look around. I found that the technology had real commercial potential.



To enlist the help of others, Chris Officer approached the Kiwi Expat Association in California. Here he encountered Howard Moore, who remembered Officer from Massey. Hadn't the two of them been in B Hostel in the same year? Moore (who had gone on to found biotech company Tercica Inc. with another US-based Massey alumnus Ross Clark) was keen, and together with another alumna, Linda Jenkinsen, Chris Officer and Moore sat down to discuss the next steps. And so Anzode Inc. was born, a name that plays on Zn and anode but also, says Officer, suggests A(n) NZ ode. Officer became Anzode's chief executive and president; Moore one of the two directors.

Anzode swiftly attracted a group of Australian, New Zealand and American 'angel' investors: investors willing to fund a start-up business without asking for a large equity stake.

Anzode is a very good story. It's attractive to investors. We've got a market-ready product, explains Officer. Hall and Liu have taken a very entrepreneurial approach. They've designed with manufacturers in mind as well as end users and they have been extremely pragmatic.

It doesn't require further research to bring it to product. It's not IT, it's fundamental chemistry, and it's a battery an everyday basic that powers nations.

Officer spent the winter in Palmerston North negotiating a deal with Dr Gavin Clark, the Director of Commercialisation at Massey, for an exclusive global licence to the zinc electrode technology. In return the University receives a capital payment and royalties over time. Anzode has spent over US\$100,000 to protect the patents in 30 countries and territories, and they intend take the new technology to the market as quickly as possible.



For Hall and Liu, who now join the Anzode payroll as part of the soon-to-be-established Massey Anzode Research Centre (MARC), the patents mean they can at last break silence. From 1997, when they began their work with zinc and batteries, their record of discoveries in peer-reviewed journals the measure of a career-minded academic dropped away. They knew that before they could let word out, they needed their intellectual property patent protected.

Universities don't need more encouragement to do research. They need more flexibility so that researchers can develop commercially viable products without jeopardising their careers, says Officer.

The Anzode battery technology has so far attracted interest from the US military, a major US consumer electronics firm and the world's largest manufacturer of electronic components for cell phones and laptops, among others.

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## In a Chinese newsroom

***Spending a month teaching new reporters on China's Shanghai Daily newspaper, Massey journalism lecturer Alan Samson discovered having a nose for news is universal.***

Just before I finished training 11 new reporters for a revamp of Shanghai's English-language Shanghai Daily, the big news was a suspected case of SARS in Guangdong Province.

The story filled the newspaper's front page, as earlier had other big Chinese stories, notably the horror of the gas blowout that killed more than 200 people in Kaixian in southwest China. These were news in anybody's language and it was good to see local stories dominate as examples for the young interns.

These stories were also good examples for me. I had landed in Shanghai aware that all Chinese papers were state or Communist Party-controlled, but with little idea of what I should expect of a Chinese newsroom.

My stint at the 50,000-circulation Daily was courtesy of a grant from Asia 2000, a local foundation aimed at creating closer ties with Asia. With Massey it had devised a scholarship for two journalism graduates to go to Shanghai each year, extending an already-existing scheme whereby two are similarly sent to Phnom Penh in Cambodia.

Two 2003 graduates, Ben Fahy and Emily Watt, were in Phnom Penh while I laboured in China. For Shanghai, I was the lecturer pathfinder the first scholar, Sally Kidson, is due to follow later this year.

I arrived in the city of 16 million shell-shocked at both its size and its freezing winter temperature. But the biggest shock after scaling the 40 floors to the Daily's newsroom, that is was to come. I had a loose expectation I would be employed polishing the work of the Chinese reporters, and was flattened when senior editor Liu Hong without warning asked me to train the new reporting staff.

I had no resource materials. With just one week to prepare, I pencilled a programme of topics, from what is news? to how to find it and, of course, how to write it. I also included the mechanics of the trade, from note taking to ethical issues.

For resources, I pressed colleagues back home to email me course notes to rewrite with a Chinese context. It took me the full week but, just in time, I had lessons drawn up with all references to Helen Clark, Kerry Prendergast and other New Zealand personalities expunged. Instead my copy was littered with Premier Wen Jiabaos, basketballer Yao Mings and so forth.

The training group comprised 10 women and one man, all university graduates mainly English majors of diverse ages and backgrounds. What they all glaringly had in common was that they had no understanding at all of journalism.

I had been warned that my biggest challenge would be to get the young interns to participate in discussion, but, after a nerve-wrackingly quiet first couple of days, they opened up, most of them willing to discuss the most contentious of subjects.

Early on, before I had taught them anything at all about the inverted pyramid journalistic writing style, let alone the mysteries of angles and intros, I had each write a piece on any subject they liked, and was surprised by their obvious abilities. There were the spelling and grammar mistakes, to be expected in writing in a foreign

language, but they all wrote interestingly, fulfilling one of the main journalistic injunctions: never be boring.

And they caught on quick. The climax of the course was a requirement to go out into the streets of Shanghai to find and write their own news stories. I told them I didn't want to see them from dawn to dusk. I could see the panic in their eyes as they straggled out the door!

The results were superbly encouraging. Sure, they struggled with English oddities of tense and grammar, but I was thrilled to find in many of them a very real sense of news.

One wrote about the annoying hawkers who push advertising cards at pedestrians at street corners she not only interviewed the distributors, but the local shopkeepers, the commuters and, bravely for China, the police. Another found a local newspaper wholesaler who had reserved newspaper kiosk jobs for thousands of redundant Shanghainese. Yet another developed a current story in the Daily about a teenage mother who had left her stillborn baby on her fourth-storey windowsill, into an analysis of the paucity of Chinese sex education.

Whether about pickpockets or the emerging Shanghai business trend of franchises, all of the stories were interesting to read. They were issues. They were news .

But would fired-up young reporters be encouraged to continue in this fashion? Editor-in-chief Zhang Ciyun encouragingly says his newspaper philosophy is, news, news, news . That's very important so we can have a better understanding of the city, of the region and of Chinese people, he told me.

The intent is clearly there. When September 11 rocked the United States, the Shanghai Daily was the only paper among China's thousands that ran the story as its front-page lead. Proudly displayed in the conference room, the full-cover splash could have been laid out in the US - or New Zealand. And when Saddam Hussein was captured during my visit, he too was splashed liberally across page one.

But important government policies are clearly conveyed correctly under the end-tag of the Chinese news agency, Xinhua. And in discussing the paper's odd lack of editorials, Mr Zhang concedes that the paper has limits on free expression. We are not encouraged to comment on national or international affairs, he says.

Later, however, features' editor Huanian Zhu reasonably alludes to the impact of big business ownership on western papers. She has a point. You don't see stories in Rupert Murdoch-owned papers criticising Rupert Murdoch.

It also seems clear that the press coverage in the newspaper is streets ahead in terms of freedom than its counterparts of even just a few years ago. The Shanghai Daily impressively pursues its editor's dictate of news first and foremost . Witness the SARS and Kaixian gas blowout pieces.

The paper promises to be a lively environment for 11 keen new reporters. At the end of my course, one of the foreign experts praised their basic understanding of what news is about, saying: I don't mind if they make writing or grammar errors ... as long as they can find the stories.

On returning home, I received the email from the lively Dong Zhen: I am now working for the metro department, mainly covering the beat of crime and social security stories, she wrote. I have my story published in today's newspaper (sic) on the metro page. It's about three uncovered wareheads (sic) in Shanghai. It's an exciting experience interviewing those people.

The story and the apostrophes were immaculate. It's early days, but on that basis the Shanghai Daily may have scored well. And in a climate of growing Chinese economic and press freedoms, if the scholarship contacts can be maintained and developed, Massey University may have scored well too.

Date: 05/04/2004

Type: Features

Categories: Alumni; Massey Magazine

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# Veterinary Adventures in India

Four in the morning in India's Garwhal Himalaya. Overhead the summit snows hang luminous in moonlight, while from the valleys comes the tinkling of bells as a host of mules and donkeys are led towards the settlement of Gaurikund to begin their working day.

This is the start of the 14-kilometre and 1,600-vertical-metre pilgrimage to the temple at Kedarnath, the site where Hindu legend has it that the Lord Shiva, lord of all beings and protector of cows, appeared in the form of a bull before plunging himself into the earth up to his ridged neck.



In a few hours the motley procession will be under way, the pilgrims and the holy men in tattered robes making their way up the concreted path, past the kilometre markers, past the wayside stalls where steaming bowls of vegetarian curries are ladled out to customers. Some will march determinedly on foot, at least until they tire, some travel regally by sedan chairs, bundled against the cold and borne by two pairs of wiry mountain men; but most will choose to travel by mule or less commonly pony. An estimated 5,000 7,000 mules and ponies ply this trade.

Long before there was such a thing as mass tourism there have been pilgrimages. The Kedarnath pilgrimage has been happening since around the 8th century, when the temple was founded, beginning each year in May when the snows of winter recede and finishing in October when they close in once more. As in the days of Chaucer, being a pilgrim offers a stimulating mix of sightseeing and company as well as the chance to put temporal matters aside and attend to matters of the spirit.

But you wouldn't want to be the mule or pony that carries the pilgrim. The mule, with pilgrim astride, must make the there-and-back journey twice a day as well as travelling kilometres to and from a home village. It is hard toil, and brings with it mortification of the flesh that few pilgrims or even holy men would suffer.



Most of the animals bear saddle sores and girth galls persistent, often infected sores where their trappings chafe dirt and sweat into their hides. Their lungs, damaged by respiratory disease, labour in the thin air. Their hooves, fitted with the local one-size-fits-all approach to shoeing, skitter on the concrete path. Many stumble and are injured; some fall from the path to their deaths.

But the lot of the Kedarnath mules and donkeys is beginning to improve. In recent times the pilgrimage has gained a new institution: a camp of veterinarians and paraveterinarians treating the mules and donkeys and educating the owners. The camp is run by the Brooke Hospital for Animals, and among the invited veterinary surgeons in 2003 was Massey alumna Jo Watson, now based in Jaipur, Rajasthan.

For the friends and family gathered at her graduation in 1992 there was probably never much doubt that Jo Watson would become a vet. An able student, with her father a veterinarian, she had been raised on 10 acres with a menagerie of cats, dogs, sheep and cows, and she spent much of her childhood and teenage years riding horses.



As a new vet, Jo cut her teeth in a mixed practice in Taranaki, then headed to the UK, where her vocation let her intersperse bouts of work and saving with travel: trips to Africa (one of them with her sister overland through West Africa, and another to Rwanda to see mountain gorillas and then to visit Victoria Falls), a six-month circuit of South America, and three months in India culminating in an overland return to the UK.

In 2001 she spent eight months working for the Department of Food, Environment and Rural Affairs during the foot and mouth epidemic. While doing so she met a vet who had worked for Help in Suffering, a charitable registered trust which runs shelters in India in Jaipur and Kalimpong,



Mules really are stubborn: that was one of Jo's lessons when she began working at Gaurikund and in common with most animals seldom look forward to visiting the vet. From early morning until late evening Jo and her team of vets and paravets coped with a sometimes near chaotic flow of patients. A crowd of mule owners would arrive together and each want their animals examined first, she explains. Every animal was dewormed, vaccinated, given a dietary supplement and had its teeth checked.

To combat the saddle sores and girth galls, grooming kits were handed out together with instruction in their use. To improve shoeing practices, five of the local farriers received farrier kits and training.

And Jo walked the pilgrimage route, rising at 5.30am to set off.

It wasn't long before the Himalayas came into full view, making us forget how unfit we were. We had to listen out for the mules coming from behind, as they would push past us with no consideration for the danger at the edge of the path... We walked slowly, eventually arriving early afternoon. At Kedarnath thousands of mules were lined up waiting to carry people back down. It is possible to stay at Kedarnath in one of the small guesthouses that now surround the temple. The temple itself is a plain stone building set against the background of the magnificent 6,970m peak of Mt Kedarnath. Outside a handful of sadus warmed themselves in the weak sun.



A few late arrivals were wandering about inside, having paid the late fee. The temple had closed at 1pm and wasn't to open again until 6pm. Some baksheesh solved the problem. I wasn't comfortable visiting such a holy temple so I waited while Dr Ashok and Rahkee had a special blessing from the priest. The walk back down was easy and enjoyable but we arrived well after dark. Luckily we had our torches. There are hot springs at Gaurikund. Perfect for tired muscles but unfortunately we didn't have time.

Kedarnath was not Jo's first assignment. That was the HIS shelter in Kalimpong, in the mountains in West Bengal near Darjeeling, where Jo arrived at the beginning of the monsoon. At 1,200 metres, Kalimpong receives good rain, and for three months Jo's feet were constantly wet as she walked door-to-door in the villages vaccinating dogs against rabies, or at a farmer's request strode into the night along the narrow and slippery paths through the terraced rice paddies to treat a sick animal. Next came Jaipur the sweltering city of 2.5 million people that is the capital of the Indian province of Rajasthan.

Travel to India and the street dogs often mange-ridden, sometimes injured, lying listless in the shade, or picking through garbage are one of the things you notice.



The males fight, and their wounds are invaded by maggots (in India there is a particularly voracious maggot called the screw worm, which invades in large numbers and consumes healthy as well as dead tissue). The females struggle to raise litter upon litter of pups, most of which do not live beyond a year.

Some of the dogs will be rabid. ( Two days ago I passed a rabid dog while returning from my daily run, writes Jo, and a month before this the shelter held a rabid horse, so dangerous that it could not be neared to euthanase.)

In India many municipalities periodically poison or electrocute their stray dog populations, but the numbers soon rebound. The HIS philosophy is to spay, treat and vaccinate a routine that occupies most of Jo's mornings and this has proven a better way of reducing populations than the occasional slaughter of strays. At Kalimpong Jo spayed 12 dogs a week. In the year to mid-December 2003 the Jaipur shelter of HIS, with its five Indian and two foreign volunteer vets, had spayed 3,114 dogs, with Jo's own tally breaking 1,100.

Dogs are just one member of the menagerie of wild, semi-domesticated and domesticated animals at large on the streets of urban India.

Most famous are the sacred cows, an estimated 9,000 of which wander the streets of Jaipur alone, relying, during times of drought, on scavenging and on handouts from the devout, who feed them with kitchen waste and fresh lucerne, specially purchased. In this predominantly Hindu nation it is illegal to kill cows (in Rajasthan the slaughter of cattle brings a ten-year sentence), even to euthanase those that may have met with terrible injuries.

Pigs wander the streets, providing along with the street dogs a form of waste and excrement disposal. The pork will feed tourists in the local restaurants.

And there are the beasts of burden that are the trucks and taxis of the poor.



I find it surprising how much countries in the developing world still rely on animals for transport. As well as horses and donkeys, ox and buffalo carts are still used in large numbers and around Jaipur it is estimated that up to 5,000 camels are used as beasts of burden. These animals carry wood from the villages to the city, walking hundreds of kilometres.

Finally, unquestionably the greatest of the local creatures great and small, around 90 elephants live in Jaipur. They feature in wedding processions and carry tourists to the Amber Fort.

I am no expert on elephants, but basic veterinary knowledge goes a long way. Last Christmas we had our Christmas dinner with one of the Muslim elephant owners, after being called to an emergency. There were five of us dining cross-legged on a bed, Christian, Buddhist [an elephant expert from Myanmar], Hindu and Muslim all enjoying the special meal.

Why are so many animals in India in such straits? It cannot be laid at the door of Hinduism, which teaches respect for animals. The elephant-headed god Ganesh rides on a rat, writes Jo, and I regularly see people releasing rats they have caught in non-lethal traps. The Jain accountant at the shelter won't pour hot water down the sink in case it kills an insect somewhere along the way. Nor is it some fundamental difference between Indians and non-Indians. Indians are, writes Jo, as dotingly sentimental about their pets as people in any Western nation.

I don't think most people intend to be cruel but some don't understand the basic requirements of food, water, rest and veterinary treatment. And some people really can't afford the basics. One man brought his horse to the shelter for treatment but unfortunately it died. His whole family relied on the income from the horse transporting vegetables to market. He has six daughters to support, which is considered very unlucky. In most of India a dowry is still paid to the groom's family, a reason why people prefer sons. He is a very nice man and we were in the position to give him another horse so that he can continue to feed his family. He knows the importance of it to his family and takes very good care of it.



When animals are used for production and transport, economics tends to influence the way they are treated. Most people concentrate on short term gain as they are living hand to mouth. They have no savings. These people don't plan for the future or think about the long term health of the animal. This is especially the case when the animal is not working for the owner. The person working the animal is expected to feed it, so the animal is fed poor quality, cheap food. Some of the donkeys are not fed at all. They work all day and then are expected to forage for themselves at night. In the city this means scavenging on the streets with the dogs and the pigs.

Some of the traditional medicines cause a lot of damage. Firing [using burns as a treatment for chronic inflammations in the belief that it prevents the formation of performance-hindering scar tissue] is very common in horses and camels. We regularly have to treat these animals' badly infected burns. Several elephants are now blind due to the Ayurvedic treatment they received for simple eye infections. These treatments involve chilli powder and other irritants. Traditionally donkeys with eye infections are also treated with chilli powder mixed with brick dust, which causes intense pain and irritation.

These people aren't cruel but because of their ignorance they cause immense suffering.

When she last emailed, Jo had taken up riding again, her mount a male camel that was being walked from Rajasthan to Bangalore, a journey of five months that was to have ended with his slaughter at a local festival.

Rescued by an animal shelter and taken into HIS care, he is now back to full strength.

He is a big bull camel and it is the mating season, so I have to be a bit careful. He threatens every other camel we see but really he is very well behaved. I ride him just like a horse. He responds well to voice commands. He has learnt English very quickly. A NZ visitor to the shelter bought us a proper camel saddle. It is a bit uncomfortable. The entire neighbourhood seems to find it highly amusing to see a foreigner riding a camel. All the passing traffic slows down and people look and point and laugh.

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# Life skills

**New Zealand's biotech sector is small, but growing fast. Brian Ward is the new CEO of the new industry organisation, NZBio.**

When discussions become heated over the issue of biotechnology, as discussions sometimes do, here is a suggested remedy. Slice a crisp loaf of bread, take a well-ripened Camembert, open a consoling bottle of wine, and call for a toast to biotechnology and some of the favours it has bestowed.



For biotechnology has been around for as long as yeast and bacteria have been used to make bread, cheese and wine, and for as long as people have selectively bred their crops or animals. Biotechnology is far more than the single issue with which it is often confused: genetic modification.

Though it is true you might care to concede as you pour another glass that in the last 30 years things have changed; that biotechnology has entered a new age.

Some date its arrival to 1977 and the announcement that a human protein had been manufactured in a bacterium using a synthetic, recombinant gene.

By this reckoning, as Brian Ward began his studies at Massey in 1978, the biotech age had only just begun. By 1985, however, as the newly qualified vet settled into his first job in an equine and dairy practice in Takanini in South Auckland, extraordinary things were happening. This was the year of the first field tests of plants genetically engineered to be resistant to insects, viruses and bacteria. It was also the year in which DNA fingerprinting was first used in a criminal investigation.

Now, 20 years into the biotech age, as the newly appointed and first Chief Executive Officer of NZBio, Ward will have his chance to shape the future of New Zealand's own small but burgeoning biotech industry. In a way the job will fulfil his earliest career aspirations, because Ward had been attracted to veterinary studies not out of any James Herriot romanticism, but because of his strong interest in the biological sciences. I wanted the broad exposure to biological science, farming systems, physiology, pathology, clinical medicine, and surgery, which a veterinary degree gives you, he explains.

Currently the biotech industry in New Zealand comes in at around some 350 organisations, with 40 of these having biotechnology as their core activity. Around 3,500 people are directly employed in biotech. It is a diverse industry, says Ward, with strengths in some of the areas you might expect, such as food technology and primary production, but also in areas where New Zealand has no natural advantages. We've got pockets of strong capability in human health, and this is simply because we have some researchers who are absolutely world-class, he says. He cites Protenix, which is working on new diabetes treatments.

In February 2002 the Government identified biotechnology as one of three growth sectors (the others are creative industries and information and communication technology) as deserving special attention. Each sector had not only the potential for high growth in its own right, but could provide a stimulus across the national economy. A Biotechnology Taskforce was commissioned, and in 2003 the taskforce came back with the report, *Growing the Biotechnology Sector in New Zealand: A Framework for Action*.

The report sets out the taskforce's 10-year vision for the industry: the tally of 350 organisations will surpass 1000, of which 200 will have biotechnology as their core activity; the 3,500 people employed will become 18,000; and the export values of the industry, currently running at around \$250 million, will break \$1 billion a year. NZBio will help make this happen.

In NZBio's offices overlooking The Terrace a concrete canyon that cuts through the government and corporate heartland in Wellington it feels a bit unfair to be pressing Ward, the very new CEO of a very new organisation, too hard about what he has planned.



Ward has been meeting his constituency, making himself known and setting up the networks he will need to work effectively. He needs to take his bidding from NZBio's membership, which includes national and international corporations, primary sector organisations, biotech start-ups, Crown Research Institutes and New Zealand universities.

One of the first things we are doing is establishing an advisory council of 20 to 30 key individuals from the sector, who will identify the important issues, the barriers and the opportunities, and help us prioritise. NZBio will certainly have to prioritise.

The taskforce report recommended a conscience-wracking list of 28 actions, some to be pursued by Government, some by industry. They include targeting the repatriation of key scientists and entrepreneurs (so-called 'rainmakers') (part of Action 1); carrying out a study of the tax structure applying to the biotechnology sector (Action 6); amending patent legislation to bring it into line with international best practice (Action 20); and two actions that can be ticked the creation of a single biotechnology industry body, seed funded by Government (Actions 10 and 11).

One action that is already a priority is attracting more venture capital into the industry. Investment, Ward says, is a significant constraint on the biotech industry, particularly when it comes to commercialisation. One of the things we are focused on is creating a significant bioinvestment fund in New Zealand for the commercialisation of science. We want to get at least another 100 to 150 million dollars in the market. That may come from a New Zealand or an Australasian fund, but access to funding is absolutely critical.

The biotech industry, he says, is like the oil industry in that while being high risk and long term, it offers potentially lucrative returns. You need to be in for the long term five to ten years. You need a lot of money. When you look at what it takes to get a drug to market now, people talk about sums in the order of \$500 million. That is a lot of money.

For this reason, much of the work that goes on in New Zealand will probably fall somewhere short of developing, distributing and marketing actual products. It's not likely that we will take products all the way down the value chain, but to get them far enough so that you can get some significant value, say by licensing, you need to invest a significant sum. That could be \$20 million, or that could be \$100 million.

Another constraint on the biotechnology industry is people: attracting top-quality students into the field, providing the industry with graduates with the right skills, and attracting people to work in New Zealand and having them want to stay here.

Here the Tertiary Education Commission and the universities are key. But not all of the skill gaps have to do with an understanding of the science of biotechnology: the task force report also identifies a lack of world-class chief executives and managers, and of scientific entrepreneurs with the ability to drive research into commercial application.

Ward commends the efforts by universities to have scientists share in the commercial value of the research they create, and he would like to see as few barriers as possible to the movement of scientists between institutions and between the public and private sector. He'd also like to see a few more flights taken across the Tasman

New Zealand and Australia have a lot of synergies. Internationally we are perceived as being a single market and a lot of our scientists come from an agricultural or primary industry base, he says. The biotech industry will have a significant impact on primary industry. It will increase levels of production and, because we will be able to select and process plants and animals in particular ways, it will lead to a new mix of differentiated and technically complex products.

NZBio's sibling in Australia, AusBiotech, has performed creditably in its three years and Ward has been across to learn and establish relationships. If the Australasian industry is disadvantaged by its relatively small scale, then the compensatory advantage is the ease with which alliances and relationships are forged.

Ward believes NZBio and the industry generally need to lift the profile of the industry so that it can compete for the best students, who otherwise so easily fixate on the idea of becoming lawyers or accountants.

On the broader issue of addressing public misunderstandings he is realistic: I think the level of acceptance of biotechnology will improve. The trouble is that some of the issues are quite complex. It's not easy to articulate in one or two sentences what the underlying science is and what the benefits are and have a rational discussion. And then people can jump to the GM issue.

In the US the biotech industry has been more about human health and people see the benefits, and besides they have been at it for so much longer. They have had a biotech industry for the last 30 years. A lot of the debate is about common practices that have been going on for a long time and with an established safety record.

In New Zealand we too are destined to have biotechnology become an integral and unremarked part of our daily lives, much the way information technology is now. Biotechnology is going to transform the New Zealand

economy, not within five years, not within ten, but within 25 years we will see significant changes, says Ward. It will change the way we farm, the way we process products, our approaches to human health care, and our environmental management practices.

At the same time, he cautions, along the way a number of companies will certainly fail and that is something we must learn to accept as the price of entrepreneurial success.

One of the problems New Zealanders have with high technology companies is that we aren't used to having companies fail. These ventures are high reward and high risk. We have to accept failure, knowing that some companies will not succeed, but at the other end some high value companies will be created.

How do you change the New Zealand psyche? More successes! he laughs.

## From Takanini to The Terrace

From Takanini in 1985, and his first job as a veterinarian, Ward followed a varied career path. First he worked for the American health-care company Baxter in New Zealand as the marketing manager in diagnostics, then he headed for the UK, initially locuming in large and small animal veterinary practices. There followed a time when Ward managed the African business for Beecham Animal Health, and its post-merger successor SmithKline Beecham (now, after another merger, GlaxoSmithKline), in marketing and business development roles. Then, together with a friend, Ward started up a company and sold veterinary practice management software for a couple of years.

It was following the birth of his son in the UK that Ward began to plan a return home. New Zealand was where his friends and family ties lay, and a great place for kids . His one dilemma was whether to go back into practice as a vet or to look for something in the health-care pharmaceutical industry.

The matter was resolved when Ward came upon a friend selling a practice in his home town, Havelock North. Purchased by Ward, the practice became the AnimalCare Veterinary Group, which Ward managed for a number of years, but in time he yearned for fresh challenges. In preparation for a career change he embarked on a Massey MBA.

It is a degree with a certain reputation. The Marriage-Breakup Association, that's it, says Ward (whose own to another veterinary graduate made it through). It was a huge amount of work, but I really enjoyed it; it was just fantastic. What I liked about it was that it wasn't like an undergraduate degree, where you have a passive audience with lecturers. This was elective knowledge, so not only have you got some great lecturers, but within your class you have some fantastic people as well. I made some great friends. It's like being in the trenches: it forges good friendships.

With his MBA completed in 2001, Ward once again changed professions to become the Manager, Economic Investments, for the Foundation for Research Science and Technology, a role he credits with teaching him much about the way New Zealand science works.

"It exposed me to a broad range of science and provided me with some wonderful insights into the New Zealand science system and into publicly funded research. I had worked in large corporates, which have research and development functions that are much more strongly commercially driven.

We predominantly funded basic targeted research, as opposed to blue-sky basic untargeted research. 'Targeted' in that it can be broad ranging, but there needs to be an understanding of what the application of the science will be, he explains.

A good portion of the research FoRST funded or invested in, if you'd rather was biotechnology related.

Ward took up his position as NZBio chief executive officer in December 2003.

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Type: Features

Categories: Alumni; Massey Magazine

# Give me land, lots of land

## The Ecological Footprints of New Zealand and its Regions, 1997-1998

Have you ever, in an idle moment, wondered how much land it takes to sustain you and your fellow New Zealanders in living the way you do? Perhaps not. But if you worked for the Ministry for the Environment, the question would take on more than an abstract significance. So in 2002 the Ministry issued an ecological 'Waiter, cheque please!' by commissioning Murray Patterson and Garry McDonald to assess the ecological footprint of New Zealand and its regions. This they have done, publishing the technical paper Ecological Footprints of New Zealand and its Regions, using the data for the year 1997-98.

An ecological footprint, according to one definition, is the area of productive land and water ecosystems required to produce the resources that a population consumes and to assimilate the wastes that the population produces, wherever on Earth that land and water may be created.

To work out New Zealand's ecological footprint McDonald and Patterson looked at products New Zealanders buy and the area of land it takes to make them. This included products made locally as well as imported. They also estimated the land our houses and sections occupy and the land required to absorb the carbon dioxide emitted in making the products we consume.

This land was, in turn, split into categories: agricultural, forest, degraded, and energy land.

At the end of this intricate exercise, McDonald and Patterson arrived at a figure for New Zealand's ecological footprint of 11,685,000 hectares. This is 65.7 percent of the 17,784,000 hectares of usable land calculated to remain once national parks, forest parks, reserves and unproductive land are subtracted from New Zealand's land area. New Zealand, it turns out, is one of the few developed countries living within its carrying capacity and, in this sense, falling within the definition of a sustainable economy. (Canada and Australia are two other countries with which we share this distinction.)

Partly this can be put down to New Zealand's relatively small population (look at the population size relative to land area of Britain or Japan), but then Zealand is also peculiarly favoured by its geography and climate. Our pastoral dairy land, for example, is more than five times more productive than the global average. Two-thirds (65.4 percent) of our electricity is hydroelectricity, produced without carbon dioxide emissions. And our fast-growing plantation trees do a good job of sequestering carbon dioxide.

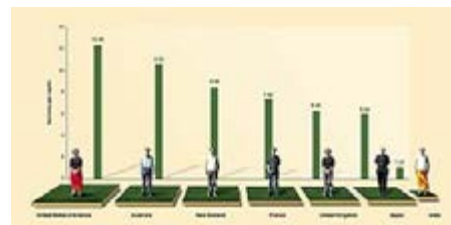
However, although nationally our ecological footprint is well within the bounds of the country's ability to support us, individually, as citizens of a developed country, we are not as green as all that.

The per capita ecological footprint of a New Zealander expressed in actual land terms works out to be around 3.08 hectares, or around 4.4 rugby fields. However, this is a local measure and no fair basis for ranking us against other nations. To make a just comparison, our footprint and the footprints of the nations we are ranked against must first be adjusted to take into account the productivity differences between nations. When this is done, New Zealand's per capita ecological footprint rises to 8.35 hectares.

This puts us amidst a group of nations which are more prosperous than we are and so might be expected to have larger per capita footprints. The New Zealand per capita footprint sits below that of the United States, Denmark, Ireland and Australia, but above that of Canada, Hong Kong, the United Kingdom and Japan. McDonald and Patterson attribute the smaller footprints of the latter to differences in national population densities (e.g. people live in smaller dwelling, which occupy less land), diet (e.g. less meat is consumed), lifestyle (e.g. greater use of public transport), and technology (e.g. more fuel-efficient vehicles).

The glaring differences in per capita national ecological footprints are between the developed and undeveloped nations. The ecological footprint of an average Indian is a mere 1.06 hectares, an eighth of our own.

Country	hectares per capita
United States	12.25
Denmark	10.51
Ireland	9.53
Australia	8.50
<b>New Zealand</b>	<b>8.35</b>
Canada	7.66
France	7.30
Hong Kong	7.14
Germany	6.26
United Kingdom	6.26
Netherlands	5.98
Japan	5.90
South Africa	4.04
Argentina	3.80
Malaysia	3.68
China	1.84
India	1.06



[Click image for details](#)

It has been argued that the ecological footprints of most developed nations exceed available biocapacity and are unsustainable. One authority has estimated that humanity's ecological footprint exceeds biocapacity by 34 percent.

## New Zealand redrawn

### The regional breakdown (1997-1998)

Auckland, Wellington and Nelson: With large populations condensed in urban areas, these regions overshoot their carrying capacity, but have a per capita footprint below the New Zealand average due to the efficient use of their smaller amounts of available land.

Waikato, Bay of Plenty, Gisborne, Hawke's Bay, Taranaki and Tasman: These are the 'best' performing regions, operating within their regional carrying capacity and with below-average per capita footprint. None of these regions is that urban, and all except Gisborne have an above average land productivity.

Northland, Manawatu Wanganui, Marlborough, West Coast, Canterbury, Otago and Southland: Although these regions are within carrying capacity, their per capita footprints are above the New Zealand average. This is explained by generally low land productivity: more land is required to produce the same amount of product.

### The case of Auckland

It has 30 percent of New Zealand's population concentrated on 2 percent of New Zealand's land area (224 people per square kilometre). It has one of New Zealand's largest ports and its largest airport, a traditionally strong manufacturing sector and a strongly growing services sector. Auckland predictably occupies New Zealand's largest ecological footprint. The surprise is that it isn't larger than the 21.7 percent at which it stands. In fact, on average the individual Aucklander has New Zealand's second lowest ecological footprint.

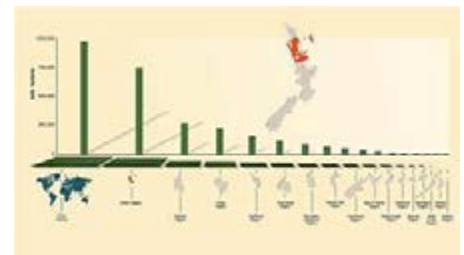
One of the reasons for this will be familiar to anyone who has looked down while flying in to Auckland International Airport: a surprising amount 53.7 percent of Auckland's land is farmed, and this land is highly productive, bettered only by the Bay of Plenty and the Waikato. Another reason is the smaller land areas occupied by many Auckland homes.

However, Auckland still overshoots its useful land area by 4.82 times, making good the deficit by drawing on land elsewhere. Much of this is offshore. In this it is little different to the rest of New Zealand: of the land that comprises New Zealand's ecological footprint, around 21 percent lies offshore coming to us in the form of the goods and services we import.

### New Zealand's ecological balance of trade

If New Zealanders do not use up their available land, then who does? To work this out McDonald and Patterson have calculated an ecological footprint balance of trade. The New Zealand economy not only provides goods and services for its own consumption, but also exports goods and services to other countries. It is the land embodied in exports that accounts for New Zealand's remaining available land. Overall, the nation is a net exporter of embodied land, exporting some 11,090,000 ha, while importing only 3,294,000 ha. This means that New Zealand exports almost as much embodied land as it consumes domestically. In embodied land terms, New Zealand can not only be viewed as capable of supporting its own population, but also the needs of many other people overseas. It is perhaps not surprising that most of the embodied land exported is in processed agricultural and timber products.

Region	Ecological footprint (ha)	Ecological footprint (%)
Auckland	2,320,000	21.7
Canterbury	1,738,000	16.2
Waikato	1,049,000	9.8
Wellington	1,029,000	9.6
Otago	1,019,000	9.5
Manawatu Wanganui	880,000	8.2
Bay of Plenty	618,000	5.8
Northland	477,000	4.5
Hawke's Bay	385,000	3.6
Southland	375,000	3.5
Taranaki	233,000	2.2
Marlborough	164,000	1.5
Gisborne	142,000	1.3
West Coast	122,000	1.1
Tasman	82,000	0.8
Nelson	77,000	0.7



[Click on image for details](#)



[Click on image for details](#)

**Professor Murray Patterson** is the Director of the New Zealand Centre for Ecological Economics at Massey University, a joint venture with Landcare Research Ltd. He is widely published in ecological economics, energy,

analysis, environmental valuation, environmental policy and policy modelling.

Much of his research is applied and interdisciplinary, operating at the interface between policy and sustainability concerns.

In recent years he has lectured in policy analysis and evaluation as part of Massey's resource and environmental planning programme.

**Garry McDonald** is a Director of Market Economics Ltd, a consultancy based in North Shore City specialising in urban economics and geography.

His research interests include environmental planning, ecological economics, urban dynamics, modelling of complex dynamic systems and the development of decision support tools for tracking progress toward sustainable development.

He is a Massey recipient of a Bright Future Scholarship for doctoral research on Auckland's urban sustainability.



### **Now calculate your own**

If you would like to see how you yourself rate how large your feet are then there is a way. On the Ministry for the Environment's web site is a simple, non-intrusive and entirely confidential online form. Answer the questions (concerning matters such as whether you live alone or with others and the sums you spend on cars, public transport and overseas travel), click 'submit', and you will be given the number of hectares of land required to support you and your lifestyle, plus a sometimes chastening read on how you rate against the average New Zealander.

If you don't like your profile you can always try out alternative personas, from monkish asceticism to jet-setting excess.

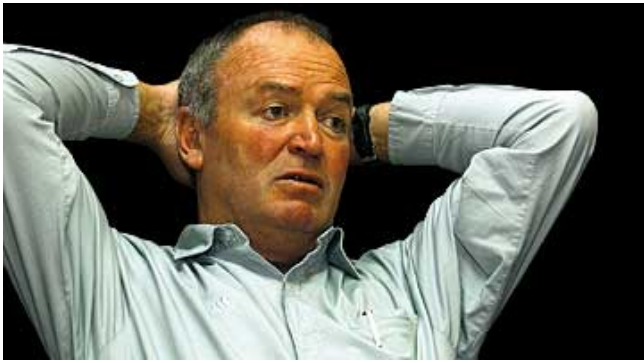
<http://www.environment.govt.nz/footprint/>

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Type: Features

Categories: Alumni; Massey Magazine

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## Nowhere to run, nowhere to hide

*Words Tim Donoghue, Pictures Peter Bush*

**Graham Henry, the new All Black coach and Massey prodigal, is once again being cast in the role of the Great Redeemer.**

The hopes and aspirations of the rugby-mad Welsh nation were lowered upon his rugby coaching shoulders in 1998. Now, five years after initially turning Welsh rugby round, Henry has been called upon to work his magic again this time back home with the All Blacks.

It's a cut-throat job Henry has worked 35 years to obtain. The 57-year-old says six years of extramural 'hard-labour' study at Massey University from 1974 to 1979 helped him achieve the job title he regards as the ultimate in world rugby: All Black Coach.

Born, bred and raised in Christchurch, Henry headed south to Otago University in the late 1960s where he met his future wife, Raewyn, and successfully completed a Diploma in Physical Education.

His teaching career proper began when Auckland Grammar headmaster John Graham welcomed him to his staff in 1973. Fiercely ambitious, Henry soon realised his Otago diploma would not, on its own, be enough for him to achieve his teaching career aspiration of becoming a headmaster.

So he began what would become a six-year one-armed-paperhanger association with Massey University in the 1970s as an extramural Bachelor of Education student.

Looking back on it all now, Henry finds coaching international rugby teams these days a far easier proposition than facing the challenges of life confronting the Henry household in Auckland in the 1970s.

Back then, alongside his teaching duties he and his wife Raewyn (subsequently an Auckland and Wales netball coach in her own right) were also responsible for the running of Auckland Grammar's hostel, with its 96 residents.

At that time his busy life also included

- extramural studies at Massey;
- helping raise two infant children Matthew and Catherine
- teaching science to fifth formers, biology to sixth and seventh formers and physical education to all-comers
- coaching the First XI for three years (1975 77)
- coaching the First XV for six years (from 1973 75 as co-coach and 1976 78 as sole coach).



It was absolute bedlam trying to do all those things.

It's far easier being the All Black coach, Henry says.

Amidst the chaotic junior teacher lifestyle of the 70s the former Canterbury and Otago cricket representative said he found the key to academic success at Massey was to put the effort into the regular assignments.

I didn't mind doing them. They just took a lot of time. Around exam time I was up studying till two in the morning for about six weeks.

Little wonder then that he found the final three months (in the final year of BEd study in 1979) spent studying for his degree in Palmerston North a luxury. It was part of the teaching deal in those days. In the final year of extramural study we were given the last term off to focus solely on our degree studies.

The Massey years for Henry were busy, challenging ones when his people and staff management skills were honed and tested.

Massey taught him one of life's real lessons: nothing in life worth having comes easily. To be very frank I enjoy working and I enjoy working hard. If I'm not working hard I get bored.

During the Massey years Henry says he discovered a simple formula for coaching success. The key to it all is to motivate people and make them feel good about themselves. When people feel good about themselves, they'll perform.

In August 1982 Henry was appointed Deputy Principal of Kelston Boys High School, a position he held until 1987 when he became Principal. A demanding-enough position one would have thought, but Henry also coached the Auckland rugby team from 1992 to 1997. It was a combination of roles he managed by careful delegation a skill he had learned during his hectic years of teaching, coaching, studying and parenthood.

The advent of professional rugby also saw him coach the Blues to Super 12 championship honours in 1996 and 1997. His charges also made the final in 1998.

1996 was a major turning point in Henry's life, the year he resigned the job security of his headmastership for a gambler's world of full-time professional rugby coaching.

As well as Super 12 success Auckland won the Air New Zealand NPC 1993 1996 (inclusive) during the Henry years. The Ranfurly Shield also made its home at Eden Park from 1995 to 1996.

If there is a Henry quirk that came through in our relaxed 45-minute interview, it is that he is very all or nothing. It is a trait that many professional rugby coaches share. They cannot doubt their own abilities.

In 1998 Henry took a calculated plunge and stunned New Zealand with the announcement he was off to become the eighth coach to mentor Wales in 10 years. In catching the flight to Cardiff, Henry appeared to many to be sacrificing his lifelong goal of coaching the All Blacks to the lure of lucrative short-term financial prospects.

In his first year in the valleys he could do no wrong. Dramatically reversing a quarter-century spiral of decline in the fortunes of Welsh rugby, his team bowled France in Paris and England at Wembley after just missing out in an historic upset to the world champion Springboks also at Wembley.

The opening of the new Millennium Stadium saw Henry's charges beat France again and South Africa the first time the Welsh team had performed such a feat as part of a 10-match winning streak.



Wales also qualified for the quarter-finals of the 1999 World Cup where the Samoans put paid to his chances of progressing further.

From then on the results graph for traditionally erratic Wales had just one way to go and three-and-a-half years after arriving in Cardiff, Graham Henry faced the first crisis of his career.

Against the wishes of the Welsh hierarchy, in 2002 Henry decided it was time to return home. Upon his return to New Zealand he headed straight for Christchurch and a family holiday with his elderly parents at Akaroa on Banks Peninsula, a place where he holidayed often as a child.

I hired a motel there and did a lot of running, walking and thinking.

The wheel of life had turned full circle for Henry. There he was, a man in his mid-50s, sitting on a healthy bank account, temporarily with nowhere to go professionally.

I had to get out of Wales. I was going to die there. I loved it, but I just ran out of steam. I lost my edge.

When things were not going so well in arguably the world's most passionate rugby nation, one defence mechanism was simply to ignore newspapers, radio and TV. By doing that I was fine.

In Akaroa he decided one of the first things he'd do on his return to Auckland would be to knock on the door of Auckland Rugby's chief executive, David White.

This course of action saw him back in the coaching fold in a technical advisory capacity with a welcoming Grant Fox, Wayne Pivac (Auckland 2002 03) and Peter Sloane (the Blues 2003).

The rest, as they say, is All Black history. Last year Henry assumed the All Black coaching role at the expense of yet another coaching casualty, this time John Mitchell, whose team failed to bring home the World Cup bacon when it stumbled at the penultimate hurdle against Australia.



Henry's poker-faced, all-or-nothing personality type appears suited to the high-stakes, death-or-glory world of international rugby coaching, where one is measured by the latest test-match result. From a New Zealand perspective, many of those test-match results involve the All Blacks against Australia.

Lost tests against Australia have cost All Black coaches dearly in recent years as Mitchell, following in the footsteps of Wayne Smith, discovered when he was sacked in 2003.

The current All Black coach, as coach of The Lions in 2001, also knows what it is like to fail at the highest levels in Australia. As the first 'imported coach' to mentor the Lions he was just a snatched lineout throw away from a glorious and historic 2-1 test series victory against the Wallabies.

Maybe that's one reason why Henry was happy to rehabilitate Smith, yet another All Black coach to stumble against Australia (in 2001), as a member of his coaching staff.

Smith's return to the coaching ranks also raises the possibility of a former All Black hooker and captain, Anton<sub>33</sub>

Oliver, appearing once again in an All Black team photo alongside Smith, his old All Black coach and mentor.

Henry knows the psychological value of having Smith, 'a man who's worn the jersey', on board. He also knows he's going to have to field rough, tough forwards for the demanding two-year contract period. But, predictably, Henry's saying nothing too specific about Oliver or any other player's chances at this stage.

He's happy with his first two certainty selections though, co-coaches and fellow All Black selectors Smith and his successor with Wales, Steve Hanson.

I think it is important these guys feel really good about themselves. Smith and Hanson. They are world class coaches in their own right. They have both been very successful here and very successful overseas. I see them as a partnership in coaching rather than a boss and two guys working for him.

Henry's two-year contract with the NZRFU features a 2005 tour of New Zealand by his former prodigals, the Lions. There's no easy ride this year, with test matches scheduled against world champions England (two), Argentina, Australia (two), South Africa (two), France and Wales.

Already as an international coach with the exception of Wales for the obvious reason he's beaten every team on the 2004 itinerary.

The Henry message to rugby fans for the next two years is, don't expect anything too radical in the selection department, particularly in the forwards. He has no desire to throw an experimental youngster (à la Frank McAtamney in 1956) into the front row now, particularly for the two tests against England this year and the Lions next year, as such a selection could see the player forever destroyed for test rugby purposes.

Oh, and yes, as part of an all-inclusive honeymoon approach Henry belatedly does show his hand just a little. He says he has been in regular contact with Troy Flavell in Japan. The wink and the nod says it all. Flavell's the type of physical player whom Henry would have liked for the big matches in the next two years. But that's belated conjecture now as, in Flavell's case, the Japanese chequebook has won yet again. Obviously I'm also thinking about the 2007 World Cup. I'm looking to build a team to handle this year's schedule and the Lions over the next 18 months. The nucleus is there now. If he gets a further two-year term for the build-up to the 2007 World Cup, Henry says he'll adopt a more expansive and experimental selection strategy aimed at nurturing younger players for World Cup duties.

At a time when most men are starting to wind down in their career Henry is facing the greatest challenge of his professional coaching life. Looking over his shoulder Henry knows he succeeds Mitchell, a man who brought home two Tri-Nations championships and a Bledisloe Cup. For Mitchell this was not enough to keep him in the job. The rugby-mad New Zealand public will accept nothing less than gold at the 2007 World Cup.

The great unanswered question facing the Great Redeemer, the Massey prodigal, is can he do what Sir Brian Lochore did as All Black coach at Eden Park in 1987? Once again, a nation's hopes will be riding on him.

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# Evolution, Victorian poetry and nanotechnology research receive Marsden funding

Eleven research projects from Massey University have received funding in the 2004 Marsden round the second highest number of successful proposals from any one research organization to be funded this year.

Some 69 projects will be funded in this year's round, totalling \$3.3 million. These include full Marsdens and Fast-Start awards, which recognise rising star researchers. Fast-Starts aim to further their research careers.

Assistant Vice-Chancellor (Research) Professor Nigel Long says the calibre of young researchers at Massey has been recognised with Fast-Start grants making up five of the 11 awards. This recognises our commitment to building the capability of our young staff and the need to nurture New Zealand's next generation of star researchers.

Professor Long says the University has received funding for nearly half the proposals it put up, which is particularly pleasing as there had been a record number of projects put forward in this round.

The full Marsden grants have gone to researchers who are recognised as leaders in their disciplines, in areas where Massey University has a critical mass of expertise, he says. Massey's contribution towards knowledge generation in these areas key to New Zealand's development is being rewarded.

The five researchers to receive Fast-Start grants are Dr Stephen Marsland, Dr Justin O'Sullivan, Dr Ulrich Zuelicke, Dr Catherine McCartin, and Dr Elizabeth Gray. Recipients of full Marsden grants are Dr Andrew Sutherland Smith, Dr Kathryn Stowell, Professor David Lambert, Dr Doug Armstrong, Professor Barry Scott and Professor David Officer.

Professor David Lambert will use his Marsden to investigate whether wingless moa have functional limb genes.

Professor Barry Scott will use his funding to study the reactive oxygen species generated by a fungal NADPH oxidase regulate hyphal differentiation and growth in *Epichloe festucae*, a mutualistic symbiont of temperate grasses.

Dr David Officer is to look at artificial photosynthesis with the aim of mimicking light harvesting while Dr Kathryn Stowell will look at controlling calcium flux in skeletal muscle and Dr Doug Armstrong will conduct an experimental test of metapopulation theory using reintroductions of a New Zealand bird species.

Dr Andrew Sutherland-Smith will find the answer to the question How does the cytoskeleton regulate cell signalling?

## When Routine Surgery Can Be Deadly

For members of some New Zealand families, even a simple operation could be extremely dangerous, and possibly even fatal. Malignant hyperthermia is a genetic disorder which leads to complications when patients undergo general anaesthesia. During operations, sufferers can experience excessive muscle contraction and very high temperatures so severe that in extreme cases it can cause death.

Malignant hyperthermia is caused by mutations in genes for the proteins that make up 'calcium release' channels in muscles. These channels release the calcium required to trigger normal muscle contractions. Patients with malignant hyperthermia release more calcium than is necessary, leading to the extreme contractions and rise in body temperature.

Now, Dr Kathryn Stowell from Massey University and Dr Neil Pollock from Palmerston North Hospital have been awarded a Marsden grant to unravel more of the details of malignant hyperthermia.

In New Zealand, approximately 40 extended families susceptible to malignant hyperthermia exist, with a higher concentration in the lower North Island. Dr Stowell has studied susceptible New Zealand families, and found mutations that cause the disorder. This has allowed family-specific DNA-based diagnostic tests for susceptible

## Research Profiles

[\*When Routine Surgery Can Be Deadly\*](#)

[\*Isolated and Alone Does It Matter?\*](#)

[\*Using Maths to Help Diagnose Disease From Medical Images\*](#)

[\*Online Problems What To Do When You Haven't Got All the Info\*](#)

families to be developed, meaning that individual members of susceptible families can now be tested for the disorder before undergoing anaesthesia.

While conducting this research, Dr Stowell noted that there are differences in how individuals affected by malignant hyperthermia respond to anaesthetics both within and between families, with some patients being affected worse than others.

Dr Stowell and Dr Pollock now plan to study both genes and proteins from selected individuals of these families to find out what causes these differences. The results of this investigation will help in the understanding of the complex biology of calcium release in muscle. It will also help in the development of more effective clinical diagnoses, thereby enabling the implementation of safer management of malignant hyperthermia patients during general anaesthesia.

## **Isolated and Alone Does It Matter?**

Most ecologists assume that if a population of a species is geographically isolated from other populations of the same species, then it is usually smaller and more at risk of becoming extinct. This increased risk may be due to poor habitat, lack of immigration from the main populations, or just plain bad luck.

Conservation managers worldwide generally accept this idea that isolated populations are at greater risk than those linked to larger populations, and decisions about how isolated populations should be dealt with are made accordingly. This assumption, however, has rarely been tested until now.

Dr Doug Armstrong from Massey University has received a Marsden grant to examine the importance of linkages between different populations of the New Zealand robin living in forest fragments in the central North Island. The aim is to see if isolation really is as risky as everyone currently assumes.

Native robins are an ideal animal for this type of study as they are relatively sedentary, a feature which makes them easy to monitor. In order to carry out the study, Dr Armstrong, in collaboration with Professor Hugh Possingham from the Ecology Centre at the University of Queensland, will remove birds from a soon-to-be logged pine plantation, tag them, and introduce them to a variety of forest fragments which currently lack robins. The fragments have a range of different sizes and are of varying distances from neighboring forest patches.

Over three years, the researchers will measure predators, food, and patterns of movement of robins between adjacent forest fragments.

The research will establish whether remote populations really are at greater risk of extinction and, if so, which factors are responsible. Because human modification of natural vegetation is creating increasingly fragmented habitat patches for wildlife, knowing the best strategy for conserving the animals that live within these habitats will be of interest to conservation ecologists worldwide.

## **Using Maths to Help Diagnose Disease From Medical Images**

From X-rays to Magnetic Resonance Imaging (MRI), there are a wide variety of medical imaging methods available today in hospitals around the world. The purpose of these imaging methods is to assist doctors in diagnosing disease without the need for surgery, by providing images of regions deep inside the human body.

The problem is, that even in healthy individuals, biological structures - such as regions of the brain, for example - can vary widely from person to person, making it difficult to reliably detect diseases from these images. Complicating the matter, the appearance of disease on the images can also vary a great deal amongst individuals.

Dr Stephen Marsland, a recently-appointed lecturer at Massey University, has been awarded a 2-year Fast-Start Marsden grant to develop advanced mathematical and statistical approaches for dealing with data from MRI scanners. The Fast-Start programme is an initiative to give emerging researchers an opportunity to explore an innovative idea, developing their capabilities and helping them establish their research career.

Dr Marsland will develop new methods to help measure the differences in the 'shapes' of biological structures between individuals, and thereby improve the detection of irregularities that are due to disease rather than natural variation. The new techniques involve a combination of advanced and challenging mathematical and statistical techniques.

Overall, the aim is to help doctors more accurately diagnose diseases such as brain tumours, Alzheimer's disease and other conditions.

## **Online Problems What To Do When You Haven't Got All the Info**

Suppose that you are directing the packing of three trucks with crates of varying dimensions, and you want to pack them as efficiently as possible but there's a catch! You are only given the crates one at a time. You must make a decision about what to do with each crate as soon as you receive it, but you have no certain knowledge of the dimensions of the crates that you haven't seen yet. You are dealing with an 'online problem'.

Many situations occur where decisions have to be made about things where only some of the background information is available, and nothing is known of the events that will occur in the future. In computer science these situations are called online problems. Online problems occur everywhere, from investment of sharemarket funds, to the operation of robotic machines like the Mars Rover.

Dr Catherine McCartin, a recently-promoted Senior Lecturer in Computer Science at Massey University, has been awarded a Fast-Start grant from the Marsden Fund to undertake research in this field. The Fast-Start programme is an initiative to give emerging researchers an opportunity to explore an innovative idea, developing their capabilities and helping them establish their research career.

Dr McCartin will carry out two related projects. First, even though online problems are so common, virtually no techniques currently exist for mathematically analysing them. Dr McCartin will develop a systematic mathematical framework for online problems, in joint work with Professor Rod Downey from Victoria University of Wellington.

Second, Dr McCartin will aim to use the theory from the first part of the project to develop practical methods for the operation of 'reactive sensor networks'. Reactive sensor networks are networks of sensors that can perceive and respond to their environment, by repositioning themselves to acquire and deliver information in the best possible way. This work will be done jointly with robotics expert, Professor Daniela Rus from Massachusetts Institute of Technology.

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# Record result for Marsden round

Eleven research projects have received funding in the 2004 Marsden round the second highest number of successful proposals from any one research organisation to be funded this year.

Some 69 projects will be funded in this year's round, including full Marsdens and Fast-Start awards, which recognise rising star researchers.

Vice-Chancellor Professor Judith Kinnear sent an email to staff from Beijing, saying the successful result cheered her day. What a result! Congratulations to all concerned, both successful applicants and the powers behind the applicants and the applications.

Assistant Vice-Chancellor (Research) Professor Nigel Long thanked all those involved. This is a splendid outcome and justifies the extra effort you have all put into the preparation, mentoring and submission of the applications. This is a historic result for the University as it is the first time we have ranked second behind Auckland.

He says the calibre of young researchers at Massey has been recognised with Fast-Start grants making up five of the 11 awards. This recognises our commitment to building the capability of our young staff and the need to nurture New Zealand's next generation of star researchers.

Professor Long says the University has received funding for nearly half the proposals it put up, which is particularly pleasing as there had been a record number of projects put forward in this round.

The full Marsden grants have gone to researchers who are recognised as leaders in their disciplines, in areas where Massey University has a critical mass of expertise, he says. Massey's contribution towards knowledge generation in these areas key to New Zealand's development is being rewarded.

## Full Marsdens for six

**Professor David Lambert** will try to determine whether the flightless moa possessed functional genes for wing development using single copy nuclear DNA sequences recovered from moa. Two genes are necessary for forelimb development and inactivation of either of these results in wingless birds. Using a comparative genomics approach and ancient DNA methods, Professor Lambert proposes to recover genetic switches from moa sub-fossil remains. He will attempt to reactivate these extinct genes in a chicken model to examine any alteration in wing morphology. The study will be the first to recover and reactivate an extinct gene central to an important development pathway.



**Professor Barry Scott** is studying the role of reactive oxygen species in controlling growth and development of plant symbiotic fungi. Both mammals and plants respond to pathogen attack with an oxidative burst that generates high levels of reactive oxygen species which kill the pathogen. Professor Barry Scott, Dr Aiko Tanaka and Dr Simon Foster will investigate how these highly reactive molecules control fungal growth and development in plants and allow the fungus to elude host defence responses. The results of this work will provide fundamental insights into the molecular and cellular mechanisms that control symbiotic fungal growth and development.



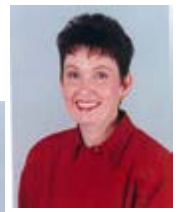
**Dr Kathryn Stowell** is to look at artificial photosynthesis with the aim of mimicking light harvesting. He aims to build and study light harvesting photosynthetic reaction centre mimics based porphyrin arrays (artificial chlorophyll) and protein helices, which are structurally simpler analogies of natural redox proteins. This will be the first stage in the development of artificial photosynthesis, the creation of an efficient light harvesting biomimetic material that could be used as a photo catalyst, or in photonic devices and solar cells.



**Dr Kathryn Stowell** has been funded to study the molecular basis of Malignant Hyperthermia (MH) and what causes the different responses between and within families with this genetic mutation. MH is a complication of general anaesthesia, caused by mutations in genes affecting proteins comprising the skeletal muscle calcium release channel which causes it to release more calcium than is necessary. This results in excessive muscle contraction and very high temperatures; extreme cases can cause death. The results will contribute towards

understanding the complex biology of calcium release in skeletal muscle and enable the implementation of safer management of MH patients during general anaesthesia.

**Dr Doug Armstrong** will conduct the first experimental test of metapopulation theory using reintroductions of New Zealand robins to unoccupied forest fragments in the central North Island. Metapopulation theory says that species will decline from fragmented habitats due to isolation alone, even if there is no decline in habitat quality. However, it has never been tested in the field. Dr Armstrong will study the black robin, a species that has been reintroduced to multiple patches of previously unoccupied habitat, gathering data on survival, reproduction and dispersal from previously occupied as well as newly occupied patches. This research will have major international significance for population ecology and conservation biology.



**Dr Andrew Sutherland-Smith** will find the answer to the question How does the cytoskeleton regulate cell signalling? Genetic studies of a broad range of human diseases characterised by malformation have uncovered a family of proteins, the filamins, which bind components of the cytoskeleton and participate in tissue and organ formation in humans. Dr Sutherland-Smith will use a variety of biochemical and structural methods to study this protein in its normal and mutant forms, focusing on the regions that cause disease when mutated. Exploring the mechanism of the function of filamins will have broad implications not only for human disease but also cellular biology in general.



## Fast Start grants for five

**Dr Catherine McCartin** will study online model theory and online algorithms. While online problems are common, virtually no techniques currently exist for mathematically analysing them. Dr McCartin will develop a systematic mathematical framework for online problems. She will also use the theory from the first part of the project to develop practical methods for the operation of 'reactive sensor networks' that can perceive and respond to their environment, by repositioning themselves to acquire and deliver information in the best possible way.



**Dr Ulrich Zuelicke** will investigate Spintronics without magnets: A new road to nanodevices and quantum information processing . The capacity to process ever larger amounts of data more rapidly has so far come by reducing the size of electronic device elements in integrated circuits. However, there are limits to further miniaturisation. Dr Zuelicke is pursuing alternative ways for doing electronics. He is investigating how current flow could be manipulated using the electron's flavour degree of freedom, which is called spin. Most current proposals for spin(-elec)tronic devices involve magnets, as the spin of the electron interacts with magnetic fields. Dr Zuelicke is developing a magnet-less spintronics approach based on the interplay between the wave nature of electrons in nanostructures and their spin in new types of electron interferometers.



**Dr Justin O'Sullivan's** research project is entitled Do DNA loops actively regulate rDNA synthesis? DNA looping can control gene expression by excluding or enhancing interactions between transcription factors and a gene's promoter. He will endeavour to show that a DNA loop forms within the rDNA locus and is responsible for maintaining high rates of rRNA transcription. This is an extension of recent research that has identified promoter terminator interactions at two RNA Polymerase II transcribed genes. Demonstrating the existence of a DNA loop at the rRNA locus would also link DNA topology with a number of cellular processes including ageing.



**Dr Stephen Marsland** will use his grant to undertake a principled approach to the non-rigid registration and structural analysis of groups of medical images . Medical images such as magnetic resonance images, provide information about the internal structures of the human body. These images can be used to assist in disease diagnosis. Dr Marsland's project will use mathematical functions known as diffeomorphisms to warp images taken from different people so that they look the same, and then analyse the functions that were used in order to recognise different diseases.



**Dr Elizabeth Gray's** project is entitled Transfigurations: Christian and lyric tradition in Victorian women's poetry . Because it doesn't voice feminist protest, much of the Victorian literature that promoted Christian ideals of womanhood has been neglected by recent literary studies. This has meant that our understanding of nineteenth-century literature and society has been quite one-sided. Dr Gray's project will explore the ways Christian religion offered Victorian women poets unexpected kinds of liberty, influencing the development of poetry and the development of women's ideas about themselves and their society.



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**Four individual researchers and one research team have been identified as leaders in the University's research community. They have been selected as the inaugural University Research Medal recipients.**

The inaugural University Research Medal for an outstanding individual researcher has been awarded to **Professor David Parry**. Head of the Institute of Fundamental Sciences, Professor Parry will receive a research grant worth \$20,000.

The supporting evidence for Professor Parry's nomination is extensive, from his 184 publications in international refereed journals, to the more than 5200 times he has been cited in research papers since 1980 and his 40 invited or plenary addresses to international conferences. He has authored or edited various books on his area of expertise, fibrous protein structure and function, and is on the editorial board of the Journal of Structural Biology, the Federation of American Societies of Experimental Biology Journal and the International Journal of Biological Macromolecules.

His research has been recognised nationally and internationally. He was awarded the Sir Charles Hercus Medal from the Royal Society of New Zealand in 2000, the ICI prize for Outstanding Achievement in Chemical Research in 1981, as well as a DSc from the University of London in 1982. He is a Fellow of the Royal Society, of the Institute of Chemistry and Physics, and of the United Kingdom Institute of Physics. For 12 years he served on the Council of the International Union of Pure and Applied Biophysics, with three years as President. He is currently Vice-President, Scientific Planning and Review, on the International Council for Sciences the first New Zealander to hold such a role.

David is an inspiring leader in teaching as well as in research and administration, says Associate Professor Dean Halford, deputy head of the Institute. He leads from the top. His personal demonstration of excellence provides enormous encouragement to staff.

Dr Halford says Professor Parry is widely acknowledged as one of the world's leading authorities on fibrous proteins, including connective tissue, muscle and intermediate filaments from diverse sources, especially those present in hair. His discovery that there are two unique structures for hair, depending on its stage of development, resolved many of the difficulties experienced in this field over the years. One of the mostly highly recognised contributions he has made is his formulation of the steric blocking mechanism for the regulation of vertebrate skeletal muscle. Dr Halford says Professor Parry has also made significant contributions in the field of using fibrous proteins to study the relationship between amino acid sequences and the function of protein, as well as to understanding the structure and function of a wide variety of other proteins.

The 2004 medal for the top research team has been awarded to the **Allan Wilson Centre for Molecular Ecology and Evolution**. The Massey members of the CoRE, hosted by the Institute of Fundamental Sciences and Institute of Molecular Biosciences, are co-directors of the centre Professors Mike Hendy and David Penny, Professor David Lambert and Associate Professor Peter Lockhart. The Massey staff will share a research grant of \$25,000 while the members from other universities will receive certificates. The team's proposal was based on its success in securing \$17 million in government Centre of Research Excellence funding, following an extensive and exhaustive selection process.

In his supporting statement to the nomination, Institute of Fundamental Sciences head Professor David Parry says Professors Hendy and Penny were already internationally recognised authorities on molecular ecology and evolution and it was logical that a CoRE be established in this country to built on this expertise. He says the \$17 million in funding has enabled the purchase of world-class equipment including DNA sequencers and the Helix supercomputer.

College of Sciences Pro Vice-Chancellor Professor Robert Anderson says the success of the centre can be gauged by the number of new researchers recruited. In a short time the centre has grown to 74 workers, including seven principal investigators, three associate investigators, 16 postdoctoral fellows, 14 technical staff, 18 PhD students, seven MSc students, five RSNZ teaching fellows and four clerical staff. The subsequent development of the research programme has been nothing less than spectacular and the leadership exhibited by Professors Hendy and Penny, in particular, thoroughly deserves recognition at the highest level by this University, says Professor Anderson.

Two highflying young researchers have been awarded Early Career Research Medals. **Dr Jeroen Douwes** and **Dr Ulrich Zuelicke** will each receive \$10,000 to further their careers.

Dr Douwes has been with the Centre for Public Health Research since gaining his doctorate in 1998 and was recently appointed Associate Director. He leads the asthma research programme, investigating non-allergic mechanisms for asthma, the role of microbial exposures, asthma in farming families and the potential protective effects of exposure to endotoxins, as well as being a co-investigator in international studies.

Director of the Centre Professor Neil Pearce says Dr Douwes' publication record is outstanding not only in terms of the number of his publications and the journals in which they were published but also in terms of the quality of the work itself. He has played a leading role in re-orienting and refocusing asthma research internationally away from the previous overemphasis on allergens towards non-allergic mechanisms.

He is being invited to speak at many international conferences and contributes to leading journals in his field. Professor Pearce says Dr Douwes has made a major contribution to his discipline and obtained a large number of research grants in a very competitive funding environment. He was recently awarded the Sir Charles Hercus Fellowship from the Health Research Council the first time it has been awarded to a public health researcher.

Dr Zuelicke, from the Institute of Fundamental Sciences, already has 36 publications in international refereed journals. He has presented 12 invited or plenary addresses to international conferences and presented 30 seminar talks in the past six years. He was short listed for a Marsden Fast Start grant this year and invited to write a commentary in Science magazine in 2002. He won the Outstanding Graduate Student in Research Award from Indiana University in the United States in 1997 for the high quality of his PhD research thesis.

Dr Zuelicke's area of research expertise is the theory of functional nanostructures. He is currently researching the interplay between quantum effects, such as tunnelling and wave-like behaviour and their affect on ultra small transistors and wires in determining electronic and transport properties in nanostructures.

Professor David Parry says Dr Zuelicke is one of the most outstanding young scientists that he has had the privilege of appointing during his time as head of Institute. He is one of the most brilliant young scientists I have met. He is clearly in a league of his own and I have an absolute conviction that he will reach the top of his field in a very short period of time.

**Associate Professor Kerry Chamberlain**, from the School of Psychology on the Albany campus, has been awarded the Supervisor Research Medal and \$10,000. Dr Chamberlain is actively involved in graduate supervision, having supervised 14 PhD and more than 60 Masters and Honours students. He describes himself as an advocate for research. He is committed to promoting good supervision and quality research practice to improve postgraduate performance, and promotes collegial activity and professional development in postgraduate students.

His teaching interests are focused on health psychology and research methods. He has developed a graduate course in this area as well as an undergraduate course on research methods and statistics. During his time at Massey he has taught more than 25 different courses on a wide variety of topics related to his area of expertise.

As well as his teaching and supervision activities, Dr Chamberlain is also a leading researcher in the field of health psychology and the social and cultural influences on health and illness. He is specifically interested in food, diet and health, the marketing of medication and socio-economic factors in health and illness and the media representations of health and illness.

A former student of Dr Chamberlain, Dr Darrin Hodgetts, a senior lecturer in community psychology at the University of Waikato, says that as supervisor and mentor Dr Chamberlain holds high expectations for his students and provides both constructive criticism and avenues for overcoming issues .

Without Kerry's guidance and continued support I would not be in the position I am today, he said.

Other former students all commented on Dr Chamberlain's ability to combine constructive criticism with a respect for the students' work and opinions, while challenging and stimulating the students to extend them.

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# Hodgson's view

***We put Pete Hodgson, Minister of Research and Development (and a Massey alumnus), to question.***

When Pete Hodgson was a veterinary student his classmates and lecturers regarded him as straightforward, quick-thinking, and possessed of a keen sense of humour.

Thirty years after his graduation with a degree in veterinary science, his friends, colleagues and constituents say the description still fits. He is regarded as an informed, able and accessible Minister of Research, Science and Technology, Energy, Fisheries, Forestry and Crown Research Institutes.

Born and raised in Whangarei, Pete Hodgson practised as a vet in Canterbury in the early 1970s and in England in the early 1980s. He has also worked as a high school science and mathematics teacher and manager of a range of small businesses.

His involvement in politics began in the late 1980s, when he was employed by the Labour Party as a marginal seats organiser. He has been the MP for Dunedin North since 1990.

## **What do you remember of your time at Massey?**

Well, they were my formative years of course and so I remember them very warmly indeed, and many of my friends in life are friends I made here. The veterinary degree was a very exacting degree and had a high attrition rate and so we kind of knew that we had to knuckle down to get through. I missed a year, unfortunately. It was because of too many parties in Burke Street and deciding to jump goods trains between finals, which was not a good idea. That aside, I have very fond memories of Massey indeed and come back here often.

## **How is it you came to politics?**

I don't know. I don't know why a person would go from veterinary science into politics, but I think politics is in my blood and it just is in some people's blood. I gave up veterinary science and worked for the Labour Party, for goodness sake. This is a serious case of having politics in your blood.

## **Yours is a political family?**

No, it's not. It's not. My wife's apolitical, my children are apolitical, my parents are barely political. If I reach back far enough I can find a grandfather but he was involved in a thing called the Country Party and only for about six months, so I don't think that counts either. No it's not a political family. It's really interesting. I don't know where it came from. I mean, I am highly political.

As Minister of Science and Technology, you are known to be a strong advocate for research and development. Nonetheless, given our relativities with other nations, is the Government doing enough to support, and acknowledge our best researchers and retain them in New Zealand?

Well, how long can you give me to answer? We've increased science funding nominally by around 42 percent over the last five budgets. In real terms, taking out inflation, that's 32 percent. So that's quite a chunky increase. One of the features of the New Zealand innovation system is that it's dominated by the public sector. So whereas our investment in science is just slightly below the Western world average 10 percent below where it should be probably private sector investment in R and D is around about a third of the Western world average. So we've got a very unusual mix between public and private sector that is both a symptom and a cause of our stage of economic development.





### **In what way?**

On the one hand it's a symptom in that New Zealand is a very high-quality agricultural primary production nation and primary production research tends to be a small part of industry turnover in the agricultural sector smaller than, say, research towards building aeroplanes or making drugs. But the agricultural research that we do produce is amongst the world's best. That's why our economy is so strong in agriculture. It's a symptom of our stage of economic development because there's more primary production going on here than in any other Western nation and less of the manufacturing or so-called high-tech sectors.

And then it's a cause of our economic development because our attachment to commodities, no matter how good we are at it, has meant that our standard of living has dropped relatively over my lifetime. I was born into the third richest country in the world. I currently live in the 21st richest country in the world, and our attachment to agriculture has been part of that change. So the Government's primary focus has to be to ensure an increase in private sector involvement in R and D through a thousand different ways. And we have made some progress on that.

### **What should we be doing to support and retain our best researchers?**

One answer is to increase the demand for research by increasing private sector investment in research. That's a really boring answer. It's not one that people would immediately come to but it's the one that's at the top of my mind. And then the other way is simply to increase available funding on the public sector side, giving it the attention that we've put into excellence with the Centres of Research Excellence. There's also the work that we've done with the scholarships, the post-docs and things that have just rolled out over the years, including the celebration of young New Zealand scientists. One example is the Foundation for Research, Science and Technology award dinner in Auckland in July.

### **Do you think companies should be conducting their own research or commissioning it out? Should Fonterra, for example, be doing its own research or relying on AgResearch?**

Answer to that specific question? Both. Fonterra we were there yesterday is the largest private sector investor in New Zealand. Of course they should be doing some of their own research. They have a long history of it, starting with the Dairy Research Institute which now goes by the name of Fonterra Marketing and Innovation, you'll be pleased to know. On relying on AgResearch? Well, the dairy research/AgResearch linkages have been insufficiently strong in New Zealand it's been a matter of some distress to me actually. But recently, quite recently, they have improved significantly and so now it can be both. Let's make sure we don't try to put black/white questions around science because you very rarely get black/white answers.

### **If you were an international biotechnology company or investor, how do you think you would view New Zealand as a place to do business?**

I would say: It is very, very far away and it is very unknown, therefore it's a hard place to do business. However, as I got here, and given that I have only just arrived and been here a month, I'm surprised by two things. First of all I'm surprised by the quality of New Zealand science. I'm very impressed by the quality of New Zealand science and the range of that science, especially related to technology and in all of the applied biologies. And I find it all undervalued, which delights me a lot. This is an inefficient market. Now that I've arrived here I'm probably going to be able to get hold of intellectual property cheaper than if I were trying to get hold of it in San Diego. So you know, the plane flights are a real problem but I'm coming back.



**Many scientists believe the HAZNO [the Hazardous Substances and New Organisms Act] and ERMA [the Environmental Risk Management Authority] processes are onerous and may be stifling innovation or changing the nature of research that is done. Do you think legislation strikes the right balance between providing environmental protection and allowing innovation?**

I think probably there will be instances where our decision to run the most transparent, precautionary and participatory regulatory system that I know of has stifled innovation or changed the nature of the research that's being done. I think that is true and I think that all around the world biotechnologies are doing that to societies.

It's relevant that we are now seeing an amazing debate going on over stem-cell research. For example, the southern states of the USA don't like it. The northern and western states don't seem to mind it. Go to Australia and you also find a mix but geographically the other way round. They've embraced stem-cell research in Victoria much more than they have in Queensland.

Then there's xenotransplantation which is causing nervousness in some places but not in others. Prince Charles has decided to get himself distressed about nanotechnology, now that he's learnt how to spell it, and so on. You end up with a variety of societal reactions to technologies. The New Zealand reaction to nuclear technology is a very good example. I'm not in the least bit critical of and entirely supportive of (I should say in brackets in case there's any doubt) the anti-nuclear argument. But one thing I'd like to say about this is that generally speaking the first round of genetic engineering is of not much use to New Zealand. All of the technologies about Round-Up Ready soy or Round-Up Ready cotton or Round-Up Ready maize or Round-Up Ready, call it what you like really, are fine. We don't grow soy or cotton in this country. We do grow some maize but we don't grow much.

But there's a bunch of technologies, GE technologies, that could be wildly useful in New Zealand, in producing energy out in the environment. What the antagonistic, anti-GE people call terminator genes, I think are great things. If we can apply a terminator gene to a tree so that it doesn't have pine cones then we don't have to put up with pollen. We don't have to put up with the energy going into producing flowering bodies instead of wood. And we don't have to put up with wilding pines marching across the hills around Queenstown. That will do me. And to that sort of research, I think New Zealanders will say, okay, now we can see a benefit and no dis-benefit: after all, the thing can't reproduce, by definition.

**Given the Government's ambitious goal of returning New Zealand's per capita income to the top half of the OECD through the support of research-intensive areas like ICT, biotechnology and creative industries, why aren't we seeing this matched by Government research investment that is higher than the average OECD levels? The OECD average is 0.67 percent of GDP, Australia's is 0.71 percent, New Zealand's is 0.54 per cent.**

Someone's done their research there. Very good. And I agree. We are a little behind the pace in our public sector R and D. We've caught up somewhat because I've been pouring money into it. But because the economy has been growing very strongly, GDP is growing and the percentage of GDP figures have therefore been more modest than they should be. Guilty as charged; we are below the average.

Again, our big problem is not public sector investment, it's private sector. So I've doubled the amount of money going into technology for business growth so as to get private sector funding up with help from Government. We've changed tax laws and we're going to have to change them again, I can just see it, especially for venture capital.

Universities are the biggest aggregate providers of research only just but they are and they employ increasing numbers of researchers whose careers are at risk from fixed-term R and D contracts. But if you go and have a

look at the books of a Crown Research Institute, they don't have any of the room to move that a university has. Apart from the fact that they have a commercial objective on them, they have to earn the rated average cost of capital etc. Leaving that to one side, they don't have teaching research funding. They don't have benefactor funding you know, trusts where people make over their estates to the universities. So university balance sheets are generally somewhat easier to manage than a Crown Research Institute balance sheet.

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Categories: Alumni; Massey Magazine

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# Watching the Iraq war

*Piers Reid, a senior lecturer at the Centre for Defence Studies, writes.*

Iraq dominates the world news and may decide the forthcoming United States election and Tony Blair's political survival. At one extreme, commentators like Robert Fisk see the struggle in Iraq as a Western grab for oil and deliberate destabilisation of the Arab states, cloaked in a scare campaign about weapons of mass destruction. Others, like Ann Coulter, view the fight as a necessary step towards securing democratic freedom throughout the world and a response to global terrorism. Many others believe Iraq to be a Vietnam-like quagmire, producing a trickle of casualties, which will eventually exhaust the United States' will to stay in the region.



This is the fourth war fought in the Persian Gulf in the last 20 years. The first Gulf War between Iran and Iraq lasted eight years with nearly a million deaths. The second in 1990/91 saw the spectacular ejection of Iraq from Kuwait. The third in 2003 involved the invasion of Iraq, its occupation by a coalition of primarily United States and British forces and the overthrow of the Ba'th regime led by Saddam Hussein. This fourth Gulf War involves the occupying forces and Iraqi progressives seeking to stabilise the nation as a democracy in the face of fundamentalist resistance.

Whether a democratic form of government is suitable or possible in Iraq is a matter of debate, no matter how much it may appeal to the West and the United Nations. The Coalition partners argue that the Iraqi people should be given a chance to choose their own government free of religious, ideological and terrorist intimidation. The attacks on the fledgling instruments of a restructuring Iraqi government, especially its police force and civil service, underline the desperation of extremists to ensure such a choice does not take place, or that any resulting government will be stillborn.

To the general public watching daily live coverage of bombings and shootings in Iraq, the situation seems totally out of control. Yet to the military observer, when compared with, say, the scale of the Vietnam War, the violence in Iraq appears small and even manageable. The fighting is largely limited to just five urban centres, appears to have no support outside the cities and directly affects only a very small percentage of the population. Most Iraqis are simply involved in rebuilding their country and their lives.

The ubiquity of television reporting and the brutality of the methods used, such as suicide bombings and internet-screened decapitations, add a disturbing propaganda dimension, but are hardly decisive. It is difficult to take seriously the calls for national policy changes from the relatives of hostages, especially when those hostages have gone willingly into the war zone against their own government's advice. Equally it would be irresponsible to let foreign hostage-takers decide national policy. Surrender to hostage takers would simply invite repetition of the tactic, probably on a larger scale. What will be decisive in Iraq is whether the occupying powers have the will to see through the nurturing of democratic government and then let that government deal with the internal security issue.

The resistance in Iraq is not exclusively from Iraqis. Instead, Iraq appears to have become a battleground in which foreign guerillas have joined extremist Iraqi Muslims and Ba'th elements. While their aims often do not coincide, there is a common desire to defeat the Coalition. As with Afghanistan, Iraq has become a battlefield of choice, attracting the shady 'terrorist' organisations from throughout the Arab world. But by doing this they may be revealing themselves and playing into Coalition hands.

The political - and therefore military - problem confronting the Coalition is how to deal with the resistance while simultaneously building effective government in Iraq. That the current fighting is different in its nature to the three previous wars is obvious. But as military analysts are aware, no two battles or two wars are ever identical. What works in one battle may not work in the next. Wars cannot be seen as linear, as predictable and replicable. They remain a frustrating mixture of science and art, defying modelling techniques. So what will work for the Coalition in Iraq?

Many universities, including Massey, and most armed forces, including the New Zealand Defence Forces, have established centres to analyse past and present wars, technology advances and so on, to learn and postulate from these. In these centres rigorous intellectual debate is encouraged, new theories are expounded, modelling is undertaken and operational doctrines are forged. The operational doctrine of Airland Battle, a methodology for fighting conventional battles, was expounded in the 1980s and adopted for the successful 1991 ground offensive to liberate Kuwait. The doctrine of Rapid Dominance, popularly known as 'Shock and Awe', was developed in the 1990s. Reliant on small but technologically powerful 'network-centric' forces supported by massive aerially delivered firepower, this latter doctrine underlay the swift invasion of Iraq in 2003. Iraqi conventional forces, little

changed from 1991, stood no chance against this superior form of warfare and deserted in their thousands.

Neither of these doctrines fits the situation in present-day Iraq, which is one of internal security against a high-level terrorist threat seeking to destabilise through fear. Terrorist success would inevitably lead to a chaotic civil war among Shi'a, Sunni and possibly the Kurds, as well as between religious zealots and those promoting a secular society. The guerillas calculate that civil war could result in an extremist Muslim theocracy. Their campaign has caused over a thousand Coalition deaths and many more Iraqi deaths. Their innovative demands for hostages' lives have broken weaker Coalition partners, and a well-timed terrorist attack in Madrid contributed to Spain's retreat. This is not a guerilla campaign that is about to lose momentum, nor do they have any reason to abandon terror tactics.

Guerilla wars have long been the Achilles heel of powerful empires. Western societies are profoundly polarised when faced with paying a political cost with their young people's lives. Confronting the threat in Iraq therefore requires a new equation for the application of political and military power. Brute force alone cannot be used because the Coalition and Iraqi Government forces, unlike the guerillas, act within the restrictions of humanitarian law. Tighter security and checks are required, but this restricts the very individual freedoms the Coalition claim as their purpose.

As with conventional warfare doctrines, new methods of counter-guerilla warfare have been developed. These involve high-quality intelligence, rapid military response capacity, total local nation involvement and parallel nation building. An ability to adapt to the environment is crucial. Knowing the enemy - his location, intentions and capabilities - is a key requirement. Precision-guided weapons require precise intelligence to be effective. In conventional operations this comes from electronic sources, ranging from satellites to palm-sized flying electronic eyes. In counter-guerilla operations, human intelligence is the key some reliable informant providing accurate, timely information about the enemy. In Iraq various underground resistance movements defied Saddam's detection for two decades and mastered the techniques of independent cell structuring, something that has served Hamas and the IRA well. Similarly, the guerilla forces are not a single cohesive organisation but a mosaic of separate cells with often quite different loyalties, united only in their willingness to use terror. The identification of the guerillas therefore will be no easy task and requires Iraqi involvement.

There appears no possibility of an early end to the terrorism in Iraq, but despite the setbacks the Coalition methods appear to be slowly working. Early Coalition mistakes, such as the dissolution of the Iraqi armed forces and police, are being rectified. The infrastructure is being rebuilt and, to the pique of many liberal observers, encouraging signs of a rebounding economy and society can be seen. Despite the media attention, the fighting and the casualties are of a very low order for the restructuring of a nation of more than 20 million people after decades of dictatorship and brutality. There will be an increase in violence as the elections near, but that should be the peak. The United States shows no signs of tiring and both President Bush and John Kerry have affirmed their intentions to persevere.

Sadly, Iraq, like Afghanistan, is a test-bed for the new guerilla-fighting doctrines and techniques. How well these are working is not yet clear, but they are being monitored and analysed at centres around the world, including the Centre for Defence Studies at Massey. Their effectiveness or otherwise will influence the techniques of the global War on Terrorism for years to come.

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## Delicious and good for you

***Professor Paul Moughan is an apostle for the coming functional food revolution.***

In a Wellington supermarket I am scouting for elements of the functional food revolution I have been told is building. To be honest, I haven't found much. Sure, there are breakfast cereals enriched with vitamins and minerals, but these hardly count.

It is not until the dairy section that I find what I want: yoghurts laced with 'probiotic' cultures of bacteria that promote healthy digestion, alongside statin-containing spreads that cut cholesterol. Then, as I carry my purchase to counter as if to clinch the argument that functional foods have arrived packets of chewing gum promising to whiten my teeth. Didn't chewing gum used to be bad for you? None of these products were on the shelves a decade ago.

Functional foods, according to one definition, are foods designed to provide a specific and beneficial physiological effect on health, performance and/or well-being extending beyond the provision of simple nutrients.

Iodised salt, with the protection it offers against goitres and cretinism, is an archetypal functional food. But adding iodine to salt, or vitamins and minerals to a breakfast cereal is hardly to be compared with the precision and sophistication with which foods are now being engineered to confer benefits.

Many of our afflictions have some dietary component. Think of obesity, hypertension, coronary heart disease and osteoporosis. By choosing a conventional diet carefully you can influence your health, but this falls well short of being able to choose foods designed to be good for you, their efficacy scientifically proven.

If, instead of turning to modern medicine, you could improve your health by adding functional foods to your shopping list, wouldn't you do so?

And if the market for functional foods does take off, wouldn't New Zealand, a nation that derives more than 50 percent of its income from food exports, want to be major player?

In his office on the Palmerston North campus, Professor Paul Moughan, co-director of the Riddet Centre, is upbeat about what lies in prospect for New Zealand. He has spent 20 years in food and nutrition research. He has seen functional foods begin to penetrate the marketplaces in Finland, Sweden, Japan and America. And, whereas many scientists lament the lack of private sector funding in New Zealand, Moughan is having little difficulty in attracting backers.

I find the major primary industries in New Zealand are highly motivated to do research that will add value. We've got a large project with Fonterra; we've got a large project with Meat and Wool New Zealand, and both are about discovery-based research to come up with new and innovative products. That's exactly what the Government wants to happen in the economy. These industries are investing in R and D, they do want to innovate and they are innovative industries, he asserts, as if parrying an attack. Good things lie ahead: We have great raw materials, the clean, green 'brand New Zealand', and excellent science. Much of that excellent science will come from the centre he heads.



The Riddet Centre was set up in February 2003 with Professor Moughan and Professor Harjinder Singh as co-directors. (Professor Singh, an acknowledged world leader in the science of food structure and functionality, has an office close by Moughan's.) Carrying the tagline advancing knowledge in food and biologicals brings together expertise from Auckland, Otago and Massey Universities as well as overseas institutes and it has set out twin objectives of scientific excellence with industrial relevance.

If things go the way they should, the PhDs, post-docs and Riddet Centre Visiting Fellows hosted by the Centre will seed the New Zealand food industry with fresh expertise, and the science performed under the aegis of the Centre, will both address fundamental questions, and find practical - and lucrative applications.

How well do we understand the links between nutrition, digestion and health? As the recent debates surrounding weight-loss diets have shown, not as well as perhaps most people assumed.

Much of our food wisdom, says Moughan, has been less science than it has been anecdotal. Our commonly accepted truths have often been derived from applied rather than fundamental research. We need to better understand the underlying mechanisms he says.

I think over the next decade you are going to see a lot more fundamental science applied to the unravelling of the mysteries of and contradictions in human nutrition.

Moughan first began to confront just how complex the mysteries were when he chose his PhD topic back in the early 1980s: the digestion of protein and the post-absorptive metabolism of amino acids, using the rat and pig as general mammalian models.

On the face of it, you might think that finding out what goes on with the digestion of proteins is easy. Measure the amounts of proteins that are eaten, subtract the amount of proteins that are voided, and there you have it: the proteins that have been digested.

But, as Moughan points out, a lot of the protein that is being digested comes not from food but from the animal itself. In any one day very large quantities of gut protein are completely broken down and completely resynthesised. It is an energy-demanding process.

Moughan's work helped distinguish between the 'exogenous' digestive processes driven by the digestion of food and the 'endogenous processes' driven by the recycling of protein.

We were the first group in the world to show that peptides from protein have a major regulatory effect on gut protein turnover, says Moughan.

He also took an early interest in the bioavailability of lysine, one of the handful or so of amino acids that humans cannot fabricate and so must come from the diet. Lysine is particularly important as a first-limiting amino acid: the amino acid present in the least amount in food relative to its requirement. This key amino acid also happens to be very susceptible to chemical damage during food processing and storage.

We came up with what is credited as being an original way of describing lysine left in food that hasn't been damaged and is available to be metabolised, says Moughan.

Most research until then had concentrated on describing the chemistry of the changes that take place when lysine is heated. Moughan stood this on its head by looking at the chemistry of lysine molecules that remain unchanged.

He developed a new biological assay now internationally known as the Massey assay to measure the availability of lysine in foods. We've had a lot of food companies come to us from all round the world and ask us to put material through that assay and tell them in terms of the chemistry what happens when they do different things to foods.

(Moughan's invention, with Mr Shane Rutherford, of a bioassay for determining amino acid bioavailability in food has been patented and trademarked (Biolyline<sup>®</sup>) and has returned a not inconsiderable fee income over the last five years.)

His work on protein metabolism and on lysine which have involved some highly original experimental approaches, have resulted in well over 200 scientific papers. This, he says, is the work on which his Doctorate of Science was based, as well as the work for which he is best known for in the scientific community. It is this work to which he attributes the conferral of personal chair at a young age, a Fellowship of the Royal Society of New



Zealand, and more hosted invitations to speak internationally than he could ever hope to accept.

Moughan's work on the digestion of protein continues. Lately we have been undertaking detailed studies with human subjects. We have shown that there is a dose-dependent effect of proteins on gut protein turnover and we are now trying to look at underlying molecular mechanisms. If we can understand and manipulate what is going on, then there could be all sorts of ramifications for gut function and health. The University of Paris is a research partner.

Moughan's academic productivity becomes more remarkable when you consider that in parallel with his research career he has built and run a series of highly successful university research and teaching units.

His first was the newly-established Monogastric Research Centre, of which he became Director in 1991. The Centre worked on the biology of simple-stomached animals, such as humans, production animals such as poultry, pigs, companion animals, such as dogs and cats, and even fish. During Moughan's five-year stewardship the Centre grew from four to 50 staff.

From 1995 to 1998, he took up the position of foundation scientific director of the Milk and Health Research Centre, which Moughan describes as having concentrated on functional foods for humans, and, from 1997 to 2003, the foundation headship of the Institute of Food, Nutrition and Human Health.

After years of steady growth, the Institute now has around 165 staff and 160 postgraduate students. It was and remains, Moughan says, the most outstanding institute for food-related research in the southern hemisphere. I think you can say that without fear of contradiction.

By contrast the Riddet Centre is a minnow. Here there are just 20 staff. But it is a prosperous minnow: in the first 18 months of its existence the Centre has attracted more than \$10 million in research funding. It is also of the highest quality. In terms of the NZ Government's PBRF exercise the Centre ranks right up there among the best academic units in the country.

With less administration, Moughan says he is enjoying the luxury of more time in which to research, think and write.

A large part of the Riddet Centre's private sector research funding around \$5.8 million is coming from the Foundation for Research, Science and Technology (FRST), Fonterra and BASF for the development of what are being termed POSIFoods or point-of-sale individualised foods. Fonterra is the fourth largest dairy company in the world by revenue, and second in the volume of milk processed annually; BASF is, among other things, one of the most important producers of vitamins worldwide.



The POSIFoods project will combine advanced nutrition science, innovative food processing and formulation process with the state-of-the-art vending technology. The research will deliver fast, great-tasting nutritious foods, tailored to an individual's dietary needs and taste preferences, all at the touch of a button.

There is increasing consumer demand for foods that not only taste great, but are nutritious and actually improve health and well-being. This development will enable customers to choose a snack that meets particular health needs such as low fat for calorie management, low cholesterol for heart health, high calcium for osteoporosis, or low in sugars for diabetics. Consumers will be able to receive a healthy, nutritious snack with a specified nutritional benefit and the convenience of instant vending.

Moughan already had an established relationship with Fonterra, and close connections with the conglomerate BASF, which assisted in attracting their interest as a research partner.

The POSIFood team includes Moughan's colleagues at Otago and Auckland Universities as well as Fonterra and BASF scientists.

The second largest of the Centre's research contracts is with Meat and Wool New Zealand for the extraction of specialised ingredients from meat for the development of functional foods.

While the dairy industry increasingly breaks milk into its molecular constituents to sell at a premium, the meat industry has changed less in the last fifty years: its trade is largely in cuts of meat and processed meat products.

Yet the proteins in meat represent a bonanza of functional food ingredients and bioactive compounds.

Not all of the protein you eat is metabolised by your body, explains Moughan, and if your health is at all compromised - if you are perhaps elderly, recovering from illness or injury, or malnourished then the quality of

protein you get becomes important.

The Riddet Centre intends to extract many different kinds of protein from animal tissue and to break these down to form new food proteins. Specialised protein ingredients with very high amino acid availability, says Moughan.

We then might come up with a food for the elderly, for example, who are losing muscle mass and come up with balance of amino acids that will specifically meet the requirements for people in that physiological state.

The Riddet Centre team will then spend some time in France working with colleagues at the University of Paris and INAP-G, whereby these foods and protein mixes will be fed to human volunteers to prove their efficacy.



Moughan also believes that when the proteins are broken down to produce the linked amino acids called peptides a cornucopia of bioactives will be found.

We've been talking to a company in Australia that specialises in assays to prospect or scan for bioactive molecules and it looks like we will be forming a relationship with them. And once a bioactive has been identified we will work with them to take it to commercialisation.

Another of the Riddet Centre's research projects, Mining Australian biodiversity a genomics/proteomics approach to milk-derived bioactives, may in a quirky twist, see platypus milk shipped across the Tasman.

Placental mammals, such as people, give birth to well-developed young. By contrast, the newborn of marsupials and monotremes (think kangaroos, wallabies and possums in one case, platypus and echidna in the other) are tiny and rudimentary. A newborn wallaby is around the size of a jellybean.

In a way you can think of a newly-born wallaby as an external foetus. Instead of happening in the womb, most of the joey's development will take place in the mother's pouch or 'marsupium' as it suckles at the teat.

This means that whatever development signals travel down the umbilical cord in mammals must be passed through the mother's milk in marsupials, and herein lies a huge opportunity for bioprospecting.

If the molecules that govern development in the marsupial milk can be identified, then it ought to be possible to identify those same molecules in cow's milk and the genes that are responsible for them. Funded by the Geoffrey Gardiner Dairy Foundation of Australia the research will be led by Riddet Centre Principal Prof David Mellor and Prof Paul Moughan and conducted in collaboration with University of Melbourne. It's an excellent group there led by a top-rate biologist Kevin Nicholas a genomics, proteomics expert, says Moughan.

First, the team plan to identify the stages in development of the digestive tract in the tammar wallaby very precisely. They will then calibrate this against milk samples taken at different stages of lactation. If a stage is particularly interesting, the milk samples will be analysed. We'll do a complete chemical characterisation of that milk particularly looking for bioactives that influence development, says Moughan.

If a bioactive protein or peptide is found, then the gene that produces it will be identified. And then we will go looking for the gene in the cow, and hopefully find a gene that expresses the same or a similar protein or peptide.

Now you might say 'Why not go looking in the cow straight away?' But that would be to look for a needle in haystack. Those proteins and peptides will be there, but they will be there in very small quantities.

As it proceeds, the project will involve a variety of strange milk samples crossing the Tasman. Not just tammar wallaby milk, but also platypus and echidna milk, and even (deviating back to a placental mammal) seal milk which it is thought may have interesting antimicrobial qualities.

The prospect of a new generation of functional foods with only-to-be-guessed at qualities beckons. Milk must be full of useful yet-to-be-discovered bioactive compounds, if only they could be identified.

As for what lies on the research horizon, Moughan predicts that nutrigenomics the study of our nutrients' impact on genes to cause specific conditions is going to be huge over the next ten to 20 years.

No two people are the same, and it's not just that they have different genetic propensities for disease development, but also that the foods we eat will turn genes on and off in different ways in different people. So there's the interaction between the genome, which is unique and the environment which includes nutrition and that nutrigenomic interaction. We know very little about it.

Prof Moughan's time is in demand; he holds two company directorships including the prestigious Geoffrey Gardiner Foundation in Melbourne Australia, sits on four editorial boards for international scientific journals and is an expert advisor to the FAO/WHO/UNU on dietary amino acid recommendations and protein quality for humans.

There is no doubt that Moughan has had a high-flying university career. What keeps you at Massey University and NZ? You must receive job offers elsewhere? Yes, says Moughan, in the last couple of years I've been sought to lead a Canadian University and was recently head-hunted for a prestigious Australian Federation Fellowship. Ultimately, I'm a New Zealander and want to serve my own country. Massey University from its very inception has always had a great research ethos, combined with a real hands-on approach ensuring relevance this I've always admired.

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# Please reset your watches

## *A traveller's guide to jet lag*

### How does a globe-trotting traveller get enough sleep?

Dr Leigh Signal is uniquely placed to answer this question. Holder of a commercial pilot's licence, she is also a Senior Research Fellow at Massey University's Sleep/Wake Research Centre in Wellington.

Dr Signal studied at Massey's School of Aviation in Palmerston North. After completing her bachelor's degree in aviation, she stayed on at Massey and worked as an Assistant Lecturer. When Professor Philippa Gander set up the Sleep/Wake Research Centre in 1998 and invited Dr Signal on board, she jumped at the chance.



Professor Gander worked on huge field studies on fatigue countermeasures for NASA during the 1980s and 90s. They studied hundreds of pilots in different types of operations and their sleep/wake patterns. Her work has been seminal in sleep research.

We get fantastic support at the Sleep/Wake Centre for working with industry, says Dr Signal. We have good research tools and a neat mix of researchers from a range of backgrounds.

My job brings together two things I love: aviation and research, she says. It combines my practical background in flying with my interest in aviation-related research.

### What is jet lag?

Humans, like most animals, have evolved to match their physiological rhythms to roughly those of a 24-hour day. Every day your body temperature, blood pressure, your levels of stress hormones, even your digestion, follow certain regular 24-hour patterns. For example, 4.30 in the morning is when your body temperature is likely to be at its lowest. At 10.00 in the morning you will be thinking at your fastest. At around 5.00 in the afternoon you will be at your peak in terms of cardiovascular efficiency and muscle strength. This synchronisation to the daily cycle is called the circadian clock, from the Latin for about, circa, and day, diem.

The body's core rhythms such as body temperature and blood pressure are largely maintained by two bundles of nerve cells in the brain called the suprachiasmatic nucleus (SCN), but there are also peripheral clocks in various tissues and organs.

When you shift time zones, all of these systems are thrown out of whack and the normal night/day cycle. Compare it to an orchestra: at one moment everyone is following the conductor and harmony prevails; at the next there is no conductor and everyone is playing from a different part of the score. We've gone from music to noise.

If we stay in the new time zone, these clocks will all reset themselves eventually. The SCN is reset by cells in the retina of the eye that transmit information about light levels. However, depending on how many time zones you have crossed, the process can take days or even weeks. Until then, you are likely to experience the effects of jet lag.

### Beating jet lag

Dr Signal says there is no one-size-fits-all advice for avoiding jet lag.

Everybody experiences the effects of flight differently. There is too much individual variability to prescribe a single approach. But for someone about to take a long flight from New Zealand, I'd recommend not being sleep deprived before you take off. There's often a lot of running around to be done before a trip, but you don't want to be exhausted before you step on the plane.

If you need to be fully functioning on arrival, get as much sleep as you can during the flight. People who travel regularly get to know what works for them.



### **Fooling the body clock**

In the laboratory it is possible to adjust people's circadian clocks by exposing them to bright light, the effect depending on when they are exposed to the light, how bright it is, and how long the exposure. But outside the lab this is more difficult to achieve. There are often many other competing cues, such as when you choose to sleep, eat and socialise.

On the other hand there are ways you can make life more miserable for yourself. One of them is to stay up late packing before you leave. Do this, and you are likely to sleep well that night and badly the next, beginning a zig-zag pattern of one good night followed by one bad one.

If you are trying to adapt to your new time zone, you can time your activities to help reset your clock. If you have flown from Auckland to Hong Kong you should try to be outside in the late afternoon; if you have headed to Los Angeles try to be outside in the early morning (this is to allow light exposure to help shift your circadian clock in the right direction). Incidentally, it is easier to adapt to a longer biological day, so the person who has flown west to Singapore is probably going to have a better time of it than the person who has flown east to LA.

### **What about drugs?**

If you mean alcohol and caffeine, then you need to be sensible. Alcohol will certainly help you sleep; it is probably the most widely used sleeping aid we have. The problem is with the quality of sleep it delivers. Alcohol suppresses REM sleep a cycle of sleep during which the brain is quite active and the eyes move rapidly, hence the name Rapid Eye Movement sleep. If you go to sleep after a few drinks then your REM sleep will be suppressed until your body has processed the alcohol, and then the REM sleep will rebound and your sleep will be restless and disturbed. Remember that your body processes alcohol quite quickly, at about one standard drink an hour that's a nip of spirits, a glass of wine or half a pint of beer and you should plan to go to sleep sober.

Caffeine is a stimulant, so is going to disturb your sleep. For most people the stimulant effects wear off after three to five hours, but if you are sensitive to caffeine the effect can last up to 14 hours.

The jury is out on whether sleeping pills are a good thing for long flights. You certainly wouldn't want to wake up groggy during any sort of an emergency. If you do take sleeping pills during your flight, you should probably take them at around the time night would fall in your destination.

When you get to your destination, then taking sleeping pills for the first couple of nights is not unreasonable if you need to function on local time soon after your arrival. Taking the pills probably won't reset your circadian clock, but it ought to mean you are less sleep deprived. You should speak to your doctor first, and try the same

sleeping pill at home before you travel to make sure there are no unwanted side effects.

### **What about melatonin?**

Melatonin supplements are touted as a natural remedy for sleep disorders and jet lag. It is a hormone produced in the pineal gland, a pea-sized structure at the centre of our brains. One of the pathways from the SCN (the body's master clock) runs to the pineal gland. Melatonin can also exert an influence on the SCN and it may have a role in influencing sleep. But none of this means you should take it as a drug.

One problem is that melatonin has different effects depending where in your clock cycle you take it. Another more compelling issue is that we don't know enough about the safety of taking melatonin either in the short or long term.

### **What about the pilots?**

If jet lag can have such an effect on the occasional traveller, how do airlines manage the sleeping and waking regimes of their pilots?

International airlines and regulatory bodies wish to set and abide by best practice to make sure that pilots are well rested and alert. Along with her colleague Margo van den Berg, Dr Signal is conducting a study on behalf of the Civil Aviation Authority of Singapore. Singapore Airlines flies new long-range A340-500 jets direct from Singapore to LA, an 18-hour flight. This requires two flight crews working in shifts. Dr Signal's job is to collect data on the pilots' sleep during the flight and to assess their alertness and performance. To measure their sleep she wires them up to sensors which record brain activity, eye movement and muscle tone.

The flights seem to go quickly because I am busy, says Dr Signal. But I am shattered when I get to LA there's no time for sightseeing. Two days later she repeats the data collection on the return flight.

When the study is complete next year, we will have a better picture of how flight crews cope with long-haul flights.

### **Commuting by air**

For Dr Signal, aviation runs in the family. Her husband, Mathew, is a pilot with Air New Zealand Link, so sometimes he gets to drop her off at work. We live in Gisborne, so this means getting up at 5:15 on a Monday to catch the 6:50 flight to Wellington.

It's not uncommon for people in the aviation industry to commute by air, she says. We're moving to Blenheim soon, so my half-hour commute will be similar to someone who travels into Wellington from the Hutt Valley each day.

And how much sleep does a sleep researcher need? I function best on eight and a half to nine hours' sleep a night so I'm looking forward to a later start when we move to Blenheim.

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# Environmental plots

## *Master's student Andy Duncan is creating a sustainable subdivision*

If you want it done properly, do it yourself.

Copies of the Resource Management Act lie alongside pencil sketches of Andy Duncan's new home, drafts of his master's thesis jostling with marketing plans for his ecologically sound subdivision. The sections will go on sale around the end of this year, with interest anticipated from both New Zealand and Andy's native United Kingdom. There is no other subdivision quite like Totara Bank, where energy efficiency and sustainability are key design criteria.

The log cabin he's already built on his own Te Whiti site is testament to a will and ability to do things a little differently. Modelled loosely on properties he and partner Gail saw while travelling in Canada, the 'cabin' consists of giant Redwood trunks stacked atop each other. Inside and out, the walls are massive beams of gleaming wood, rising to a vault-like ceiling over a mezzanine level. The feeling is definitely one of being in the mountains, and although there's no snow outside there's plenty visible on the Tararua Ranges, which frame the view northwest over the Ruamahanga River.



A chartered civil engineer involved in subdivision design for seven years, Andy had become disillusioned by years of 'traditional' developments with little thought given to ecological principles. Instead, he envisaged more holistic communities, planned around a central shared village green or piazza, better use of land and - most importantly - optimum use of energy.

Land beside his lifestyle block 10 kilometres from Masterton came up for sale just as he started work on his Massey University master's degree in renewable energy systems. So Andy and partner Gail decided to take the plunge, buying two adjacent blocks of land.

Don't mistake Totara Bank development named for the solitary tree standing on the site of Andy and Gail's future home for a hippy commune or eco-village. Think instead of smart new homes, planned around sight lines to the stunning Tararua Ranges, the use of solar and thermal energy, fruit trees, coppices (areas of firewood trees) to provide wood for heating, and a large common area. Think expanses of native planting, a man-made lake, a walking track, a community hall and a solar-heated swimming pool.

By early spring much of the native planting had taken place, the couple roping in everyone we know to plant some of the many thousands of native trees and shrubs. Pathways are under way, sections pegged out, and the single-track road access visible.

The effect is not merely environmentally cosmetic, however. Andy has planned the details that will make the development more energy efficient right from the start. The eight hectares has been divided into eight fairly small house lots of between 1,200 and 2,000 square metres. A further six hectares remain commonly owned land.



The greatest influence in the division is access to the sun. Because if you've got access to the sun you can use that resource however much you want: if you don't have access, you can't use it, and that's the bottom line. I've looked at solar access at different times of the year and calculated how tall an obstacle can be in any given location before it shades someone's house and used those calculations to govern covenants to what people can do on the site.

I also looked at site-specific details that will help people build an energy-efficient house here. For example, looking at optimum shade angles for windows so you can let sun in during winter, using the most solar energy you can for heating, without overheating in summer.

Developing the project for his thesis, Andy analysed temperature records for the locality for varying times of the year and developed a scale to work out the thermal energy requirement of the whole subdivision. With covenanted requirements for every house to perform to a certain building performance index (BPI), he was able to determine how much additional energy would be needed.

This led to a calculation based around the 1,000 coppicing trees that were planted. Like everything else on the development, the trees serve many purposes: they have been calculated to provide more than 75 percent of the thermal energy requirement for the subdivision, screen the passing road, and provide another environmental aspect, with the fast-growing *Eucalyptus nitens* and *Eucalyptus ovata* complemented by the spring-flowering colourful *Acacia dealbata* planted along the side facing the houses.

Whether or not the development will be entirely energy self-sufficient will depend on owners and their energy consumption, but the cost of sections includes a communal 6-kilowatt wind turbine, which will provide baseline electricity. A local electricity grid has also been planned for the subdivision, allowing homeowners both to take power from it and supply it back if they generate a surplus. Because energy companies aren't keen on buying power at the moment, excess energy will be used to heat such things as a planned swimming pool, although proposed changes to the electricity regulations mean that before long it will be much easier to sell power to the national grid.

Even things like that are more energy efficient than having eight families with their own pools, or having eight families drive miles to use a public pool.

The building performance index is an energy rating that takes into account such things as the insulation used, the building materials, the floor plan and the window size. It does not prescribe the style of the house, but at Totara Bank the larger the house, the more energy efficient it must be.

And as well as making the homes function more effectively, Andy is looking at the community. There's a lost art to building a community if you look, for example, at the Spanish plazas and the English village green. It's a totally different method of building a town or village to what is normally seen here.

A walking track being established is allowing for the physical wellbeing of the occupants, and allowing all homeowners access to the adjacent Ruamahanga River, a popular angling river. The edible planting will be shared by all, as will the hall.

Even the wastewater will serve a purpose. Pre-treatment will be provided by an interceptor tank on each lot, with secondary treatment by recirculating sand filtration and a final fine-screen disc filtration. The treated waste will then be pumped through a subsoil drip-line and used to irrigate the native bush plantations.

Hoping that like-minded individuals will work together, Andy is setting up an incorporated society which will run the subdivision. Initially I'll set up the rules for the society, then people can change them as they see fit one property has one vote. Hopefully we'll have information, then guidelines, and above that covenants for the really important things.

Ongoing costs for infrastructure, including the road and pool and planting, will be met by an annual charge decided by the incorporated society: it will vary depending on what works people want to carry out, Andy says. If someone wants to pay less 'internal rates', for example, they may agree to take responsibility for some aspect of work, or owners may choose to do no maintenance whatsoever and simply employ others.

Andy sees demand for the sections coming from Wellington, perhaps from 'eco-minded' executives, and from overseas buyers recognising the quality of life offered in the Wairarapa. Though the sections aren't cheap around \$200,000 they are within reach of those considering the thriving Wairarapa property market, and they include all the communal facilities. In an area where the average turnover of a lifestyle block is 2.5 years, it could be an answer.

Many people think they want a house in the country with land. But what they really want is a house in the country and the space around them without having the hassle of having to look after it themselves.

Though he based most of the design on aspects he felt from experience could be improved on, Andy in fact immediately met almost every requirement of the District Plan and Resource Management Act. The roading component is tiny compared to the usual in most subdivisions (almost one-third of the surface area), and he has negotiated a narrower route than required with the inclusion of passing bays. Because the road stretches along the back of each house lot, views are maximised, as is space, and he's been able to develop eight lots rather than the seven that would have been traditionally possible. Having no road between the houses and the common green also provides a safe play area for children.

Though the subdivision has all the resource consents needed and work is now more than 40 percent completed, Andy isn't finished with the bureaucratic process: he's taking Masterton District Council to task and appealing a requirement for the subdivision to pay towards the parks and reserves fund.

I'm opposing it because the nearest reserve is 10 kilometres away in Masterton and the subdivision provides recreation and reserve facilities on site. It's \$20,000 but the point is the council should be supporting people to do the kind of things we're planning, promoting that healthy, energy-efficient lifestyle. Whilst the Council has shown interest in the proposal, if we want to encourage a change towards more sustainable living, we need councils to actively participate. Silently nodding approval is no longer good enough.

He has no problem supporting the Department of Conservation with native restoration work on the adjacent riverbank, and in fact has been doing his own riparian planting to help prevent flooding and erosion.

Originally from England, Andy studied for his BEng at Cardiff University. After a year of travel it was his partner Gail who spotted an ad for a pharmacist in Greytown. The job was offered, the pair liked the area and purchased the land on which their log cabin is built just six months later.

It was while working as a chartered engineer that Andy saw the need for change. Most developers are totally profit oriented and just think about the cheapest, quickest way of subdividing, with little thought for people or the environment. And a lot of farmers are subdividing but they only do that when they have had a rough period and they need some money quickly.

Associate Professor Ralph Sims, Director of the Massey University Centre for Energy Research, says Totara Bank is relevant worldwide. I have never known any subdivision that's considered a sustainable lifestyle option to the degree this one is. Internationally it's a step forward, and some of the computer modelling and ideas Andy has come up with are totally innovative.

Mr Sims says the development will help drive change in New Zealand, where it had recently take five years just to develop minimum standards of insulation. The development could be used as a model.

If you build a house and put a solar panel on top at the moment there is nothing to stop your neighbours planting a large tree and blocking your sunshine. If we want to move into a solar-warmed world or to encourage solar water heating then we have to have regulations to prevent that from happening. So this development could serve as a model of getting the most solar gain.

The Building Research Association of New Zealand has also supported the research with a stipend, and Andy has made presentations to the Architectural Designers of New Zealand annual conference and been asked to present to the Waitakere City Council, as the scheme parallels some of their plans.

The one aspect of the scheme Andy has vacillated about is money: to make it, or not. At the moment he is planning to make a buck, though he has invested countless thousands of hours with no return as yet.

When I first started I was aiming to just break even, but then I decided the best benefit for everybody was if I were to make as much as a straight-line subdivision. What would that say to councils? They could say to developers who came to them, 'hey you could do it this way it's more environmentally sensitive, energy efficient, and you still make the same amount of money'. Then we might change things.

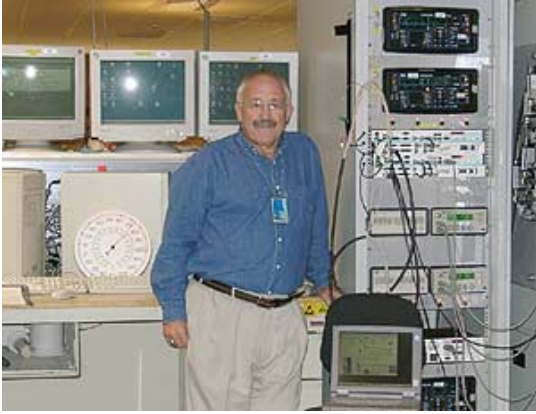
Part of it is a gamble, but somebody has to do it, and if not now, when?

If what you're doing isn't better, you're just perpetuating the problems we are facing in our society and our environment. For more information about Andy Duncan's plans for his subdivision, visit [www.totarabank.com](http://www.totarabank.com).

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## You just get up and go for it.

***MASSEY talks to MBA graduate and current DBA student Keith Twaddle, who now calls Scotland home.***

Keith Twaddle seems to be on his bike or in a meeting, or on a plane every time I call.

The time difference between New Zealand and Scotland, and Keith's intense schedule, make him a hard man to pin down. But when I do finally reach him, the MBA graduate, DBA (Doctor of Business Administration) student, director of services product marketing for a worldwide telecommunications firm, cyclist, rugby player and father of three is a phenomenon.

Energy and enthusiasm crackle down the international phone line as he explains how he rises before 5.00am and cycles round the hills of East Renfrewshire before heading to work before most people have emerged from their duvets.

Then I come home, cook dinner, do some study and go to bed early, he says. And next day and I get up and do it all again.

As well as the drive, his humour is evident. What was his first degree, I ask?

Drinking and playing rugby. No, seriously, I was asked not to go back. I was at Canterbury and I'd made some poor subject choices, doing maths, physics, geology and chemistry.

He was fortunate, he says, that he enjoyed many sporting and social contacts. One associate alerted him to work in the technical department at the then Post Office.

From there his star rose throughout the period of privatisation and the birth of Telecom. Moves up the management chain allowed manoeuvres to other areas of the telco, including a role in human resources. During the transition from the Post Office to Telecom he was made personal assistant to the interim chief executive, and on the establishment of Telecom he headed the human resources team for the marketing division. From Whangarei to Invercargill he recruited, using skills garnered during a visit from consultants from the US telcom giant AT&T. Later he moved to customer services and the national projects office.

Then in 1993 came a rude awakening: redundancy.

So I established a small business with a friend, but it became very evident to me that a number of our potential customers were looking for some sort of academic qualifications to back up our practical knowledge.

Enter the Massey University MBA programme. Professor Martin Devlin, then running the programme, gave him entry much to Twaddle's surprise and then scared him out of his wits.

When I started I thought 'Well I'll turn up every Saturday and do enough work to get a C for every paper and then I will have done it'. The bottom just about dropped out of my life when Martin Devlin turned up and said anything less than a B would be unacceptable. I thought 'holy hell, if I'm going to have to work hard enough to get a B, I might as well get an A and distinction'. So I did.

Living in Lower Hutt, Twaddle travelled into central Wellington almost every weekend of the two-year executive programme, and studied at home during the week.

And I just loved it. You go through life and you have a number of life-changing experiences... that was a marvellous two years of my life. The group of people we met in (the class) W9 you couldn't ask for a more cohesive group of people. I learned as much from my classmates as from any lecture, and I really looked forward to going and taking part.

With the MBA (Distinction) installed on his CV, Twaddle was appointed director of customer operations for Wellington company MAS Technology. Soon afterwards, MAS merged with Silicon Valley-based Digital Microwave Corporation. The renamed organisation, Stratex Networks, designs, manufactures, services and supports digital microwave radios, an alternative to fibre optics in telecommunications networks.

I was appointed director of business development for our global service business, and I was in New Zealand for a short period. But after three trips to the UK within six weeks my boss said to me, 'I think you'd better find somewhere else in the world to live'.

His options were California and the UK, and, if he chose the UK, between a sales office in Coventry and a global service centre in Glasgow.

Twaddle opted to return to his roots. He now lives in upmarket Newton Mearns, Scotland, just 20 miles from where his family left to immigrate to New Zealand in 1862. His wife is studying towards her MSc at Strathclyde University, racing him to complete his DBA, which he has scheduled for 2006.

I'm not looking for career advancement from the DBA, but what developed as I did my MBA was a desire to understand more about strategy and business policy. As I got further up the chain it pained me to go to meetings or to be working with senior managers and talk about strategy, but not to see it, in an academic sense, being applied in many organisations.

Twaddle has seamlessly moved from studying towards his MBA to studying extramurally for his DBA. As a veteran of business studies and of the business world, he is well placed to make some judgements.

Certainly from all the travels I have done and I have been to 56 countries I have encountered lots of people with MBAs and lots of people studying for them. What we went through and the process applied gave us a good, rounded understanding of the requirements of business across a whole range of functional areas.

A couple of people in my office are doing MBAs and there's a constant stream of people in and out of my office of people chewing the fat they are doing their MBAs at university in the UK, and what they are doing is not as rigorous as Massey.

Time is getting on. This journalist has managed to chew the fat for the best part of an hour with the driven Keith Twaddle. It's 11.00pm on a Sunday night in New Zealand, and, charged up by Twaddle's enthusiasm, I am finding myself beginning to think of further study. Twaddle, too, is thinking ahead: he has high hopes for better weather and less wind for his 5.00am cycle tomorrow. He is immersed in his thesis, has a busy week's work ahead and is planning more travel. Already this year he's visited Budapest and Krakow, and attended the Tour de France.

On Saturday I'll get up at 4.00am and get picked up at 5.30am by taxi for the airport. I'll be having afternoon tea (at Stratex headquarters) in San Jose.

You just get up and go for it, don't you? For Keith Twaddle it appears you do.

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*Trish and Doug Waugh were part of a team that won one of five gold medals at the 2004 Chelsea Flower Show. Their garden was the first entry from a New Zealand team in 142 years of the prestigious event. The couple met while students at Massey University in the '70s, and combine creative forces as the Landscape Design Company, based in the Bay of Islands for the past 20 years.*

## 100% Pure New Zealand

The Waughs are home at last, enjoying the spring sun alongside a shrub clipped to the profile of an Easter Island statue. Beyond lie the steep Kaimai Ranges.

This New Zealand garden is much lower maintenance than their last. Here there is no need to rise early to snip away any imperfections or wipe individual leaves clean of dust and dew. Here there are no hands to shake, no photos to take for fans who can't get close enough. The place is gloriously unpeopled.



At the Chelsea Flower Show there was no escape. Their garden there, the '100% Pure New Zealand Ora Garden of Well-being', was visited by 157,000 people and millions more toured the garden vicariously via the BBC documentary devoted to how it was made.

Ex-pats in particular would be enthralled, recalls Trish. Often you would see them pause to take a deep breath and shut their eyes, while the soundtrack of birdsong and M-aori k-oauau and p-ut-orino flutes drifted overhead and thermal water gushed down the length of the carved mokowaiwera (water-lizard) to the steaming hot pools.

The music and the birdsong really touched people and there was quite a high level of emotion, especially from the New Zealanders living in London. We worked really hard to create that feel, and to do things appropriately.

The use of a soundtrack was a first for Chelsea and almost against the rules, says Trish.

If anyone had complained about the music we would have had to dismantle the sound system, but luckily our closest neighbour was bronze sculptor Jeff Whitten, an absolute veteran of the show. He was having a great time and would drop in regularly to talk and wave his arms about.

The Kiwis established a reputation for the quality of their hospitality. On the days reserved for invited parties and VIPs, celebrity chef Peter Gordon fired up the barbeque, dishing up salmon, scallops and pikopiko fronds. Baroness Thatcher, the Duke of Kent, David Bellamy and Ringo Starr came to lunch and Trish Waugh chatted to Germaine Greer.

She loves her plants, and is revegetating her property in Australia, trying to get it back to its natural state. She was very interested in the diversity and structure of our garden, and also in the spiritual elements to it.



Tourism New Zealand, principal sponsors to the show, leveraged the attraction by sending four-wheel drives out into the London traffic, each splattered in mud and accessorised with kayak and mountain bike.

Trish and Doug Waugh assembled the Chelsea team four years ago at the suggestion of organisers of the Ellerslie Flower Show. They were joined by film set designer Kim Jarrett (also a Massey alumnus) and artist Tina Hart, whose murals of Mt Tongariro enhanced the garden's tones and depth of appearance. Weta workshop designer Brian Massey was responsible for the low rumblings of the silica thermal pools, modelled on the Pink and White Terraces, and Lyonel Grant carved the mokowaiwera from driftwood.

Designed to represent a slice of the central North Island's geothermal landscape, the 10 by 11 metre garden squeezed in more than 1,300 plants from 80 indigenous varieties selected for their culinary appeal, cultural significance and traditional M-aori medicinal properties. Every plant on display had to be flowering, which presented a huge horticultural challenge.

We started to source plants early in 2003, and really had to ferret around. We found several specialist exotic nurseries and a tiny backyard nursery in London that was full of small and squashed natives. Some of the plants looked like they had been there for a very long time.

New Zealand's hardy and tropical-looking natives are popular among knowledgeable English gardeners, especially the tree ferns and hebes. Trish ended up buying 75 percent of the plants locally.

The plants sourced in the UK were a bit of an unknown as to when they would flower. The kowhai we found flowered in November instead of May, and the one we found with flowers was in a sad state by the time it got to the site.

The powder-blue Chatham Island forget-me-nots and scented m-anuka blossoms were in fine floral form, however, and Trish found a creative ally in ferns and grasses.

The ferns spore rather than flower, and the hen-and-chicken fern is particularly pretty in spore. We also chose plants with lasting seed-heads, like native tussock and the herbaceous gunera with red berries like bunches of upside-down grapes.



Bright astelias and the iconic silver fern gleamed in the green, and the tussock grasses and cabbage trees provided structural interest. A four-metre cabbage tree came from a private collector, and young ferns were grown to maturity in a nursery in Cornwall, which has a similar climate to the central North Island. Trish's prize specimens a rimu tree, mature tree ferns, the endangered shore spurge and polished bronze paritaniwha were transported by air and sea from New Zealand.

So it was that in May 2004 four years from the first talk of a team people, plants and props assembled on the 11-acre Chelsea showgrounds for a three-week, muddy flurry of landscaping and planting.

The first week was the hardest for the guys. It rained and rained and everything turned to mud. Then we had scorching heat, which baked the ground and we had to use pick-axes to break through the surface. Then the thermal pools refused to heat and the sound system played up, but come opening day all was well.

The Waughs have amassed a stack of gold medals since they launched The Landscape Design Company in 1982. Trish graduated with a Bachelor in Horticulture in 1979 and has seen the landscaping industry grow from an unknown activity to prime-time TV entertainment.

I think I timed things well. The landscape design department at Massey was really strong, with two American designers, Tom Stille and Lesley Maughan. They had different approaches and were very influential.

We learnt from the ground up, the importance of rock and plant placement and of working with the land's natural contours. We took class trips to Mt Taranaki, Wellington and Auckland to study gardens and meet landscape architects.

Fresh from the course, Trish worked for the Wanganui City Council as their first landscape designer. She bought her own equipment, was her own boss and had to explain her job to just about everyone who asked.

The first gardening shows on television - Maggie Barry's show in particular - were a major turning point, illustrating the benefit and values of garden design and construction.

These days people know what to expect from a landscape designer and Trish enjoys working one-on-one with her clients, producing pastel-and-pen plans for gardens and grounds. Business is good and many of her first gardens are maturing beautifully into their second decade.

The Chelsea garden will not be so long lived, but it will have a second incarnation as a feature in this year's Ellerslie Flower Show, which will be held in Auckland from the 23rd to the 28th of November.

**To see more of the garden and to hear the soundtrack, visit [www.newzealand.com](http://www.newzealand.com)**

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## Making his marque

It's sleek, smooth and sizzles across the tarmac at a top speed of more than 300 kilometres per hour. It has the open wheels and low, aerodynamic body of a Formula One racing machine and the come-hither curves of a top-class sports car. And it's designed and produced in New Zealand.

It's the stuff of dreams.

Certainly the stuff of Tony Parker's dreams. Massey's head of Three-Dimensional Design has wanted to design cars since he was a child. Now he is designing the Hulme F1 Champion, a high-performance sports car being developed for production in New Zealand.

Underneath a carbon-fibre chassis will be a six-speed sequential transaxle and a modified BMW M5 engine producing 300 kilowatts of power. That engine is unique the maker of the Hulme, Supercars Limited, is the only company in the world to get the model.

Other major international companies are also contributing to the Hulme, ensuring that everything about it will be top-quality. The tires will be Pirelli, the ABS system Bosch, the airbags Siemens.

However, this is most certainly a New Zealand-made car. It has been conceived here and here is where it will be built, crash-tested and produced.

The first Hulme chassis and two bodies are complete. Associate Professor Parker is now working on the design of the two-seat interior, as well as checking that the car being made matches the design.

I'm learning an awful lot about that process! It's really very revealing, and fascinating and fun, he says.

A full-scale model of the car will be finished in September and a prototype will be running by the end of the year.

The company is also developing other variants of the Hulme: the Xtreme, an open, F1-type two-seater, and the Super GT for racing.

Next year Supercars Limited plans to produce a number of cars for crash testing, with production to start in 2006. From then they want to produce 75 to 100 cars a year. A minimum of 350 to 500 will be built.

A price has not yet been set, but it is expected to cost somewhere between \$250,000 and \$1,000,000.

The idea for a Kiwi-made supercar first came to Auckland entrepreneur Jock Freemantle, who approached Parker in 2002 to co-ordinate the design team. The two then developed the Two-Second Test for ideas of how the car would look.

The test was to put a drawing of the proposed car among a lot of pictures of various other sports cars, like Ferraris, Lamborghinis and Porsches. A car enthusiast uninvolved with the project then looked at the pictures for two seconds. If the proposed car did not stand out, it did not pass the test.





The first 15 designs failed.

Parker then started thinking about a sports car designed to resemble a Formula One racer. Formula One, of course, has a huge international following.

Lots of people dream of being Formula One drivers and want to drive Formula One cars, he says. So really that was the jumping-off point, the point of inspiration for this car.

Freemantle says that Parker has more knowledge of Formula One than anyone he has ever met.

After Parker had spent a day thinking about the idea, at 6:30am the next morning he received an excited call from Freemantle. The entrepreneur had had the same idea - an F1-based design.



Strangely enough, it had come to him in a dream.

This car passed the Two-Second Test.

The Hulme takes its name from Denny Hulme, the great Kiwi driver who won the 1967 Formula One championship. New Zealand has a proud history of producing outstanding drivers, such as Bruce McLaren, Chris Amon and Scott Dixon. It has also been home to many talented automotive technicians, mechanics and engineers who have worked at the pinnacle of international motorsport.

The aim is to use this base of technical skills, combine it with car sales experience, add imaginative design and come out with something special.

There have been other flashes of success designing and building motor vehicles in New Zealand. John Britten's groundbreaking, race-winning motorbike was sold in small numbers to fans in the US and Europe, while Turnbull Engineering's Saker GT has won races in Germany and is available as a limited edition sports car. Designer Bruce Turnbull now is involved with engineering the Hulme.

Supercars Limited wants to follow the footsteps of the boat-building industry, which has built an international reputation for low volume, high-quality product, especially after New Zealand's success in the America's Cup. Some of the techniques being used to build the car are modelled on boat-building technology.

Like the America's Cup team and Peter Jackson, the Hulme project is relying on some Kiwi ingenuity to keep costs down.

We do have some inventive ways of doing things, Parker says. We use appropriate technologies for the economy that we live in and the circumstances that we have got, but that doesn't mean that it's not a well-considered, well-conceived, well-designed object. It just means that you can do things in a different way.

Parker studied industrial design at the former Wellington Polytechnic, then got a scholarship to the Royal College of Art in London, where he did a masters in design. There he worked next door to people who are now at the top of the automotive design field, which makes him confident that he too can conceive a great car.

When he returned to New Zealand he worked for about seven years before returning to his roots in Wellington to teach.

During his career he has designed electric tow tractors, forklifts, gynaecological lasers, safes, toys, computers, electric fence energisers, and more.

I've worked on security products, petrol pumps, all sorts of objects, with good teams of people and good manufacturers that have won New Zealand a considerable amount of international funds ... but one drawing of a car has given more notoriety than any of that stuff. I think it just shows that there is something deeply

emotional about motor cars. Even though they may be wildly, outrageously out of our means, it doesn't matter; we are still absolutely fascinated by them, attracted to them and passionate about them.

Parker vividly remembers his father's love for cars and the care he lavished on his Jaguar. He also remembers a teacher mocking flash cars.

It's just interesting how attached we become to these objects. They communicate a lot of our own values, whether we like it or not.

Some see sports cars as representing negative values vanity, decadence and reckless speed. Parker is quick to point out that they are not encouraging people to try to imitate Michael Schumacher at least not along Courtenay Place.

We are not for a minute supporting the idea of some guy driving around Wellington like a Formula One driver, that would be stupid.

I see it as a vehicle which is sort of an extreme recreation vehicle. And New Zealand is pretty good at extreme stuff.

Supercars Limited intends for Hulme buyers to be given instructions on how to handle the vehicle safely.

Parker expects the market for the Hulme to be small but potentially lucrative.

A local entrepreneur told me recently that he was always looking for the deepest and narrowest niches. Well, I think we've found one which is pretty narrow, I just hope that it's very deep!

So far, the signs are positive. Freemantle says that over the last 12 months, they have discussed the project and shown drawings and models to many journalists and motoring people from New Zealand and overseas.

Everyone has said: 'It looks fantastic and exciting, if you can build it to the standard you propose, and at the price you have budgeted, you will sell as many as you can build.'

Parker is also confident about the appeal of the Kiwi supercar.

The indicators are that it should be all go. It certainly has a presence when you see it full-scale. You think, 'Oh my God!' It's exciting.

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# Massey Reviews

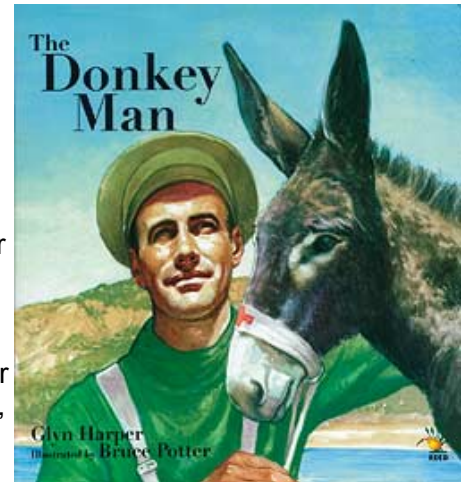
*Reviewers: Di Billing, Mary Nash, Professor Brian Spingett, Malcolm Wood*

## Children's Picture Books

### The Donkey Man

Glyn Harper, illustrated by Bruce Potter  
(Reed, \$14.95 )

In *The Donkey Man*, writer Glyn Harper and illustrator Bruce Potter give us the story of Richard Alexander Henderson, one of a group from the Medical Corps who used donkeys to carry sick and wounded soldiers to the beach for evacuation at Gallipoli. The tale is recounted by Henderson's donkey, and Harper strikes it just right. He engages the reader (or listener), he delivers just enough detail, and he avoids all the usual traps: he is neither didactic, patronising nor overly sentimental. Many parents will be pleased to have their children make an early acquaintance with the events at Gallipoli. In the West, where we no longer have such things as beasts of burden, it is also good to be reminded of the close relationship humanity once had with horses and donkeys. Well, that's the grown-up talking.



For a more nuanced view we engaged the critical services of David Jacobs, aged eight: It was very good. I liked it when the donkey kicked the man's bottom while he was having a drink of tea, because the man was very mean to him. Glyn Harper is an Associate Professor of Military Studies and Director of the Centre for Defence Studies. MW

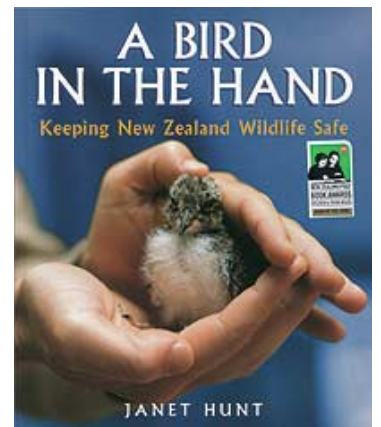
## Junior Non-Fiction

### A Bird In The Hand: Keeping New Zealand Wildlife Safe

Janet Hunt

(Random House, \$29.95)

*A Bird in the Hand* is not just about birds. It's about the charismatic actors of wildlife on the New Zealand stage, and it's about people. Eighteen species of endemic animals - some seriously endangered - are showcased in short, profusely illustrated chapters. Each starts with an engaging story to hook the reader, then provides a 'species passport', which gives a wealth of information.



The text is easy to read, informative and lively. The illustrations vary from line-drawings, which give the 'essence' of the animals, to full-page photographs, which are quite exceptional in their quality. The text is not only broken up into various-sized chunks but has differing background colouring to make the reading more varied and interesting.

I could find only one fault, in the chapter on moa, where the number of moa species is stated to be 11. In fact we now know there were 10 species of moa, and that in the Dinornithidae there are two species rather than three. It was found that *Dinornis giganteus* were all female and *D. struthoides* all male an extreme example of reversed sexual dimorphism in which the largest females were 150 percent taller and 280 percent heavier than the largest males! The new discovery was published in 2003, and my guess is that this book was written before the news about moa became known. In the next edition the record will no doubt be set straight.

I liked *A Bird in the Hand* a lot. It gives loads of information in a very easily assimilated form, and includes such animals as snails, peripatus and weta, which are part of the 98 percent of the fauna that most people forget. Janet Hunt should be congratulated for winning the New Zealand Post Book Awards, Children and Young Adults Book of the Year. On a personal note, I particularly enjoyed stories about the people involved in keeping our wildlife safe, because so many of them have been students and colleagues of the Ecology Group at Massey University. Janet Hunt has a BA (Hons) from Massey. BS

## Non-Fiction

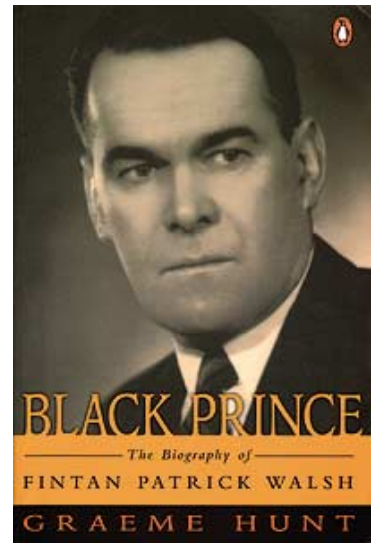
### The Black Prince

Graeme Hunt

(Penguin, \$45)

Without the politicians, writes Graeme Hunt of the funeral of his enigmatic protagonist, it would have been a remarkably simple funeral, appropriate for a man who hated ostentation and cant. The black granite headstone that eventually adorned the grave was plain with a simple inscription: 'In Loving Memory of FINTAN PATRICK WALSH Died 16th May 1963 aged 67' nothing else. Of course, the age was wrong Walsh's fibs in the past had seen to that but that was part of the mystery of the Black Prince.

The passage comes late in Hunt's biography, *The Black Prince*. It would have served just as well as an introduction, reflecting as it does the ambiguous public face of the former Federation of Labour and Seamen's Union leader, one-time communist and confidant of prime ministers. The paragraph that follows, however, could only have been written by Hunt, with the knowledge he brings to this biography: A plaque was also added to the Tuohy family monument at Patutahi Cemetery, Poverty Bay. It does not commemorate F.P. Walsh but Patrick Tuohy, and carries the inscription: 'Oh, sacred heart of Jesus, have mercy on his soul. R.I.P.'



Hunt is by no means the first writer to have researched the life of Walsh, aka Tuohy. But because of that ambiguity because of the 'fibs' and because Walsh was so violently hated within the influential ranks of the trade union movement he is the first to complete a book on the man and dare to have it published. In doing so he has drawn somewhat but not overly on the research of others, acknowledging their contribution. But he has also taken the biography and the perception of Walsh in a new direction by exploring his family background and relationships in Poverty Bay, in the west of Ireland and in Wellington.

He has humanised, but hardly deified, the man about whom he writes: No one is neutral. The descendants of those with whom he crossed swords do not hesitate to disparage him in a way they would not other prominent people of his time. Yet this tough union man, writes Hunt, could be loving and sentimental, and kind beyond belief.

In tracking the activities of Walsh well beyond his notorious role in the 1951 waterfront dispute, Hunt has been able to add valuable context; in particular, background on the prime ministership of Peter Fraser. The book also lingers rewardingly on Walsh's early experience in San Francisco and his connections with the Wobblies, the Industrial Workers of the World. The union heroes (or anti-heroes) of the time - Joe Hill, 'Mother' Jones, Tom Mooney, Jim Larkin appear briefly but vividly, while Walsh's involvement with them and their militant activities remains shadowy. It is great copy.

During his cold warrior period, Walsh's path crossed that of economist William Ball Sutch, who was later accused of espionage. Walsh provided information about Sutch and other alleged communists and subversives to the then Security Intelligence Bureau. Hunt has now revealed that Sutch will be the subject of his next biography: We will report on progress in the next issue of MASSEY magazine.

Graeme Hunt is a former extramural student and an alumnus of the University. DB

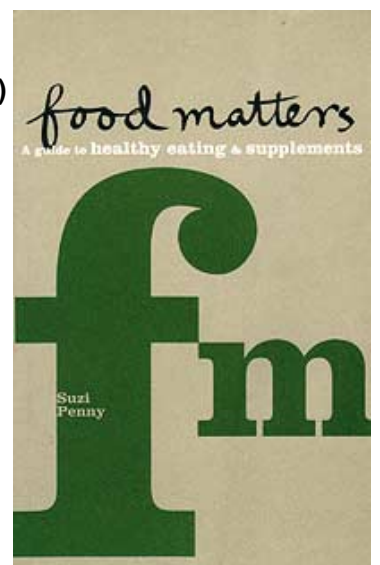
## **Food Matters: A Guide to Healthy Eating and Supplements**

**Suzi Penny**

**(Massey University Institute of Food, Nutrition and Human Health, RRP \$24.95)**

Consumers of publications about food and healthy eating have an apparently endless appetite. Our shelves and occasional tables groan with magazine articles, books and pamphlets examining current food issues: the Glycaemic Index, low fat versus low carbohydrate, the health pyramid, vitamin and mineral supplements, and the causes and cures for eating disorders.

Here is yet another book on health and food-related issues, but with an important difference. *Food Matters* is subtitled, modestly, as a guide to healthy eating and supplements. It achieves rather more than that by also acting as a guide to the rest of the healthy eating literature and by having no discernible food barrow to push. Instead, author Suzi Penny biochemist, food scientist, nutritionist, lecturer, mother and cook provides authoritative information, leaving readers free to make their own decisions and more confident about doing so.



As her qualifications promise, Suzi Penny understands what actually happens inside the cell and the body, what nutrients are found in what food, and how the body goes about utilising those nutrients. Her background and experience also provide a practical perspective: the book's dedications acknowledge her children for their

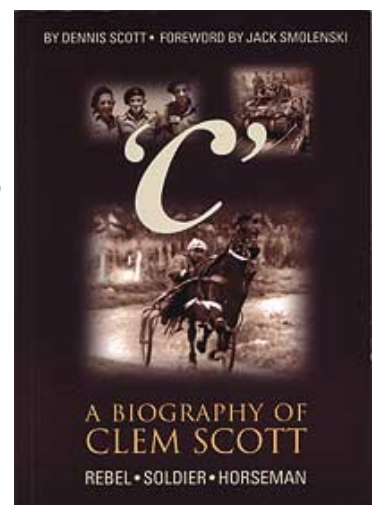
appreciation of what I could do with \$2 worth of mince and stale bread in the years when the budget was tight , and to her parents, who taught me, as a baker's daughter, that cooking isn't about buying expensive ingredients to follow a recipe but creative use of what is available.

The information in Food Matters is very accessible. It is a relief for even the most constant of health and food book readers to learn, finally, what the Glycaemic Index actually is. There is a chapter for the technically minded, which meets the needs of those who wish to go further below the surface of food jargon but also acknowledges that some of us are blinded by science. In this respect, the section with advice on how to read food labels, explaining what is relevant and what is not, is alone worth the price of the book.

Suzi Penny is an academic staff member of the Institute of Food, Nutrition and Human Health. The Life Care series of books are available from selected pharmacies. DB

**'C': A Biography of Clem Scott, Rebel, Soldier, Horseman**  
**Dennis Scott**  
**(Hazard Press, RRP \$26.95)**

'C' is Dennis Scott's biography of his father, the standard-bred horse breeder Clem Scott. As a not-at-all 'horsey' person, I was not too sure what I would make of 'C', so I was pleased to find the book an enjoyable read, particularly its first half. This begins with Clem's forbears in lowland Scotland and concludes with his return from WWII, minus a leg lost in a tank accident, and his marriage to Mary, a tram conductor. I enjoyed this at the level of social history straight-forwardly recounted through the story of an individual, who himself is typical of his generation. Clem had the virtues and failings of his circumstances and time: a larrikin charm, a love of fair play, a mistrust of authority, a sense of what he could get away with. He drank; he gambled. As the author puts it, he had firm we would now say antiquated ideas about the roles of men and women. Clem's life story is a window into pre WWII Southland, the 20th Armoured Regiment's time in of Egypt and Italy, and the pre-TAB days of illegal betting with off-course bookies. The book is rich in revealing, often amusing, anecdote and detail.

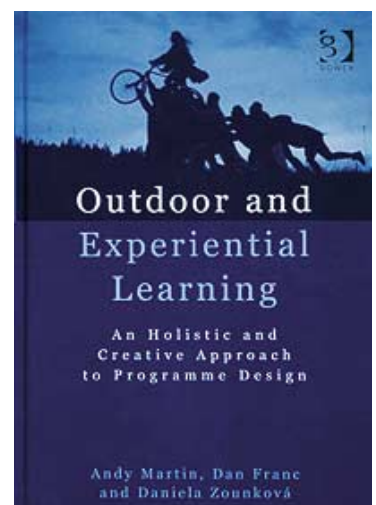


For me, the second half of the book does not work as well. Again, that disclaimer - I am not a horsey person and at times this feels like a catalogue of horses and trainers. But I suspect another reason why my interest waned has to do with the author's arrival. To maintain continuity of voice, and, I suppose, to be scrupulously fair to his father's memory, Dennis Scott appears in the third person: The following January a second son, Dennis, was born . . . To me this remove seems strained, and I wish the author had disclosed more of himself and switched to the riskier form of a first-person memoir. However, if you are interested in the history of standard-bred horse-racing in the South Island, no such reservation need apply.

Dennis Scott is a veterinarian based in Morrinsville, who has spent many years in the harness racing industry. Currently 'The Radio Vet' on Radio Pacific, he is also the author of From the Terraces, a humorous look at following the All Blacks.

**Outdoor and Experiential Learning: An Holistic and Creative Approach to Programme Design**  
**Andy Martin, Dan Franc and Daniela Zounková**  
**(Gower, £49.50)**

Little good came of the Cold War, but there are exceptions. From the time Churchill's iron curtain famously descended in 1946 until it lifted in November 1989 with the opening of the border between East and West Germany, the countries of the Eastern Bloc were largely sealed away from the market economies and material seductions of the west. During this time they followed their own evolutionary paths, becoming leaders in a number of odd specialties, including, in the case of the present-day Czech and Slovak Republics, the development of outdoor and experiential learning.



What is experiential learning? Perhaps the best known practitioners are Outward Bound, though not all forms of experiential learning need be as physically based as this. Outdoor and Experiential Learning sets out the basis for 30 games, dividing them into social, physical, creative and psychological. They include the likes of having a team paint a pointillist picture using, say, thumbs or toes; mounting a multi-day expedition into the rural countryside, perhaps working in exchange for

accommodation; or playing a team game of golf over wild terrain using tennis balls, and sticks for golf clubs.

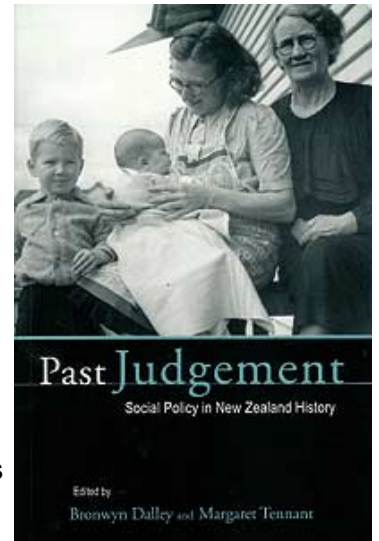
As well as chapters on essentials such as logistics and programming, the book attends to the theory and philosophy of experiential learning.

For teachers, outdoor instructors and corporate trainers this should prove a fascinating and useful text, and a goad to go out and try something new. Andy Martin is a senior lecturer in Sport Management and Coaching.

**Past Judgement: Social Policy in New Zealand History**  
**Bronwyn Dalley and Margaret Tennant (editors)**  
**(University of Otago Press, \$39.95)**

Bronwyn Dalley and Margaret Tennant have gathered together an interesting and informative selection of chapters on New Zealand social policies, researched and presented by experts in the field who have drawn on historical archives to enrich and support their work. The editors point out that while key players and policies are not 'past judgement', the verdict of the present needs to take account of time and context, and to include an awareness of contemporary difficulties in dealing with social needs; we need to move beyond simply judging the past, to understanding it.

The collection begins with a series of generic chapters, which, the editors explain, survey two centuries of specific issues. These include an opening discussion of social policy as a concept with a history of its own, and then a look at how historians carry out research and analysis of their findings in this area. Next comes Michael Belgrave's chapter on the welfare state, then Peter Lineham presents his views on the churches and their contribution to social policy. Chapters on mental health (by Warwick Brunton) and M-aori health (Derek Dow) complete this first section and lay a solid foundation for subsequent contributions on more specific issues, such as the role of Plunket (Lynda Bryder), social security (Margaret McClure), pensions (Gaynor Whyte), family welfare (Bronwyn Labrun), child abuse (Bronwyn Dalley), and Ma\_ori Affairs (Aroha Harris) and the Treaty (Danny Keenan). The book concludes with a refreshing contribution in the form of an interview between Margaret Tennant and Merv Hancock, which illustrates the meaning of the old saying, 'The personal is political'.



This is a well researched and challenging contribution to the growing body of historical research by New Zealand historians and social workers. Margaret Tennant, for instance, speculates on whether the criticisms of state social workers voiced in documents such as Puaoteata-tu failed to give credit for ways of working that were actually more flexible, humane and culturally sensitive than the way they were portrayed. This interesting question merits consideration given the information provided in the relevant chapters. Readers will be interested to know that submissions to the Ministerial Advisory Committee on a M-aori Perspective for the Department of Social Welfare can now be accessed at the Alexander Turnbull Library.

This collection of essays provides many opportunities for debate and collaborative research, inviting the reader to reconsider accepted views about social policies and how they were implemented. It publicises excellent primary sources available to the researcher, and offers a variety of analytical positions for the reader to explore. We have here a welcome source of new and accessible readings for students of history, social policy and social work.

Professor Margaret Tennant is based at Massey's Palmerston North campus and specialises in the history of women and of health and social welfare in New Zealand. Bronwyn Dalley is chief historian at the Ministry for Culture and Heritage. Both are Massey alumni.

**Fiction**  
**The People-faces**  
**Lisa Cherrington**  
**(Huia, \$29.95)**

Lisa Cherrington has made sure the knowledge she gained in completing her master's thesis is accessible to those who need it. The thesis was never likely to gather dust on a shelf, though. Cherrington is a clinical psychologist and her thesis deals with the pressing issue of M-aori mental health, making a comparison study of M-aori and P-akeh-a patients diagnosed with schizophrenia.

Her novel, *The People-faces*, tells a similar story but from the inside out. *The People-faces*, says Cherrington, is a narrative of my thesis the voices and history behind people who may be seen as having a mental health

disorder. I wanted the voice to not be from me as a psychologist but rather characters who were involved with the 'patient', and the voice of the person in this case, 'Joshua'.

Cherrington, who recalls wanting to be a writer at age 10, started creative writing 15 years ago. But it was not until age thirty that I left full-time employment to spend more time writing.

Her short stories have been published in *Womansight* and *Te Ao Marama*, an anthology of Māori writing edited by Witi Ihimaera. In 2001 she was runner-up in the Sunday Star-Times short story competition. *The People-faces* is her first novel.

Lisa Cherrington (Ngati Hine, Ngapuhi) studied at Massey for her thesis and completed the clinical psychology diploma programme. She has worked as a clinical psychologist in a variety of settings, including Victoria University, focusing primarily on M-aori mental health.

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