

MAGAZINE OF THE UNIVERSITY OF AUCKLAND

Ingenio

ET LABORE

AUTUMN 2004

BIG SCIENCE

SEARCHING FOR THE
MISSING MASS

➤ **BUGS THAT
CLEAN WATER**

➤ **NEW-LOOK
ARCHAEOLOGY**

➤ **READING FILMS
AND TELEVISION**

➤ **HOW TO BUILD
BETTER BONES**



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Celebrate THINKING

TO THE FOLKS who invented universities, the word “science” referred to knowledge of any kind. These days the meaning is more specific and science is usually distinguished from the arts. But in the university context, the old definition is still a useful one.

As the dean of our newest faculty remarks in a story in this issue, universities exist to push the boundaries of knowledge. Once this “pure” research is done, the researchers – and others – can apply the findings.

That isn't to say that our researchers work in isolation from the real world. In these pages you can read about a physicist working on the very nature of matter and a microbiologist working out ways bugs can be trained to clean the water in which they live.

Meanwhile we survey the career of a man who developed from scratch the local academic study of mass media, film and television.

These are the minds whose determination to explore beyond the edges of what we know have earned The University of Auckland the distinction of being the country's elite research institution.

The Tertiary Education Commission's assessment – which we detail on page 3 – is an acknowledgement our staff richly deserve. Their research makes the world a bigger place, but it is also the platform for our world-class teaching. They are today's top scientists ensuring there will be more like them when tomorrow comes.

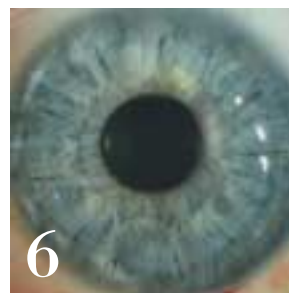
PETER CALDER

Editor



INGENIO ET LABORE

Ingenio ET LABORE



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THE UNIVERSITY OF AUCKLAND
NEW ZEALAND

Ingenio – a magazine of
The University of Auckland
Autumn 2004
ISSN 1176-211X

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> NEWS

First among equals



SPECIAL HONOUR: DAME SILVIA CARTWRIGHT WITH THE SCROLL PRESENTED TO JOHN HOOD (RIGHT).

The New Zealand Vice-Chancellors' Committee, representing the country's eight universities, has honoured the Vice-Chancellor, Dr John Hood, with a scroll celebrating his achievements.

The Governor-General, Dame Silvia Cartwright, presented it to him at a special dinner at Government House in Wellington in February.

Guests included politicians, community leaders, vice-chancellors, Rhodes Scholars, university colleagues, friends and members of Dr Hood's family.

The scroll salutes his "distinguished contribution to university education in New Zealand and the unprecedented honour that his appointment to The University of Oxford

brings to himself, his family, The University of Auckland, the Vice-Chancellors' Committee and to New Zealand".

In response Dr Hood told those present that he and his family were "truly humbled" by the honour and their attendance.

The University of Auckland had, he said, provided one of the wonderful privileges of his life "working with and for special colleagues – my immediate team, our academic and general staff, our redoubtable Chancellor and dedicated Council members. Their standards are exceptional, their commitment intense and their performance a daily inspiration."

Dr Hood takes up his appointment as Vice-Chancellor of Oxford on October 1.

Registrar leaves mark

Warwick Nicoll, who recently retired as Registrar after 24 years, has long been a highly visible symbol of graduation. All students who have graduated and gained diplomas over this period hold a certificate bearing his signature. The 16,000 "Warwick Bears" sold to graduates since their creation in 1994 further perpetuate his memory.

At countless ceremonies Mr Nicoll applauded on the stage of the Auckland Town Hall – and, on several occasions, the Aotea Centre – as more than 74,000 individuals received their qualifications in person.

As Registrar from 1980 he served three Vice-Chancellors and was involved in every facet of the

enormous growth and change during that period. Renowned for his relaxed and affable style, he acquired a breadth of experience and institutional knowledge unrivalled in the tertiary sector.

The university Registrar has multiple responsibilities: legal, statutory, administrative, acting as secretary to the university Council and Senate, and advising the Vice-Chancellor, to name some.

Tim Greville, the new Registrar, was for many years a commercial lawyer and a partner at one of New Zealand's major law firms, Buddle Findlay. He took his LLB at Auckland and brings to the university a wealth of organisational and legal experience.



DISTINGUISHED SERVICE:
RETIRED REGISTRAR WARWICK
NICOLL

Auckland leads in tertiary sector survey

The University of Auckland has cemented its position as the country's leading research institution in a comprehensive survey of the tertiary sector which will form the basis for the biggest change in university funding since the introduction of student fees.

The report, "Evaluating Research Excellence: the 2003 Assessment", produced by the Tertiary Education Commission (TEC), ranks universities in terms of their research output. Progressively over the next five years, the results will determine the allocation of a large portion of university funding.

The new funding model, called the Performance-Based Research Fund (PBRF) encourages and rewards excellent research in universities by allocating funding on the basis of assessed research outputs. In essence this means that the better an institution's research record, the more money it gets for research.

The TEC report found that more than one third of all local academics whose research is "internationally excellent" are based at The University of Auckland.

"On virtually any measure, The University of Auckland is the country's leading research university," it said. "Not only did it achieve the highest quality score ... but it also has by far the largest share of A-rated researchers in the country."

The research of some 159 academics at The University of Auckland was assessed as being at the top standard in the scheme. This is nearly twice as many as at any other university.

The University of Auckland has the strongest research capability in the country in 25 of the 41 subject areas assessed, and 30 per cent of the country's overall university research capacity.

The Deputy Vice-Chancellor (Research), Professor Tom Barnes, welcomed the report as confirming The University of Auckland's "pre-eminent position as the country's leading research institution by a large margin."

"The fact that a greater proportion each year of the funding will be based on research outputs means we can consolidate that position and build on it," he said.

Barnes applauded the rigour and integrity of the approach TEC had adopted to the research assessment.

"The rating system was very strict – by far the strictest in the world," he said. "For The University of Auckland to achieve such a result on that basis is a stunning achievement."

Government funding allocations have so far been based entirely on the number of student enrolments. The PBRF will allocate a portion of this funding according to a different formula. The result is that this year 10 per cent of this portion – or some \$18.2 million – will be allocated on the basis of the PBRF assessments. This proportion will rise each year until 2007 when the entire PBRF pool of about \$180 million will be allocated according to the formula. On the basis of the TEC findings, The University of Auckland can expect to receive 28.8 per cent of the PBRF pool this year.

Architectural gems

The University of Auckland campus may not have always been renowned for eye-pleasing modern architecture but it is fast making amends. Two neighbouring university buildings on Symonds Street – one well established and the other brand new – gained honours in the 2003 New Zealand Institute of Architects Resene Local Awards for Architecture. The Kate Edger Information Commons and Student Commons complex earned Architecture Warren and Mahoney (design architect Thom Craig) an award in the education category. The jury described the building, completed last year, as "a skilfully crafted contemporary icon articulating the functions, circulation patterns and outdoor spaces through clever massing of the building forms. The Recreation Centre, designed by JASMaD (now JASMAX Ltd) in 1977, was singled out for an "enduring architecture" award.



CONTEMPORARY ICON: THE COMMONS COMPLEX DREW JUDGES' PRAISE.



Faculty of Medical and Health Sciences School of Population Health, Tamaki Campus 2002–2004

Architect: Architectus

Builder: The Fletcher Construction Company Ltd

BUILDING ENDURING RELATIONSHIPS

The University of Auckland Arts Building, 1921–1926

Architect: Roy A. Lippincott

Builder: The Fletcher Construction Company Ltd



FLETCHER CONSTRUCTION

AUTUMN 2004 3

HUNGRY BUGS EAT WATER WASTE

Nature knows how to clean up waste water.

ESTELLE SARNEY talks to a microbiologist who is learning nature's way.

Ever since human beings began living in communities, they have produced waste water. Fortunately, nature has provided bacteria that eat these pollutants, and this process is a crucial stage in the natural conversion of waste water back into clean.

Even modern waste treatment plants use these bacteria in their processes, yet there is little understanding of how the different organisms work together to do their job.

Unlocking this knowledge is the task being undertaken by Dr Sue Turner and her team in The University of Auckland's School of Biological Sciences.

Molecular technology, such as the ability to map the DNA of bacteria, is finally casting light on the character of these essential communities. Previously, all waste-eating bacteria looked the same under a microscope, even though they possessed different genes that enabled them to perform different functions.

Turner's discoveries could ultimately mean huge cost savings for industry and councils, which would also gain greater control of what can be an unreliable treatment process. This would lead to a reduction in the smells and foam fly-off that plague residents who live close to plants – and cleaner coastal water for everyone. The algal blooms that sometimes close beaches to shellfish gatherers and even swimmers may be prevented.

With a \$6.5 million grant from the Foundation for Research, Science and Technology, Turner intends to develop a knowledge platform on which to base biological solutions to waste-water problems. This knowledge can then be applied to medicine, in dealing with problem bacteria, and any industry which uses bacteria in its manufacturing

or waste-treatment processes.

"Microbial communities in waste water are quite complex," says Turner. "They consist of more than 100 different organisms. If we can understand more about how they work – what makes them do things we want, and how we can prevent them doing things we don't want – we can make treatment processes more reliable, faster and cleaner."

At present, treatment processes can fail. Overgrowth of certain organisms can cause smells and foaming, with no clear water at the end. Turner aims to find out why this happens.

"All we know at the moment is that these microbial communities are unstable – they're like a crowd of people, some of whom go off and do their own thing. We want to understand the conditions that cause unwanted results. Then we might be able to predict when those results might occur, how to halt them before we have a major environmental problem, and how to avoid them altogether. Then we'll have a product, a major advance in the treatment process."

Such knowledge would be welcomed by the authorities that oversee waste water treatment. They can be fined if they breach resource management regulations and they lose face with the communities they serve when treatment goes wrong.

The North Shore City Council is one that is co-operating with Turner and her team on their research, providing samples from its treatment plant and information on its engineering and chemical processes.

Paul Bickers, the plant's process engineer, says he is looking forward to knowledge advances that will enable him to run a more stable, reliable process.

+ CLEANER COAST: SUE TURNER'S WORK COULD LEAD TO WAYS OF PREVENTING ALGAL BLOOMS.

PHOTO: JOHN McDERMOTT



"Because it is largely biological, there are sometimes upsets in it but we don't know why. So stability is a big thing for us. We also have regulatory targets to meet in removing nitrogen and other organic pollutants, so we're anticipating Turner's research will help us there. If we can make the whole process more efficient it will consume less energy and fewer ratepayer dollars."

At the centre of Turner's research will be the genetic analysis of the *Acidovorax* bacterium, thought to be a dominant force in waste-water communities. A process of computer-based exploration and analysis of biological data, called bioinformatics, allows Turner and her colleagues to identify the bacterium's genes and predict the functions of a good proportion of them. Work can then begin on how to manipulate those

genes to make the organism perform as desired.

"We think that if we can manipulate that organism, we can manipulate the larger community," says Turner.

The focus on *Acidovorax* is likely to have spinoffs for medicine. Scientists have isolated two strains of the organism – one that is good at sticking to surfaces, forming a biofilm, and one that is not. By comparing the two, Turner hopes to discover genes that might be common across other bacteria.

Some scientists, such as those working in some waste-treatment plants, want bacteria stick to surfaces, but most doctors don't (bacteria that stick to the surface of the lungs, for example, are thought to be responsible for the chronic lung infections that afflict sufferers of cystic fibrosis and recipients of new heart valves and artificial

hips are susceptible to bacteria that stick to the surface of the valve or the hip bone, making the bacteria extremely difficult to treat with antibiotics). Turner hopes her discoveries might result in ways of preventing bacteria from forming biofilms.

Her team will also be swapping information with agricultural scientists as it progresses. AgResearch will be running a parallel study into the bacteria that break down food in the stomachs of cows, sheep, deer and goats.

"We're both developing genetic platforms to understand what organisms do in their environments," says Turner. "It's just that the applications are different."

Many industries that produce toxic waste face a constant battle in treating it reliably and effectively. Turner says most local body treatment plants don't want toxic effluent as it can destroy the bacteria in their own processes.

"The electroplating industry, for example, can produce a toxic waste-water stream that would severely disrupt biological processes at a municipal plant," says Turner. "It needs alternative waste-treatment systems. There are organisms that are quite happy to live in waste containing a high metal content, and can degrade nasty organic compounds. We could take the process we're studying to make those organisms more efficient, and adapt some of them to degrade other sorts of waste."

Turner's fascination with some of the smallest organisms on the planet was awakened during her earlier work as a health protection officer. Brought up on a dairy and beef farm near Palmerston North, she studied microbiology at Massey University before starting work as a health protection officer in Lower Hutt, later moving to Auckland. She spent six years working on waste-water disposal and beach water quality for the Auckland Regional Council while completing a doctoral thesis on microbial signs of faecal pollution in water. Nine years ago she began her research career at The University of Auckland, studying biofilms on the surface of rocks in streams.

"We now understand that this is the normal lifestyle for most bacteria – not as single organisms floating around on their own, but as part of complex communities. Breaking down waste is something they've been doing since the dawn of time. What makes microbiology so exciting for me, is that we're taking a traditional process that is fundamental to healthy human communities, and solving some of its problems using the latest scientific technology."

1



A VISION OF THE FUTURE

The new Professor of Ophthalmology was sorry to leave some stellar colleagues behind when he came to Auckland. So, **CAMILLE GUY** finds, he brought them with him.

Land-
ing a professorial post at the age of 34 might seem like a reason to rest on one's laurels. But by age 36, Glasgow-trained ophthalmologist Charles McGhee who was leading a great team at the University of Dundee felt his life for the next 20 years was too clearly mapped out.

His restlessness and readiness for a new challenge was Dundee's loss and The University of Auckland's gain. Professor Peter Gluckman, then Dean of the Faculty of Medical and Health Sciences, persuaded McGhee and his Australian-born wife, Jane, to come and check out opportunities here. What Gluckman had in mind was filling the well-endowed Maurice Paykel Chair of Ophthalmology.

The couple arrived for two weeks in what turned out to be an uncharacteristically glorious September. Gluckman was unfazed by McGhee's insistence that if he came here he would need to bring some of his Dundee staff and his observation that building the department would take a lot of equipment and space.

The University of Auckland offered McGhee an entirely fresh challenge. He could have done something similar in Scotland, but there the weight of history (Glasgow University was established in 1452) was always present.

"I really liked the progressive, open-minded approach here," he says.

On that 1998 exploratory visit McGhee also met Auckland industrialist and philanthropist, the late Maurice Paykel, who endowed the chair. Coincidentally McGhee had grown up in the same working class district of Scotland, Wishaw, in which Paykel's wife's mother had run a

milliner's shop. Each man liked the cut of the other's jib.

So in September 1999, McGhee arrived to take up the chair. He and his wife wasted no time settling in. They bought a house that day and a car the next. Five of McGhee's research team followed him over, tripling the department's academic staff.

McGhee has continued to lure ophthalmology talent to New Zealand, so the department now has a staff of 30. Their countries of origin include Germany, Scotland, England, America, Bulgaria, Taiwan, China and South Africa – and there are even half a dozen Kiwis.

Over the past four years the new, expanded team has published 147 scientific papers and chapters in major ophthalmic and science journals.

"The main thrust of my personal research has been corneal transplant and cataract-related studies," says McGhee. "One of the things that attracted me about this department was that it holds the New Zealand National Eye Bank which distributes corneas for the whole country, approximately 250 a year. To actually have an eye bank in the department is fantastic

for both clinical and laboratory research."

McGhee's initial focus on cataract was partly by happenstance. When he first arrived here there was a waiting list of up to three years for cataract surgery (in Dundee it was only six weeks). Some elderly patients here were dying before they could have their sight restored

"I managed to persuade the Health Funding Authority and the hospital to contribute more money," says McGhee.

Persuasion and bringing other people on board with projects is McGhee's strong suit. Colleague Dr Trevor Sherwin, who works on bioengineering of the cornea, had arrived in the faculty a year before McGhee and was quickly recruited to Ophthalmology. Sherwin has been highly impressed with McGhee's way of establishing collaborations, not only with other disciplines across the university but with ophthalmologists and academics elsewhere.

The reputation of the department is also attracting international fellows, Sherwin says. They come to do their training in ophthalmology and to do research as well. Sherwin pays tribute to ophthalmologists and former staff who worked hard to raise funding for the chair McGhee holds.

"The key lay in finding the right person to fill the chair," says Sherwin.

It took a few years, but nobody seems in any doubt that a brilliant appointment has been made. McGhee has proved an outstanding clinician, researcher, teacher and team builder.

Seated in his Grafton office, McGhee speaks of how that initial extra funding he secured to deal with cataract surgery



➤ **EYE LINES:** THE DEPARTMENT DISTRIBUTES CORNEAS FOR TRANSPLANTS LIKE THIS ONE.

backlogs allowed some pivotal new appointments.

“It funded a new senior lecturer and a corneal fellow. That not only dealt with the waiting list but it provided a great research opportunity. Virtually every one of the extra 500 patients who had their cataracts removed that year agreed to enrol in what turned into the Auckland Cataract Study.”

The data was revealing. Maori and Pacific Islanders were developing cataracts almost 10 years earlier than usual, possibly due to a higher incidence of diabetes, smoking, and more exposure to ultraviolet light. McGhee and colleagues found that they were dealing with harder, tougher cataracts than they were used to in the same age group overseas.

Cataract surgery is the most common operation of any kind performed on people over 65 in the developed world. Asked why we develop cataracts, McGhee points out we were not designed to live as long as we do. After about 45, our lenses become less transparent. Poorly controlled diabetes can accelerate this, as can ultraviolet light. But ultimately anybody who lives long enough will develop cataracts.

Wearing UV-blocking sunglasses can delay this, and even children should wear them, says McGhee. This will also protect against a growth on the surface of the eye known as pterygium (common among surfers here) and sun-related tumours around the eye or on its surface.

The myopic (or short-sighted) are also more likely to develop early cataracts.

“The good news about myopia,” says McGhee, “is that your brain size is related

to your eye size and myopes have large eyes. The other good news is that myopes have, as a rule, a higher written IQ, tend to have more tertiary education and to be more successful in an academic or professional environment.”

Myopia has a genetic element, says McGhee, but interestingly there is increasing evidence of an environmental one too. Doing a lot of close work may promote myopia; indeed, McGhee himself did not have any myopia until beginning microscopic ophthalmological work in his late twenties.

The bad news about myopia, he says, is that you are likely to be poor at sport and more introspective. The worse news is that if your myopia is moderate or worse, for reasons still unclear, you are more likely to develop glaucoma, detached retina, early cataracts, and degeneration of the retina.

Injury can also cause early cataracts, as can use of some medications. Irradiation through X-rays and radiotherapy can accelerate cataract development.

For those tempted to delay their cataract surgery in case there is some fantastic new treatment just around the corner, McGhee is not encouraging. Extensive research work is being done on ways of delaying cataract development, on the grounds that slowing it until people are in their 80s would mean fewer operations

“But that’s not on the clinical horizon for at least ten years,” he says.

In the meantime, cataract surgery as performed today is highly successful, providing improved vision for 95 to 98 per cent of patients. The complication rate is typically only one or two per cent.

While so much of his energy goes into building and nurturing his fledgling department, McGhee still has time for recreation. He paints, sculpts (wooden totem poles and ferrous concrete works), and plays blues guitar. And perhaps the most encouraging sign for the future of ophthalmology in the City of Sails is that McGhee has recently taken up yachting. ❶



+ PERSUASIVE PROFESSOR: CHARLES MCGEE HAS ASSEMBLED A TOP TEAM.



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NEW SCHOOL WILL DO THE BUSINESS

The foundations of the future are being laid in a huge hole in the ground on the eastern edge of the City Campus. JENNIFER LITTLE takes a look.



The massive orange diggers scratching at the clay are dwarfed by the size of the excavations they are making.

On land overlooking the new motorway link to the port, between the university and the Auckland Domain, a hole has been dug second in size only to the one beneath the Sky Tower. From the huge scar in the earth will rise a 28,000 square-metre state-of-the-art facility, which will be the engine room of the university's Business School. Seven levels above ground and four below (taking up another 28,000 square metres) will be built around a central atrium with three curved wings. It will provide an academic home for the school which has 6000 students and more than 200 staff – and have space for 700 urgently needed new carparks.

The construction of the above-ground facility is an \$80 million project, but its benefits will be priceless. Business School Dean, Professor Barry Spicer, says it will make a significant contribution to business education in New Zealand.

Impressive though its construction statistics are, the new school is much more than its bricks and mortar. Spicer explains that the quality of the programmes and people within its walls will make it part of the lifeblood of New Zealand's economic future.

In addition to the construction cost, the new school will spend \$30 million on programmes and on staff recruited – many at premium rates – from top international institutions. The new staff will develop programmes in growing areas such as entrepreneurship and leadership, as well as reinforcing the school's core research and teaching strengths in disciplines such as economics, marketing and finance.

The new building will unite the scattered parts of the school for the first time, strengthening an already potent blend of theory and practice.

Academic theory is an essential component of business education at tertiary level, and the school's students and staff are recognised internationally for their intellectual achievements. External research funding rose by 65 per cent last year, reflecting the value placed on the school's research by the business community, and over the past two years the school has supplied half of the country's Rhodes Scholars.

The school prides itself on having already developed an array of highly

practical programmes. Staff and students have helped struggling small businesses become household names; students with exciting ideas have been supported as they got their ventures off the ground; visionary small-town inventors have learnt how to market their wares and rake in the profits.

Some have numbered in the millions. In one case, three inventors who met while attending one of the school's courses called "Inventing for commercial success" went on to form a company to develop and market a drug delivery device which is now awaiting a United States patent. They have a major licensing deal with a US company and are looking at earning \$7 million in their first year. "It wouldn't have happened," one of the enterprising inventors remarks in a case study written by course designer Associate Professor Marie Wilson, "if we hadn't had the forum and the framework to develop our ideas."

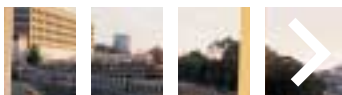
There are dozens of similar success stories, says Wilson.

The business school has been one of the most explosive growth areas at The University of Auckland in the past decade. But with its classes scattered through eight buildings spread over a kilometre, it has been difficult to foster the kind of dynamic atmosphere and environment that is needed to spark great ideas. Spicer says that atmosphere will be easier to cultivate when staff and students can easily get together to exchange ideas and work in teams.

"When you're in eight buildings, it's really hard for people to see each other. The new school will be a place that should allow integration and encourage people to work together," he says.

The new facilities will include "virtual" classrooms where students can hear, via video conference, seminars by leading international business brains: John Griffin, a prominent American financial strategist, has already been beamed in as part of a Behavioural Finance course taught last year. Thus the new building will host innovative and evolving courses and projects, delivered digitally in a global age.

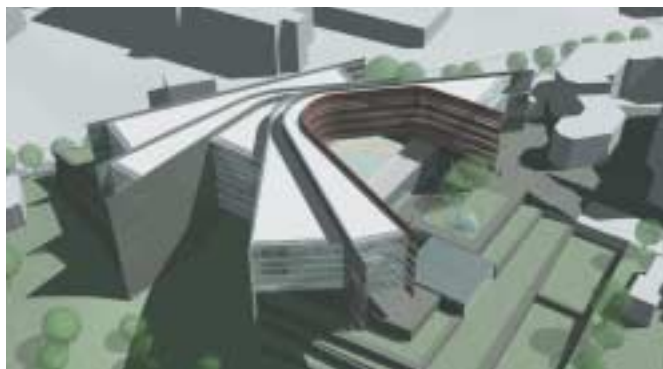
The funding of this initiative is as innovative as the work that will go on within its walls. It is the creature not just of university funding, but also of local and offshore private-sector partners who have made major contributions – more than \$20



million so far. Those donations are being matched up to \$25 million by the government through its Partnerships for Excellence programme.

This ground-breaking partnership between the university, Government and the private sector has more than fiscal significance. The co-operation is the basis of new links and networks transforming the school into a truly world-class institution. Specific programmes engage business stars – from the biotech and IT industries, for example – to mentor promising business students and help them convert their ideas into viable businesses.

If the building is still at the earthmoving stage – it is scheduled for completion in 2007 – the staff and students aren't waiting for the doors to open. Fired by the energy generated by the Knowledge Wave conferences, the school has developed a slew of imaginative schemes, which have helped the growth of several small and medium-size businesses.



+ HIGH-TECH HQ: THE NEW BUILDING WILL UNITE THE SCATTERED PARTS OF THE SCHOOL.

Real businesses ranging from a health milk producer to a firm developing computer software which can help asthmatics monitor their conditions are benefiting directly from research, development and consultancy programmes spawned at the school. A big contributor to these developments is the International Centre for Entrepreneurship whose initials sparked the name ICEHOUSE. This Business School initiative belies its cool-sounding name by providing a business incubator which accelerates the growth of start-up businesses and a range of business growth programmes for owner managers.

Milk producer func.nutrition's low-cholesterol, high-calcium Sun Latte is what it calls a "clever milk"; the company's technology removes water and much of the lactose, and concentrates proteins, one of which reduces the impact of the lactose that is not removed.

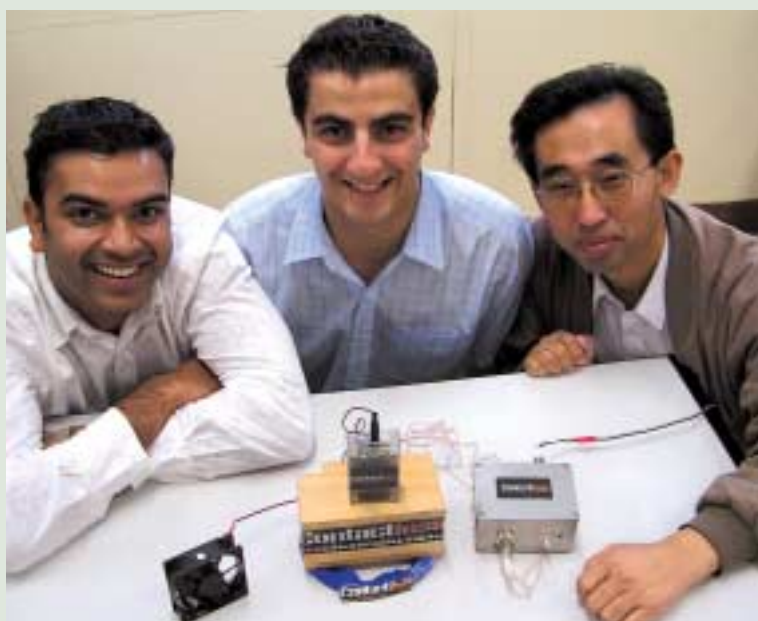
During the 18 months it went through the incubator phase, func.nutrition trebled its business says ICEHOUSE chief executive, Andrew Hamilton.

Neil Macintyre, founder and managing director of func.nutrition, said having his business as a resident in the ICEHOUSE incubator was brilliant. "We were able to reconfigure the business model to ensure we were better positioned to move faster and harder with product-development innovations."

The ICEHOUSE was established in 2001 by the Business School with its collaborative partners BNZ, Carter Holt Harvey, Telecom, Chapman Tripp, Deloitte, HP and Microsoft. It is the Business School's entrepreneurial flagship but it is only one of many recent schemes linked to the school.

In short, entrepreneurship is becoming an important driving force in the school. It's increasingly recognised as the essence of

*spark LIGHTS A FIRE



+ BRIGHT SPARKS: KUNAL BHARGABA, FADY MISHRIKI AND PATRICK HU WITH THEIR DEVICE, WHICH IS TRANSFERRING ELECTRICITY THROUGH THE BLOCK OF WOOD ON THE TABLE.

Graduates once sweated through the Situations Vacant or sent off CVs to potential employers and waited anxiously for replies. Those days are over for a new breed of student emerging from The University of Auckland Business School and other faculties. More and more are starting their own businesses – creating jobs in which they are their own bosses – before they've sat their last exam.

This quiet revolution of sorts has been spearheaded by spark*, The University of Auckland Entrepreneurship Challenge. A business start-up scheme, it's been hailed as a roaring success by staff and students as well as movers and shakers in the wider business community who have provided mentoring and training.

Several teams are close to turning their plans – which include enterprises as diverse as oyster-farming, aerial crop-spraying, Indian food and an English-teaching product for Koreans – into money-making ventures.

These ideas emerged from the first challenge held over several months last year and culminating in October's final judging, in which teams competed for a \$50,000 pool of prize money.



an attitude that is the key to creating business success and economic growth.

To show its commitment to training more entrepreneurs, the university went on a worldwide search to find a top international “academic entrepreneur”. The result was the appointment of Professor Wendell Dunn, the first person to take up the Chair in Entrepreneurship, created thanks to a hefty donation from an anonymous donor.

In the context of the university, the “e” word is more than an abstract ethos detached from balance sheets, management plans, marketing campaigns and investment strategies. It’s a money-making mantra with a fast-growing resonance that has been translated into tangible success stories.

One of the vehicles by which this happens is called spark* – an entrepreneurial competition for post-graduate students based on similar highly successful contests at the University of Cambridge and the Massachusetts Institute of Technology. After honing their entrepreneurial skills during a 13-week course titled “Vision to Business”, a winning team is awarded \$30,000 (plus time in the ICEHOUSE valued at \$10,000) to develop the proposed venture.

Meanwhile, “Creating wealth from technology” is a new course for final-year students seeking hands-on experience in planning technology-based ventures they’ve dreamed up.

And it’s not just young, fresh-out-of-school students who are learning what it takes to tackle the challenges of the business



+ **CLEVER MILK:** NEIL MACINTYRE, FOUNDER AND CEO OF func.nutrition, POURS A GLASS OF SUN LATTE FOR ICEHOUSE CHAIRMAN AND ADJUNCT PROFESSOR OF BUSINESS DAVID IRVING.

world. Inventors may often be regarded as more eccentric than entrepreneurial but this course has as its mission teaching inventors how to “get great ideas out of the garage and into the marketplace” by providing expertise from experienced business people. The course, which has at least 100 applicants signed up for the upcoming series, was run in collaboration with the Inventors’ Trust and with the support of New Zealand Trade and Enterprise (NZTE).

The school’s initiatives are many and varied. A \$1.4-million government grant is funding joint research with the National Institute of Water and Atmospheric Research (NIWA) into seafood industry innovation; the school is the headquarters for the development of a Centre of Excellence in Energy which will foster independent research by academics, business leaders and government agencies into such crucial issues as energy management,

the electricity market and alternative energy sources; the New Zealand Leadership Institute is promoting understanding of a key ingredient for business success; and the Business Case Centre is providing an invaluable real life resource for students and business throughout New Zealand.

Based on proven foundations of leading academic research, the Business School, in its new home, will house a bunch of bright ideas to spearhead New Zealand’s economic development. Meanwhile the school continues to do what every successful business does – grow its existing assets. **1**

“One of the most exciting things about being involved with spark* is that we’re potentially at the forefront of a big wave of change,” says fifth-year Commerce and Engineering student Fady Mishriki, who is the chief executive officer of spark* and President of the Commerce Students’ Association.

The inaugural winner of the first prize of \$30,000 was SPRAYCONTROL.net, developers of an integrated software and hardware package, including a weather station, to improve the effectiveness of aerial crop spraying.

Mishriki says the idea could have global implications: new safety standards are in the pipeline in the wake of a World Health Organisation report on how aerial crop spraying is carried out and how it can be better controlled.

Mishriki and his partners’ venture, Contactless Technologies, was runner-up, winning \$10,000 for a device which uses the principle of inductive power transfer to supply electricity to devices without using wires. The invention of Business School lecturer Patrick Hu, the contactless power supply was the work of a team of four and has wide commercial potential. Since it can recharge devices such as cellphones without using jack plugs, it raises the possibility of completely sealing water-sensitive devices – good news for anyone who’s ever ruined a cellphone by dropping it in the tide.

One market the team is exploring is in the marine electronics industry where sensors (for fish finding or depth warning) mounted below the waterline could receive power wirelessly through the hull of the boat.

“Through the spark* programme we have gained a better idea of

the commercial potential,” he says. “Wireless power transfer is the invention; the challenge is to develop its commercial application.”

Another of the challenges issued by spark* invites entrants to submit short business plans for 10 prizes of \$1000 each.

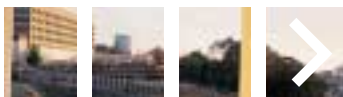
As the school’s Dean, Professor Barry Spicer, talks of The University of Auckland’s determination to create a world-class business school, the students in the spark* challenge are putting into practice the idea that high-tech, globally oriented, innovative businesses are the way forward for New Zealand.

Mishriki stresses that business innovation is being encouraged across all faculties, and not just within the Business School. Often, students from other disciplines – science, engineering, medicine and the arts – have bright ideas but lack the commercial skills and knowledge that business students can provide.

Based on similar competitions at the Massachusetts Institute of Technology (MIT) and the University of Cambridge, spark* has so impressed its overseas counterparts that they were invited to speak at Cambridge University before Easter about how the programme has run.

He says students are realising they have a once-in-a-lifetime opportunity at the school to get a head start by accessing top-class staff and teaching resources, as well as mentors and networks in the wider business community.

In the end, the mission spark* has set itself is to lead from the front. Its challenge is to turn the spark of an idea into an invention which might change the world. The first responses to that challenge suggest that it is already one of the university’s biggest success stories. **1**



INNOVATION IS A DUNN DEAL

Less than a year into his tenure of the Business School's newly created Foundation Chair in Entrepreneurship, Professor Wendell Dunn has picked up an impressive command of local culture.

He's aware of the famous John Mulgan novel, *Man Alone*, whose title he cites as a description of the way not to do business. And he knows all about the "number 8 wire" mentality which celebrates Kiwi ingenuity but also contains the idea that "this is good enough; it's the best we can do with what we've got."

If you want to succeed, he says, near enough is not good enough. Businesses across the board need to raise their level of aspiration to compete in global markets. New Zealand's evergreen excuses – our size and our distance from larger markets – are not valid in the age of global communications.

"In a digital age, the biggest challenge is our state of mind."

New Zealand's great advantage – a lifestyle second to none – can hamper its competitive effectiveness because it's too easy to be comfortable here, he believes. Comfort is deadly in a globally competitive environment which is "brutal, withering, unending and relentless."

The world-renowned teacher of entrepreneurship started his first business as a 13-year-old in Newark, Delaware, fixing radios. Before he left high school he was producing pieces for military radio antennae – subcontracting to another supplier as he was too young to have a government contract.

He joined the Business School a year ago having served since 1996 as Professor of Business Administration at the Darden School of the University of Virginia. He has held numerous posts inside and outside the academy, and has founded or co-founded several ventures, and consulted to numerous

organisations from start-up companies to Fortune 50 firms.

At Darden he was founding director of the Batten Center for Entrepreneurial Leadership (now the Batten Institute) and was previously the academic director at the Sol C. Snider Entrepreneurial Centre of the Wharton School of the University of Pennsylvania. As well as teaching management, strategy and entrepreneurship at postgraduate and executive levels for more than 20 years, he has worked outside the education system in electronics, mineral processing, investments and healthcare delivery.

Teaching New Zealanders about entrepreneurship means enhancing understanding of a "widely misunderstood" term.

In New Zealand it has a slightly negative quality, he has observed, being used merely to describe the starting up of a business.

"But what it's really about is business innovation, new thinking in business and the creation of new products, services and market offerings. Being a true entrepreneur involves knowing how to grow a business, not just start one."

New Zealand lacks "experienced second-generation managers who can grow businesses beyond comfortable, national limits," Dunn suggests.

Aspiring entrepreneurs can, like budding musicians, be taught the necessary technical skills to run a business.

"But you cannot make them entrepreneurs," he adds.

"It's possible to teach someone entrepreneurship as much as you can teach someone to be a surgeon or a musician. But you can't make them great at those things – greatness has to come from within."



+ MAN WITH A MISSION: PROFESSOR WENDELL DUNN SAYS ENTREPRENEURSHIP IS AN ART FORM.

Although Dunn doesn't hold with the notion of a specific psychology of entrepreneurship, there are certain character and behavioural traits that are crucial, he argues. These include tenacity and having very high energy levels and the ability to work long hours.

In essence, being a true entrepreneur is "a mindset, an art form."

Described as "an academic entrepreneur" and an "archetypal educator" by his colleagues, Dunn wants to help create a new breed of entrepreneurs for this country who can both create and grow globally viable businesses. And he sees his mission as an urgent one – to move the country from the periphery towards the centre of the world economy.

"New Zealand is at risk of becoming a branch country – like a branch office of a bank," he warns. "Big fish eat little fish. The only way not to get eaten is to grow." **1**

ROOTS OF LAW IN THE ROMAN TRADITION

GREG DIXON learns that Roman law is at the heart of modern jurisprudence.

Proverbially, all roads lead to it. The religion, literature and language of ancient Rome stretch across the centuries and the oceans to influence 21st-century life in every continent.

The study of Roman tradition has long been a fixture of The University of Auckland's classical curriculum and now its legal traditions may be studied by law students.

A senior lecturer in law, Dr Georgos Mousourakis, is offering a stage-four paper studying the enduring legacy of rules and principles formed in the ancient world that are still so important in many parts of the modern.

The course, Roman Law, is proving popular. After a successful first year in 2003 – when the new course attracted 50 enrolments – Mousourakis has some 65 students in the programme this year.

"There has been a revival in interest in classical historical studies in many countries, including New Zealand," he says. "And as far as law is concerned, it's become very important in order to understand the development of one of the major families of legal systems in the world today."

Roman law, as transmitted through Justinian's codification in the sixth century, had significant influence on one of the two great European legal systems, civil law (the other is English common law), and forms an important part of the intellectual background of many legal systems in force in Europe, Latin America, Asia and other parts of the world.

After 1100, Roman law became a leading subject of study in universities of Europe. And from the 16th century onward its practical application in the courts of law of the modernised European states became more and more general.

Under Mousourakis, Auckland students may now study the sources and historical development of Rome's law and examine its specifics, including the laws of actions, obligations, family, succession and crime.

Mousourakis – as his name suggests – is Greek not Italian, however. He was born in Crete, an island with a notable association with New Zealand flowing from the Second World War.

Like many young Greeks he studied, along with his country's own classical

period, the history and society of Ancient Rome. This early taste of Rome fuelled an interest, matched with an fascination for legal theory and legal philosophers, that led him to complete a law degree in Athens, a masters in Manchester and finally his doctorate in Scotland.

His research and teaching interests are legal history, philosophy and comparative law.

And he has since taught at the University of Queensland and been a research fellow and visiting scholar at institutions in Japan, Germany, Italy and America. He spent five years teaching at Auckland in the early 1990s and returned to the university in 2000.

As well as his Roman Law course, Mousourakis teaches comparative law. The programme scrutinises the relationship between common law systems (such as that in New Zealand) and that of other contemporary legal systems including civil, indigenous and religious legal systems.

He is working on a book on the methodology of comparative law. His textbook *The Historical And Institutional Context Of Roman Law*, published last year, is already in use by Auckland students.

"To be familiar with the subject of Roman law will help you come to terms with concepts, the terminology used in civil law, the people's and the profession's attitudes towards law and how the system operates," Mousourakis says.

"The roots of all this are to be found in the Roman tradition. To be familiar with that tradition and its history will make you familiar with a host of systems not so far from New Zealand."

And the study is relevant to non-European jurisdictions, he says.

"Many Asian countries have systems based on Roman law. So for a practitioner doing business outside New Zealand, who has contacts with other lawyers or firms outside New Zealand, being familiar with the subject makes it easier to connect. It's like learning another language. It will allow you to communicate at a deeper level with scholars, lawyers and students in other countries."



✦ **CLASSICAL HERITAGE:** GEORGOS MOUSOURAKIS' ROMAN LAW COURSE IS POPULAR.

PHOTO: GODFREY BOEHNKE



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HIGH-TECH DIG UNEARTHS THE PAST

The future of archaeology has arrived.

PETER CALDER watches the thoroughly modern excavation of a site near New Plymouth.



The 21st century met the 19th in Taranaki over the summer as an archaeological team from The University of Auckland used cutting-edge technology to record the buried secrets of the largest Maori house site ever excavated.

A team of senior students and staff from the Department of Anthropology spent a fortnight carefully excavating the site, on a hillside at Bell Block north of New Plymouth, which must be removed for a bypass. Earlier excavations had uncovered the remains of a 22 metre-long meeting house, with evidence of at least two smaller structures which it supplanted on the same site.

Dr Simon Holdaway, a senior lecturer in the department, who led the first dig in 2002 and oversaw the recent work, said the house dates from the 1860s, during the New Zealand Wars which is an era archaeologists rarely get the opportunity to excavate from.

“It was a huge house by the standards of the 19th century and you don’t build such a big house for small reasons.”

But more remarkable than the series of houses was the discovery of a so-called gunfighter pa – a series of shallow curved trenches which, screened by branches, would have hidden warriors as they fired on enemies during the Puketapu feuds in the early 19th century.

Modern historians credit Taranaki Maori with the invention of trench warfare but Dr Holdaway said archaeologists seldom had the opportunity to excavate gunfighter pa because they were the site of ancient bloodshed and therefore tapu.

The excavation was funded by Transit New Zealand as part of its obligations under Historic Places legislation to mitigate the impact of the highway construction – an \$8.5 million bypass which will take traffic away from the Bell Block town centre. But thanks to the work of The University of Auckland team, working with archaeologists from two private firms, the essence of what was there will be preserved in virtual form for the benefit of future scholarship.

The key to the success of the enterprise has been the extraordinary level of technology deployed at the site. In place of the traditional theodolite, the archaeologists have used so-called “total stations” which incorporate a laser distance meter. Items uncovered – and there have been more than 24,000

of them, ranging from buttons to bottles and a fascinating fragment of schoolroom slate – have their positions precisely recorded by these total stations, says Holdaway.

“They do the trigonometry that allows us precisely to locate items in three dimensions. At the end of each day we had an exact, map-based record of what had been done.”

As Holdaway is fond of telling his students, “in archaeology, context is everything.

“So the position in which objects are found in relation to other objects, or in relation to features of the earth, provides us with information that lets us draw inferences about past behaviour.”

More sophisticated still is the Cyra Laser Scanner – one of only two in the country and the only one of its type owned by an academic institution – which scans excavations and provides exact three-dimensional renderings which are stored on-site on powerful laptops.

The scanner, purchased with a special Vice-Chancellor’s grant, creates imagery that replaces the two-dimensional maps which, up to now, have been the archaeologist’s record-keeping standard.



✚ BURIED TREASURE: THIS FRAGMENT OF SLATE, SCORED WITH A DRAWING OF A SHOOTING WARRIOR, AND, TOP, A BUTTON FROM A SOLDIER’S UNIFORM, PROVIDE CLUES ABOUT THE SITE.

PHOTOS: TIM MACKRELL

The computerised systems remove the danger of human error, which is the enemy of good science (“We don’t actually touch the numbers with human hands,” quips Holdaway). But more importantly, the scanners produce imagery which is very easy to understand.

“The problem with maps is that they can be hard for the general public to understand and when you are working with sites that are part of a national heritage or important to tangata whenua, it is valuable to be able to give people a clear idea of what you have done.”

By far the greatest advantage of the technology is the advantage of speed it confers.

“You can make all these records on paper but when you are looking at more than 20,000 items it can take years. In a modern commercial world, you can’t do that.

“We can produce reports and analysis something like a year after excavation where traditional methods would take a generation. It’s the way archaeology is moving worldwide, but it is unique in New Zealand.”

The way the undertaking has been organised is a model of modern university practice.

The work has been conducted in close co-operation with the local iwi, Te Atiawa.

Grant Knuckey, from the tribal council, said his people were surprised to learn how long Maori had occupied the site.

“We’ve been rediscovering our history and it has been a wonderful opportunity for us to regain knowledge,” he said. “We hope our people will see the significance of what digs like this can teach us, and they will get involved.”

The University of Auckland has also co-operated with private archaeologists from two private firms – Michael Taylor from Archaeology North and Hans-Dieter Bader from Geometria. It has been a happy marriage of the academy and private enterprise in which all players have benefited from the university’s resources and the academics have been able to tap into private sector expertise.

The dig also exemplifies the value to be found in relationships between the university and the public sector. The research, funded by Transit New Zealand, has demonstrated that progress into the future can pay due attention to the past. **1**

THANKS TO THE
WORK OF THE
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+ EXCITING FIND: IN THE SHADOW OF MT TARANAKI, DR SIMON HOLDAWAY LEADS THE EXCAVATION OF THE GUNFIGHTER PA.

PHOTO: PETER CALDER

PICKING UP

A University of Auckland physicist is working on a big scale. Very, very big, to be precise. JASON KING explains.

Outside Geneva, the biggest science experiment in the world is taking shape.

Carved out of solid rock, 100m beneath the grass of the bucolic Franco-Swiss border, the European Organisation for Nuclear Research, known as CERN, is building what has come to be called the Large Hadron Collider.

Actually a series of large-scale experiments, each housed in chambers several storeys high adjoining the 27km circular tunnel, the Large Hadron Collider replaces the world's previous biggest science project, the Large Electron Positron Collider, which after a mere 12 years has outlived its usefulness. So the EU members have agreed to spend about 1.9 billion euros to build a machine that may finally crack some of the fundamental questions of existence. And a team led by University of Auckland physicist Dr David Krofcheck is playing a part.

On a visit to Geneva, Krofcheck, a senior lecturer in the Physics Department, gaped in awe at an engineering project that to our civilisation is on a scale that recalls the building of the pyramids.

"It's startling," he says. "You stand there and look down and down and it can make you feel very small."

If a cathedral can be said to be a place where one communes with a supreme being's majesty, then the Large Hadron Collider is the cathedral where big science will worship. Physicists hope the collider will let them explore the origins of the fundamental particles of existence, the impossibly tiny and short-lived concatenations at the earliest intersections of energy and matter going right back to the instants just after the Big Bang, the prevailing theory on how the universe began 13.7 billion years ago.

What does the collider do? Smash things. Intense magnetic fields propel beams of particles racing around what is essentially a gigantic doughnut at fantastic speeds in opposing directions. These beams of protons and other particles are so small that when they intersect the particles largely miss each other. However, a proportion collide, and an even smaller proportion collide head on. After a head-on collision, the energy the particles carry is converted to mass, creating the fundamental pieces of matter the physicists want to study. Some have been found, others have only had their existence predicted by mathematics.

They have strange names, like the Beauty Quark or the Higgs Boson. A Hadron is another elementary particle. There are many more that result when colliders crack open protons and neutrons into clouds of constituent particles called quark soup. Some call the collider a time machine, recreating the violent energies that occurred in the instants after the Big Bang.

Krofcheck: "We can backtrack from these particles to determine the energy required to create their patterns. It's on the order of a million million degrees which is what the temperature should have been a few millionths of a second after the Big Bang.

"So we can effectively recreate the early universe in a laboratory. Who wouldn't want to study that?"

In December, New Zealand signed a memorandum of understanding with CERN, becoming partners in this grand experiment. The local link to the project, Krofcheck is an affable American who is given to self-deprecating observations such as "my New Zealand wife brought me back here as a souvenir."

Krofcheck fizzles at the possibilities presented by the CERN collaboration. It gives New Zealand a foothold in "big science", allowing Krofcheck's doctoral students to work on projects of international significance. Better, it gives local science the chance to prove its ingenuity and problem-solving capability.

The Large Hadron Collider's quintet of experimental projects includes the one Krofcheck and others will be working on. It is called the Compact Muon Solenoid, (CMS) though, as Krofcheck wryly observes, the first word is something of a misnomer: 12,500 tonnes of iron, steel and electronics, it stands five storeys high and looms as long as a jumbo jet. At an estimated cost of 285 million euros (\$540 million), it will, when completed in 2007, be the largest solenoid magnet ever constructed and produce a magnetic field 100,000 times greater than the planet's.

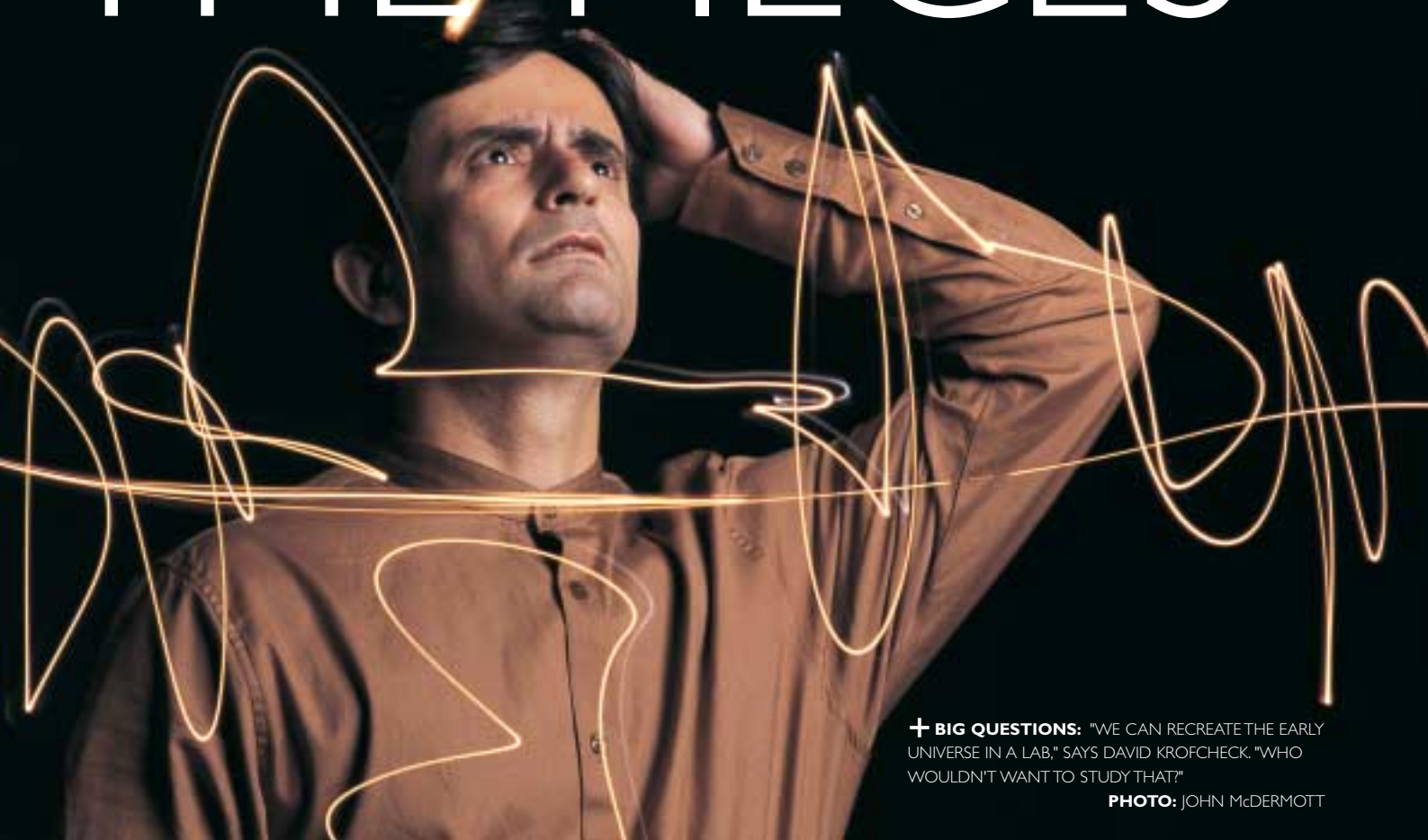
The big numbers keep coming. The magnet's yoke will consume enough iron to build another Eiffel Tower. The amount of electricity stored in the CMS to generate its maximum magnetic field of 4 Tesla would melt 18 tonnes of solid gold.

All that energy is needed to push protons to a velocity close to the speed of light, as fast as anything can go. Krofcheck consults an earlier calculation: 99.99999 per cent of the speed of light to be precise.

Imagine that impossibly fast velocity. Imagine the resulting collisions. All of the energy the particles carry will be converted – as Einstein put it in his famous equation – to mass, into fundamental classes of particles, including the muons or fundamental particles some physicists think account for the missing mass in the universe.

In the past decade, astronomers and physicists have calculated that the visible

THE PIECES



+ **BIG QUESTIONS:** "WE CAN RECREATE THE EARLY UNIVERSE IN A LAB," SAYS DAVID KROFCHICK. "WHO WOULDN'T WANT TO STUDY THAT?"

PHOTO: JOHN McDERMOTT

universe lacks the mass it should have. The theory is that the missing mass is held in fundamental particles, far tinier than electrons, but with many times the mass.

It's here that the New Zealand project comes in. Krofcheck and another New Zealander, Dr Alick Macpherson, who is a CERN science associate, will be developing the next generation of silicon pixel detectors, the devices that record the collisions and track the ephemeral fundamental particles that result.

"Clearly we're not going to be able to build the solenoid," Krofcheck says. "We don't have that engineering capacity. But we have found a good New Zealand-scaled project."

This project lies at the heart of how the Compact Muon Solenoid will work. Here the big numbers start rolling again. The particle collisions happen far faster than the blink of an eye, in one 40-millionth of a second. So the detectors, arrays of silicon wafers that work according to the same principle as

digital cameras, have to be fantastically sensitive, inordinately small and capable of relaying information at rates that dwarf comprehension.

Each silicon detector is about 100 millionths of a metre square and about 300 millionths of a metre thick. There will be enough of these to cover an area of 250 square metres, say a 25-metre length swimming pool and they are all needed to record the energy left by particles that might not exist in this reality for more than nanoseconds before they decay.

Every second the CMS is running data comparable to 10,000 copies of the *Encyclopaedia Britannica* will need to be processed, which will require computing power in excess of the 4000 high-powered computer work stations currently found at CERN. That data will stream from the CMS at 500 gigabits a second, about the same flood of data exchanged by all the telephone networks on the planet at the moment.

At Krofcheck's Tamaki Campus laboratory is a test bed upon which he can assess the latest generation of silicon pixel detectors. He and his colleagues will be writing the software that will let computers consume the vast tranches of data without indigestion. It's a key part of the project and Krofcheck acknowledges there were sceptics.

"Someone asked: 'What if we fail?' I don't think we will. Largely because CERN philosophy is that failure is not an option. They believe that there is always an answer and that's why they cast their net so widely. The more brains, the more answers."

Sure, he says, New Zealand cannot contribute significant finance or large-scale engineering expertise, but CERN believes that no country has a monopoly on good ideas. They can come from anywhere.

Big projects take time. The CMS is scheduled to turn on for the first time in April 2007. Krofcheck promises he will be there when that happens. **1**

Accolade for biomedical scientists

Two of the university's foremost biomedical scientists, Professor Jane Harding and Professor Garth Cooper, were chosen as joint New Zealander of the Year by *North & South* magazine.

The magazine, profiling each in its January 2004 issue, described them as "two brilliant, low-profile achievers, at the peak of their power and the pinnacle of the science sector". Both are "doing the good business of science with the humanitarian and economic outcomes of their research firmly in view".

Professor Harding, Associate Director of the Liggins Institute, whose work featured in issue 2 of *Ingenio*, is an international authority on the regulation of fetal growth,



TOP PAIR: PROFESSORS JANE HARDING AND GARTH COOPER.

placental function, and the treatment and consequences of under-nutrition in the womb.

Professor Cooper is at the School of Biological Sciences and Chief Scientific Officer of Protomix Inc, an Auckland-based biopharmaceutical company.

He developed an amylin-replacement therapy for diabetes and founded the NASDAQ-listed US phar-

maeutical company Amylin Pharmaceuticals. This is the third time in five years that individuals associated with the university have been made *North & South's* New Zealander of the Year. The Chancellor, John Graham, attained this honour in 2000 and the Vice-Chancellor, Dr John Hood, in 2002.

BUILDING OUR COMMUNITY

Young scholars will shine at Oxford and Cambridge

Two of the most valuable and prestigious scholarships open to young New Zealanders to study overseas have been won by University of Auckland students. Jonathan Good, who holds Arts and Science degrees, is one of the country's three Rhodes Scholars for 2004. The scholarships are tenable at Oxford University and 12 of the 30 awarded over the last 10 years have been to Auckland graduates. Jonathan is a business analyst for McKinsey & Co, a leading global strategic management consulting firm. His interests include debating and he has

represented Auckland at the World Universities Debating Championship. At Oxford he will undertake a two-year masters degree in economics.

Rohan King, a science student who recently completed an honours degree specialising in human neuroscience, was awarded a doctoral scholarship for 2004 to Cambridge University by the Woolf Fisher Trust. The trust launched the scholarships, worth up to \$100,000 per annum, only last year. He intends taking a doctorate at Cambridge focusing on musical cognition.



OXBRIDGE-BOUND: ROHAN KING (LEFT) AND JONATHAN GOOD.

Music with books launched

Three books to be published by Auckland University Press this year will come with CDs of recordings held in the university's unique Archive of Maori and Pacific Music.

The archive, established in 1970, houses the world's largest ethnographic sound collection from the Pacific. It contains material from most tribal groups of New Zealand and most Pacific Island areas, and both commercial and field recordings of vocal and instrumental music.



MUSICAL MEMOIR:
MERVYN McLEAN'S
BOOK.

The first such book is *To Tatau Waka: In Search of Maori Music* by Dr Mervyn McLean, former associate professor of ethnomusicology. This is a fascinating memoir of his trips in 1960s rural New Zealand recording the music that formed the basis of the archive's collection and includes a CD of songs by some of the many kaumatua he met.

In May, AUP will bring out a new edition of the award-winning classic *Traditional Songs of the Maori*, also by Mervyn McLean, with Dr Margaret Orbell. The songs from the archive in the two accompanying CDs embody the fundamental values of traditional Maori culture and form a vital part of marae ceremonial.

In conjunction with the Polynesian Society and Creative New Zealand, AUP will publish in July the first volume of a new edition of Sir Apirana Ngata's four-volume taonga *Nga Moteatea*. This edition has been re-edited by Jeny Curnow and Jane McRae (both of whom have worked at Maori Studies). There are two CDs of waiata drawn from the archive.

Among the press' other new offerings in 2004 are at least eight written or edited by staff or alumni. Staff from Political Studies, for example, have contributed significantly to two new books. The fifth in the award-winning series of election studies appeared in March. *Voters' Veto: The 2002 Election in New Zealand and the Consolidation of Minority Government* continues a unique, immensely valuable ongoing picture of voters' behaviour over more than a decade of change.

Dr Peter Aimer has updated Professor Richard Mulgan's essential *Politics in New Zealand*, published in time for the university year. It is the only textbook on the market to include the abolition of appeals to the Privy Council, the new Supreme Court, the change of National leadership and Donna Awatere-Huata's dismissal from the ACT Party.

Literary pair honoured

Two literary luminaries, one a writer and the other an editor and historian, were invested with the university's honorary Doctor of Literature degree in March.

Elizabeth Smither is of one New Zealand's foremost poets and held the position of Te Mata Poet Laureate from 2001-2003 – the first woman to do so. Her poetry has been widely published in Britain, Canada, Australia and the United States in prestigious literary journals and magazines. She has held a literary fellowship at the university and her works have been published by Auckland University Press.

Emeritus Professor Andrew Gurr attended Auckland Grammar School and graduated MA with first class honours in English at Auckland. In the course of a long academic career in Britain, most recently at the University of Reading, he has achieved international eminence as an editor of Shakespeare and his contemporaries, and as an historian of English Renaissance theatre.

He was a key advisor in the building of the first accurate replica of Shakespeare's Globe near its original site on Bankside in London.

Professor Gurr has always maintained a strong connection with New Zealand. He was a Visiting Professor at Auckland in 1966 and on his frequent return visits to this country he has, whenever possible, contributed lectures and seminars to his old department.

> Obituaries

Distinguished editor and author

Dennis McEldowney, the founding managing editor of Auckland University Press, died last September, aged 77. A distinguished author in his own right, he insisted upon the highest possible standards for the press in scholarship, editing, design and production. In two decades of publishing he commissioned much of the best New Zealand poetry, history and biography of that era, including Keith Sinclair's best-selling biography of Walter Nash.



DENNIS McELDOWNEY

He was born a "blue baby" and not until adulthood did two cardiac operations enable him to lead some semblance of a normal life and embark on a career. His own books were almost all autobiographical in inspiration and he earned, from the late Michael King, the accolade of being "far and away our best diarist, a New Zealand Samuel Pepys".

In honour of his dual achievements as writer and publisher, the university made Dennis McEldowney an honorary Doctor of Literature on his retirement in 1986.

Leading political thinker

Professor Susan Moller Okin, an Auckland history graduate who became a leading feminist political thinker and writer in the United States, died in Massachusetts in March, aged 57.

Her work focused on the exclusion of women from most Western political thought, past and present. She espoused the view that gender issues belong at the core rather than at the margins of political philosophy. Her book *Women in Western Political Thought* (1979) is regarded as a cornerstone of research on women in politics.

"She changed the way political philosophy, political theory are done," said her friend and Stanford colleague, Associate Professor Debra Satz. "She was brilliant – and passionate in wanting to connect political philosophy to real-world issues."

Dr Okin graduated BA from Auckland in 1967, later taking a master of philosophy at Oxford and a doctorate at Harvard. Most recently she held a one-year fellowship at the Radcliffe Institute for Advanced Study at Harvard. She joined Stanford University in 1990 after teaching at Auckland, Vassar, Brandeis and Harvard.

SEARCHING FOR SILENT DISEASE

Sometimes, when you're searching for something, it pays to check the place you never thought of looking because it was too obvious.

This is what Dr Jill Cornish and her team did in their hunt for molecules that could stave off the bone-wasting condition, osteoporosis.

The contribution of milk to bone health is old news and Cornish thought there could be nothing left to find about it. But they looked again anyway, and found a protein so potent that it not only boosts bone growth, but also inhibits bone breakdown.

"It's very likely that we've found a new pathway of bone formation," says Cornish, an associate professor in The University of Auckland Faculty of Medical and Health Sciences.

Her team's discovery of the molecule lactoferrin could one day mean that people at risk of osteoporosis could take a pill, or drink an enriched type of milk, that will prevent the condition's onset.

The milk investigation is just one being pursued by the Osteoporosis Research Group, a team of 30 people spread between laboratories and clinics. Last year it received six years' funding from the government-funded Health Research Council to continue its work.

Osteoporosis is part of the ageing process, rather than a disease. About 50 per cent of women, and 30 per cent of men, will suffer an osteoporotic fracture. That's because bone is not static, but an active organ that is constantly being turned over – our skeleton replaces itself every 10 years.

Osteoporosis occurs when there is an imbalance between the cells that make bone, and the ones that break it down, or resorb it into the body. The two sets of cells are regulated by contact with each other on the surface of the bone, and also by hormones secreted by themselves and other organs in the body.

Part of the reason that women are more prone than men to the condition is that women experience a dramatic drop in

oestrogen, a good bone-building hormone, after menopause.

To date, more is known about how to inhibit bone resorption than how to boost bone growth.

"But treatments that slow down resorption will never be able to replace the lost bone," says Cornish. "Osteoporosis has been called the silent disease, because people who go to the doctor with a sore back may already have breaks in the bridges between bones which will never be reformed. That's why we're pursuing treatments that promote bone growth."

Daily communication between the team's lab scientists and clinicians has thrown up new leads to research. For example, they've discovered that obese people have very good bone mass. Some hormones circulate in greater concentrations in obese people, particularly those secreted by fat cells and the pancreas and Cornish's team found that some of these hormones also promote bone growth.

A number of the hormones have already been patented and licensed to pharmaceutical companies, which are now working on how to use them in potential treatments for osteoporosis. Cornish hopes clinical trials of these treatments, which might take the form of pills or injections, will begin within five years.

The discovery of lactoferrin in milk is now propelling the team down an exciting new path. Lactoferrin is already present in various secretions in the body, but apparently not in great enough concentrations to avert the progression of osteoporosis in later life. By taking the protein out of milk and putting it into a treatment such as a pill or enriched type of milk, scientists may enable us to consume lactoferrin to boost our bone growth.

"Its effect is a double whammy," says Cornish, "because as well as dramatically promoting bone growth, lactoferrin inhibits the resorption cells."

+ **GROWTH BOOST:** "IT'S VERY LIKELY THAT WE HAVE FOUND A NEW PATH OF BONE FORMATION," SAYS DR JILL CORNISH.

PHOTO: JOHN McDERMOTT

A CURE FOR THE

Scientists working on the prevention and treatment of a condition which affects around half of us as we age may have found a way to build new bone, writes ESTELLE SARNEY



“Our molecular biologists are now finding out how it works, and have already discovered two new receptors on bone-forming cells.”

A receptor is like a lock, in the lock-and-key relationship between cells and molecules travelling around the body. In this case, the receptors on the bone cells wait for lactoferrin to make contact. When it does, it activates the cells to start a process that results in new bone.

Cornish says discovering the new receptors is significant because more than one molecule might be using them. The identification of other such molecules might lead to further treatment options.

“It’s like finding one piece of a puzzle, which then reveals the whereabouts of other pieces.”

Her team is working with dairy company Fonterra in its exploration of lactoferrin – a study partly funded by the Government’s Foundation for Research, Science and Technology.

The protein is found not only in cow’s milk, however, but also in human milk. It is particularly concentrated in colostrum, the rich first breast milk newborn babies receive.

Cornish says it’s understandable that colostrum should contain such high levels of a bone-growth protein but such obvious sources can be overlooked in the search for something new.

“You might think that milk has been around forever and you wouldn’t find anything new in it – we thought that at first – but it’s actually a very clever place to look as it is generally a rich source of growth factors.”

So, maybe a nutrient that helps build the bones of the youngest in our population could be adapted to restore the bones of the eldest. The treasure that scientists like Cornish have been searching for was within us all along, from our first drink of mother’s milk.



Helping hand for MATES mates

A foundation established by New Zealand's Arichest family has given a huge boost to a University of Auckland initiative which assists underachieving students from low-decile schools by using their most powerful mentors – their peers.

The Todd Foundation, established in 1972 to help disadvantaged New Zealanders to achieve their potential, has committed \$300,000 to MATES (Mentoring and Tutoring Education Scheme), an idea developed by The University of Auckland in partnership with the Pacific Foundation.

MATES, piloted by the university and the Pacific Foundation in 2002, is a version of the Perach tutoring system in Israel, adapted to suit a New Zealand setting. Initially based in the Auckland area's lower-decile schools, the scheme links students from the university with secondary school students in individual mentoring and tutoring relationships.

The Todd Foundation commitment of \$300,000 for the first three years with a possibility of a similar commitment in 2007 and 2008 is a huge shot in the arm for a very worthwhile initiative.

Vice-Chancellor Dr John Hood said the Todd grant will enable the programme to be “stepped up to lift the aspirations of a lot more



BEST MATES: RUBY RAWLINS (LEFT) WITH HER STUDENT MENTOR ALICE PENFOLD.

PHOTO: EMMA BASS, COURTESY NEXT MAGAZINE

potentially talented young people in the immediate years ahead.”

“Unless the realities of increasing educational underachievement among communities with the fastest growing birth-rates are urgently addressed by such constructive initiatives, we shall see much waste of talent and major societal problems ahead.”

The secondary school students involved are identified by their schools as having the potential to succeed at tertiary study but at risk of underachieving.

The response has been enthusiastic. “I realise that I have more potential than I thought possible, and I have decided to do something (going to university) that I never really thought I'd do,” said one 2002 participant.

The Todd Foundation chairman, John Todd, said the foundation was committed to increasing public appreciation of the fact that education continues well past the school-leaving age.

“The MATES programme opens up more opportunities for higher education for everyone and, with the programme's ultimate goal of reaching all parts of New Zealand, we are confident that MATES will make a significant long-term difference,” he said. **1**

Generous grant marks company's centenary

A grant of more than \$700,000 from a foundation set up by one of the world's oldest manufacturers of hearing aids will help establish the Department of Audiology's hearing education centre in the new School of Population Health on the Tamaki Campus.

Oticon, founded in Denmark in 1904, has a century of commitment to improving the lives of people with hearing loss. The Oticon Foundation, established in New Zealand in 1976, has donated more than \$1 million towards projects and research that raise awareness about hearing and hearing loss.

The grant, which marks the parent company's centenary, is the foundation's largest ever – \$705,000 consisting of an initial contribution of \$300,000 and a commitment of \$45,000 for each of the next nine years.

The Oticon Foundation Centre for Hearing Education will house the department's Master of Audiology programme and provide professional development and public education about hearing health. The centre will include teaching and graduate research facilities, including specially sound-proofed rooms for testing hearing, evaluating the latest hearing aid technology and providing audiological services to the community. The centre will also be used by graduate students to conduct hearing research.

Chairman Tim Olphert said the foundation was delighted to be involved in establishing this new centre to promote hearing education.

“By providing the latest equipment and facilities and extending hearing education into the wider sector and community, the centre will provide valuable services and support to those working with hearing impaired New Zealanders every day.

“A significant part of our work in New Zealand has been to encourage and support research to advance our understanding of hearing loss and to share this information with the health, education and hearing loss sectors. Our commitment to the Oticon Foundation Centre for Hearing Education is an ideal extension of this support,” he said.

The head of the Audiology Department, Associate Professor Peter Thorne, said the grant provided the centre with “a wonderful opportunity”.

“It will enable us to do a mixture of things: public education and the professional development of audiologists and all sorts of other health professionals who come into contact with hearing loss.”

He said the centre would attract visiting professors who could pass on their skills in the best evidence-based practice.

“Instead of us going overseas, people at the cutting edge could come to us.”

He hoped the grant would be a seeding fund which would spark other initiatives including a PhD scholarship to add value to the department's postgraduate programme. **1**

Society sees major role for alumni

The reborn Alumni Association, now known as The University of Auckland Society, staged its inaugural Alumni Conference in early March and the focus of the all-day gathering was on the importance of relationships with the university's graduates.

Lord Sutherland of Houndwood spoke about what he called a "civic" university, which attaches great importance to its outreach into the community.

A university's alumni might advocate on behalf of their alma mater; form overseas networks; and assist in the celebration of alumni achievers.

Dr Keith Brant, the Assistant Vice-Chancellor of the University of

California Los Angeles highlighted the importance of focusing as soon as possible on current students as future alumni. Dr Brant is one of the mentors of his university's Professional Development Program, which promotes talented students and graduates into leadership positions. It strengthens not only the professional skills of alumni but also their institutional loyalty.

Dr Brant encapsulated the importance of alumni to the university's future in the famous and inspirational quotation from Nelson Henderson: "The true meaning of life is to plant trees under whose shade you do not expect to sit."

He gave some practical examples of

such "seed-sowing", such as the practice of ensuring that all UCLA freshmen get a call from an alumnus before they start their first year of study.

The day's discussions resulted in several concrete ideas: the society will work on developing an alumni speaker series; on promoting the achievements of alumni and developing strong overseas networks for alumni to tap into.

One New Zealander in 40 is an alumnus or alumna of The University of Auckland. The Director of External Relations, John Taylor, remarked that that number is a pretty good baseline on which to build future alumni relationships. **1**

Universities must cultivate thinking

It should not have surprised those who enjoyed Lord Sutherland of Houndwood's speech to the Distinguished Alumni Dinner in early March that he departed from the brief he had been given.

A man widely respected for his skill as an effective political operator within the academic environment, he is also known as a formidable independent intellect and it is probably no coincidence that his background is in philosophy.

The former Principal and Vice-Chancellor of the University of Edinburgh, Lord Sutherland has held similar positions at King's College, London and the University of London. And although he was invited to talk about the challenges and opportunities facing research-led universities, he widened the brief to include the responsibilities of the university.

He distilled that into the idea that universities should "know when to get down off the fence and do so not a moment before that."

"The things universities do are esoteric," he later said, "so a culture can build up in which the university is a bit aloof. But if you believe in what universities are about, they should be structuring the community."

Part of that engagement, he said, was reminding the community of the importance of the work done at universities.

"We have not made enough noise for the public to understand that the funding of universities is a great political issue in the same way that schools and hospitals are."

The challenge was to get the public to see tertiary education not as an expense but as an investment.

"Governments are cottoning onto the fact that the economy, which used to depend on physical resources and cheap labour, now and increasingly depends on knowledge."

One of the most urgent challenges facing the 21st-century university was balancing the fragmentation and specialisation of



+ CHALLENGE ISSUED: UNIVERSITIES SHOULD BE "STRUCTURING THE COMMUNITY", SAYS LORD SUTHERLAND.

PHOTO: GODFREY BOEHNKE

knowledge with the need to communicate with the public at large.

"As knowledge becomes more specialised, our capacity to understand complex issues – the use of stem cells, human cloning, genetic modification and so on – is being undermined. Most of us can't be experts in all these topics, but we will vote on them and I think we could do more to train our scientists in how to talk to people."

In any case, the university's role is as much to cultivate thinking as to impart learning. "When I speak to people in industry they say: 'Don't think you can train people in my business. You can't. You teach them how to think and analyse, how to tell the difference between good reasons and bad reasons and we'll teach them the business'." **1**

– PETER CALDER

Alumni achievers have earned international esteem

A dinner in March celebrated the achievements of this year's group of Distinguished Alumni. The Alumni Orator, Adjunct Professor Mick Brown, saluted the year's crop of alumni – the ninth so honoured – as “stellar achievers who have earned the esteem of international audiences.”

“Each one of this brilliant sextet has shown the required strength, perseverance and passion to become wonderful exemplars,” he said.

The evening included a moment's silence as a mark of respect to one of the group, Professor Raoul Franklin. His wife, Faith, died suddenly of a heart attack in Bangkok en route to New Zealand where they were to have visited for a few weeks before attending the function. His award will be presented by the Vice-Chancellor, John Hood, at a special University of Auckland alumni function in Oxford in May.



NIKI CARO BFA 1988, MFA [Swinburne]

Niki Caro's internationally acclaimed film, *Whale Rider*, gathered eight audience awards at prestigious international film festivals and has become the most successful local film after *Once Were Warriors*. The Best Actress Oscar nomination of 13-year-old Keisha Castle-Hughes, who was only 11 when the film was made, was a testament to Caro's sensitivity and skill as a director. Niki, who wrote the screenplay with Associate Professor of English Witi Ihimaera, adapting his book of the same name, has also been honoured by her peers with a 2003 Humanitas Award, an American-based prize for film and television makers whose work offers insight into contemporary society. *Whale Rider* is the crowning achievement of the 15 years since Niki graduated from Elam School of Fine Arts in 1988. Her first feature, *Memory and Desire*, was selected for Critics' Week at the Cannes Film Festival in 1998 and voted Best Film in the 1999 New Zealand Film Awards. Niki also received a Special Jury Prize for her work as writer and director. Niki has also been a leading contributor to local television content, writing and directing a number of dramas including the award-winning best drama series, *True Life*

Stories, *Jackson's Wharf* and *Mercy Peak*. Accepting her award, Niki paid special tribute to Witi Ihimaera. “Those of us who do this work know we are only as good as the stories we tell and I was truly blessed to be entrusted with this story.”



LEN CASTLE – BSc 1946

Len Castle is widely regarded as New Zealand's greatest potter. Prime Minister Helen Clark, in a foreword to his recent book, said Len's work “epitomises the vitality of the 20th-century craft movement, its deeply indigenous origins and the sophistication of its craftsmanship and artistry.” Len's contribution to ceramic art both in New Zealand and internationally spans more than 50 years. His huge body of work – ranging from the early salt-glazed pots to the later textured forms and serene blue glazes – mark him out as a master of many forms. Len graduated with a Bachelor of Science in 1946 from Auckland, which was known then as Auckland University College of The University of New Zealand. He set out to apply his scientific knowledge to what he called “the alchemy of clay” – uniquely melding his discipline with his love of art. In 1986, he was awarded a CBE for services to

pottery and in 1990 a New Zealand Commemorative Medal for services to the country. In 2003, he was made an Icon of New Zealand Art, an honour limited to only 12 people. Len remarked that his work was “a journey that has fascinated me for 56 years. I am still as thrilled with making pots as ever before.”



DAME MARIE CLAY – PhD 1966

Dame Marie Clay is one of the world's most distinguished educational researchers in the field of literacy, whose work has benefited millions of young children around the world. Dame Marie is best known for the Reading Recovery Programme she designed to help young children with early reading difficulties. The programme revolutionised teaching practice, providing a powerful model of instruction which could be applied across many areas of education. Trialled in the late 1970s and adopted in New Zealand in 1983, it has been successfully used in Australia, Britain, Germany, Japan, Europe, Canada and the United States. Her teacher's guidebook, *Reading Recovery: Guidelines for Teachers in Training*, has sold more than eight million copies



worldwide. Being named as one of The University of Auckland's distinguished alumni is the latest of countless international awards Dame Marie has received for her contribution to educational scholarship and practice. Among the most prestigious are American awards including the David H. Russell Award from the National Council of Teachers of English, the International Citation of Merit from the International Reading Association and the Charles A. Dana Foundation Award for Pioneering Accomplishments in Health and Education. Dame Marie said she shared her award with all educators. "I think education is often taken for granted. It is nice to see it celebrated."



PROFESSOR RAOUL NORMAN FRANKLIN – BE [Hons]/BSc 1956, ME/MSc 1957, DSc; MA, DPhil, and DSc [Oxon]

Professor Raoul Franklin has made major contributions both to academic management and at the highest levels to his field of scientific research – plasma physics. As its Vice-Chancellor, he steered The City University of London from his appointment in 1978 to his retirement 20 years later. In the face of cuts in public funding, he dramatically increased the university's income by collaborating with business and industry and his innovative approach was recognised when the University won Queen's Awards for technology in 1982 and 1985, and for export in 1988 and 1991. His academic career has been equally impressive. His major work, *Plasma Phenomena in Gas Discharges*, was published in 1976 and he still publishes many papers of international

significance. Raoul graduated from what was then known as Auckland University College of The University of New Zealand with a BE Honours degree and a BSc in 1956, and an ME and MSc in mathematics in 1957. He was later awarded a DSc from The University of Auckland, and graduated from Oxford University with MA, DPhil and DSc degrees. His contribution to higher education was recognised in 1995 with the award of a CBE.



MARIE SHROFF – MA [Hons] 1966

Marie Shroff, who assumed the role of Privacy Commissioner at the end of September, has had a distinguished career in the public service, pre-eminently as Secretary of Cabinet and Clerk of the Executive Council for 15 years, where she served four Governors-General and six Prime Ministers. She was acclaimed for maintaining the impartiality of these two roles as she guided the transition to mixed member proportional representation (MMP) and into the era of coalition government. The Cabinet Office Manual in 1996, which she rewrote for the MMP environment, is widely credited with strengthening constitutional values. After graduating from The University of Auckland with an MA with Honours in English, Marie worked for the Department of External Affairs and the New Zealand Broadcasting Corporation, before being appointed to the State Services Commission in 1978. In 1980, she was seconded to the British Civil Service where she worked for three years on a programme of civil service reform instituted by the then Prime Minister Margaret Thatcher. Marie has written widely on government and constitutional issues. In 1995 she was

awarded an Australia-New Zealand Foundation Fellowship and in 2002 a Chevening Fellowship. Marie noted that she was the first public servant to receive the honour of being named one of the University's Distinguished Alumni. "I take this as a compliment to the many University of Auckland graduates who are fine public servants in Wellington," she added.



THE MOST REVEREND JOHN CAMPBELL PATERSON – BA 1966, LTh [Hons] 1969

Bishop John Paterson has brought a unique perspective to the leadership of the Anglican Church. His training in Maori communities, which began in 1972 when he was appointed Vicar of the Waimate North Anglican Maori pastorate, helped him in his vocation. In Tai Tokerau, he came under the guidance of acknowledged repositories of Ngapuhi reo and tikanga, Eru Moka Pou and the Reverend Pat Whiu, and became a more fluent Maori speaker. Bishop John majored in English and History and says Maori Studies – incorporated as his foreign-language requirement – set him on the path to understanding his own nationhood. Appointed General Secretary of the Anglican Province of New Zealand in 1988, he has served in many positions in the Church, showing a strong commitment to social justice and biculturalism. In 1988, he was appointed to the Anglican Consultative Council – the church's international representative body and elected its Chair in 2003, thus becoming the highest elected officer in the Anglican Church worldwide. Consecrated as Bishop of Auckland in 1995, he was elected Primate and Presiding Bishop of the Anglican Church in Aotearoa, New Zealand and Polynesia in 1998. **1**

TEACHER OF FILM HAD TO LEARN AS HE WENT

Retiring professor Roger Horrocks started learning his subject and teaching it simultaneously, **GREG DIXON** finds.

In the academic world, scholars steep themselves in their subjects for years before they feel qualified to teach. But it's an oddity of Professor Roger Horrocks' career that he built one of liveliest and fastest-growing departments at The University of Auckland without ever formally studying what he taught.

Horrocks, who introduced thousands to the discipline of film, television and media studies during his 36 years at the university, retired in January, having never done so much as a single film course himself.

"In the beginning I was extremely nervous because I felt I didn't know enough about the subject and so for years I spent much of my spare time learning about films and film-making," says Horrocks, who began his career teaching English with an emphasis on contemporary American literature.

"But students flocked to the course because it was the only one on offer. I had good students and in some cases they knew more about some aspects of film than I did. So I rapidly got over the notion that the person who teaches film needs to know everything about film.

"Not many people are involved in actually creating a department. I was lucky to be in the right place at the right time."

His department was a do-it-yourself creation, a lot like the local film industry. But its modest beginnings only serve to underline its later achievements. The department, or "centre" as it was originally known, has been one of the most consistent growth areas at Auckland for a decade. In 1990 there were 191 enrolments. By 1996 that figure had reached 729. This year there have been more than 2500 enrolments in courses offered by the department.

Horrocks is clearly happy with the numbers. But it is the fact that the department exists at all that gives the 62-year-old the greatest pleasure.

"In the 1960s, films were a very important part of my life, and I saw them as neither more nor less important than reading good novels. But at schools and universities you could study one and not the other. My satisfaction, I guess, is that students can now study films and other forms of media."

It was the strength of tradition that for a long time kept Horrocks' vision from becoming reality. Other staff in English and Art History had a strong interest in film – Tom Hutchins was encouraging students at Elam to try their hand with a camera – but elsewhere the idea of introducing undergraduate courses was resisted by staff who suspected it was not a "real" subject. Horrocks and his fellow crusaders had a long journey made up of small steps.

Although he began teaching an extension class in film soon after he was hired as an English lecturer by the university in 1967, it took eight years before he could offer a graduate course. It took another 14 years to be able to offer undergraduate papers, and it wasn't until 2000 that his Centre for Film, Television and Media Studies became a full department.

Horrocks is philosophical about the delay. The fears of some fellow academics – that film was an upstart form with little history, that it was popular culture and might draw students away from traditional study areas – were understandable, he says.

"You have to remember every new subject has had to earn its place. English didn't really emerge (as a subject of university

study) until the end of the 19th century, and there was an enormous resistance to it. People said: 'Why should we have students studying novels which are a form of popular culture? They should focus their energies on history or philosophy!'

"Even though film and television were among the most influential media in our society, they faced the same scepticism."

Yet Horrocks knew, as far back as the 1960s, that film courses were extremely important if New Zealand was to develop a film culture of its own. While filmmakers like Sam Pillsbury, David Blyth, Gregor Nicholas and Alison Maclean – among many others who passed through Horrocks' graduate course – were busy learning how to make movies and involved in creating the necessary local infrastructure, Horrocks knew another element was needed.

"It's not just about making films. It is also important to have some thoughtful talk about them. For people to write good scripts, there has to be good reviewing, good criticism.

"There has to be a kind of café culture where people sit around and argue about films. There have to be places for training people and for the kind of critical discussion that goes with an academic course.

"What New Zealand had to do to have a lively film industry was to build a whole culture or infrastructure. I saw my role as being involved in the teaching aspect."

The department now offers a two-year, full-time practical film-making course – from the old TVNZ building in Shortland Street, refurbished and renamed the Kenneth Myers Centre – to a selected group of students every year. But it is the other, older strand, the theory and history, that



+ **PICTURE THIS:** ROGER HORROCKS, WITH AN IMAGE BY GROUNDBREAKING FILMMAKER LEN LYE WHOSE BIOGRAPHY HE WROTE. "YOU NEED TO BE ABLE TO LOOK AT FILM AND MEDIA CRITICALLY." **PHOTO:** JOHN McDERMOTT

offers general "media literacy" skills to the widest range of students.

"You need to be able to look at film and media critically as well as appreciating what is well done. I think media studies is a crucial subject alongside English. If we have several thousand students passing through our department, they're coming to understand the media and their place in society, and their strengths and weaknesses. Books are obviously still a crucial medium but they are now only one aspect of our culture."

The media industries in New Zealand are continuing to grow. Many of the programme's graduates have gone on to play important roles in film, television, or computer-based industries. Some have become lecturers, teachers or writers in the

media field, others directors of related bodies such as the New Zealand Film Archive and the New Zealand Film Commission.

Horrocks, who published a major biography of New Zealand filmmaker Len Lye in 2001, will use his retirement to produce more books. He'll also have more time – now the long hours involved in being a lecturer and department head are gone – to actually see more films.

But with its high-powered, international team of lecturers, the department he created will not lose its controversial edge with his departure. Its graduate programme includes up-to-the-minute courses on the popular music industry, on the representation of sex in the media, and on

reality TV, alongside more traditional topics.

Horrocks has a final word for those who continue to have doubts about such courses.

"There are still people who say that it's a frivolous subject and that students are only looking for an easy option. I can assure them that it's just as challenging an academic subject as any other, if not more so. We put as high a value on reading, writing and research in the traditional forms as we do on the newer skills.

"I don't think it is an either/or proposition. Graduates are heading out into a complex, fast-changing world and they can't afford to be too narrowly trained. An understanding of media is relevant to almost every type of job today."

ALL THE WORLD IS A STAGE FOR THE MODERN UNIVERSITY

The man who shows The University of Auckland's face to the world tells PETER CALDER that the 21st-century university has to compete globally.

The University of Auckland is ensuring that it remains at the leading edge by actively pursuing relationships with overseas institutions. The university's Pro Vice-Chancellor (International), Dr Christopher Tremewan, says the modern university needs to take the initiative to maintain its position as a global player.

"The days are gone when New Zealand universities could rest on their colonial links with the Commonwealth," he says. "Now you have to have an active foreign policy and establish yourself as a player in the international higher education sector."

All the major research universities in North America, the United Kingdom and Australia are now characterised by what Tremewan describes as "the norm of diversity."

"In cultural and linguistic terms there can be no assumption that staff and students will be native speakers of English or even of European heritage. All institutions now have the benefit of a rich diversity and the challenge of using difference as a learning resource.

"The diversity comes from staff recruitment, from family migration, from student mobility and from international students paying full fees. For the first time, The University of Auckland is well-placed to relate to the Asia-Pacific region and elsewhere for the long term through the resources of its community."

International enrolments now account for more than 4500 EFTS (equivalent full-time students) or 16 per cent of the university's enrolments and is now approaching the normal level for an international research university. The total international enrolment at Auckland



+ ENSURING ENGAGEMENT: VICE-CHANCELLOR JOHN HOOD WITH THE VICE-MINISTER OF EDUCATION ZHANG XINSHENG DURING THE MISSION TO THE PEOPLE'S REPUBLIC OF CHINA.

places it at the top in New Zealand and is comparable to that of leading research-intensive universities internationally – Auckland would rank sixth in the United States, tenth in Australia and fifth in the United Kingdom.

But Tremewan says the international focus has always meant much more than simply attracting foreign, full-fee-paying students. The university is energetically pursuing relationships with key overseas institutions which will increase research collaboration between top staff and academics in other countries.

This policy drove a mission in March, led by the Vice-Chancellor, to the People's Republic of China.

The tour took in four of The University of Auckland's partner universities in the two high-level alliances to which it belongs – Universitas 21 and the Association of Pacific Rim Universities (APRU).

The visits were to Zhejiang in Hangzhou; Fudan in Shanghai; and Peking and Tsinghua in Beijing.

The Chinese government has embarked on an aggressive programme of funding the country's top universities to raise them to the level of the elite Ivy League colleges. Meanwhile, participation rates in higher education have almost doubled – from 8 to 15 per cent – since 1998.

In a country with a population of 1.3 billion, that adds up to some pretty serious numbers and Tremewan says the Vice-Chancellor's tour was dedicated to ensuring greater engagement between these leading Chinese institutions and The University of Auckland in research and education.

"China is going to be a major global force in research and we need to have a relationship at the collaborative institutional level. Collaborative research and teaching will enrich the basic

academic linkages we already have and increase the flow of top-quality students both ways.”

For all that, The University of Auckland is conscious that being internationally focussed does not take place only in the higher levels of research.

The modern university has to be international not just in its relationships but in the way it conducts its core activities of teaching and learning, says Tremewan.

“This means exposing our own students on our own campus to a broad range of internationally qualified staff and to high-quality students of many backgrounds and different nationalities.”

Tremewan sees international students as a learning resource who can help us understand the countries of the Pacific Rim and also offer us the chance to have alumni all over the world who will have a loyalty to The University of Auckland.

The advantage of such a strategy is obvious. To take China as an example, almost half of the 120,000 students from that country who travel abroad to study will return home. Emphasising its international relationships will mean that New Zealand in general and The

University of Auckland in particular will establish good contacts with a broad base of people in one of the world's powerhouse economies. By the same token, the day-to-day contact between university staff, graduate students and undergraduates from New Zealand and China will create a solid body of New Zealanders who understand that country.

The China mission followed tours to the Arabian Gulf states, Central Europe, the European Commission and Latin America in the second half of last year

“New Zealand is seen as being on the edge of the world,” says Tremewan. “We have to make sure that we are at the centre in terms of its international reputation. International flows of capital, technology and intellectual property are paralleled by human capital flows because education is the formation of human capital.”

The lessons of the Knowledge Wave conferences, which The University of Auckland organised, is that this country must work harder than most to attract and retain the best graduate students who will ensure the long term competitiveness of the economy. That will not be

accomplished by discouraging the world from beating a path to our door.

Tremewan explains that New Zealand is competing for the best staff and students with other advanced countries who are recruiting internationally.

“Germany and France are now teaching graduate students in English so that they can get their share of students and maintain their economies over the long term. We're in competition with that.”

It's important that the traffic is not only one-way which is why Tremewan's office oversees a programme which encourages Auckland students to do at least part of their undergraduate study overseas. 360° Auckland Abroad is a student exchange system between The University of Auckland and more than 65 university exchange partners throughout the world, which aims to send out 500 undergraduate students per year for one or two semesters.

“This will not only increase the quality of their academic work by exposing them to the teaching in other institutions but will make them more international and adaptable, and so more employable.”

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THINKING CRITICALLY IN A WHOLE NEW WORLD

The University of Auckland was an attractive option for Yinghua Hu – whose New Zealand name is Nancy – and Celestina Weng Tung Chang when they decided to study abroad.

The two women say they are enjoying the balance of work and leisure at Auckland.

Nancy, 23, who hails from Guangzhou in the People's Republic of China, studied in Seattle in the northwestern United States for three years until her plans were interrupted by a family emergency. When she restarted her studies she decided on a change of scene.

“I heard about this place from my Mum's friend who said it is very suitable for study.”

She is in the second year of a Bachelor of Commerce degree, majoring in management.

Celestina, 19, who is doing a Bachelor of Science honours degree in biomedical science, came to Auckland from Malaysia because she has family here.

She says the city offers a good balance of entertainment and the advantage of studying at a top university.

Studying in another country can be a daunting experience. Nancy says that her first day was confusing, but once she got used to queues and found her department, things got easier.

The New Zealand Chinese Students' Association, of which she is president, has a chapter at The University of Auckland which helps students deal with problems that can crop up.

“We put on welcome parties and help them to make friends because many arrive here without friends.”

Celestina says that the university courses are very different from what she is used to.

“There's a lot less spoon-feeding,” she says. “You are supposed to be more independent. It's more about learning how to learn. And that's good because you learn at your own pace. It's cool. They're training us to think more critically.”

Neither woman has yet decided what she will do after she finishes study.

“If there is a job opportunity I would like to stay here or maybe go to some other



+ CHANGE OF SCENE: CELESTINA CHANG AND NANCY HU.

country,” says Celestina, underlining the fact that graduates now move and compete globally. “But maybe I could bring some difference to what is happening at home especially in the medical field.”

Nancy agrees.

“I feel if I stay here I will maybe get some good experience,” she says, “but my final place will be my home town because I would like to take the knowledge back and make some contribution there.”



NEW MODEL FOR ARTS PUSHES THE BOUNDARIES

The university adopts a multi-disciplinary approach to the collaborative arts.

✚ **FOR ART'S SAKE:** PURE ART IS LIKE PURE RESEARCH, SAYS DEAN SHARMAN PRETTY.

PHOTO: GODFREY BOEHNKE

The dean of the university's newest faculty faces a challenge that might reasonably be compared to replacing the piston rings in a car while the engine is running.

Professor Sharman Pretty took up her appointment as the Dean of the National Institute of Creative Arts and Industries which consolidates the schools of Architecture, Creative and Performing Arts, Fine Arts and Music and the Department of Planning. It replaces the Faculty of Architecture, Property, Planning and Fine Arts (APPFA) whose property component has been integrated into the Business School.

Pretty headed the Sydney Conservatorium of Music from 1995 until arriving in Auckland and presided over the \$A145 million redevelopment of that institution's music facility.

No stranger to the concert platform herself, Pretty is an oboist whose credits include soloist spots and principal positions with the Melbourne Symphony Orchestra.

Now, leading a faculty which will nurture the talents of the university's best creative artists from several disciplines, she is concentrating her efforts on configuring a new faculty which will emphasise "interconnectivity in the collaborative arts."

"It's the way things are moving now, internationally," she explains. "The more famous traditional stand-alone institutions

such as the Royal College of Music are finding they cannot continue to exist as silos."

To some extent it's a numbers game: enrolments in the faculty's component schools are not large enough to sustain any one art form from alone. But the benefits are as much conceptual as practical.

"We are a much more interconnected world now – everything is about finding ways to break down the silos and push for multidisciplinary approaches. If everybody is under one umbrella the chances are much higher of, say, fine arts and music finding something to do together."

New Zealand is remote from the Western art forms that we study and any new model of arts education must recognise that we operate in an entirely different environment from those in the northern hemisphere, Pretty says.

"The employment situation is different, the Pacific and Maori influences – not to mention the levels of Asian immigration. We have to train people for the world they are going to be living in."

A revitalised Music School, which will incorporate the popular music and jazz streams that have been under the aegis of the School of Creative and Performing Arts (SCAPA), will be distinguished by the presence of the acclaimed New Zealand Trio who will work as teachers and artists in residence as well as being the school's flagship performance ensemble.

The trio, violinist Justine Cormack (the leader of the Auckland Philharmonia), cellist Ashley Brown and pianist Sarah Watkins, has been acclaimed here and in the United States (William Dart in the *New Zealand Herald* described them as "an innovative and energised ensemble, bringing varied and inspired performances to audiences here and abroad."

But the key to the future is the transformation of the faculty into a National Institute of Creative Arts and Industries, which Pretty describes as "a vehicle through which people will come together and get talking and collaborating on research and creative output."

"It's about being a conglomerate. Of course you have to have a good level of technical background in your own discipline, but once you've got that, anything's possible."

Artists can practise esoteric art forms for their own sake but at the other end of the spectrum is commercialisation, be it pop music and dance for making television commercials or design for packaging.

"Pure art is like pure research. The purpose of creative arts in the universities is to push boundaries."

"In engineering there is pure research going on which will inform developments which will be commercialised. When we talk about creative arts and industries we are talking about conceptualisation in its pure form and the ways you apply that." ●

– PETER CALDER

Show remembers university architect

The American-born Roy Alstan Lippincott is best remembered as the architect of the Old Arts Building, now known as the ClockTower. Its landmark tower forms a strategic line of vision from Victoria Street through Albert Park.

Commissioned as a result of an international competition for the university's first purpose-built building on Princes Street, it helped define the university's architectural spirit.

Roy Lippincott combined traditional architectural elements in the stone detailing with local decorative motifs such as flax flowers, ponga fronds and kaka. He also designed what is now the Lippincott Cottage and the Biology Building.

His work is celebrated in an exhibition, *The Architect of the Tower*, at the Auckland War Memorial Museum which runs until early May. It is co-curated by Jane Wild, Library Manager for Architecture, Engineering, Fine Arts and Music at the university, and Louis Le Vaillant, the

Museum's Curator of Applied Art.

Lippincott designed not only buildings but also interiors, furniture and gardens. Much of the exhibition consists of furniture drawn both from the museum's collection and from the university where some of it is still in use.

There is also a one-hour presentation of still and moving images from the university's Architecture Archive, the Library's Special Collections and the Art History Image Database.

The curators hope the exhibition will encourage people who own Lippincott furniture or photographs of his work to contact the museum about what they have.



DEFINING SPIRIT: THE LIBRARY IN THE OLD ARTS BUILDING, NOW THE CLOCKTOWER.

New school shows face to public

Four clinics open to the public are the most immediately visible face of the new School of Population Health complex at the Tamaki Campus.

They offer a "one-stop shop" for assessment and treatment in Audiology (hearing and tinnitus), Occupational Medicine, Optometry and Speech Language Therapy.

Undergraduate and postgraduate students, supervised by senior practitioners, work with specialists at the clinics as part of their training. This gives clients access to specialised health assessment and therapy at affordable prices while training the health professionals of the future.

The clinics occupy the ground floor of the four-level School of Population Health which is now being

progressively occupied. They have been relocated there from their previously scattered sites in Remuera, Manurewa and on the Grafton campus as well as elsewhere at Tamaki.

The school offers new thinking, new structures and new technology designed to serve as a model for population-based, community-centred healthcare for New Zealand and the region.

The concept of having an entire school specifically focused on the needs of population health is unique in New Zealand, says the school head, Professor Alistair Woodward. "Nothing on this scale has been done before."

The building received a traditional Maori ceremonial blessing in February. The official opening is scheduled for May.



NEW THINKING: THE SCHOOL OF POPULATION HEALTH.

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