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Chronicle

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INSIDE YOUR
Chronicle

UNIVERSITY OF CANTERBURY
Five Royal Society Fellows appointed.

JAN 2000

Dugald McDonald retiring.

LIBRARY

Vibrant biology posters printed.

Graduation, December 1999

A white Christmas after all ...

While many New Zealanders headed for sunny spots to pitch their tents over the holiday period, 13 Graduate Certificate in Antarctic Studies students spent Christmas camping out and studying in Antarctica.

Course co-ordinator Professor John Hay said the group was treated to "perfect" weather on Christmas Day with clear blue skies, no wind and an early morning temperature of -6.5 degC.

The programme is the only graduate level course that includes field studies in Antarctica. Run by Gateway Antarctica and the Centre for Continuing Education in association with Antarctica New Zealand, the course is in its second year and has been of interest overseas, with students from the United Kingdom and Australia enrolling.

With students ranging in age from 22 to the early 60s and from backgrounds as various - from an accountant, architect, engineer and artist to two veterinarians and other science professionals - Professor Hay

said the group shared a long-lasting interest in Antarctica, for most dating back to early childhood.

Going to Antarctica early in the season allowed students to undertake studies that would not be possible later in the season, including travelling on sea ice to study a seal colony.

Landing on the Ice on 14 and 15 December the first task to face the students was Antarctic Field Training (AFT), followed by fieldwork and project work, involving historical, geological and wildlife studies.

The 14-day fieldtrip included travel for several hours across the sea ice by Hagglund to visit Scott's Hut at Cape Evans, Shackleton's Hut at Cape Royds and the penguin rookery.

A visit to the United States Antarctic base at McMurdo Sound afforded students the opportunity to be briefed by American scientists at Crarey Laboratory, including being updated on studies of the endangered Antarctic toothfish.

The students had project work to carry out over four days - geology at Castle Rock and seal census work at Hutton Cliffs.

"Recording seal numbers, roughly in the embayment between Hut Point and the Erebus Ice Tongue, involved a 6 km walk on the sea ice, identifying seals by their tags and recording their sex. With four days of data, and reference to census data from previous years, much can be learned," Professor Hay said.

The students spent seven of 14 days camping in tents a few hours from Scott Base. Two polar havens were used to store equipment and would have been used if the weather turned bad.

"During the camp, students were rostered to take weather readings (including temperature, wind speed and direction) at 0900 and 1800 hours. They also had to complete one of three interviews related to a social science project on personal expectations, realisations and reflections related to the Antarctic experience."

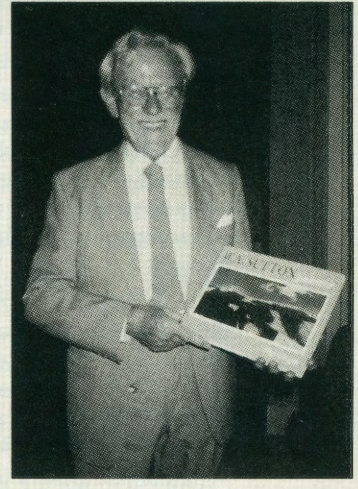
As part of Gateway Antarctica's involvement in the course a \$2500 scholarship was awarded. This year's recipient, Kathryn Yusoff, travelled from the United Kingdom to attend the course. A design teacher at Clifton College, Bristol, Kathryn is also finishing a masters degree in visual culture at Bath University. Her research project for the course focuses on visual communication and the



Photo by Dr. Brian Stewart

A "perfect" day for an *al fresco* Christmas dinner. Mt Erebus, in the background, keeps an eye on festivities.

W.A.Sutton



The University was saddened to hear of the death at the weekend of W A "Bill" Sutton, one of New Zealand's most famous painters. Bill Sutton died in Princess Margaret hospital on Sunday (23 January) aged 83. A lecturer then senior lecturer in the school of Fine Arts for 30 years, he retired in 1979. He is known for his landscapes and fine portraits. A full obituary on Bill Sutton will appear in a forthcoming *Chronicle*.



A white Christmas...

◁ p.1

processes by which images communicate people's values and fears about Antarctica to much wider audiences.

Kathryn spoke highly of the course, its leadership and the access to key personal and decision makers. "It's an excellent initiative by the University and Antarctica New Zealand. If we are going to protect the place, we need people interested and informed about it. In terms of creating that, this course is very effective. The multi-discipline aspect is essential for creating Antarctic advocates."

Kathryn believed "camping out" was crucial to understanding Antarctica, although she admits going to sleep in such an extreme environment with 24-hour daylight was difficult. "You just don't want to switch off."

On Christmas Day the traditional Christmas dinner was served in the presence of Mount Erebus and at an ice table, carefully sculptured from the Ross Ice Shelf, with the party basking in a sunny 0degC. Turkey was served with all the trimmings, followed by Christmas pudding with brandy sauce.

Professor Hay said each person had taken a small gift to exchange with another in the party and a Christmas decoration to brighten the table. A walk through the massive Imax Crevasse, after lunch, made Christmas day activities rather unique.

The intensive course runs over three months, from November to February, and is equivalent to half-a-year full-time academic study. Recently receiving NZQA accreditation, the course will become part of the University's regular academic offerings in 2000.



Wing Commander W.D.H. Smith was a distinguished officer in the Royal New Zealand Air Force when I appointed him Assistant Registrar (Buildings) in 1961. I remember discussing with him the big change this would be in his life - from commanding the Royal New Zealand Air Force Station at Woodbourne with hundreds of staff responsible to him, to what was a new and almost one-man job at the University. Before this I had been doing all the buildings (section) work myself as part of my duties. Furthermore he would become "Mr" Smith - but, of course, later we all knew him as "Han" (or incorrectly, "Ham").

He was unperturbed - and unperturbed is the word I would use to describe him throughout his distinguished career as buildings registrar at the University. But he was also efficient, understanding and painstaking in all that he did. As the move from the city site to Ilam intensified and progressed he quickly built up a big staff to assist him. Don Gunn (his successor) became his right-hand man. I recall the many times Han would come to my office, walk in and hand over an important draft letter. Every time he would simply say - "All I have done is dirty the paper, knock it into shape." It was always crisp, to the point and well-written. Rarely did I make an alteration. The Buildings section of the Registry could be expected to run smoothly - Han could be trusted and I knew I would be alerted if needs be.

One of Han's great qualities was his ability to work closely with other people. In the move to, and development of, Ilam, our consulting architect was the government architect, although we did use private architects for many buildings. Han built up a close relationship with successive government architects. There were many in his time but two with whom he became very close friends were John Blake-Kelly (affectionately known as "Ned") and Gray Miskimmin.

Mr W D H ("Han") Smith



A campus visit in the early 1970s. Han Smith at extreme right with Garth Turbott on his right.

It was after working very late one night (as we often did) poring over plans, that Gray and Han drove home to Cashmere and, obviously because of fatigue, failed to see a train approaching on a level crossing at Sydenham. They both ended up in hospital, fortunately not seriously injured. Han, too, had close working relationships with private architects such as Keith Mackenzie of Hall and Mackenzie and Miles Warren (now Sir Miles) of Warren and Mahoney when they were designing buildings on our campus. With all these people he got the University's point of view across while weaving their expertise into the building and environmental process. There is no doubt that Han's influence in the creation of a great campus at Ilam was immense.

It was always pleasant visiting the proposed site of new buildings or the half finished or completed project with Han. He was such good company. On one occasion we travelled over to Harihari to see the partly-completed research station which Keith Mackenzie had designed. The three of us stopped at the Otira pub for refreshments and lunch. Han produced a very smart but large fedora hat and posed in front of the pub as publican while we took photographs. Unfortunately I have lost my photo. Neither can I completely vouch for his story that, but for certain circumstances, he really would have inherited the pub, since forbears of his had been its owners. He certainly looked the part and he certainly had great affection for Otira and the West Coast.

As I have said, Han was a good

friend as well as an able administrator and he had many other friends - he made them easily. On a Friday night, almost invariably, he could be found at the Officers' Club sipping beer from his own pewter mug. He was deeply attached to his church and his family. He followed most closely their progress and was always happy and proud to talk about their achievements.

In all that he did Han was ably supported by his wife, Rima. His death should cause a recall of all that he did during his 18 years as assistant and then deputy registrar (buildings) at the University. No one did more in completing the successful move from the crowded city site to the greener and more spacious Ilam.

("Han" Smith died in Christchurch on 30 October, aged 85).

Garth Turbott,
Registrar 1957-79

Chronicle

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Five Royal Society Fellows in 1999

Five Canterbury University academics were among the 19 New Zealanders made Fellows of the Royal Society of New Zealand late last year.

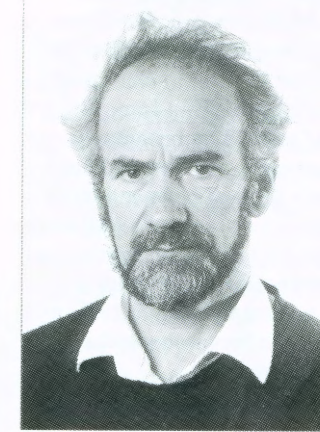
Professor Jeremy Astley (Mechanical Engineering), **Associate Professor John Bradshaw** (Geological Sciences), **Associate Professor Garth Fletcher** (Psychology), **Professor Peter Harland** (Chemistry) and **Associate Professor Steve Weaver** (Geological Sciences) were all judged worthy of the Royal Society's highest honour for their distinction in research and their efforts to advance science and technology.

Excellent research by two Canterbury researchers has also been rewarded by the society. **Dr Claire Vallance**, a Marsden Postdoctoral Fellow in the Department of Chemistry, was one of two recipients of the 1999 Hamilton Memorial Prize for beginners in scientific or technological research while **Rachel Johnston**, a PhD student in the Department of Electrical and Electronic Engineering, was awarded the 2000 R H T Bates Postgraduate Scholarship for PhD students. Their achievements will feature in a forthcoming *Chronicle*.



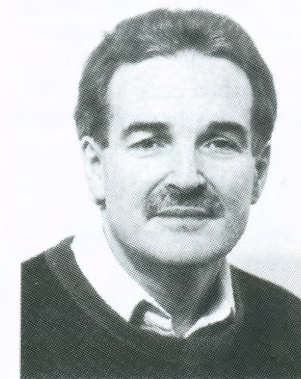
Professor Astley (above) is currently an acknowledged world expert in the area of computational acoustics and its applications. He formulated and developed the concept of wave envelope elements in computational acoustics, which has led others to adopt his novel methods and then use

them as the basis for many practical applications. He has now turned his attention to transient acoustical problems and is a leader in the field.



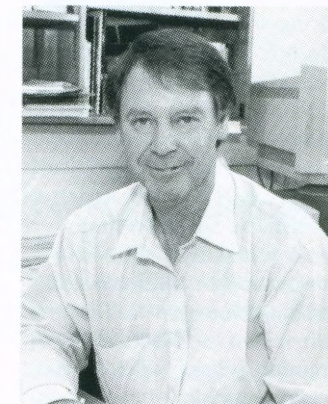
Professor Bradshaw's

(above) election to fellowship is based on his profound contributions to the modern understanding of New Zealand mesozoic geology - the "backbone" geology of the country. It also reflects his wide-ranging research relating New Zealand rock assemblages to those of other countries of the southern Pacific Rim, notably Antarctica and Chile, and his effective promotion of New Zealand/Antarctic geological research at the international level. His research focuses on tectonics through the investigation of rock structure, stratigraphy and the sedimentary record.



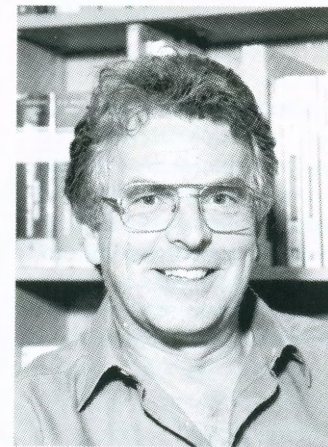
Professor Fletcher (above) has a substantial international reputation in social psychology and is regarded as a world leader in the science of close relationships and social cognition. He is an innovative researcher whose work on the

cognitive processes underlying close relationships has been cutting-edge in its methodological and statistical sophistication. He has pioneered techniques of structural equation modelling in relationships and has extended the methods available for exploring cross-temporal changes in basic relations processes.



Professor Harland (above)

is a leading authority in the field of experimental and theoretical studies of electron ion and molecule interactions. Using extremely complex apparatus designed and built in his own laboratory, Professor Harland has carried out important pioneering work in the areas of ion mobilities and electron impact ionisation.



Professor Weaver (above) has made major contributions to earth science in the geochemistry and petrogenesis of igneous rocks related to fundamental plate margin processes of continental rifting and subduction, and to "hot spot" activity within plate interiors.

More recently, **US Research** has been directed towards the comparative geochronology and granitoid magmatism in New Zealand and the Antarctic, which has helped to confirm strong links between New Zealand and Marie Byrd Land prior to the break-up of Gondwanaland.



Y2K ok

The University passed into the year 2000 glitch free and returned a nil report to the State Services Commission.

Y2K project manager Robin Harrington said all computer systems were checked on 1 January and no problems were revealed. He credited this to the University's preparedness. Mr Harrington said he did not envisage any problems occurring with leap day at the end of February.

Adjunct professors

Professor Ulrich Schreiber, of the Technical University of Munich, has been invited to be the University's first overseas adjunct professor, based in the Department of Physics and Astronomy. Professor Schreiber has had a very close involvement with the Canterbury Ring Laser project.

Dr David Painter has been invited to be an adjunct professor in the Department of Mechanical Engineering.

Both appointments are for an initial term of three years.

Mr John Matson

Former University chancellor **John Matson**, a well-known Christchurch barrister and solicitor, died in the city on 18 January aged 85.

Mr Matson was chancellor from 1973 until the end of 1977. A full obituary will appear in a forthcoming issue of the *Chronicle*.

Struggle to get Social Work recognised at Canty



which happened to be the first ship through the Suez Canal after the Suez Crisis in 1957.

Returning to New Zealand in 1959, Dr McDonald embarked on a 17-year career with the

Department of Social Welfare, during which he gained a BA in psychology and education from Canterbury, a Diploma in Social Work from Victoria University and an MA in education from Massey University. He held a variety of roles in the Social Welfare Department both as a field worker and an administrator, and spent four years as deputy principal of the National Boys Training School in Levin prior to taking up his lectureship at Canterbury.

In 1988, while teaching at Canterbury, he gained his doctorate on child welfare in New Zealand from 1840 to 1982, just heading off his son, also Dugald McDonald, who finished a PhD in chemistry at about the same time.

Dr McDonald's career teaching social work at Canterbury began when social work was in its infancy at the University. In January 1976 he was the second lecturer appointed to teach the first intake of students that same year. Associate Professor Ken Daniels, who is still with the Department, had been appointed the previous year to establish the course. Prior to the opening of the Canterbury course the only school of social work was in Wellington.

Social work started as a unit within the Department of Psychology and Sociology – a situation which created tensions due to ideological differences, Dr McDonald said.

“We would be teaching in one room on how to live with the system and humanise it, and in the next room someone would be preaching Marxist revolution and state apparatus, and that social workers were the agents of social control.”

But in 1978, Sociology formed its own department.

Later again, in 1983, Social Work split from Psychology to become a stand-alone department. During that evolutionary process, Dr McDonald held positions of senior lecturer-in-charge of the Social Work Unit from 1980, and in 1983 he became the inaugural, and first and only New Zealand-born and trained head of a school of social work in New Zealand, a position he held until 1990. He was reappointed Head in 1995, a position he vacates on his retirement.

During his time at Canterbury, Dr McDonald followed up on a section of his thesis and undertaken research on the British child migrants who came to New Zealand from 1949 to 1954 as state wards. He has been co-opted in this role by the British Child Migrants Society of New Zealand as their honorary research officer.

But on the eve of his retirement from Canterbury it isn't superficial anecdotes that the self-confessed “greybeard” trots out. Rather, he speaks of the struggle involved in getting the social work discipline recognised as a valid intellectual pursuit within the University community.

“It was quite bizarre the kind of conservative, uninformed attitudes that the so-called intellectuals here had about the place of social work in the University. They'd scream if their kids had gone to school with teachers who'd never had a formal education or were nursed by people in hospitals who had no training. But somehow social work was different.”

Although the Department is accepted now, achieving that status had not been easy, he said.

He recalled an occasion addressing the Professorial Board on the role of social workers and the service they provided, making the point that it was not just something that concerned other people. Dr McDonald illustrated the point by relating how a retired

University staff member ended up in a situation of major incapacity requiring a social worker to manage their affairs and that it was possible that the same situation could happen to the board members in their dotage. “Self-interest appealed to them a little bit,” he added with a smile. “When I get to a retirement home, I want to make sure that the people who look after my affairs know what they're doing.”

From its beginnings of teaching 25 students per year in a postgraduate diploma setting, the subject has been taught in a four-year bachelor programme since 1998 – two years studying followed by professional training involving fieldwork. Dr McDonald said he was very pleased with the establishment of this new Bachelor of Social Work course, citing it as his “biggest achievement” during his time at Canterbury.

“I see this as very positive for the profession because in my day you had to be 25 to be appointed as a social worker, unless you were a trainee. The people were brought in – the men from teaching, the women from nursing – so they had this twin-career option they could go backwards and forwards. They didn't have a great commitment to social work.

“So getting people early, and locking them in and getting them to make a professional commitment, is very helpful.”

And so what of retirement? Dr McDonald quotes his grandfather: “I'm laying down my tools to carry bricks.” He is retiring from teaching here to go, together with his wife, Shirley, to teach the subject in Zimbabwe for six months from July through a Rotary Foundation programme. The trip will also give him the opportunity to pursue his love of fishing – a pastime for which living in Christchurch gives plenty of scope, with regular trips to the Waitaki Valley and the West Coast. Fishing in Zimbabwe may be more exciting however, “amongst the crocodiles and hippos.”



Call Centre popular for pre-enrolling

Nearly 80% of the 10,375 pre-enrolments made by the 14 January deadline were taken by telephone in the 0800-VARSITY (827 748) Call Centre.

Canterbury's Student Administrative Services Manager Linda East said she was delighted with the success of the University's Call Centre and the number of people who pre-enrolled by phone. Two teams of six postgraduates staffed the Call Centre during its busiest week at the start of January, when as many as 1500 phone calls were received on one day.

Mrs East was also pleased with the number of pre-enrolments by first-year students, with 3050 taken to date.

In past years the University had used outdated systems for pre-enrolment and the data entry process had crashed more than it had worked, she said. That was the catalyst for the streamlined pre-enrolment operation, which saved time

and effort by reducing the amount of paper and files being handled

Marketing Manager Brigitte Murray said the number of first-year pre-enrolments was “encouraging”, given it was “very hard to grow at this time”.

“The number of 18-year-olds in New Zealand this year has hit a low of 50,000, according to Statistics New Zealand. At no other time in the next 40 years is that number projected to be as low again. From about 2003 on there is likely to be a rapid increase in 18-year-olds, peaking at around 64,000 each year between 2012 to 2016.”

There had been very good awareness of the 0800 number and the University, helped by the consistent image on materials with a marketing perspective, she said.

Enrolment starts on 14 February, with the first teaching day of the year the following Monday.

Arts & Letters Daily sold to US buyer

Fine Arts Associate Professor Dr Denis Dutton has sold his web site *Arts & Letters Daily* to the New York-based publisher of the magazine *Lingua Franca* a year after setting up the site.

Described as a site for the “educated Web surfer”, *Arts & Letters Daily* proved a runaway success, recording an estimated 250,000 hits a month and being rated the world's top Web site by the *Observer* last year.

Professor Dutton believed *Lingua Franca* was the perfect home for the site because of its provocative nature.

He will act as a part-time consultant for the site to monitor the editorial quality of the page but the main operations will move to New York with James Ryerson taking over the editorial role. “James is a very bright young editor who has worked for the Internet magazine *Feed* magazine and published widely in United States magazines.”

After getting up early to work



Operations in the UC call centre based in the MSCS building.

New Psychology system best bar none

The Psychology Department has found the solution to an identity crisis of gigantic proportions.

Tracking students' pieces of assessment had turned into something of a nightmare for secretarial staff in the department, according to senior lecturer Paul Russell. With 800 students in a first-year class, some of whom don't write clearly or don't copy their student ID number from their student ID card correctly, making sure that each student has handed the right piece of assessment in and that the right individual gets the right mark back could take some doing.

A group of the department's academic, programming and secretarial staff working together have successfully developed a barcode-based system for tracking the work. Each has a coversheet with a barcode version of the students' ID number printed on it. When the work is submitted it is passed under a “wedge” — a barcode reader attached to the secretary's computer. The computer reads the number and accesses the appropriate student's database immediately and receipt of the item is recorded.

(Speech and Language Therapy), Arthur Grooby (Psychology) and Charmaine Macpherson (Psychology).

When the markers have finished and the work is returned to the secretary once again, the ID barcode is scanned and brings up a screen on the computer for the mark to be entered. Mr Russell said the system identifies any essays not returned by the marker and saves on clerical work. Often the only time the essays require sorting is into lab or tutorial streams for returning to the student.

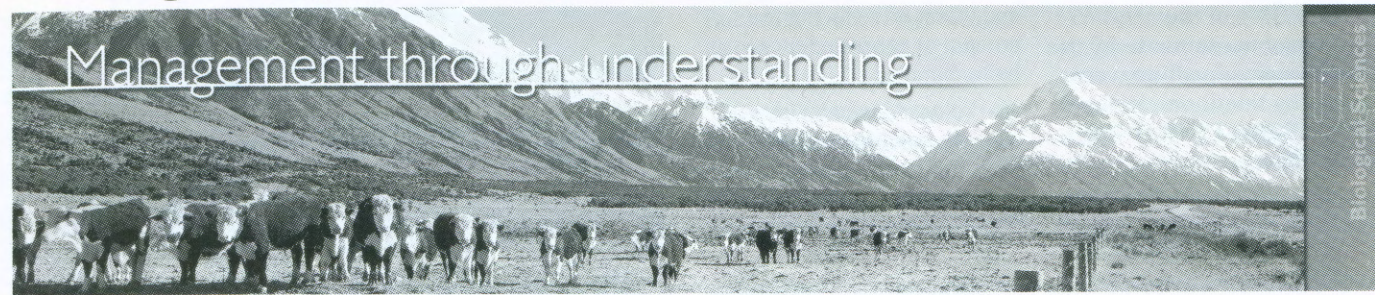
Getting the barcoded coversheets to the students has been tackled in a number of ways. For students who use the department's computer labs it was relatively simple to install the necessary software to enable students to access a file once they have logged on to the system. Using their usercode enables them to print a coversheet with their name and ID number printed both numerically and as a barcode. For those students who don't use the computer as a matter of course, a year's supply of sticky labels containing the same information is issued at the secretarial office early in the academic year.

In a wider context, Mr Russell suggests that if the system was adopted across the University, students could print their own coversheets in the campus libraries or computer labs.

He said that for the \$300 price tag of the wedge barcode reader, any department could enjoy the advantages the system provides.

Photo by Duncan Shaw-Brown

Striking biology posters sent out



Vivid, vibrant posters illustrating exciting themes in the biological sciences are on the way to every secondary school in the country.

The six 1m-long banner posters - entitled "Life on the edge", "Mechanisms of life", "Management through understanding", "A slice of life", "Powerful organisms you can't see" and "Investing in biodiversity" - are the brainchild of Plant and Microbial Sciences Department lecturer Dr Matthew Turnbull. Designed

by former External Relations designer Alastair Wilson, other contributors were Dr Ashley Sparrow (Plant and Microbial Sciences), Dr Drusilla Mason (Zoology) and Dr Angus McIntosh (Zoology).

Dr Turnbull said the aim of the eye-catching posters was to show potential students that the biological sciences were stimulating and innovative, and that a good background in biology was the basis of a rewarding career. The subjects depicted were among those pursued actively at Canterbury. Each theme is explained on the

back of the poster, along with general information on the biological sciences and programmes of study. The launch of the poster series is expected to coincide with a new biological sciences home page on the University web site, featuring links to relevant departments and programmes.

Dr Turnbull said a set of resource kits was planned as a follow-up to provide classroom activities and discussion topics based on the posters. "We hope this will have the effect of providing support to

biology teachers and enthuse students about the scope of the biological sciences," he said. The posters feature an Adele Penguin on an ice sheet ("Life on the edge"), a cross-section of a leaf magnified 1000 times ("A slice of life"), a montage of DNA-carrying organisms ("Mechanisms of life"), beef cattle near Mount Cook ("Management through understanding"), campylobacter ("Powerful organisms you can't see") and a mixed podocarp-angiosperm forest in Westland ("Investing in biodiversity").

Genesis of ball lightning studied

What's usually about the size of a soccer ball, glows brightly for between 10 seconds and a minute, and drifts slowly, often with the wind as though it is fizzling discharging electricity?

The answer is a naturally-occurring phenomenon few of us can hope to see which has been recorded a thousand-odd times but has surely been seen many times more - ball lightning. The above description and information comes from Dr John Abrahamson of the Department of Chemical and Process Engineering who, despite studying the phenomenon since 1990, considers it "an enigma".

Since then, Dr Abrahamson has been theorising, modelling and attempting to produce ball lightning in a laboratory - work he began with a physics MSc student in 1990 which has progressed piecemeal since by way of research projects for final-year BE(Hons) students.

Dr Abrahamson is optimistic this decade-long pursuit of the workings of such an elusive

subject is getting somewhere, with a paper due to be published in *Nature* in February.

The investigation started by looking at the possibility of natural gas leaking from the earth's surface combining with a localised vortex or "dust devil" to produce ball lightning. Dr Abrahamson said although experimentation showed that such events could lead to "quite a compact ball of flame" in a laboratory, he was uncertain it would occur naturally. "I'm not really too convinced of it being

very probable that you would get a supply of natural gas or something similar and a dust devil at the same time."

The work's focus moved to a new approach that an "ordinary" lightning strike initiated ball lightning. He said when lightning struck soil or wood, there could be enough silica and carbon present to combine when vaporised by the lightning-generated high temperatures. As this vapour cooled it recondensed into tiny particles which "were probably" silicon monoxide -

not fully oxidised - which "would form chains and a whole network and essentially enclose air." This silicon monoxide would be unstable and ready to oxidise further.

Attempts to create these particles in the Electrical and Electronic Engineering Department's high tension laboratory had been "positive", he said. "We've been trying to simulate lightning strike on soil and we found huge numbers of these little networks of particles - very tiny, about 25 nanometres in diameter (25x 10⁻⁹ metres) - and they were in the form of long chains.

"So we are quite bucked up over that but we realised these little particles were so delicate that the blast of the lightning would blow them away," he said. Lightning typically went into the soil melting it and creating residues of molten sand in a tubular shape called fulgurites. A "burp", which he described as just like a smoker's puff, of high temperature vapour could issue from the natural cavity of the fulgurite. The burp had a



Dr. John Abrahamson (centre) and the "ball lightning" machine.

Highlights of stunning graduation

Graduation on Wednesday 15 December was a stunning occasion. With nary a cloud in the sky, the sun blazed down on students, staff, families and friends who gathered to celebrate the special day.

Academics and members of the University Council turned out in force to march to the Christchurch Town Hall and filled the Auditorium stage. Assistant Registrar (Academic) and graduation *doyenne* Francine Barnes said the 103-strong turnout on stage was the largest she had seen.

Four hundred and three students from across the faculties graduated, more than half of them from overseas. In an address at the start of the ceremony, Vice-Chancellor Professor Daryl Le Grew told graduands they had the responsibility of adding to the social betterment, economic well-being and cultural development of their communities.

That had to be done in the context of a planet with finite resources. Those that could empathise with other cultures would increase tolerance of differences and this would lead to a genuine accord from which peace would grow.

Professor Le Grew reminded students it was their role to be generally critical of the *status quo* while using their imagination to think how things might be. He also told them they were effectively the "knowledge economy".

A highlight of the ceremony was the awarding of an honorary DSc to Professor Warren Roper, one of New Zealand's most distinguished scientists. The oration was delivered by the Head of the Department of Chemistry, Dr John Blunt.

Another highlight was the presentation of the inaugural Teaching Excellence and Innovation Award to Dr John Newton of the Department of English. Dr Newton was introduced by the Head of English, Dr Denis Walker.

Professor John Hearnshaw of the Department of Physics and Astronomy was conferred with a DSc for his contributions to research in astronomy and astrophysics over many years. The Dean of Science, Dr Kelly Duncan, delivered Professor Hearnshaw's oration.

Excerpts from these orations and from the graduation address given by Professor Carolyn Burns, Head of Zoology at the University of Otago, feature throughout this *Chronicle*.



Graduates parade through the streets of Christchurch.

Fulbright gets MSc.

From Virginia in the United States, MSc graduate in plant ecology, Laura Sessions, came to New Zealand to study on a Fulbright Scholarship. Her thesis examined the effects of possums on native mistletoe, a problem unique to New Zealand. Next year the 25-year old will begin a PhD at Canterbury.



Photos by Duncan Shaw-Brown

Ball lightning study

vortex in which the networks of silicon monoxide could form, he said. With the use of modelling techniques, Dr Abrahamson and his research students have describing the continued heating of the sphere due to further oxidation and its lifecycle.

To glow it needed to be between 900°K and 1400°K. If the vapour temperature was lower than 900°K when it entered the atmosphere it would not be visible but would heat gradually and start to glow once hot enough, appearing out of thin air - "just in front of people's noses" - as had been observed, he said.

Depending on the starting temperature the ball could glow for 10 to 60 seconds before getting hot enough to melt the particles, breaking down the oxide layer on them and causing the temperature to rise quickly. This resulted in an explosion which was the observed end of ball lightning in 60 to 70% of ball lightning

events. The partially-oxidised nature of the particles was important as it slowed the oxidation down by blocking the access of oxygen, allowing the ball lightning to glow rather than explode immediately.

The composition of wood was also favourable for the process to take place when struck by lightning - a situation Dr Abrahamson said "no-one had appreciated before.

Based on this theory, the ball lightning sphere would be "restitutive" due to the slight conductivity generated by the high temperatures, enabling it to maintain its shape when it bounced against something. It would also be light enough to be blown by a breeze, he said.

While efforts to create ball lightning had not succeeded yet, Dr Abrahamson was optimistic they would succeed. "We do want to be cautious though when it comes because they're not things to be taken lightly."



Five-week-old William joins mum and dad, Michelle Mace and Hamish Cochrane, in the graduation procession. The husband and wife team, who met four-and-a-half years ago in Plant and Microbial Sciences Department, both had their doctorates

conferred. Michelle's PhD examined the problems and solutions associated with a wheat fungal pathogen while Hamish looked at the habitat selection for feral goats. The couple's two-year-old daughter, Alexandra, also attended mum and dad's special day.

Changing universities need graduate support

Graduation speaker Professor Carolyn Burns of the University of Otago had two main messages for graduates in her address on 15 December (edited below).

One of Canterbury's distinguished alumni, Professor Burns said universities had changed and were changing, and that the University needed its graduates as they had needed the University.

"A decade or so ago, New Zealand's universities might have deserved some of the criticisms directed at them by that anonymous, but powerful, commentator, 'the general public'. Some of these criticisms persist even today when universities are still portrayed as 'ivory towers' with teachers who are out of touch with the real world and methods of teaching that are archaic. Staff are still alleged to 'spoon-feed' and 'force-feed' students with facts, and examinations are purported to consist of requiring students to perform prodigious feats of instant recall of detailed factual information. These myths, and others, persist in the minds of earlier generations and, sadly, are perpetrated from one generation to the next with little or no acknowledgement of the renaissance in teaching, learning and administration that has occurred in our universities.

"We – the teachers, research staff and administrators – in New Zealand's universities have sought feedback from present and past students, and from employers of graduands, about the knowledge, skills, attitudes and experience they seek and appreciate in new employees – and we have listened and taken action. What are the skills that employers seek in their potential employees? Well, they are not, as some of you might have thought, an encyclopaedic knowledge of facts and figures, although a sound understanding of important principles, ideas and theories, coupled with knowledge of critical facts and figures are, of

course, needed. Instead, the employers have identified skills like the ability to find new knowledge through research, whether it be a search of existing databases or hands-on research in the workplace. They have identified the ability to organise, analyse and think critically; to work in teams; to co-operate; to generate and be receptive to new ideas; and to be flexible. They also highlighted a need for potential employees to be able to express ideas clearly in writing and orally, and to be confident in doing so.

"In response to this feedback and in the light of changes that are occurring elsewhere in educational systems in New Zealand and overseas, we have altered, and continue to revise, the way in which we teach and assess students in our universities. You, the new graduates, will have worked on group projects and given far more oral presentations to classmates than I did when I was a student at university. You will have had more choice in the subjects that you took, the structure of your degree and in the way your progress was assessed. The days when everything hinged on three-hour written examinations in early November have gone and so too has the relevance of some of the traditions that were passed from one generation of students to the next in those days.

"Unfortunately, as individuals, we rarely revise our attitudes and beliefs in the light of changes that may have occurred in curricula and in approaches to learning and assessment since we left our schools and universities, and so it is disturbing to me at times to hear people who received their university education more than a decade ago, and who are now in positions of influence and power, expressing views and passing criticisms that are no longer pertinent to university education today.

"My second theme relates to the reciprocal needs of universities and former students. Today in particular, you and those who have

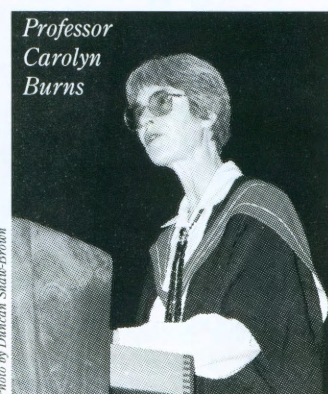


Photo by Duncan Shaw-Brown

supported you these last few years can take pride in your achievements. A sense of pride is felt only if one has respect for, and pride in, the institution that awarded you your qualification. It is important to recognise this link because tough times lie ahead for universities in New Zealand and they are going to need all the support they can get financially and politically in justifying and asserting their position in society. Let me elaborate a little.

"Earlier in my talk I alluded to some myths about universities and university education that have persisted. I hope that you, the recent graduates, will help to dispel some of these myths when they are aired and when they do not match your own experience at university. It is important that you do so, for example, if or when universities come under pressure to supplant all their face-to-face teaching with distance-taught courses. Web-based teaching is here and its use will increase – and I'm a strong supporter of this mode of teaching – but I see it as an additional mode. I question whether it can, or should, replace all of the current face-to-face interactions between teacher and student, and between students and other students. The essence of teaching has been defined as the 'transmission of enthusiasm between a teacher and students', and it is difficult to see how distance teaching, or teaching that is uninspired by the research endeavours of the teacher, will achieve this, although video images transmitted in real time and virtual reality settings

undoubtedly will help.

"As an undergraduate student majoring in both botany and zoology at the University of Canterbury, I readily gave up my two weeks of vacation in both May and August to attend week-long field camps at Cass, Kaikoura and, on one memorable occasion, in an abandoned foresters' hut in Westland. At the latter camp I recall the coal range on which we cooked, the icy river that was our ablutions facility and our source of drinking water, and the sacking hammocks on which we attempted to sleep at night when not kept awake by mice and mosquitoes. But I learned so much about New Zealand's flora and fauna as we walked, talked, worked in groups, debated and poured over specimens and books by kerosene lamps at night. The knowledge, practical experience and teamwork skills gained during these trips were not only beneficial, but also immensely stimulating;

"At the risk of raising eyebrows and possibly also some hackles, I'm now going to say a little about money and our universities. I expressed the view earlier that tough times lie ahead for our universities financially and politically and that they will need all the support they can get. The alumni, or graduates, of a university are a potential source of this support. Yet, New Zealand's universities have scarcely begun to harness this source of support, compared, for example, to those in North America. I believe that it is time that we did.

"One way of harnessing financial support that is used by some universities in the USA and Canada is to have tax relief on donations and endowments to the university; another is to have dollar-for-dollar subsidies by the university, regional or central government on donations by individuals or businesses – for example, matching subsidies on donations for scholarships to support students and to

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"Original, startling" achievements by Professor Roper

Chemistry Department Head Dr John Blunt gave the oration for Professor Warren Roper at graduation on 15 December. Professor Roper was the sixth person to receive an honorary doctorate from the University in 1999.

"Madam Chancellor, ladies and gentlemen, it is my pleasure to introduce to you Warren Richard Roper, Professor of Chemistry at the University of Auckland and alumnus of this University.

"Professor Roper is one of a very select group of graduates of the University of Canterbury Chemistry Department to have been offered the Fellowship of the Royal Society of London. The others were Ernest Rutherford, the late Professor Richard Barrer of Imperial College, London, Professor John Mitchell at Bristol University, and Professor Robin Clark, currently head of the Department of Chemistry at University College, London, whose student days overlapped with those of Professor Roper. Unlike Warren Roper, who obtained his PhD from Canterbury, these other Fellows went overseas as new graduates to earn their PhD degrees and then achieve their scientific eminence in careers pursued entirely elsewhere.

"Warren Roper's unique route to high international distinction has been achieved in a career based almost entirely within New Zealand. He returned from postdoctoral studies to face the challenge of developing his basic scientific research within his native land. His work is therefore most worthy of national recognition at a time when politicians and their advisers may only just be starting to rediscover the need for basic research as a critical component of the pursuit of scholarship within universities and an underpinning requirement for the development of a modern economy in New Zealand.

"Warren Roper, like Ernest Rutherford, was born in Nelson. He grew up there,

showing early promise as a scholar, emerging as Dux of Nelson College in 1956. Professor Roper's undergraduate performance at Canterbury, as a Nelson Science Scholar, was excellent. However, in his all-important final year, his studies were affected by time-consuming, but ultimately successful, attention to courting matters. Warren married his wife, Judith, while still a PhD student here and has enjoyed her companionship and strong support in all his subsequent endeavours. In hindsight New Zealand can be thankful for this combination of events in 1960 since the immediate result was that Warren stayed at Canterbury to obtain his PhD degree and did not disappear, forever, into the exciting and expanding world which international science presented at that time. We are pleased indeed to welcome Judie Roper in the audience today.

"Professors Clark and Roper were introduced to research by Dr C J Wilkins. We are also delighted to have Emeritus Professor Wilkins in the platform party at this ceremony. His influence on these scientists and many other chemists who have pursued outstanding careers in universities and research institutes around the world is legendary.

"In 1964 the Ropers moved to the University of North Carolina where Warren took up a two-year postdoctoral research fellowship with Professor James Collman. This synergistic collaboration had a profound and long-lasting effect on the research careers of both men. James Collman became Professor of Inorganic Chemistry at Stanford University and has been a Visiting Erskine Fellow at this University, while Dr Roper accepted a lectureship at the University of Auckland in 1966, becoming Professor there in 1984. As a true university man he has been eminent in both teaching and research. He has trained a succession of talented research students, a number of whom have developed



Photo by Duncan Shaw-Brown

Dame Phyllis Guthardt congratulates Professor Roper.

outstanding careers within this country and beyond. One and all they acknowledge the value of their research training under Professor Roper.

"Over the past 150 years, two major divergent branches of chemistry have developed. One of these, known as organic chemistry, concerned the study of chains and rings of linked carbon atoms, while the other branch was called inorganic chemistry, involving most of the elements other than carbon. Each branch now encompasses a huge body of knowledge and chemists with a deep and broad understanding of both are quite rare.

"Conceptually, the widening gap between these traditional areas has been filled in the past 50 years by research leading to the establishment of new disciplines with labels such as organometallic chemistry or bio-inorganic chemistry. These areas all involve chemical reactions in which metal atoms combine with carbon chain molecules to form a bewildering array of new compounds, unexpected in terms of classical approaches. Professor

Roper's work falls within the organic/inorganic gap and his contributions to bridging it have been outstanding. The driving force for his work has been that of academic enquiry. However, the new compounds he has prepared are not just of mere academic interest. Some of these compounds are of relevance to those that catalyse the growth of simple molecules into large ones, commonly known as polymers, which are of widespread use in everyday life. Other new Roper compounds involve the stabilisation of reactive species of the kind so important in biological processes, such as nitric oxide, and whose behaviour we need to understand.

"To provide just a glimpse of the significant discoveries Professor Roper has achieved I am projecting a diagram of one of the best known of all organic substances, the perfectly hexagonal benzene molecule composed of a ring of carbon atoms. Now look at a recent development from work begun by Professor Roper in 1982. What we see is part of a structure with a remarkable array of other

▷ p. 11

Shakespeare comedy on location

Dramasoc is taking a progressive approach to its February production of Shakespeare's comedy *Much Ado About Nothing* – literally.

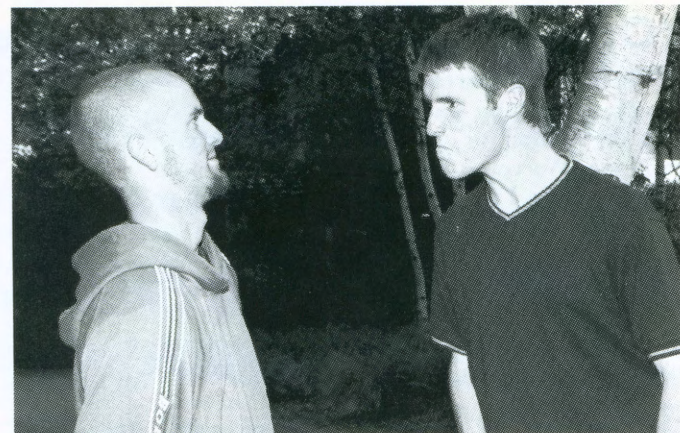
Production Manager Matthew Day said the show would not only take place outdoors but also move around the campus, with each scene being performed in a different place. Starting from the large arched entranceway bordering Ilam Road the play would travel to nine locations, ending near the School of Music.

Another feature of the production would be the spartan sets and lack of

lighting. The only sets would be in the form of furniture, such as swings, tables, a judge's bench, a wedding arch and large drops of cloth to give colour and atmosphere.

There would also be a masquerade ball scene, complete with live string quartet and complimentary bubbly, in the Registry/Library quad each evening at 6.30pm, Mr Day said.

Much Ado About Nothing will run from Friday 18 to Saturday 25 February, starting at 6pm, with the exception of a 3pm matinee on Sunday 20 February. The duration is approximately two hours.



Dramasoc's Bryce Collier (left) and Andrew Day rehearse for the upcoming production.

Photo by Merrilyn Hooper

Visiting Erskine Fellows

Associate Professor David Petr, of the Department of Electrical Engineering and Computer Science at the University of Kansas in the United States, is a Visiting Erskine Fellow in the Department of Electrical and Electronic Engineering from 16 January to 15 July.

A specialist in the many facets of Asynchronous Transfer Mode (ATM) Networks, such as congestion control, voice-data integration and performance analysis, Professor Petr is an expert in current and future Internet technology.

While at Canterbury he will be involved in a ME course in modern data communication networks and will give seminars.

Professor David Thompson, an advanced planner/analyst in the Computational Sciences Division at the NASA Ames Research Centre in the United States, will be a Visiting Erskine Fellow in the Department of Geography from 14 February to 17 June.

Professor Thompson is an expert in information technology, especially the application of Geographic Information Systems (GIS), remote sensing and glaciology.

Professor K. Sam Shanmugan, S. W. Bell Distinguished Professor of Electrical Engineering and Computer Science at the University of Kansas, will be a Visiting Erskine Fellow in the Department of Electrical and Electronic Engineering from 1

February to 31 May.

Professor Shanmugan, a specialist in communications theory and wireless communications, simulation of communication systems and signal (image) processing, will lecture in the department during his time at Canterbury.

Professor Ian MacDonald, of the Department of Chemical Engineering, at the University of Waterloo, Ontario, Canada, is a Visiting Erskine Fellow in the Department of Chemical and Process Engineering from 28 December 1999 to 15 June 2000.

An expert in transport phenomena and rheology, Professor MacDonald will lecture on separation processes, introductory petroleum engineering and transport phenomena.

Visiting Centennial Fellowship Professor Sabbas Joseph Shine,

Dean of the Faculty of Engineering and Technology at the University of Botswana, is a Visiting Centennial Fellow in the Department of Mechanical Engineering from 15 January to 16 July.

Professor Shine is an expert in mechanics, vibrations and strength of materials and control. While at Canterbury he will participate in teaching activities involving computer-aided engineering and computer-aided learning. Much of this involves one-to-one interaction with students undertaking computer-oriented project work.

Work stopped for English and History



Bachelor of Arts graduate Mandy Purdie came to Canterbury as a mature student, having worked as a law clerk for law firm Harman & Co. Deciding to broaden her horizons with a degree in history and English, Mandy swapped work for study and has not looked back.

Achievements by Professor Roper

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elements connected to each other. Of particular note is a metallic osmium atom incorporated directly into the six-membered ring structure, replacing one of the carbon atoms of benzene. Many of the properties of benzene which make it so important in organic chemistry are also present in this molecule. In particular the chemical bonds between the osmium metal atom and its carbon neighbours are so strong that the unique characteristics of benzene are retained. It will take years to explore the ramifications of incorporating metal atoms into these metallocycles. But Professor Roper has already moved on to synthesize complex compounds containing multiple bonds between metal atoms and other non-metallic elements, such as phosphorus, silicon and boron. There have been novel by-products from these reactions spawning new areas for synthetic chemistry research right across the organic-inorganic spectrum.

"These examples illustrate only some of Professor Roper's many original and startling achievements in chemical synthesis. These days it is usually a simple matter to determine the structures of



Associate Professor Doug Pearce (Geography) congratulates his wife, Chantal, on gaining her BA in linguistics. The Pearces leave for Wellington at the end of the month, where Professor Pearce will take up a Chair in the Geography Department at Victoria University.

new molecules and project them to an audience. The synthesis is the really difficult task. Knowing the steps others have taken over the past 100 years and understanding the underlying mechanisms which cause molecules to react the way they do are truly deep intellectual exercises. But Professor Roper's grasp of the huge literature of chemistry has been more than equal to the task. The scientific achievements this has spawned draw respect from the most accomplished scholars in the many areas to which he contributes. Earlier this year the University of Auckland hosted an international conference in honour of Professor Roper's work and some 40 eminent academic and industrial chemists from 15 countries were keen to participate.

"Professor Roper is thus well known over the world of chemistry. He has been the recipient of numerous awards, including prestige lectureships and visiting professorships. He became a Fellow of the Royal Society of London as long ago as 1989. Observing a career of such distinction, one would even then have expected an honorary degree to appear in his curriculum vitae. It does

not and his *alma mater* takes great pleasure in being able to correct this situation.

"Madam Chancellor, I have the honour to present Warren Richard Roper for the conferment of the Degree of Doctor of Science (*honoris causa*).

Mr Andrew Heal

One of the University's outstanding journalism graduates, Andrew Heal, died while kayaking in Golden Bay in January.

Mr Heal (28) was deputy editor of *Metro* magazine and in his brief but remarkable career won many national awards for his journalism.

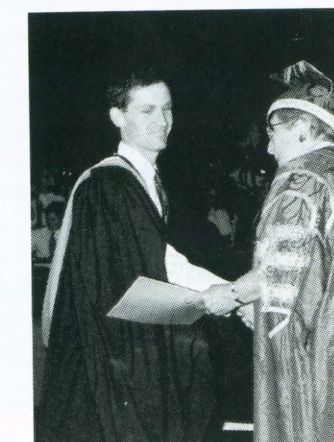
After completing the DipJ in 1993 he won the Qantas Award for the country's top journalism student. A year later he won the supreme award in the Qantas competition.

This was a great achievement but it was even more remarkable because his winning portfolio comprised stories written within a year of finishing the diploma.

Andrew was a rare and special talent who promised so much more.

Jim Tully

BCom for SASer



Peter Fletcher of Student Administrative Services in the Registry receives his BCom in business administration from Chancellor Dame Phyllis Guthardt. Mr Fletcher also has a BSc.

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Toni Vink at a recent rehearsal.

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Dr Newton receives teaching award

Department of English lecturer Dr John Newton was presented with the inaugural Teaching Excellence and Innovation Award at the December graduation.

Head of English Dr Denis Walker introduced Dr Newton:

"Last week, along with other members of Council and staff, I attended the launch of *UC Teaching*, a record of the role of teaching in the University. Today, I have the privilege of presenting the citation for the inaugural award for Teaching Excellence and Innovation.

"*UC Teaching* and this award for teaching excellence and innovation follow on from a similar publication and award which the University has



recently instituted in order to publicise and recognise research. These are important developments. For they remind us that what distinguishes a university from other kinds of tertiary institution is precisely the combination of teaching and research. Our research informs our teaching and our teaching is the expression of our research.

"Given this, it is especially satisfying that the first award for teaching excellence and innovation should be made to Dr John Newton of the English Department. The English Department has prided itself on teaching well and we have, in recent years, seen that reflected in the results of student surveys of both teachers and courses.

"Since his arrival in the English Department five years ago, John Newton has been one of our most popular and successful teachers. In the

courses he has established here the link between teaching and research has been all-important. John brings his own research into New Zealand literature and culture to his teaching and, at the same time, encourages students to see the necessity of broad-based active research in their own work, even in their first year. No one who enters these courses is likely to leave them unfamiliar with the research methodologies and theories which attach to our discipline or without having themselves, in some way, made an original contribution to the expanding knowledge of our subject.

"Through excellence and innovative teaching, John has expanded his students' awareness of what it means to do English at the University, and it is no surprise to me to see how students seek him out. Indeed, among the many who stand behind the recommendation for this award, including colleagues from within this University and outside it, the voices of the students whom John has taught can be clearly heard.

"Madam, I have the honour to present John Gilfillan Hand Newton to receive the Teaching Excellence and Innovation Award."

Prof Burns' address

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provide salaries for professors in various disciplines. The University of Canterbury already attracts some financial support from former students, but I would strongly encourage the current administration to find ways in which it can attract even more support from its alumni in the future."



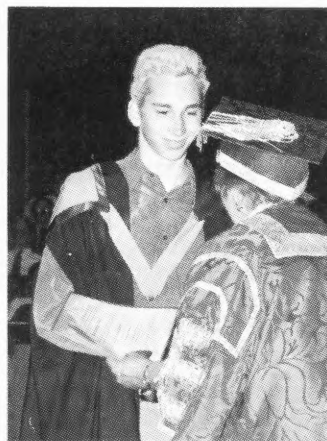
Graduates are our best advertisement



A Red Bus Ltd. bus helping recruit the next generation of Canterbury graduates.

BE (Hons) at 17

With his first-class honours degree behind him at 17, Engineering (Electrical and Electronic) graduate Daniel Witte is already eyeing up doctoral study in nanotechnology. Daniel, who started at the University when he was 13, is considering PhD study at Canterbury in 2000.



DSc awarded to Prof Hearnshaw

Dean of Science Dr Kelly Duncan gave the oration for Professors John Hearnshaw (Physics and Astrology), who was awarded a DSc at the December graduation.

"Professor John Hearnshaw is awarded the degree of Doctor of Science for significant and original contributions to the study of astronomy and astrophysics. These contributions, over the last quarter of this century, have spanned a wide field, and include over 100 papers on instrumental techniques for the analysis of starlight, on the properties of stars variable in their brightness, on the velocities and chemical composition of stars, and on the historical development of astrophysics. Included in his publications are two scholarly books published by Cambridge



University Press on the history of astrophysics, which have become the standard references in their field.