



# News

Number 17  
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University of Canterbury

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Prestigious award for  
young researcher  
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R.A.T.S invasion  
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# Departmental Staff, 2003

## Academic (full-time)

John Berrill	Geomechanics, engineering seismology
Andy Buchanan	Timber and fire engineering
Athol Carr	Structural dynamics, finite element analysis
Bente Clausen	Hydrology
Erica Dalziell	Risk, systems
Andre Dantas	Transportation engineering
Rob Davis	Geomechanics, continuum mechanics
Mark Davidson	Fluid mechanics
Bruce Deam	Earthquake engineering, timber engineering
Rajesh Dhakal	Structural Engineering
Charley Fleischmann	Fire engineering
Bruce Hunt	Groundwater flow, analytical analysis
Jason LeMasurier	Engineering management, risk, geotechnical eng.
Kevin McManus	Geotechnical engineering, foundation engineering
James Mackechnie	Concrete materials
John Mander	Structural and earthquake engineering
Mark Milke	Solid waste management, uncertainty analysis
George Mullenger	History of civil engineering, continuum mechanics
Alan Nicholson	Transportation planning, traffic safety
Roger Nokes	Fluid mechanics
David Painter	Water resources engineering
Stefano Pampanin	Structural engineering
Mofreh Saleh	Transportation engineering
Michael Spearpoint	Fire engineering
Alex Sutherland	Sediment transport, coastal engineering
Warren Walpole	Structural steel design, earthquake engineering
David Wareham	Biological nutrient removal, waste treatment

## Academic (part-time)

Chris Allington	Structural concrete design
Nigel Cooke	Structural engineering
Des Bull	Structural concrete design, earthquake engineering
Roger Dawe	Surveying
Richard Fenwick	Structural engineering
Ian Mason	Environmental engineering
Peter Moss	Structural analysis
Bruce Steven	Pavement design, transportation engineering
Hugh Thorpe	Groundwater, ecological engineering

## Support

Louise Fitzgibbon	Postgraduate administration and enquiries
Denise Forbes	Financial manager
Catherine Price	General and fire engineering enquiries
Pat Roberts	Undergraduate administration and enquiries

### Credits:

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Many thanks to all those who contributed articles and photos in the making of CE News

## Emeritus

David Elms	Risk analysis
Bob Park	Structural engineering
Tom Paulay	Structural design
Ian Wood	Fluid mechanics

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Grant Dunlop	Fire lab
Siale Faitotonu	Geomechanics lab
Frank Greenslade	Transport lab
Gary Harvey	Concrete lab
Brandon Hutchison	Computing
David Macpherson	Environmental lab
Russell McConchie	Structures lab
John Maley	Structures lab
Richard Newton	Electronics lab
Russell Peoples	Structures lab
Alan Poynter	Model Structures lab
Ian Sheppard	Fluids lab
Stuart Toase	Structures lab
Mike Weavers	Electronics lab
Kevin Wines	Structures lab

Be sure to visit our web site at:  
[www.civil.canterbury.ac.nz](http://www.civil.canterbury.ac.nz)

Here you can just browse around, catchup with fellow alumni, see who's doing what research project, view course outlines or contact staff

## Message from the Head

Welcome to another edition of CE News, edited by Ian Mason, Jason Le Masurier, and produced by Melody Callahan.

This edition comes at a time of impending change within the University. The Department of Civil Engineering will join six other departments in the new College of Engineering, to be headed by a Pro Vice-Chancellor (Engineering) in a new management structure.

The seven departments in the new College are

- Civil Engineering
- Chemical and Process Engineering
- Computer Science and Software Engineering
- Electrical and Computer Engineering
- Mathematics and Statistics
- Mechanical Engineering
- The School of Forestry

The School of Engineering will retain an identity, consisting of the four engineering departments, and there will continue to be an academic Dean of Engineering, now also responsible for Forestry degrees.

There will be no changes to the degree offerings, and many students may not see much effect of the new structure. However it will be a big change for the

departmental administrators and the Head of Department who will report to the new Pro Vice-Chancellor (Engineering) rather than to the Vice-Chancellor.

There has been a major reduction in administrative staff in the department, with some of their responsibilities moving to the College Office. We say farewell to Pat Roberts and Denise Forbes, both of whom have served the Department in an extremely able way for the past sixteen years. They will be greatly missed and we wish them all the best for the future. Other staff changes in the past year include the arrival of Dr Erica Dalziell and Dr Rajesh Dhakal, and the resignation of Dr Bente Clausen who will return to Denmark. These people are all featured elsewhere in CE News.

Within the Department we are moving to a new curriculum, with changes to the 1<sup>st</sup> Pro year in 2004, followed by the other professional years in 2005 and 2006. There are no major changes in the con-



tent, but significant changes in the size and shape of the courses and the mode of delivery. One of the main objectives of the review is to make the discipline of civil engineering more coherent to the students, and to better equip them with design, communication and self-learning skills for their future careers as professional engineers.

The Department welcomes feedback on anything in CE News, anything in the Department or any matters affecting the education of young engineers. We look forward to hearing from you.

*Professor Andy Buchanan  
Head of Civil Engineering  
andy.buchanan@canterbury.ac.nz*

## Did you say Department meeting?



*Departmental ski trip - I mean meeting - attendees caught during a brief adjournment.*

An Extraordinary General Meeting of Department staff was called by Stefano Pampanin for one Sunday in early September to help promote collegial bonding (and to carve up the slopes of Porter Heights). First item on the agenda was Transportation, followed by Unsealed Pavement Testing. Economics had a short airing and then it was down to the main business of the day - evaluating the frictional properties of Bluff Face. Whilst a quorum was not achieved, those that did attend were rewarded not only with a good sun-tan, but with the chance to witness some very elegant moves on

the part of Dr Pampanin and not so elegant tumbles by Dr Dantas. The allotted time was insufficient to make a full evaluation so the meeting was adjourned until the middle of 2004.



*It appears that Stefano and Andy have come to some binding agreement.*



### Driving Prof. Daisy

There is a story told of a university professor, who upon retiring from academia, decided to embark on a lecture tour in order to keep the mind active and provide some supplementary income. A schedule was organised, venues booked and publicity prepared. To make the tour both interesting

and relaxed, the professor hired a chauffeur and travelled from town to town by car, taking in the sights along the way. A pattern soon emerged of leisurely trips between well received lectures. This continued for several weeks, until one day the professor said to the chauffeur "Look, I have a proposal. You've been sitting at the back of the hall all these weeks and must know the lecture off by heart. Why don't you give the lecture tomorrow night and I'll sit at the back of the hall as you have been doing"? To this the chauffeur agreed. So, the next night the pair swapped clothes and the chauffeur delivered the lecture. It went perfectly. The chairperson then asked for questions from the floor. The chauffeur easily fielded the first two, which had been posed several times before during the tour. However, the third question was

rather a tricky one. The chauffeur paused thoughtfully for a moment and then responded "You know, that question is so simplistic, that even my chauffeur, sitting there at the back of the hall, could answer it. Let's ask him!"

In many areas of our society, retirement means the end of one's professional activity. Here in the Department of Civil Engineering we are fortunate to be able to say that this is not necessarily so. We have amongst us at present seven retired staff, who continue to be active in a variety of ways and who contribute many things to the life and well being of the Department, to the benefit of us all. Elsewhere in this issue we feature the lifetime achievement celebrations in honour of Emeritus Professor Bob Park and Emeritus Professor Tom Paulay, still active at age 70 and 80 respectively. We also highlight some of the current work of Emeritus Professor David Elms. Others in the retired but professionally active group include Emeritus Professor Ian Wood, and Associate Professors Nigel Cooke, Peter Moss and Richard Fenwick. Between them they continue to produce scholarly papers, engineering reports and assist with departmental matters. In 2003 members of this group produced refereed journal papers, worked on engineering standards, sat on peer review panels, acted as commissioners, gave a keynote address, presented a seminar,

edited conference proceedings, served on a conference organising committee and helped co-ordinate a departmental plan.

As important as these traditional outputs however, are the opportunities the presence of these 'retired' colleagues provides for younger staff to learn from their considerable experience and knowledge, often able to be delivered from a vantage point suitably removed from the day to day pressures of mainstream teaching, research and administration. This was one of the first things I noticed about the culture of the department when I arrived here, and I have been very grateful for it. Professional development in engineering involves the attainment of experience, practice and judgement under the tutelage of an experienced colleague. Many of us will, at some time in the future, be up there at the podium, giving that lecture, and if we are lucky will know that our 'chauffeur' is at least figuratively, if not literally, there at the back of the hall, ready to help us out with that tricky question. It is a gift to be valued.

*Ian Mason*

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*Acknowledgement: Special thanks to Professor John Flenley ("retired"), for the original version of the story.*

## Collaboration with the University of Auckland

The Department of Civil Engineering is developing strong ties with the University of Auckland, in order to gain better combined exposure, and to allow more effective collaborative research. This is a natural partnership considering that we are the only two New Zealand universities offering four-year Civil Engineering degrees.

Following the signing of a Collaboration Agreement, we have initiated reciprocal visits of staff between the two campuses, launched a joint advertising campaign, and made joint research applications to the Foundation for Research Science and Technology (FRST).

The collaborative Master's degree in Transportation Engineering has been a great success, and at the time of writing we have three joint applications to FRST in the Natural Physical Hazards portfolio, covering the areas of risk assessment, smart monitoring of structures and seismic retro-fitting of existing buildings.



*Members of academic staff of both departments during the 2003 visit of Canterbury staff to Auckland University.*

## Canterbury vs. Auckland in MERIT Competition

Following last year's successful initiation, the construction management 3<sup>rd</sup> Professional students again took part in the MERIT Competition. In 2003 a new dimension was added when the University of Auckland decided to join in. Fletcher Construction kindly agreed to extend their sponsorship to \$10,000, covering the entry fees for all teams from both universities, with some prize money as well. The Fletcher Construction 'MERIT Shield' was established, to be awarded annually to the winning university. The competition was fought hard over eight rounds with the final result being a first place for Deconstruction Ltd. from Canterbury, with Auckland taking the shield for their overall placings.

Organiser Jason Le Masurier explains "MERIT is a construction management computer simulation developed by the Institution of Civil Engineers (ICE) in the UK. It provides the essentials for construction professionals to augment their technical knowledge with the managerial skills required to run a modern construction company."



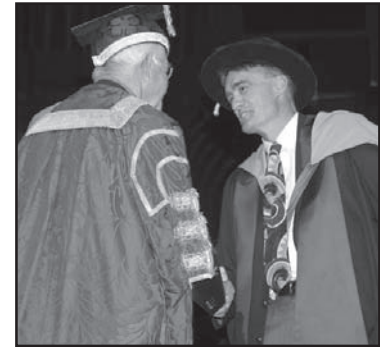
*David Fell of Fletcher Construction presents prizes to the winning team.*

In teams, participants learn how to manage their own virtual construction company by making decisions that affect the various functions of the business, such as marketing, tendering, finance, personnel and project management. Operating as a board of directors, each team runs the company for 8 periods, competing in a simulated construction market, which is updated each period to reflect the changing industry conditions.

Out of the 165 teams that took part in the main 2003 UK competition, Deconstruction Ltd. were placed 12<sup>th</sup> – a very impressive result considering the UK teams mainly comprise graduate engineers from construction companies.

## Teaching award is no surprise

Dr. Roger Nokes has once again been recognised for teaching excellence, receiving a University of Canterbury Teaching Award at the December 2003 graduation ceremony. The award was one of nine presented to staff in 2003. Dr. Nokes was voted best lecturer in the University of Canterbury Students Association poll in 2002.



"It is a good thing for us all to see who are our outstanding teachers and to congratulate them," said Dr John Freeman-Moir, Chairman of the Teaching and Learning Committee. "It is also important for students to know that we hold teaching excellence in the highest esteem. Students, after all, are crucial participants in the teaching and learning endeavour."

## 1<sup>st</sup> Professional Students Visit Local Industry

Small groups of 1<sup>st</sup> Professional students visited a number of local civil engineering organizations as part of a renewed initiative in 2003. This initiative provides students with increased exposure to the professional environment at an early stage in their undergraduate degree and fosters closer relationships between the two groups. The visits have additional benefits in terms of building student confidence and communication skills within a professional setting. There was a strong interest from students who were keen to know more about potential future work environments and there was a very positive response from local civil engineering organizations. The scheme was launched in pilot form last year, but its success has provided the motivation for establishing a more comprehensive program in 2004.

The industry visits were organized by the 1<sup>st</sup> Pro Committee, which consisted of nine students and one academic (Dr Mark Davidson, the 1<sup>st</sup> Pro Coordinator) and was chaired by the 1<sup>st</sup> Pro student representative. The committee met on a fortnightly basis and dealt with a large variety of issues during the year. One highlight was the social function, that followed on from the annual 1<sup>st</sup> Pro bridge testing competition.

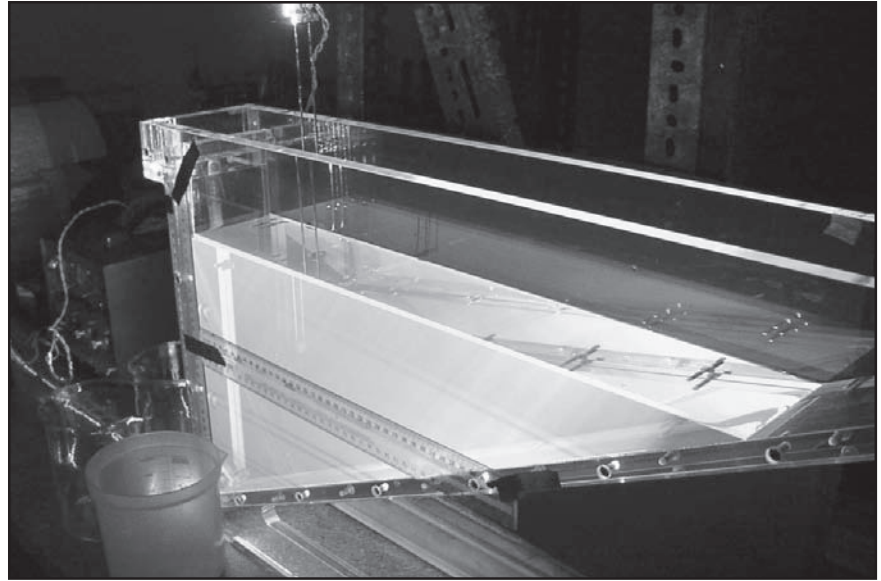


*2003 1<sup>st</sup> Pro Committee, L to R: James Moeono, Aine Colson, Megan Fowler, James Ting, Richard Hine, Gemma Bailey (student rep.), Malinda Kopi and Kam Weng (absent: Marcos Santana). Centre: Dr Mark Davidson (coordinator)*

## Tsunami Research Fluid Mechanics Laboratory

An experimental research programme involving Langford Sue, an ME (Civil) student under the supervision of Dr Roger Nokes, and scientists at New Zealand's National Institute of Water and Atmospheric Research (NIWA) is currently underway in the University of Canterbury's Fluid Mechanics Laboratory. It is aimed at looking at the internal mechanisms of tsunamis and improving our understanding of how they are generated. Tsunamis are created when a disturbance displaces a large volume of water from its 'at rest' equilibrium position, such as from earthquakes and earthquake induced landslides. The project hopes to gain insights into these occurrences so that we are able to more accurately predict them, and give communities adequate warning of the hazard.

Being an island nation, New Zealand has a long coastline, and the majority of the country's population lives in close proximity to the ocean. A recent spate of earthquakes in the Pacific Basin has again highlighted the risk posed to coastal communities by the potentially devastating natural phenomenon of tsunamis. These events have occurred regularly throughout history all around the world, including New Zealand, and earthquakes from throughout the seismically active Pacific region are able to travel to these shores with remark-



able ease. Along the east coast of New Zealand is the boundary of the Pacific and Indo-Australian Plates and its associated subduction zone. This increased seismicity and the presence of large continental slopes and canyons makes this area prone to earthquakes and underwater landslides.

The main focus of Langford's master's project will be the experimental modelling of the generation and initial propagation of waves generated by submarine landslides, and to make use of techniques never previously used in this type of research. This includes using

granular material instead of solid blocks to simulate a real landslide, and using Particle Tracking Velocimetry software developed 'in-house' to capture the fluid motions. To give the public better predictions on the severity of approaching tsunami, computer models have been developed. Those created by NIWA need to be calibrated against experimental data so that there is confidence in the results they produce. It is hoped that this research programme will improve the accuracy of these computer models.

*For more information contact  
roger.nokes@canterbury.ac.nz*

## Retirement – never a dull moment

Emeritus Professor David Elms was active as a resource consent commissioner during 2002-2003, hearing an application by Contact Energy for a re-consent to operate the Roxburgh, Clyde and Hawea Dams in the Clutha river catchment. The three dams could have been dealt with separately, but it was more sensible to deal with them together because decisions made for one could affect other parts of the catchment. The result was a very complex and interrelated set of issues.

The hearings took 10 weeks and moved from centre to centre. After that, writing the decision took a great deal of time. It was not simply a matter of saying "yes" or "no" to each decision. Arguments had

to be made for each consent, and the conditions had to be spelled out with particular care.

The whole process took nearly a year. Finally the decision was handed to the Otago Regional Council on 10<sup>th</sup> September 2003, after which, said David, "I was able to have the first free weekend since last year."

Freedom was short-lived, however, with David heading the team organizing the Royal Society's annual conference, "Fresh Water New Zealand", held in Auckland in November 2003.

So finally David could rest. Except there were promised papers to write, the odd



*Commissioners on the job at the Clutha Mouth – David Elms on the right*

consulting job, and a fair amount of work on the Academy Council of the Royal Society and on the CAE Board Executive. "There's never a dull moment in retirement," said David. We can see what he meant

# Environmental Engineering

## Food residuals - hot topic

With the NZ waste strategy encouraging the removal of food residuals, and other organic materials, from landfill disposal, implementation of alternative handling and stabilization options for these is becoming on topic of great interest. A paper by Ian Mason and Mark Milke, discussing current issues in this area was presented at the annual Waste Management Institute of New Zealand (WMINZ) conference in November 2003. More recently Mark and Ian were amongst a group of participants invited by the Ministry for the Environment to contribute to an Organic Waste Workshop in Wellington, to explore future directions for New Zealand on this important matter. This is an ongoing involvement, with some very exciting potential developments indicated.

## Busy Researcher

Mark Milke has been active in a diverse set of research activities, working with students from many parts of the globe. ME student Vincent Wong conducted a statistical analysis of municipal solid waste data and Victor Wong (Vincent's brother!), recently completed laboratory research into slow sand filters for rural drinking water treatment.

Mark has been contributing to PhD research on groundwater modelling by Catherine Moore and Brett Painter from Lincoln Environmental, and also developing summaries of groundwater research for the NZ Hydrological Society.

Mauricio Taulis, is back from Chile for his PhD with Mark. Mauricio received a TIF scholarship to work with CRL Energy Ltd. on water quality issues for coalbed methane recovery.

In a different direction, Mark has been contributing to PhD research by Monika Walter of HortResearch on the use of white-rot fungi in PCP bioremediation. Mark and ME graduate, Seth Guikema (who now has a PhD from Stanford and is a post-doc at Cornell) are working on joint research between monitoring versus research in environmental risk management.

On solid waste management, Mark is active as an associate editor for the international research journal *Waste Management*. He has been working with Ian Mason on his compost modelling research, and he is looking at directing new ME research into odour production from the storage of food wastes



*Environmental group 2003: L to R back: Ian Mason, Mark Milke, David Wareham; front: David McPherson, Xuan He (Sarah), Mauricio Taulis.*

## VFAs - a new focus for the environmental laboratory

Led by David Wareham, biological treatment research in the environmental engineering lab has, over the last year, shifted in focus towards investigating processes for the generation of volatile fatty acids (VFAs). German exchange student, Maria Piefel, and Kirsten Norquay, a 3<sup>rd</sup> Pro student, worked in this area in 2003. The intent is to now extend this research by looking at the use of naturally-produced VFAs in the biodegradation of compounds such as pesticides. The environmental engineering lab was recently successful in obtaining university and departmental funding for a new automated total organic carbon (TOC) machine.

*For more information about environmental engineering activities contact [mark.milke@canterbury.ac.nz](mailto:mark.milke@canterbury.ac.nz)*

## Composting on the Web

UC Composting is a new web site on composting, with a focus on activities NZ and the South Pacific Islands. It mainly has been created by Ian Mason, Research Fellow in Environmental Engineering, with assistance from Melody Callahan. "Composting is now part of many solid waste management strategies worldwide and the website aims to meet the information and communication needs of compost operators and researchers in our region." say Ian. He adds "Interestingly enough the boundaries of that region were greatly expanded shortly after the web site was launched, following a contact from a Chilean composting operator, and we now have photos of their site, with a great Andean backdrop, on the operations page". The

operations page features descriptions and images of municipal and industrial composting operations throughout New Zealand. "We have over 20 composting sites on board now" says Ian "but continue to learn of new operations on a regular basis".

Research activities listed on the web site include two University of Canterbury projects, one on the physical and mathematical modeling of the composting process, and one on woollscour wastes. UC Composting also has pages on the basics of composting, products and services (including several New Zealand manufacturers of composting vessels), schools information and educational resources.



# UC Composting

[www.civil.canterbury.ac.nz/compost](http://www.civil.canterbury.ac.nz/compost)



# People People People



Dr Erica Dalziell joined the Department in March, 2003 as a Lecturer in risk and engineering systems. Erica is a past graduate of the Department, completing her Civil/Environmental Engineering degree in 1994, and a Ph.D. in the use of risk assessment methods in road network evaluation in 1998. She then headed overseas, travelling through Nepal and India for four months, before landing in the UK. In London, Erica started work with Risk Solutions – the consulting arm of AEA Technology, providing risk management consultancy for clients like London Underground, Railtrack, Shell Gas Trading and Barclays Bank.

In October 2000, Erica joined JP Morgan Chase where she worked in the European Settlements risk management group, and then in the Derivatives and Exotics financial control team. During her final year in London, Erica went back into consulting with *vivas ltd*, a young strategic risk management company, working with the UK Ministry of Defence, Defence Procurement Agency, the National Audit Office and the Department for International Development. Dreading a fourth UK winter, Erica and her partner Richard then headed away on an 8 month round the world trip, travelling and biking in South America, the Middle East, China and Sri Lanka. Now back in New Zealand, Erica is pursuing her research interests in the application of risk management and systems thinking for creating organisational resilience to the unexpected, as well as teaching the 3<sup>rd</sup> Professional Engineering Systems course, and a Risk Management Master's paper.



Dr Rajesh Dhakal joined the Department in May 2003 as a Lecturer in structural engineering. He received his Bachelor's degree in Civil Engineering from Tribhuvan University, Nepal in 1993, and then worked as a Civil Engineer in Nepal for 30 months. He then headed to Thailand to pursue a Master's Degree in structural engineering at the Asian Institute of Technology (AIT), and following that moved to Japan for further study, receiving his PhD in Civil Engineering from the University of Tokyo in 2000.

Before joining the Department, he worked at the National Technical University in Singapore as a Research Fellow for about 3 years.

Rajesh has authored more than 25 technical papers most of which have been published in refereed international journals and conference proceedings. He is also the recipient of a number of prizes, awards and scholarships, among which the following stand out: gold-medals in undergraduate (Nepal) and graduate (AIT, Thailand) degrees; the JCI best paper award given by the Japan Concrete Institute; and the most-prestig-

ious award for academic excellence, decorated by His Majesty the late King of Nepal.

On the non-academic front, Rajesh enjoys social gatherings, loves to travel, and likes to participate in sports for entertainment. Although he played volleyball, basketball and table tennis for his university in Nepal, he admits that he has lost contact with these sports lately, and further, that he has never played rugby at any level! Though he says that he is not a very good player, he is an ardent fan of cricket and enjoys spending time discussing the history, and records, of the sport. He has moved to Christchurch with his wife, Shalu, and two sons, Ribu and Munnu.

## Des Bull - Holcim Adjunct Professor

Holcim (New Zealand) Ltd agreed during 2003 to fund a part-time teaching and research position in structural engineering in the Department. As a result of the three year funding arrangement, Des Bull has been appointed the Holcim Adjunct Professor in Concrete Design. Professor Bull's research interests are on the effect of earthquakes on precast concrete construction. He is a past president of the New Zealand Concrete Society, and has served for a decade on the Review Committee of the Concrete Design Standard (NZS 3101).

Holcim is one of the world's leading suppliers of cement, as well as aggregates (gravel and sand), concrete and construction-related services. From its origins in Switzerland, the group has grown into a global player with strong market presence in over 70 countries. In New Zealand the company employs more than 600 people and supplies a wide range of products in New Zealand and the South Pacific.

Civil Engineering HOD, Professor Andy Buchanan is confident that this partnership will produce major benefits for Holcim and for the Department, by ensuring that civil engineering teaching and research is informed by current practice in local and international industry.



*Vice-Chancellor Professor Roy Sharp signs the Holcim Adjunct Professorship agreement, watched by Holcim CEO Rex Williams (front left), Professor Des Bull (back left) and Professor Andy Buchanan.*



# People Farewell People

## Pat Roberts

Pat joined the Department on August 31, 1987, at a time when each of the professors had a secretary, initially working for Professor Ian Wood. She quickly developed a reputation for her quick and accurate typing, particularly of complicated mathematical formulae and since has typed several books, and many highly technical papers for other academics, especially Dr Bruce Hunt. Reminiscing, Ian Wood says that he had a total of five secretaries while in the department and that “Pat was the best”, adding that “other staff were envious”.

In 1994, Pat became Nigel Cooke’s secretary when he became Head of Department (HOD), and has served three different HODs since then. She has been responsible for numerous tasks within the Department, and has played a key



role in dealing with undergraduate student enquiries and records. Pat has also earned the gratitude of the many visi-

tors to the Department over the years by assisting them with accessing University facilities and services.

Pat knows her way around the University system so well that she has been a tower of strength to all HODs and has frequently been the first ‘port of call’ for other staff wanting to find out what needs to be done and how it is best done. That, along with her cheerful and helpful manner, and her commitment to the Department, will mean that she will be greatly missed.

We are grateful for her sterling services over the last 16 years, and are delighted that she is to remain within reach in her new position in the University with Geological Sciences. We wish her all the very best for a happy and fulfilling future.

## Denise Forbes

Denise joined the Department in 1987, initially as a part-time secretary, funded from the Department’s operating grant. During this initial period, she developed a new string for her bow by becoming involved in the administration of financial matters. This led on to her appointment to the continuing staff, eventually as Departmental Financial Manager, a role she has filled very efficiently and effectively for over ten years.

Denise became very well versed in the intricacies of the University accounting system, and the last three Heads of Department have relied heavily upon her expert knowledge during the preparation of budgets, and in monitoring expenditure. The Department’s budget (excluding salaries) is \$1.5 million/year, and Denise has had sole authority for all expenditures up to \$5000. According to Professor Andy Buchanan, “her management of the Department’s financial matters has been exemplary”. Denise has served on several University-wide reference groups on new financial systems.



As Financial Manager, Denise has had to explain the reasons for changes to procedures to all staff, and has displayed great patience in this regard. In addition, her cheerfulness and enthusiasm has resulted in her organising most of the Department’s social activities for many years. During this time she still managed to find time for part-time university study, and between 1994 and 2002 completed a BA degree, majoring in Sociology and Feminist Studies.

Denise’s expertise and cheery nature will be greatly missed in the Department and we are extremely grateful for her 16 years of excellent service. We are very pleased however, that Denise will remain within our orbit in her new position as the College of Engineering Financial Administrator. We wish her all the best for a happy and fulfilling future.



◀ Denise receiving her degree at graduation

## Paulay and Park Symposium = 150<sup>th</sup> Birthday Party

A major event in 2003 was the International Symposium to honour the lifetime contributions of Emeritus Professors Tom Paulay and Bob Park to earthquake engineering, concrete design and to the Department. The event was initiated by



Professor Hugo Bachmann in Switzerland and Professor Nigel Priestley in San Diego, recognising that Tom would turn 80 and Bob would turn 70 during the year.

The symposium attracted over 200 delegates from New Zealand and around the world, including many influential graduates of Bob and Tom. Delegates and speakers came from many countries including the United States, Canada, Japan, Singapore, Indonesia and South America. Ten keynote speakers addressed the symposium, which was followed by a gala dinner in the Christchurch Convention Centre, and tours of the Department on the following day.

Tributes flowed thick and fast, the main theme being the dedication, teamwork and dialogue with the profession over many years which contributed to the prolific output of research results which were readily put into practice. At the end of the technical symposium, David Hopkins summarised Bob Park's technical contribution. One of the highlights of this presentation was David's analysis showing the remarkable similarity between the increasing number of Bob's technical papers over time and the accumulation of test wickets by Sir Richard



Hadlee! Richard Fenwick described Tom Paulay's capacity for infectious enthusiasm with which he taught several generations of structural engineering students through the 1960s, 70s and 80s.



At the gala dinner, Professor Fumio Watanabe from Kyoto gave an international tribute to Bob Park and Gavin Cormack highlighted the significance of his New Zealand contribution. For Tom Paulay, corresponding tributes were given by Hugo Bachmann and George Butcher.



The event was sponsored by the Earthquake Commission, Holcim New Zealand and Golden Bay Cement in recognition of the long-standing and beneficial relationships that they have had with Tom and Bob.

Organisation was undertaken through the New Zealand Society for Earthquake Engineering, the New Zealand Concrete Society, SESOC and the Canterbury Structural Group in conjunction with the Department of Civil Engineering.

Melody Callahan, Denise Forbes and Catherine Price put in many hours to make this event run very smoothly. Peter Moss edited the Proceedings.

In addition to celebrating a total of 150 years of immense contribution from Tom and Bob, this was also a significant re-union for the Department, and an occasion greatly enjoyed by all who participated.



*Proceedings of the Symposium are available on CD for \$30, email: [catherine.price@canterbury.ac.nz](mailto:catherine.price@canterbury.ac.nz)*



## Stefano Pampanin wins Young Researcher prize

Dr. Stefano Pampanin recently received special international recognition for his research by winning one of two Fédération Internationale du Béton (*fib*) 2003 diplomas for younger engineers in the research category. The award was presented in May, in Athens, Greece, during the *fib* symposium on Concrete Structures in Seismic Regions.

These awards, for engineers less than 40 years of age, are presented every second year and are given separately in two categories – Research, and Design and Construction. All the 2003 winners gave oral presentations of their work during the conference and technical papers summarizing the research are available in the Journal of the *fib* (“Structural Concrete”, section *fib*-news, <http://fib.epfl.ch/journals>). The *fib* 2003 diplomas were awarded in memory of the late Prof. Carlo Cestelli Guidi (1906-1955).

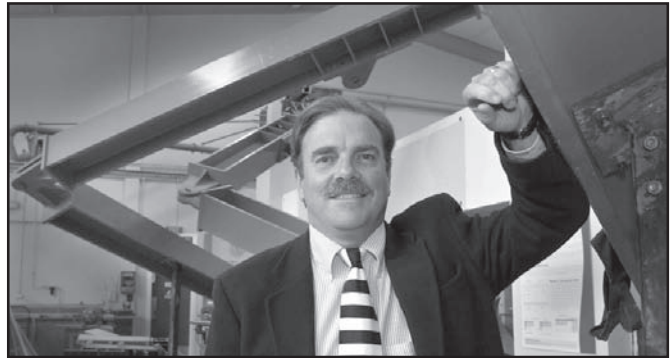
## Structures group wins major FRST contract

A major project bid from the Department of Civil Engineering was awarded \$3.1 million over six years in the 2003 Foundation for Research, Science and Technology (FRST) bidding round. Professor John Mander will lead the research team to develop a completely new, modular, seismically damage-resistant building system from modern high-performance concrete materials. Working with Professor Mander will be Professor Andy Buchanan, Dr Athol Carr, Dr Stefano Pampanin and Dr James Mackechnie from the Department of Civil Engineering, Adjunct Professor Des Bull from Holmes Consulting and the Department, Dr Larry Bellamy from Ensys, and Len McSaveney from Fletcher Building.

The new building system will consist of structural precast frames and precast

floors, while the non-structural building envelope will consist of energy-efficient structural concrete, manufactured as precast concrete, which can be dismantled and reused in a modular fashion.

Professor Mander says the research will benefit New Zealand by creating a structural system that is immune from seismically induced damage. “We will also be creating a new set of products which New Zealand can manufacture and export, or license for international production. The project will also provide a more economical construc-



tion and sustainable building option, with cost savings related to reduced building times.” Fletcher Building will provide manufacturing and construction support and supply 30% co-funding.

*For more information:*  
[john.mander@canterbury.ac.nz](mailto:john.mander@canterbury.ac.nz)

## Hopkins Lecture - Recovery from Disasters

Professor Tom O’Rourke from Cornell University delivered the 2003 Hopkins Lecture at the Christchurch Town Hall. His topic was: “Lessons Learned from the World Trade Centre Disaster: Critical Engineering Systems”.

This was a stimulating, provocative and wide-ranging address on the need for integration between a large number of different infrastructure agencies in any disaster recovery process, such as a major earthquake or terrorist attack. Tom’s address covered the coordination

and reestablishment of water, gas, power, transport and telecommunications networks, considering the reliability of these lifeline systems and other underground construction, using modern geographic information systems and database management.

Tom is an old friend of the Department. His teaching, research and professional interests have covered many aspects of geotechnical and earthquake engineering. He has received numerous awards, including awards for contributions to

lifeline earthquake engineering. Tom is current President of the Earthquake Engineering Research Institute (EERI).



*Tom O’Rourke with David Hopkins*

# Fire Engineering

## Fire Service Commission Funding

We are very pleased to announce agreement to enter the third five-year partnership with the New Zealand Fire Service Commission. Under this partnership agreement, the University of Canterbury offers and administers a Master's Degree in Fire Engineering, and employs a lecturer with funding from the Commission. As Mike Spearpoint pointed out in the negotiations, the Commission funding is only a small part of the total funding for the degree programme, but the programme could not offer an acceptable level of education without this support.



## News

Dr Charley Fleischmann has been on sabbatical leave for the second half of this year. During this time he spent a couple of months visiting the US, where he worked with the developers of Fire Dynamics Simulator (FDS) at the National Institute of Standards and Technology (NIST). While Charley has been away, the ENFE 604 Case Studies course has been looked after by Tony Enright, a PhD graduate of our programme, who now works for Connell Mott MacDonald in Christchurch.

## Science Outreach

This year we have become involved with the University's Science Outreach programme. The aims of the programme are

to encourage an appreciation of the pivotal place that science holds in modern society, to describe how research has the potential to solve some of the problems of our modern world, to persuade young people that the study of science at University is rewarding and to improve the communication skills of our graduate students.

ME Fire graduate students visit schools and give a 45 – 50 minute presentation on the science of fire through the principles of chemistry and physics. They help the students understand how fires ignite and what reactions keep them going, how fires spread and how much energy they have, and what sorts of materials make the best fuels.

So far we have given over 50 presentations to schools around the country including Christchurch, Palmerston North and New Plymouth, thanks mainly to the efforts of Stuart Harris and Craig Mills. To find out more about the Science Outreach programme contact Rebecca Hurrell at [outreach@canterbury.ac.nz](mailto:outreach@canterbury.ac.nz) or visit [www.outreach.canterbury.ac.nz](http://www.outreach.canterbury.ac.nz)



*Andy Buchanan discussing fire calorimeter experiments to visitor*

## Research sponsorship

Roger Harrison was awarded a research scholarship through the Society of Fire Protection Engineers (SFPE) Educational and Scientific Foundation for his Mas-

ter's degree project on balcony spill plumes.



*Mike and Andy with class during an experiment in fire lab*

CHH Futurebuild have provided financial support for Warren Lane and Stuart Harris to investigate the fire performance of laminated veneer lumber (LVL). Stuart Harris also has an Enterprise Scholarship from Technology New Zealand for his research.

Winstone Wallboards continue to provide help for student projects, including the current investigation into the degradation of gypsum plasterboard under fire exposure, by Chu Ngu.

AMP has provided a scholarship to John Collie who is working in association with the Forest Research Institute on the wild-fire characteristics of scrub species found in New Zealand.

## Summer work experience

Arup Fire – Australasia is offering students who are intending to undertake our ME (Fire) degree the opportunity to work in one of their offices over the summer break. Students will learn how performance based fire safety design is developed on various types of projects and be exposed to general consulting aspects such as fee submissions, contracts, assessment documentation, approvals processes and client contact.

Many Fire Engineering reports are available as PDF files at [www.civil.canterbury.ac.nz](http://www.civil.canterbury.ac.nz) under Fire Engineering Research. If you wish to purchase hard copies, please contact Catherine Price at [catherine.price@canterbury.ac.nz](mailto:catherine.price@canterbury.ac.nz)

## The last of the LUniCANS

When the 2003 3<sup>rd</sup> Professional Natural Resources Engineering cohort graduate in 2004, they will be the last BE(Hons)(NatRes) students to have completed this jointly-taught University of Canterbury degree as final-year students of Lincoln University. "They could well be called the last of the LUniCANS" says Dr David Painter, who now coordinates the programme from within the Department of Civil Engineering. David adds that "when the 2003 2<sup>nd</sup> Professional cohort complete in 2004 and graduate in 2005, they will be the last BE(Hons)(NatRes) students to have been jointly taught [in First and Second Professional years] by academic staff of both universities."

The degree has been jointly taught since its inception in 1969. The degree name was changed to BE(Hons)(Natural Resources) from BE(Agricultural) in 1990. Over the years, the proportions of teaching from the two universities have

varied, with Lincoln teaching about two-thirds by 1995, dropping to half and half by 2001.

Lincoln University announced its withdrawal from the programme in August 2002, to take effect at the end of 2003. Pleasingly, the University of Canterbury agreed to continue to support the degree, and from 2004 it becomes a second undergraduate programme, within the Department of Civil Engineering, with its own academic staff, Coordinator and Industry Advisory Board, plus some continuing input from present, and former, Lincoln University personnel.

"There are now about 375 graduates from the programme, most in New Zealand, but others in Australia, Western



2003 Natrual Resources Engineering field trip.

and Eastern Europe, North America, South America and Asia Pacific countries" says David "and probably a few we have lost track of too." Some are very well-known, like Professor David Maidment of the University of Texas at Austin, the foremost authority in the USA on GIS in hydrology, with notable New Zealand graduates including the present Chairman of Fonterra, Henry Van Der Heyden.

*For more information contact david.painter@canterbury.ac.nz*

## CUSP's First Stand

After months of testing with artificial earthquakes on the Department of Civil Engineering's shaking table, the Canterbury University Seismograph Project (CUSP) strong-motion accelerograph located at Ilam recorded its first real earthquake at 6:22 am on Tuesday morning, September 30, 2003 (NZ Standard Time). This event was centered 40 km north-east of Christchurch. With a peak acceleration at Ilam of 1.5 percent of gravity, and an M4.9 rating, this earthquake



John Berrill and Peter Coursey show off the CUSP instrument

was not a world shaking one; but it did provide a good test of the sensitivity of the CUSP instrument and its ability to detect events just above the noise level.

The CUSP accelerograph has been developed by PhD candidate Hamish Avery and Technical Officer Peter Coursey, under the guidance of Dr John Berrill (Civil Engineering) and Mike Dewe (Electrical/IT). The project was motivated by the imminent (in a geological time frame) rupture of the Alpine Fault. The instrument is Internet based to provide easy maintenance and retrieval of data and uses cheap micro-machined accelerometers developed for triggering car airbags.

The Geomechanics Group plans to install a network of about 60 instruments across the central South Island, in collaboration with GeoNet, with three principal arrays, as follows:

1) A dense array of about 20 instruments near Cass.

2) A network of 20 to 30 instruments spread over the Canterbury region.

3) A local network across the city of Christchurch.

The present accelerograph is the first to be installed in the *Canterbury Network* and is one of a batch of 20 instruments under construction in the Department. Once this batch is complete, production will be taken over by Canterbury Seismic Instruments Ltd, a joint venture company between the University and local businessmen, set up to commercialise the accelerograph.

The research has been supported by Technology NZ, The Mason Trust, the Christchurch City Council, Environment Canterbury, the University of Canterbury and the Earthquake Commission. Their help is gratefully acknowledged.

*For more information contact john.berrill@canterbury.ac.nz.*

## Students

### Civil Engineering Prizes

The department wishes to congratulate the following students who were awarded prizes for their excellent results in 2003. These prizes are made available by the generous support of the industry sponsors.

#### Civil Engineering Prize:

Georgina Waibl

#### MWH NZ Ltd Geotechnical Eng Prize:

Keryn Gobel

#### RW Morris Prizes in Hydrology or Hydraulic Engineering:

Georgina Waibl

#### NZ Pavement & Bitumen Contractors Assoc. Prizes in Pavement Engineering:

David Jackways,  
Rachel Urquhart

#### NZ Automobile Assoc. Prize in Traffic Engineering:

Georgina Waibl

#### Traffic Design Group Prize

2<sup>nd</sup> Pro - Georgina Waibl

3<sup>rd</sup> Pro - Rachel Urquhart

#### Structural Engineered Timber Manufacturer's Association (SETMA) Award:

Keyrn Goble

#### MWH NZ Ltd/Jim McFarlane Memorial Prize:

Weng Yuen Cam

#### CCANZ

2<sup>nd</sup> Pro Prize: Sandra Shewan

3<sup>rd</sup> Pro Prize: Henry Tatham

#### NZ Concrete Society Prize:

Liam Taylor

### Science Fair 2003

In August, 2003 the Department of Civil Engineering participated in the Christchurch Science & Technology Fair 2003, which was held at the Town Hall. Over 500 displays were entered, and the Department awarded a prize for the best exhibit involving an aspect of civil engineering. The Department representative, Dr. Andre Dantas, selected a project entitled "*Christchurch subdivisions – how fertile is the soil?*", by Annalise Fletcher, from Breens Intermediate School, as the winning entry.



*Dr. Andre Dantas (left), with Annalise Fletcher (right), and her prize winning exhibit*



Kirsten Norquay was awarded a final year scholarship by Ian Fraser of Beca Carter Hollings and Ferner, for demonstrating potential to become an outstanding professional engineer.



Andy Van Houtte, shown here with Professor Andy Buchanan and Dr Peter Moss, after winning the best poster competition for all TIF scholarship holders in the South Island. Andy held a Technology Industry Fellowship (TIF) scholarship from Technology New Zealand while completing his ME thesis on epoxied connections in LVL timber, with industry assistance from CHH Futurebuild.



Kirsti Carr, shown with Dr David Hopkins, was awarded the inaugural Hopkins scholarship, set up in recognition of the contribution of Professor Harry Hopkins to the Department over many years. This scholarship was made possible by the success of the Hopkins Trust fund, set up when Harry retired in 1978.

**Don't forget to keep in touch with us and your classmates on-line through CE Communicator. You can log in at**

**[www.civil.canterbury.ac.nz/CECom.asp](http://www.civil.canterbury.ac.nz/CECom.asp)**

## Civil Engineers show soccer skills

During the university 2002/2003 summer soccer championship played on the Ilam fields, the Department of Civil Engineering team once again demonstrated its well-known abilities. The team, which comprised two academic staff and nine postgraduate students, achieved 3<sup>rd</sup> place in the one-day social soccer competition, which involved all the departments of the university.

‘The team played with outstanding determination all the matches, in the face of very strong opposition’, says Andre Dantas. He adds that they gradually established their playing system (all-at-the-same-time-together style), over the course of the competition, thereby managing to overcome the intense heat, a lack of fitness and minimal initial soccer skills! Andre especially acknowledges the decisive contribution of the women in the team.

At the end of the competition, the team celebrated their achievement, capping the many joyful moments experienced together. ‘Next year, we expect a stronger team, which will continue to consolidate the emerging tradition that the Department’s students and academics definitely know how to play soccer’ says Andre.



2003 Civil Engineering soccer team. (L to R) Rear: Maria Piefel, Caroline Francois, Andre Dantas, Dean Saunders, Victor Wong, Eric Liew; Front: Heidi Lee, Iwan Sudarno, Dave Arnold, Stefano Pampanin, Ee Yii, Vincent Wong Reclining: Glenn Koorey



This year 90 students on the 2<sup>nd</sup> Professional Civil Engineering Management course had the opportunity to put their management skills into action. Dr Jason Le Masurier organised a 3-day camp at YMCA Wainui on Banks Peninsula, generously sponsored by Fulton Hogan, a major employer of our graduates. At the camp the 11 teams were presented with the challenge of designing and constructing rafts to transport sand within Akaroa harbour. The exercise incorporated many aspects of the syllabus, with teams required to submit for assessment a programme, cost estimate, risk assessment and raft design. Each team effectively operated as a design and

## Fulton Hogan Management Camp

build contractor, with simulated cash flows providing an added dimension and



incentive for teams to manage their project effectively.

The competition was closely fought with each of the teams working hard to get their planning and design submissions

in early to make the most of the 10% interest per hour applied on their staged payments. The greatest financial gains were made in the final competition - to transport the most sand by raft around a 1.5 km course off Wainui beach. Between them the students transported over 26 tonnes of sand in a frenetic 2.5 hours. The appropriately named winning team ‘Victorious Vikings’ carried over 2 tonnes within the time limit to put them in an overall winning position based on profit.

There was a little time for relaxation, with evening entertainment including a presentation from Fulton Hogan on Friday, night orienteering on Saturday and a the highlight of the weekend – a talent quest on Sunday which included judging of a range of bizarre hair-sculpting creations that appeared over the course of the weekend! As a result of the success and positive feedback from the students, this camp is set to become a feature of the 2<sup>nd</sup> Pro course for years to come.

## Industry Advisory Board

The Department is fortunate to have a very active Advisory Board which meets several times each year to offer guidance and advice to the Department management team. Pictured here are the current members of the Board.

During 2003 the Board met three times to a full agenda. The main items of business were helping the Department to position itself for restructuring, giving guidance on a new marketing plan, and maintaining capacity for capital expenditure. The Board was also helpful in setting up a separate Advisory Board for the B.E.(Natural Resources) degree programme. A major contribution was help with the development of long term planning, including a five year business plan and a five year research plan to complement the existing Strategic Plan. Through a series of Departmental workshops we have defined key performance indicators for the Department, which we will now monitor on an annual basis.

### Committee Chair



Don Elder, CEO, Solid Energy, Christchurch

### Deputy Chair



Grant Wilkinson, Director, Holmes Consulting Group, Christchurch

### NREAB Rep.



Viv Kloosterman, VK Consulting Environmental Engineers, Whangarei

### Industry Members



Kaye Clark, Waikato District Council, Hamilton



Ian Robertson, Director, MWH, Dunedin



Peter Smith, Director, Spencer Holmes Ltd., Wellington



Dave Faulkner, CEO, Fulton Hogan, Christchurch



Rick Pridmore, CEO, NIWA, Hamilton

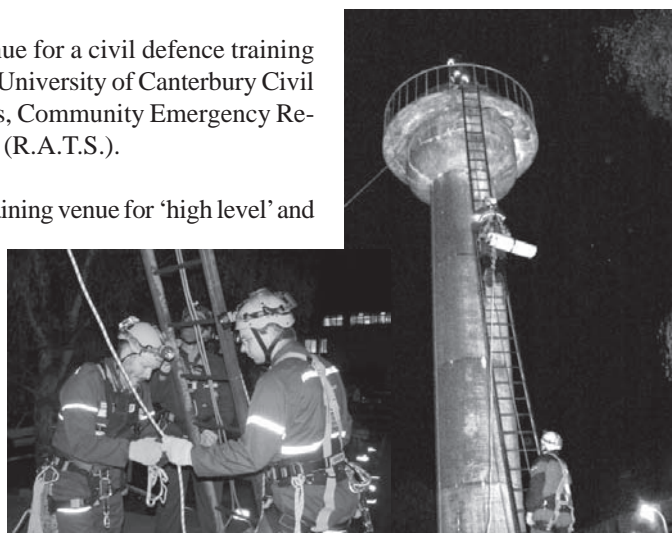


Kevin Thompson, CEO, Opus International, Wellington

## R.A.T.S. invade Fluids Lab

The Fluid Mechanics laboratory provided a challenging venue for a civil defence training exercise on a cool spring evening in October, 2003, when the University of Canterbury Civil Defence (U.C.C.D.) team hosted Canterbury Civil Defence's, Community Emergency Response Team (C.E.R.T.), and a Rescue and Technical Service (R.A.T.S.).

Graeme Bull, U.C.C.D team leader, was looking for an ideal training venue for 'high level' and 'confined space' rescues, and chose the laboratory's pump-house. A number of 'victims' were then strategically ensconced in awkward locations in, on and around the pump-house. The Aranui C.E.R.T. then responded to the emergency call for help, and on arrival carried out their initial site assessment. They quickly determined the need for the R.A.T.S., who were summoned via the Civil Defence two-way radio system. The well drilled and commanded R.A.T.S soon arrived, and carried out a successful rescue of all the 'victims', much to the 'victims' relief.





## Bente Clausen says thanks for seven years



After ten years in New Zealand and seven years as a hydrology lecturer in the Department, I have decided it is time to return to Denmark to share some time with my family and especially my par-

ents, while I still have the chance. I am very grateful to the University of Canterbury and especially the Department of Civil Engineering for my time here. It has been an invaluable experience to be part of the New Zealand engineering and academic community and in particular the Hydrological Society, which is very strong compared to many other countries. I feel privileged to have been part of it - New Zealand is a great place to study hydrology.

When I think of my time in the Department, some memories stand out. From the 'old' days (in the last century) when David Wilkinson and Bob Spigel were around and I was 'new', I remember the challenge of teaching in a (for me) new style and culture. One day Bob Spigel was going to try out one of my ideas in an Engineering Mechanics lecture, to get students to the board to work through small examples. I sat in the lecture, and soon after the start the young lad next to me was half asleep, while others were chatting. After half an hour, Bob had a problem outlined and asked for a volunteer to draw the forces on the board, shaking a little brown bag from a comic shop very temptingly. The room fell very silent. The guy next to me looked up, confused, and asked his friend what was happening. After a long pause, a brave student from the back came down, very timidly, and drew the forces correctly. Out of the bag came a set of chattering teeth, and the theatre broke into laughter. Bob

drew another diagram, and this time another student appeared immediately at the front. The guy next to me was now wide awake, concentrating very hard. 'I think I could almost do it', he muttered. 'If only I had been listening', he mumbled wistfully. When we left, the theatre was humming and there were probably ten people trying to draw forces on the board – what a great lecture!

In the new century I settled more in my position and started to enjoy the student feedback. I particularly relished the fork and the horns that were drawn on my picture on one teaching survey after a concentrated effort on getting students to turn up on time.

From a contact I made in Nepal in 1999, and with the Dean's support, a new tradition came to life – two New Zealand students travelled to India (Roorkee University) in the summer to do their practical work experience on the development of small hydropower schemes. It was great to see their enthusiasm, and in the seminar, which they were required to give on their return, they always seemed to digress to stories about India and I never really found out what hydrology they actually did!

I had the pleasure of supervising some very able students in Master's and 3<sup>rd</sup> Pro projects, most of them concerning flows in rivers. Manu's testing of an infiltrometer model was a fun 3<sup>rd</sup> Pro project, and it was a real pleasure to see him win the student prize at the National Hydrological Conference after presenting to an audience of scientists, and competing with Master's and PhD students.

I am also glad that I finally got a Master's course on Instream Flow Methods



(fish habitat modelling) going. The first year I had three students, including a particularly motivated one, Bruce Hunt, from whom I learned a lot about fish and fishing!

I would like to thank the support staff for all their helpful and friendly support over the years. In the lab I have been dealing mostly with Ian Sheppard, who I have really enjoyed working with. Thanks also to the other technicians, Melody (who is doing a great job with CE News), the secretaries and the computer support people. I have also received a lot of support from academic colleagues, I shall miss having Mark in the neighbouring office and David opposite. I have also enjoyed having Andy as HOD and think the Department is lucky to have him in this role. I wish the Department well through the restructuring process, especially the people most affected. Good luck also with the continuing efforts to improve the learning environment and the gender balance.

*Bente*



Starting next year we are offering electronic delivery of CENews. If you are interested in receiving CENews electronically please send us your email address at [cenews@civil.canterbury.ac.nz](mailto:cenews@civil.canterbury.ac.nz)

# Transportation Engineering

## Programme Update

“The Transportation Engineering programme, which commenced in February 2002 with financial assistance from Transfund NZ, the Land Transport Safety Authority and Road Safety Trust, is proving very successful” says Associate Professor Alan Nicholson, who leads the programme. There has been substantial growth in the number of enrolments over the last year, with 44 enrolled as of October 2003. The table below gives details of the qualifications being sought, and the number of full-time (FT) and part-time (PT) students, with the numbers for 2002 shown in parentheses.

Degree	Total	FT	PT
PhD	4(4)	3(4)	1(0)
ME	20(8)	10(2)	10(6)
PGDipl.	14(5)	5(1)	9(4)
COP	6(1)	0	6(1)
Total	44(18)	18(7)	26(11)

In 2003, Dr Andre Dantas, originally appointed to the Transfund NZ Fellowship for five years, was appointed to a continuing position by the University. The Department expects to appoint a replacement Transfund NZ Fellow for a four-year term, from the start of the 2004 teaching year. This brings the number of committed Transportation Engineering staff to four.

## 2003 Courses

- Traffic Management
- Accident Reduction & Prevention
- Advanced Pavement Design
- Pavement Management Systems
- Transport Planning & Modelling
- Logistics and Traffic Design

These courses were all taught in block-mode (i.e. two three-day blocks of lectures and tutorial, plus project work), to facilitate the participation of practitioners from around the country. Teaching was also conducted in co-operation with the University of Auckland.

An Industry Liaison Committee has been established and will provide advice on the content of courses and the conduct

of the programme. The Committee comprises academic staff, plus a representative group of employers of transportation engineers, as follows:

- Mike Rudge, Montgomery Watson Harza
- Stuart Woods, Christchurch City Council
- Dr Shane Turner, Beca Consultants
- Dr Bryan Pidwerbesky, Fulton Hogan
- Neil Bennett, Transfund NZ
- Robin Odams, Transit NZ
- Wayne Osmer, Land Transport Safety Authority

## Visitors

The group was very fortunate to have three visiting academics assisting with the teaching during 2003 as follows:

Professor David Boyce, University of Illinois, Chicago, USA (Transport Planning & Modelling);

Professor Nicholas Garber, University of Virginia, USA (Accident Reduction & Prevention);

Professor Martin Snaith, University of Birmingham, UK (Pavement Management Systems). He is expected to visit again during 2004 and 2005.

*For further information, please contact the Programme Director:  
Assoc. Prof. Alan Nicholson at [alan.nicholson@canterbury.ac.nz](mailto:alan.nicholson@canterbury.ac.nz)*

## Other news and awards

Alan Nicholson and Andre Dantas visited Brazil in November, 2003, where they presented papers and led workshops at the Conference of the Brazilian National Association for Transport Research. Alan was awarded the prize for the Best Academic Paper at the Conference. They also visited several universities to present seminars and lectures. It is hoped that this visit will result in PhD students coming to the Department to undertake transportation research, with funding from the Brazilian Government.

During the year, Mofreh Saleh and Bruce Steven (Pavement Research Engineer) succeeded in gaining substantial research funding from FRST, as part of a project led by Opus International Consultants. Mofreh Saleh successfully completed the first stage of a research project on foamed-bitumen for Transfund NZ, which approved funding for the second stage of the research.

Alan Nicholson was recently elected National Chairman of the IPENZ Transportation Group and Glen Koorey (PhD student) won the Transit NZ – Works Infrastructure “Road Innovation Award” for his paper entitled “Passing Opportunities at Slow Vehicle Bays”, presented at the 2003 IPENZ Transportation Group Technical Conference.



*Alan, above, receiving his Best Paper award and Andre, left, making a lively presentation while in Brazil.*

## Publications and Conferences

### Hydrological Drought

As a member of the Northern European Flow Regimes for International Ecological Network Data (NE FRIEND) group, operating under UNESCO, Bente Clausen has contributed to a book on Hydrological Drought, to be published by Elsevier in 2004. The first draft of the book was evaluated by experts and water managers early in 2003. The second draft was evaluated by 26 international 'students' (young scientists and PhD students) on a study course held in Wageningen in the Netherlands during October 2003. Bente was responsible for the chapter on Stream Ecology and Flow Management, made a contribution to a chapter on drought definitions and indices and ran a session on habitat modelling during the course.

The members of the NE FRIEND group have worked together for many years, and most were involved in the writing of several chapters of the textbook, as well as serving as reviewers for other chapters. Thus, the work involved many meetings and much collaboration. Bente was able to put time into this project in 2003, as she enjoyed a year on study leave (her seventh year at Canterbury). From April to October, 2003 she was based at the National Environmental Research Institute (NERI) in Denmark, and passes on her thanks to NERI for her time there, and to the University of Canterbury for granting her study leave.



*The international group who took part of case study C (the secret sign!) on habitat modelling, with Bente Clausen on the left.*

### Pacific Conference on Earthquake Engineering

The Department and University hosted the 144 New Zealand and 72 International delegates attending the 7th Pacific Conference on Earthquake Engineering, in February, 2003. The Conference was organised by Dr Bruce Deam, the Leicester Steven EQC Lecturer in Earthquake Engineering, and Canterbury graduate Mr David Brunson, on behalf of the New Zealand Society for Earthquake Engineering.

Professor John Mander and four international speakers presented excellent and compelling keynote presentations outlining issues, challenges, goals and visions for advancing and linking earthquake engineering research and practise.

Conference delegates were invited to not only continue challenging traditional ideas and connecting research tightly with its application, but to engage a broader range of disciplines to educate the general public on all matters relating to earthquake risk reduction. A further 130 papers were presented in three parallel technical streams during the three-day long conference. Peer-reviewed papers were published on a CD-ROM. During the conference, tours were conducted through the Department's laboratories to examine current graduate research projects.



At the closing ceremony, a NZ Structural Engineering Society (SESOC) award was presented to Emeritus Professor Bob Park, in recognition of his substantial contributions to structural and earthquake engineering.



## 2003 Pacific Conference on Earthquake Engineering