NEWSLETTER

September 2005

Operational Research Society of New Zealand, Inc.
PO Box 6544, Wellesley St. Auckland, New Zealand, www.orsnz.org.nz

Contents

Newsletter publication dates are March, June, September, and December. Submissions deadline is the 15th of the month for the following month's issue. Send submissions by email to the Newsletter editor, Matthias Ehrgott, newsletter@orsnz.org.nz. Acceptable formats are plain text, word, or graphic formats jpg, tiff, and gif. Pdf or postscript documents are *not acceptable.*

From the Editor

First South-Pacific Conference on Mathematics

The week of 19th August to 2nd September saw the birth of a new series of conferences. On the initiative of Henri Bonnel the first South-Pacific conference on mathematics was organised by the University of New-Caledonia and held at the Institute of Research for Development (IRD) at Noumea, New Caledonia. The conference was attended by 38 researchers from New Caledonia, French Polynesia, Fiji, Australia, New Zealand, China, Japan, Brazil, France, and Finland.. While the focus of the conference was on optimization, all branches of mathematics were welcome. All participants agreed that the meeting was a success and that a conference series should be established. The conferences will be hosted in turn by the University of New Caledonia, Noumea, the University of the South-Pacific, Suva, and the University of French Polynesia, Papeete. The next event is planned for 22 – 28 January 2007 in Fiji, with the third envisaged for 24 – 29 July 2009. Details about the conference are at http://www.univ-nc.nc/Recherche/labo/erim/lastconf/confsp.htm

In order to bring the mathematical community in the South Pacific together, it was decided to found a South Pacific Mathematical Society. For more details contact Henri Bonnel bonnel@univ-nc.nc.

Matthias Ehrgott

ORSNZ Visiting Lecturer Scholarships

ORSNZ invites nominations for ORSNZ visiting lecturer scholarships for visits to New Zealand between September 2005 and June 2006. Each visiting lecturer must give a talk on some topic likely to be of general interest to ORSNZ members at each of Auckland, Hamilton, Wellington, and Christchurch. Each visiting lecturer will be invited to write a guest editorial for the society newsletter. The emolument of each scholarship is up to $1000. ORSNZ will not normally consider payment of additional costs to visiting lecturers.

Each candidate must be nominated by a current member of ORSNZ, "the champion". The nomination must include the CV of the nominated visiting lecturer, the date and location of the hosts of the visit, the name of the champion and an undertaking by the champion to coordinate a visit by the nominee to the four above named centres.

Enquiries concerning, or nominations for, scholarships should be sent to

David Ryan, Department of Engineering Science, The University of Auckland, Private Bag 92019Auckland

40TH ANNUAL CONFERENCE OF THE ORSNZ

2 – 3 December 2005 Wellington, New Zealand

Operational Research Society of New Zealand, Inc.
PO Box 6544, Wellesley St. Auckland, New Zealand, www.orsnz.org.nz

REFLECTING BACK – LOOKING FORWARD:

Celebrating 40 Years of OR in New Zealand

The Hosts

The Wellington Branch of the ORSNZ, Victoria Management School and Victoria University of Wellington are pleased to host the 40th Annual Conference of the Operational Research Society of New Zealand, ORSNZ'05, on Friday 2 and Saturday 3 December 2005 (with a pre-conference social on the evening of Thursday 1 December and Dinner at the Harbour View Lounge of the Michael Fowler Centre on Friday 2 December).

Call for Papers

We welcome papers on any aspect of operational research, especially practical applications, but also "tutorial-style" reviews of a field. Please email your abstract, in 200 words or less, in plain text, to the conference organisers at *conference@orsnz.org.nz*.

Submission deadline for abstracts:
30 September, 2005.

Following acceptance of your abstract, we shall invite you to submit a full-length paper for publication in the conference proceedings. A copy of the proceedings will be given to every attendee at the conference. Full papers must be submitted by email in Word (.doc), Postscript (.ps) or Adobe Acrobat (.pdf) format to the conference organisers.

Submission deadline for full papers:
31 October, 2005.

Registration forms, guidelines for the preparation of full papers, and further information about the conference, will be available on the conference website *www.orsnz.org.nz/conf*.

Student Grants-in-Aid for the ORSNZ Annual Conference, Wellington, November 2005

Full-time students, who are members of ORSNZ, and plan to present a paper at the ORSNZ conference, are eligible for travel assistance from ORSNZ to attend the conference. Applications should be made using the conference registration form (see *www.orsnz.org.nz/conf*), and should be signed by the student's supervisor or Head of Department to confirm that the applicant is enrolled in a full-time university course. The completed registration form, together with an abstract of the planned paper, should be sent to the conference address above by 30 September, 2005. Grants will be payable at the conference upon production of a GST receipt for the travel expenses.

Young Practitioners' Prize (YPP)

OR practitioners and students who will be under 25 years of age on 2 December 2005 are invited to compete for the ORSNZ Young Practitioners' Prize. Condition for entry is the presentation of a paper at the 40th Annual Conference of the ORSNZ. When registering for the conference, competitors should request that their paper be scheduled in the YPP session and must provide proof of their eligibility. The total prize money awarded will be $1,000, split between the authors of the best papers at the judges' discretion.

Conference Committee

John Davies, Vicky Mabin, Tom Halliburton, John Hayes, Stefanka Chukova, Mark Johnston, Mark Pickup

What a Bunch of Nerds Can Do to Promote the OR Profession

While in Hawaii for the IFORS 17th triennial conference I attended a presentation by Irvin Lustig from ILOG, at the time representing INFORMS. The presentation entitled "Principles of marketing the O.R. profession: how can your society get started" was mainly attended by representatives of different national O.R. societies.

In the opening remarks, Irvin said to the audience: "*Let's face it: we are basically a bunch of nerds*". And went on to say that "*O.R. is the discipline of applying advanced analytical methods to help make better decisions*". "Better decisions" is the key to the invitation that Lustig extended to the bunch of us in front of him.

Lustig's main point was to illustrate how INFORMS is promoting the O.R. profession through the Science-of-Better campaign. Science of better aims at delivering a broader explanation of the impacts of O.R. in a wide range of practical settings. The campaign uses examples from U.S. industries and corporations such as how Continental Airlines got the help of O.R. consultants to generate crew recovery solutions for responding to emergencies, a very sensitive issue for the industry in the aftermath of the terrorist attacks on the U.S. in 2001.

His presentation also highlighted the adoption of the campaign by the U.K. OR Society. The Society adopted the campaign by adapting the INFORMS material to its membership and cultural identity. For instance when referring to executives making bolder decisions and running everyday operations, with less risk and better outcomes, INFRORMS uses the phrase "Seat-of-the-pants-less"; the UK OR Society in turn used the same material and ideas but changed the phrase to "Bolder decisions with less gut-feel".

In fact, examples that exhibit successful stories in the U.S. refer to the U.S. experience; in contrast, the UK OR Society has chosen O.R. success stories within the context of U.K. firms.

Both campaigns can be seen at www.scienceofbetter.org and www.scienceofbetter.co.uk, respectively.

INFORMS is encouraging other national societies to go the same way. Not only this will promote the O.R. profession in each country but will also bring together the societies, they say. In the words of Lustig "*this effort has come out of INFORMS hiring some marketing firm, which went out and got interviews with CEOs and CIOs and made surveys*." Therefore, there seems to be a lot of justification for their claims and way to go.

Of course, in the American way.

I have seen the efforts of ORSNZ to let students know what OR is about. While I really appreciate the effort – and keep the flyers handy just in case a students asks - I wonder whether ORSNZ would like to consider adapting the "Science-of-better" campaign some more appropriate kiwi fashion. I think this would enhance the promotional task already started.

Fernando Beltrán
ISOM Department
University of Auckland

The printing of this newsletter has been generously sponsored by Hoare Research Software.

Puzzle Corner

Why must a house whose rooms each have an even number of doors likewise have an even number of entrance doors?

Source: L A Graham, Ingenious Mathematical Problems and Methods, Dover Publication, New York, 1959.

Solution to the Puzzle in theLast Issue

Let the total distance travelled downhill, on the level, and uphill, on the outbound journey, be x, y, and z, respectively. The time taken to travel a distance s at speed v is s/v. Hence, for the outbound journey

$$x/72 + y/63 + z/56 = 4$$

While for the return journey, which we assume to be along the same roads

$$x/56 + y/63 + z/72 = 14/3$$

It may at first seem that we have too little information to solve the puzzle. After all, two equations in three unknowns do not have a unique solution. However, we are not asked for the values of x, y, and z, individually; only for the value of x + y + z.

Multiplying both equations by the least common multiple of denominators 56, 63, and 72, we have

$$7x + 8y + 9z = 4 \cdot 7 \cdot 8 \cdot 9$$
$$9x + 8y + 7z = (14/3) \cdot 7 \cdot 8 \cdot 9$$

Now it is clear that we should add the equations, yielding

$$16(x + y + z) = (26/3) \cdot 7 \cdot 8 \cdot 9$$

Therefore x + y + z = 273; the distance between the two towns is 273 km.

Remarks

A unique solution is possible because the speeds are chosen so that a round trip over a sloping section of road takes the same time as that over a flat section. The above is an example of how puzzle solving approaches are sometimes useful in OR. A complete, comprehensive solution is often unnecessary in industry. Sometimes there is the chance to revisit an earlier, partial solution but, in the meantime, the company has the immediate benefit of gains from the first-cut solution - when the net present value of these gains is taken at an exorbitantly high discount rate and the benefit of "getting in quick" is apparent. And, to press the point, this notion illustrates the futility of attempting to minimize a “bath tub-like” curve (such as an EOQ) if the cost data are suspect. The solution was correctly calculated by **Colin Walker, Retired member of ORSNZ**, whose covering letter prompted this paragraph.

Source: From A to B, on flooble :: perplexus and Nick's Mathematical Puzzles (http://www.qbyte.org/puzzles/)

Les Foulds

Chapter News

Auckland News

Assistant Professor Andrew Miller from the Department of Industrial and Systems Engineering at the University of Wisconsin-Madison visited from August 15-26. During his visit he and Hamish Waterer collaborated on modelling big bucket production planning problems and he gave two seminars: Nested Partitions Based Column Generation, and Heuristics for Big Bucket Production Planning Problems. Continuing his PhD research, he has been developing new polyhedral methods for lot-sizing models, an important class of MIPs with applications in production planning.

Stuart Mitchell has successfully defended his PhD on forestry harvest modeling, and is now officially Dr Mitchell.

Andy Philpott is on sabbatical. He has been recently visiting Garrett van Ryzin at Columbia and presenting at the DICOPT workshop on dynamic pricing held at Rutgers in August. Later this month he heads to Santiago, Chile for two months, to work with Alejandro Jofre and then to the US for two months. In his brief visit back to New Zealand, the EPOC group held their annual Winter Workshop on electricity modelling on September 2. This was relatively well attended despite some delegates from Wellington having cancelled flights due to fog at Auckland airport. This workshop is an important forum for researchers in Auckland (EPOC) and Canterbury (EMRG) to get together and discuss their latest research. It also gives industry the opportunity to critique and inform the research. The talks can be downloaded in PDF form from www.esc.auckland.ac.nz/EPOC/workshop2005.html.

David Ryan has headed to the UK to deliver the opening plenary at the 47th OR Society Annual Conference in Chester. David will be speaking on Optimised Production in an Aluminium Smelter.

Matthias Ehrgott has been to New Caledonia to attend the first South-Pacific Conference on Mathematics (see report elsewhere in this news-

letter) where he presented a plenary lecture. Just stopping over in Auckland for a day he flew to Germany where he gave an invited semi-plenary lecture on new trends in multiobjective combinatorial optimization at the annual German OR conference in Bremen.

Our final year students are now nearing the end of their projects. After submitting their written reports, they will be presenting their work on 29 and 30 September. ORSNZ members are most welcome at these talks. Details are available at http://www.esc.auckland.ac.nz/teaching/partFourProj.asp.

Some of the topics being covered include:

- Supply Boat Routing for Statoil
- Portfolio optimization via stochastic dominance of benchmarks
- Optimisation of wind farm design
- Unit commitment at Southdown power station
- Optimal traffic light control with pedestrians.
- A new model for locating ambulances
- Comparison of LP models for radiotherapy planning
- Optimisation models to plan the development of the Hunua Quarry

Andy Philpott

Canterbury News

The very mild winter has meant spring arrived early down south. Although nice for some of us, it has meant the Alps haven't had their usual quantity of snow and hence the ski fields are suffering somewhat.

The Management Science group at Canterbury has been busy interviewing people for the Chair in Management Science. The interviewing process should be completed by the end of September. We hope to be able to report a positive report in the near future.

Also on the personnel front, Nicola and Fritz are now on sabbatical leave, although both are still based in Christchurch. Fritz Raffensperger has been researching a design for a fresh water spot market and gave us a seminar on his work back in August. Briefly, a market manager would operate a hydrological flow simulation model, which would input coefficients to a linear program. The LP finds allocations that maximise the sum of buyer and seller surplus, while satisfying environmental constraints. Fritz has presented to several Regional Councils and user groups, and the work has been reported in the popular press.

Shane and Nicola are going to be presenting a session on Min and Max at the New Zealand Association of Mathematics Teachers Conference in Christchurch later this month. Also on the promotion front, some may be interested to know that the next Min and Max poster is also starting to be developed.

Our Management Science honours students are now working full time on their industry projects. We are looking forward to some interesting projects being completed by November. Remember that if you are interested in having some of our honours students work on an OR problem in your organisation next year, then contact me at ross.james@canterbury.ac.nz for details.

Ross James

Wellington News

Planning is well under way for the 2005 ORSNZ Conference which is to be held in Wellington on 2nd and 3rd of December. The organising committee consists of John Davies, Vicky Mabin, Tom Halliburton, John Hayes, Stefanka Chukova, Mark Johnston and Mark Pickup.

The venue will be Victoria University's Pipitea Campus, on the Old Government Building site. This is a very convenient location for those travelling by bus or train, and is close to plenty of Wellington sights, watering holes, etc. A number of conference papers will be a little different to those at previous conferences. We are looking especially for papers which review OR over the last 40 years, and also papers describe the varying emphasis placed on different aspects of OR at each university. Tutorial papers are especially sought for this conference – these are often of wider interest than papers dealing in greater depth with a narrower field. If you would like to present a tutorial or review talk on your specialist area, the Conference Committee encourage you to submit an abstract.

Conference will begin with a Thursday evening informal social session, which will be held either on the 12th floor of Rutherford House in the old ECNZ board room where you can admire the view, surroundings reminiscent of a gentleman's club and the art collection, or perhaps in

the Thistle Hotel, which once had a reputation as being the type of place that is unsafe for most ORSNZ members, but has now been gentrified. A real highlight of the conference will be dinner at the Harbour View Lounge of the Michael Fowler Centre which is an outstanding venue. (The cost of this is included in the standard registration.)

Tom Halliburton

Waikato News

John Scott is back from study leave, part of which he spent at Cambridge, UK. He is heading back to UK for the UK OR47 conference. He and Val Belton (Univ of Strathclyde) are delivering a keynote address on the use of reflection in OR. John is also giving a presentation on the use of visual representations in problem-solving.

Les Foulds is in Europe for the first leg of his study leave and tells us that he is enjoying picturesque views. For a start Les visited the Graduate School of Business at St Andrews University, Scotland. His office there overlooked the famous 18th hole of the St Andrews Golf Course, where Tiger woods recently triumphed. He is now working with the Logistics Group of Molde University College, Norway, on warehousing and vehicle scheduling models.

The views from his apartment and office, across a fjord, are said to be silmilar to those from The Church of the Good Shepherd looking towards the Southern Alps.

Chuda Basnet

Meetings Calendar

New Zealand

40th Annual Conference of the Opertaional Research Society of New Zealand, Wellington
2 – 3 December 2005
www.orsnz.org.nz

11th Annual ANZSYS Conference, Christchurch
5 – 7 December 2005
http://isce.edu/ISCE_Group_Site/web-content/ISCE%20Events/Christchurch_2005.html

Asia Pacific

Australia and New Zealand International Business Academy (ANZIBA) Conference 2005, Melbourne, Australia
10 – 11 November 2005
http://www.monash.edu.au/cmo/anziba05

IFSR 2005 The First World Congress of the International Federation for Systems Research, Kobe, Japan
14 – 17 November 2005
http://ifsr2005.jtbcom.co.jp/index.html

International Conference on Operations Research Applications in Infrastructure Development and 2005 Annual Convention of Operational Research Society of India (ICORAID-2005-ORSI), Bangalore, India
27 – 29 December 2005
www.mgmt.iisc.ernet.in/~orsibc

7th APORS Conference, Manila, Philippines
16 – 18 January 2006
http://www.orsp.org.ph/apors/

INFORMS International 2006 Hong Kong
25 – 28 June 2006
http://www.informs.org/Conf/Hongkong06/

International

The Fifth ALIO/EURO conference on combinatorial optimization
Paris, France
26 – 28 October 2005
http://www.infres.enst.fr/~charon/alio/

INFORMS Optimization Society Conference on Optimization and Health Care 2006
San Antonio, Texas
3 – 5 February 3, 2006
http://www2.egr.uh.edu/~ginolim/informsOpt/

MOPGP'06 7th International Conference on Multiobjective Programming and Goal Programming, Tours, France
12 – 14 June 2006
http://www.univ-valenciennes.fr/ROAD/MOPGP06/

MCDM 2006 – The 18th International Conference on Multiple Criteria Decision Analysis
19 – 23 June 1006
Chania Greece
http://www.dpem.tuc.gr/fel/mcdm2006/

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To apply for membership or buy subscriptions, see the application form on our web site, and mail it to: Membership Secretary, ORSNZ, PO Box 6544, Wellesley Street, Auckland, NZ.