OR NEWSLETTER

Operational Research Society of New Zealand (Inc.)

Registered at C.P.O., Wellington, as a magazine

March 1992

New Members

A warm welcome to new members since the last newsletter:

David Hewson	Consultant	Christchurch
Brian McGuigan	OR Executive	Taupo
Richard Robertson	Engineer	Wellington
Celia Burton	Project Management Consultant	Wellington
Charles Wareham	Consultant	Upper Hutt

Amendments to the Constitution

The following are the results of the ballot to amend the Constitution of the Operational Research Society of New Zealand:

(1) to establish the Society's non-profit status

For: 65 Against: 0
Result: Carried unanimously.

(2) to amend the privileges of collective members

For: 64 Against: 0
Result: Carried unanimously.

(3) to remove sexist language

For: 62 Against: 3
Result: Carried with the necessary two-thirds majority.

All three amendments are therefore adopted.

Planned improvements to the newsletter.

The Council believes that members of the Society are now sorely missing the local content previously supplied by the Journal. It is also difficult to keep our members up to date with developments in the field.

We therefore intend to 'upgrade' the Newsletter to help fill the gap. Details are still being finalised, but it will probably be A4 size, with photographs and some colour. We believe the expense involved represents the best possible use of the Society's funds as we strive to deliver better value to our membership.

We are aiming at a product which is easy to read, informative, and attractive. We are planning a publication which can be shown to our colleagues, clients, students etc and which will make a positive impression, encouraging them to:

- Use OR
- Join the Society
- Contribute to the Society
- Sponsor Society activities

Content is likely to include:

- Short (1 page) articles on real OR projects, with photos, etc.
- Short notes on problems of academic interest, perhaps along the lines of a *puzzle corner.*
- Encouraging firms (and University departments) to submit short profiles of new staff appointed, as in the business pages of a newspaper.
- Regular reports from University Departments on staff changes (photos), research activities, visitors, teaching programmes etc.
- Similar profiles on OR groups in other firms, especially our Corporate Members and Sponsors.
- Reviews of new books and software.

- Brief introductions to "fringe" areas in OR and related disciplines, so the members know who to contact or what to read if they are interested.

- Brief reviews of journal articles or other material which most non-university members probably never see.

- Continued encouragement of advertising.

All this will require **your** contribution, which we look forward to with great expectation! So contribute now before we send the knee-capping brigade! It is in **your** interests to publicise **your** activities, people and products.

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Local and International Events

N.B. The editor has some extra details on all these events if you are in a hurry to get further information.

12th International Conference on Decision Support Systems
Information Support for Executives, Managers, and Professionals
Chicago, Illinois, USA

8-10 June 1992

Contact: TIMS DSS-92
290 Westminster Street
Providence, RI 02903 USA

Euro XII/TIMS XXXI Joint International Conference
Operational research/Management Science

Helsinki, Finland
29 June-1 July 1992

Contact: Helsinki School of Economics and Business Administration
Department of Management Science
Runeberginkatu 14-16
SF-00100 Helsinki, Finland
E-mail: eurotims@finfun.bitnet
Fax: +358 - (0) 431 3217

International Institute of Forecasters 1992 Conference
Wellington, New Zealand

7 -10 August 1992
Contact: Allan Catt
Business & Economic Research Ltd
Box 10-277, Wellington
☎ (04) 472-5564

VI CLAIO - 6th Latin-Ibero American Congress on Operations Research
México City, México

7- 11 October 1992

Contact: Javier Márquez, Departmento de Administración, ITAM
Rio Hondo Nº 1, Tizapán San Angel
México, D.F., México. C.P. 01000 Fax: +52 - 5 -500-7637

International Conference on Operational Research for Development
Indian Institute of Management, Ahmedabad, India

14-16 December 1992
Contact: Jonathan Rosenhead
London School of Economics & Political Science
Houghton Street
London WC2A 2AE
England
Fax: (44) 71 955 7416 ☎ (44) 71 955 7637

IFORS 93
13th Triennial Conference on Operations Research
Lisbon, Portugal

12 - 16 July 1993

Contact: IFORS 93
Faculdade de Economia
Universidade Nova de Lisboa
Travessa Estevão Pinto
1000 LISBOA, PORTUGAL
fax: (351) (1) 387 1105

ORSNZ Student Prizes for 1992 - Advance Announcement

The Operational Research Society of New Zealand is happy to announce the following two prize competitions for deserving students in 1992:

- A **Student Project Prize** to be awarded to a student on the basis of the project work for a recognised degree or diploma of a New Zealand university or polytechnic. For this prize there is no need for an oral presentation at the Annual Conference of the ORSNZ.

- A **Student Paper Prize** to be awarded under the following conditions:

  the work is relevant to Operations Research done in New Zealand during the student days of the competitor,

  the paper is presented at the Annual Conference of ORSNZ in August 1992.

The value of the prizes will be announced at a later date. Assistance will be available to students presenting a paper at the conference.

The entries for both the prizes should be sent to:

Dr T. Sarkar
Convener, Student Prizes
Institute of Statistics and Operational Research
Victoria University of Wellington
P. O. Box 600
Wellington 1

From whom further information can be obtained.

Software Review - GPSS/H

Can't afford Simscript? Failed Queueing 101? The Student Edition of GPSS/H may be just what you need. This is a fully-functioned version of Wolverine Software's version of GPSS. The most critical limit on the student edition is that it is limited to 100 blocks (i.e. statements.) This is quite enough to run many straightforward simulations, especially of waiting-line problems. The price of $US29.50 includes an adequate manual (more like a 300 page tutorial) called "Getting Started with GPSS/H." All it requires to run is one high-density floppy drive.

Two of the most noteworthy advances over older GPSS's are looping in control statements, and the ability to handle conventional variables and matrices, rather than just parameters of transactions. At last Savevalues are a thing of the past. Many of the statements come in two flavours, one starting with B, like BPUTPIC, intended to be triggered by the passage of a transaction, and a regular version, PUTPIC for example, which goes in the control statements section. Input and output are fairly flexible, and there are the usual things like the ability to run interactively, a debugger, and built-in generation of an adequate range of random variates. There is no provision for graphical output. Wolverine market an add-on called Proof for this. By and large GPSS/H will still run programs written in older version of the language although there are some differences in format.

Last year I provided GPSS/H as an alternative to Simscript and an earlier PC version of GPSS in my simulation class. The "high-fliers" in the class usually chose Simscript, and wrote programs that either worked brilliantly or not at all. Most of the solid citizens however chose GPSS/H and all produced reasonably working programs. For simple problems, especially queues, novices do appear to find it easier to get going with GPSS/H than Simscript.

Wolverine Software's address is 4115 Annandale Rd., Suite 200, Annandale VA 22003, U. S. A. Fax:(703) 642-9634. They accept American Express or cheques in US dollars. Airmail shipping to New Zealand is $US25. Even if your problem will fit in the Student Edition I would recommend you get the Reference Manual (about $US25) as well, since some of the 60+ blocks are not described in "Getting Started." The commercial price for the full scale version is $US2,500, the 386 version is $US4,500. Proof costs $1990 although a student edition is about to be released. Academic discounts are available.

Don McNickle
Management, University of Canterbury.

Letter to the Editor

From *Dr Michael Saunders*

Dear Editor,

New Year Greetings from California

I have just spent half of December and January in New Zealand, and as always it was a great pleasure to be back home. I wonder if I may take this opportunity to say Hi to all the OR people I missed seeing. This was a family visit with my wife Prue to see aging parents and to bring our 1·9-year daughter Tania to meet many friends.

There was much fun for Tania at Prue's parents' farm near Masterton, watching Mabel the Pig sort through the bucket of scraps (in a strict priority order all her own) and walking through the nice green paddocks, waving "Bye" to the sheep as they shied away. Later in Christchurch the outdoor highlights were the playground in the Botanical Gardens at Hagley Park, and paddling in the warmish surf at Sumner near Cave Rock.

In the newspapers the dark side of the NZ economy was the usual popular topic, but it was heartening to see two well-written editorials in The Press the day I arrived in Christchurch (December 27). The first was a calm but earnest plea to Electricorp to maintain a single marketing utility, rather than forming several competing companies who would be begging customers to consume. The arguments given seemed eminently sensible to someone arriving from the outside. They reminded me of the PILOT economic models that George Dantzig and colleagues have constructed over the years at Stanford: their objective is usually to *maximize consumption*. This always seemed to reject what conservationists are still trying to tell us. I have often asked George how he can justify such an objective function, but my consternation keeps blotting his no doubt excellent answer from my memory.

The second editorial brought news of a possible revival of ANZUS. It was another calmly worded plea, asking Greenpeacers to pause and think carefully about the difference between nuclear weapons and nuclear powerplants. I was reminded of a talk I gave in Wairakei a few years ago at the Australian Applied Mathematics Conference (1987). A serious subtitle of my talk was "Long Live ANZUS", because it seemed a great pity to lose such a symmetric alliance (relative to the centre of the Pacific). Immediately afterwards a fellow participant gently advised that I was very much behind the times, but now I feel there is at least some hope of renewed cooperation.

Although I missed most of the OR community on this trip, we did manage to visit Grant Read and family in their new house near Ilam. In place of the proverbial Californian swimming pool there was a large trampoline in Grant's backyard. This matched several other backyards I had seen in recent days. Along with fees for students, it seems that one of the primary household worries in NZ is making sure that one's trampoline does not blow away in a gale!

Perhaps it indicates that Electricorp and the DSIR (does that still exist?) should be installing windmill "farms" akin to those seen on a vast scale near Livermore, California.

I left Christchurch on January 13 to spend a night in Auckland with two more sterling members of the OR community, David Ryan and Andy Philphott. Our activities centred mostly on tennis and squash. (Yes, OR people have to keep fit like everybody else.) There was also much anticipation regarding the new OR Chair at Auckland. May I say that I sincerely hope the chosen candidate is a true blue-blooded practical and creative kiwi!

On returning to Stanford I was deeply saddened to learn that our colleague Anthony Brooke had died in December (from leukemia). Along with Alex Meeraus, Tony was responsible for many aspects of the GAMS modeling system, including a major effort in writing the manual and thereby getting GAMS into widespread use. I have clear memories of working with Tony on the interface with MINOS. The OR community has lost a very able and amiable fellow. It feels especially sad to know that his wife Valerie is left with a little girl Rachel just a few months younger than Tania.

I was also taken aback to find a letter from Mike Powell saying that he would arrive in Christchurch on January 13, the very day that I left. Similar "near misses" have happened before! I think we shall have to make greater use of electronic mail in future.

Speaking of which, a message from Mike Todd just came wondering when it would be his turn to be the Mike in NZ. Perhaps that is a good clue for a forthcoming Annual Conference?

This reminds me of my previous stay in NZ. Hans Daellenbach and Grant Read kindly invited me to visit my home town as an Erskine Fellow at Canterbury. It was a happy stay. The timing fitted in with the OR Annual Conference at Waikato, to which John Buchanan extended a special invitation. I felt honoured to be welcomed back to New Zealand in these ways (and to see subsequent comment about my conference talk in the OR

Newsletter; *all* of the talks were excellent). I hope it is not too late to extend sincere thanks to John, Paul, Les, Delwyn and everybody for making it such an enjoyable meeting.

I still feel badly about encroaching on John George's talk time (oh dear) and for missing the last hour of the conference--the decision support session organized by John Buchanan, who had kindly given me a computer account from which I could telnet to the VAX in my office at Stanford. Sometimes email is *not* such a good idea.

Good luck to future conference organizers and to all the OR people in NZ. I am glad to know that Julie Falkner will be returning soon to take up a position at Massey. I hope to catch up with my old AMD friends next time and find out what has happened to that fine institution .

Very best wishes for 1992,

Michael A. Saunders
Research Professor
Department of Operations Research
Stanford University
Stanford
CALIFORNIA

P.S. Immediately after printing this letter I went to a faculty meeting and happened to sit next to George Dantzig (fondly known as GBD). I took the opportunity to ask again about the curiosity of maximizing consumption. Before the meeting ended I was astonished when George handed me a beautifully hand-written page containing these words:

> The theoretical answer to the question is that the PILOT model should *not* have an objective but rather a set of relations representing the physical flows, the dual price relations, and "some connection between the two" (and usually some complementary slackness conditions).
>
> The "connection between the two" is a relation between prices, income for consumption, and the consumption vector. The question we studied was this: Is there a nonlinear objective function (like a utility function) which if maximized subject to the physical flows implies all the dual conditions, the connection relations, and the complementary slackness conditions?

In general, theoretical economists (like Kenneth Arrow) have long ago concluded that the objective function does not exist. However, in a major study by GBD, McAllister and Stone, we put forward a theory that such an objective *does* exist. Essentially, the utility function may be interpreted as a discounted sum of consumptions in various time periods. The PILOT model has used at various times a linear objective and some nonlinear objectives (such as a quadratic one). The only one we haven't used is of the form $\Sigma_t \sqrt{\text{a quadratic in } X_t}$, where X_t is the consumption vector in period t. It is the latter objective that our theory derives.

While writing this answer, George spoke up many times in his gentle yet persuasive manner, mostly in support of a faculty appointment for our colleague Gerd Infanger, a young superstar in the field of stochastic optimisation. That subject is very dear to George's heart, and he believes it will revolutionize what we currently call OR.

I hope that GBD's answer will calm the souls of conservationists. I think it will warm the hearts of all of us to know that George is as active now as he has ever been, perhaps more so. He sends kind greetings to the OR kiwis he met in NZ a few years ago. He also believes that to maintain and expand the acceptance and support of OR we should be calling our field Decision Science.

Massey University

Christopher Price has been been appointed as a lecturer in OR in the Department of Mathematics for a period of one year. His research area is nonlinear optimisation. **Julie Faulkner**, currently at the University of Waterloo, will take up a permanent appointment next year.

ORSNZ 27th Annual Conference
Christchurch, 24-25 August 1992

Theme: OR and Information Systems

The tentative theme of the conference is the interface of computers and OR, in particular management information and expert systems. Professor Harvey Greenberg from the University of Colorado has agreed to be the Keynote Speaker. He is well known for his his work on "intelligent mathematical programming systems". We expect that he will offer a one-day workshop on this topic on Wednesday, 26 August, giving participants hands-on experience in using the system he developed.

It is hoped to have a stream on Inventory Management (in conjunction with NZPICS), and to include tutorial sessions.

Submissions are now called for contributing papers, and for tutorials. Please send exact title, name and address of all authors, and an abstract of no more than 150 words, by 1 May 1992, to:

ORSNZ 1992 Conference
OR Group, Department of Management
University of Canterbury
Christchurch, NZ

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