

N55



NEWSLETTER

Operational Research Society of New Zealand (Inc.)

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

JUNE 1986

FROM THE EDITOR

Since my OR philosophy is to do rather than to talk I will, instead, have a grouch at the "system" in which OR exists. As Operations Researchers, we analyse, preferably with a systems approach, to promote change for the better. Communicating and cooperation are supposed to be part of our culture. Contrast this with a typical governmental approach which prefers to implement before analysing (the consequences), responds (occasionally) to sectoral interests, creates sectoral conflict and communicates after the fact.

It seems to me that the "in" things are not expert systems or micros or anything remotely to do with OR but are things such as inefficiency, ineffectiveness, inflexibility and inequities (cf. "in" equities) which must ultimately lead to insolvency.

And have you heard the government's definition of a **Double Take**? - gst (gross stu...) is to be levied on petrol which already has about 4 taxes on it - you guessed it folks! A tax on a tax!

1986
ANNUAL
CONFERENCE

University of Canterbury
CHRISTCHURCH

25 & 26 August

<<<<<>>>>

PUBLIC DATABASES

CONTENTS, MANAGEMENT & ACCESS

The ORSNZ (Wellington Branch) in association with VUW Inst. of Statistics & Operations Research is organising a 1-day seminar on this topic.

WHEN? Wed. 2 July 1986
8.30 am to 5.30 pm

WHERE? Rm 301, Kirk Bldg
Victoria University

HOW MUCH? \$12

For further information, contact

Rona Bailey
c/- AMD, DSIR
PO Box 1335
Wellington
Ph (04)727-855 x861

<<<<<>>>>



MASSEY UNIVERSITY
PALMERSTON NORTH
NEW ZEALAND

LECTURER/SENIOR LECTURER
in MATHEMATICS

The Department of Mathematics and Statistics has a vacancy for the above position. The appointee will be qualified to teach in the general area of mathematics and should have particular expertise and practical experience in deterministic Operations Research. Specific research interests might include Optimisation or Mathematical Programming. The ability to cooperate in the supervision of joint research projects with staff of other faculties would be an advantage. The appointee will be teaching service, undergraduate and postgraduate courses and supervising research degrees; as well as teaching undergraduate courses by correspondence throughout New Zealand.

Salary:

Lecturer \$28,000 - \$35,000
Senior Lecturer \$37,000 - \$47,000

Further details of the position and Conditions of Appointment may be obtained from the undersigned.

Applications which close on 25th July 1986 should be sent to the address below. Applicants are asked to request their referees to send confidential references direct to the Registrar.

B.R.H. Monks
REGISTRAR

1986 STUDENT PAPER PRIZE

CONGRATULATIONS to Peter Crosbie and Urs Daellenbach (Canty Uni.) for carrying off this year's 1st Prize for their paper

An Economic Appraisal of
Total Hip Replacement

Would you believe that over 2000 hips are replaced in New Zealand every year?

Urs is currently doing some OE in Europe. Peter has been working at MAF and will soon start PhD studies at Purdue University in Indiana.

\$0\$0\$0\$0\$0\$0

gst

Council has decided that we have nothing to do with this beast, i.e. ORSNZ will not register for it.

0\$0\$0\$0\$0\$0\$



Congratulations to ex-President and well-known Council member, Hugh Barr, who recently won the AMD soiled sandshoe award for finally getting out of the starting blocks in the Marriage Stakes. We wish him and Heather well in (his own words) their "new adventure".

1st INTER-UNIVERSITY CONFERENCE OF OR TEACHERS

Last month I was invited, on your behalf, to attend the first Inter-University Subject Conference of Teachers of Operations Research in Auckland. About 30 staff attended, representing every university except Lincoln College.

Our aim was to discuss academic and administrative issues such as curricular developments, course structures, teaching and research.

We began by asking whether OR is a science or an art, and whether courses should be structured by techniques or by applications. I think everyone agreed the best way to learn is to do, and the worst way to teach is to talk.

I know teaching OR is difficult, but as ORSNZ President, I pushed for practical skills like communications and micro-computing - rather than advanced techniques. However universities are loath to sacrifice teaching any technique. They said everything (except game theory) is currently used somewhere.

I found universities have progressed greatly over the last 10 years. They are putting a stronger emphasis on case studies and student projects. They are now using video equipment to record queueing case studies and student presentations.

Universities would prefer to teach OR at the graduate level. (Indeed Waikato strongly advocates life long training.) However because staff positions depend on class numbers, and few graduates come back for more, they must teach OR mostly at the under-graduate level.

I was pleased that no-one pushed the universities' 'flame of learning' role too hard. They are trying hard to produce well-rounded OR practitioners, but universities need more student projects from industry. Industry needs graduates who fit smoothly into their organisations, but must expect to provide 'the real experience' themselves.

Bruce Benseman

Review of OR in NZ and FUTURE NEEDS & DIRECTIONS

The National Research Advisory Council (NRAC) is conducting a series of reviews on future needs of Science & Technology in New Zealand, to provide a basis for the recommendations of strategies for the next decade. Generally these reviews are being compiled by the appropriate Scientific Societies. ORSNZ has been asked to contribute, along with the Mathematics Society and Statistical Association, to a review of mathematics, statistics and operational research. We have been asked to look over our field, review what research and development (R&D) is being done, consider the needs for R&D, and to work out strategies for meeting the needs.

We see this review as an opportunity to promote OR to a wider audience. We also see this as good opportunity to find out more about our members, the work you do and the needs you have. For these reasons we urge you to spend the 1/2 hour or so (or more if you want) to respond. We have prepared the set of questions below for you to treat as a questionnaire, or, if you find it inappropriate or constraining, we welcome you to reply in any form you wish. Please send us your submissions by the end of June, to:

OR Review, ORSNZ, Box 904, Wellington

Vicky Mabin, for ORSNZ Council

All replies will be treated
as confidential

1. Who is your EMPLOYER? (or give a description)
2. Job Title, Place in Organisation, Size of your group
3. Approximately what proportion of your time do you spend on:
 - (i) using applications?
 - (ii) developing applications?
 - (iii) developing new techniques?
 - (iv) corporate analysis & planning?
 - (v) administration and meetings?
 - (vi) other? (specify)
4. Which of the above does your organisation view as R&D?
5. Is the term "OR" recognised in your organisation?
6. Is OR growing in acceptance, and if so, how fast?
7. What are the MANAGEMENT ATTITUDES towards your work
 - eg - what support do you have for your work?
 - who do you report to?
 - is the organisation receptive to new ideas?
 - how would you describe your organisation's overall attitudes?
 - other? (specify)

8. How would you rate the RESOURCES available to you (eg Nil, Poor, Adequate, Good, Excellent) in

- computers?
- software?
- personnel?
- data availability?
- other (specify)?

9. What CONSTRAINTS are limiting R&D in your organisation?

- eg
- sales tax on software, hardware
 - lack of tax incentives for OR & other R&D
 - lack of understanding of OR in your organisation
 - lack of management support and recognition
 - inadequate resources (eg as in 8.)
 - other (specify)

10. What SUGGESTIONS can you make to counteract these constraints?

- eg
- remove sales tax
 - make OR R&D a tax-deductible expense
 - provide OR appreciation courses
 - better publicity
 - other (specify)

11. What PRIORITIES do you see for effort in R&D in OR? eg for

- development of new techniques
- wider application of existing techniques
- development of new approaches e.g. expert systems - specify particular application areas if possible
- other (specify)

12. What can ORSNZ do to help you in your job?

13. What can the GOVERNMENT do to help promote the use of OR?

As you may be aware, NRAC is to be disbanded at the end of this year (a victim of the current spate of quangocides). However, it is expected to be resurrected in the form of a Science & Technology Council, having much the same functions as the present NRAC (such is the logic of Government). If this does not eventuate, then there is even more need for us to organize and advertise our profession, and to actively seek support as and where required.

So folks, please take the time to reply, so that ORSNZ (and maybe even the powers-that-be) can be more effective on your behalf. You may even learn something about yourself and your organization by doing so!

ED .

VISIT of PETER WHITTLE

During May we were fortunate enough to receive Professor Peter Whittle, FRS, Churchill Professor of the Mathematics of Operations Research and Director of the Statistical Laboratory at the University of Cambridge. He is an ex-student of Victoria University (VUW) and an ex-staff member of the DSIR. Prof Whittle's visit was sponsored by VUW's Mathematics Dept and Institute of Statistics and Operations Research (ISOR), the DSIR's Applied Maths Div, ORSNZ and the NZ Statistical Association.

He gave two formal seminars on May 6 & 7 at VUW and an informal talk at ISOR on May 9. In the last talk Prof Whittle described the current work in probability, statistics and OR being done at the Statistical Laboratory and at the Management Science Group at Cambridge. The talk was well attended by a large number of his ex-colleagues at DSIR. A group photograph was taken.

The other two seminars were more formal. The first, "Optimal Routing in Networks of Queues", was largely adapted from his recent paper, "Optimal Routing in Jackson Networks", APJOR, 1, 1984, pp32-37. In this lecture he derived the conditions for minimizing the average equilibrium cost for a Markovian Jackson network of queues, using Lagrange multipliers and dynamic programming techniques. He derived the special cases of "social optimization" which minimized collective costs, "individual optimization" where each individual chose its own optimal route through the network, and "bureaucratic optimization" where the operators of the system minimized their total cost of operation. The initial optimization was independent of the occupation numbers in the system. He extended these cases to incorporate state dependent adaptive routing.

The second talk was entitled "Tractable Modes of Interaction in Multi-Component Systems". He reviewed some models of statistical mechanics, queue networks, circuit switching and mediated interaction. In some of these models otherwise independent events were linked by an excitation variable. He then described resource-induced ecological competition and derived the probabilities of survival using the principles of competitive exclusion.

Each seminar was attended by over 30 people.

Tapas Sarkar



MATRIX
COMPUTING & CONSULTING LTD

Matrix Computing and Consulting, have become the New Zealand agents for the SCICON range of mathematical programming software.

This range extends from MicroLP for personal computers to Sciconic/VM for large models. Matrix generating and report-writing software is also available.

For further details please contact:

Glen Harvey
Matrix Computing & Consulting
PO Box 74-015
Auckland 5
Ph (09) 540-129

Scicon

TIMS XXVII

Gold Coast City, Australia
July 21-23, 1986

The last Council Meeting (8 May) accredited H. Barr, V.J. Mabin and G.A. Vignaux to be ORSNZ representatives at the 2nd APORS Council Meeting to be held at TIMS XXVII.



11th IFORS Conference Buenos Aires, 1987

A reminder that ABSTRACTS and preferably papers for National Contributions should be with the ORSNZ Secretary by 30 JUNE.

The IFORS Program Committee requires these by 1 September. Their deadline for other papers is 13 October.

Graham Rand (Dept of OR, Univ. of Lancaster, Lancaster LA1 4YX, U.K.) would also like your suggestions on workshop topics (by 1 September).

APORS

The Asia-Pacific J of Operations Research (APJOR) has become the official journal of APORS. The first (Vol. 3 of APJOR) has just published (by the O.R. Society of Singapore). Hans Daellenbach represents NZ on the Editorial Board.

BOOKS

- (1) "Developments in Operational Research",
- (2) "Further Developments in Operational Research" (both edited by R.W. Eglese & G.K. Rand) and
- (3) "Successful Operational Research"

are publications available from:

The O.R. Society
Neville House
Waterloo St
Birmingham B2 5TX
UNITED KINGDOM

(for 5, 6, 3 pounds + postage, respectively)

ESIGMA

ESIGMA is the European Summer Institute Group on Multicriteria Analysis.

If you want to receive more information about this group or to become a member, contact:

Ph. Vincke
U.L.B., C.P.210
Boulevard du Triomphe
B - 1050 Brussels
BELGIUM

#####

European J. of O.R.
(Special Issue)

Operational Research
in the Public Sector

E.M.L. BEALE, F.R.S.

Members of ORSNZ will be saddened to learn of the death of Prof. Martin Beale late last year.

He is best known for his original contributions to mathematical programming for over 30 years and as a founder of Scicon.

New Zealanders who have met him remember him as an unassuming man who shared his vast knowledge and ability generously and lucidly.

Papers should be sent to:

Borje Brolin
Televerkets Huvudkontor
S-123 86 Farsta
SWEDEN

by 1 September 1986

#####