



# NEWSLETTER

Operational Research Society of New Zealand

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UNIVERSITY OF AUCKLAND

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11 APR 1978

GENERAL ENQUIRY

FROM THE EDITOR

My first promise as editor was to bring the newsletter out every month; well, March was declared as a non-month. May could well suffer the same fate.

Unfortunately, the copy just hasn't flowed in and so out of kindness to our budget the Newsletter will be produced only six or seven times this year.

Some interesting statistics published recently show N.Z. leading the world in density of O.R. people.

There is a member of ORSNZ for every 15.4 thousand people in N.Z. The next lowest is Sweden with one for every 16.4 thousand. Some other figures are:

Pop. per member (10<sup>3</sup>)

U.S.A.	19.4
U.K.	19.3
Australia	21.7
Canada	38.0
India	1533.6
Germany (Fed. Rep.)	88.2

It is difficult to draw conclusions from these results as membership requirements of O.R. Societies may vary from one country to another.

However, maybe we should ask why there are so many of us in N.Z. We are nowhere near saturation point and with the society growing all the time, things can only get worse (or is it better?).

## BOOK REVIEW

### THE N.Z. OPERATIONAL RESEARCH JOURNAL

Once again, the N.Z.O.R. Journal is a smash success, with sales in the region exceeding those of "Hysterectomy Made Simple", "The Life and Times of Nigel Worthington-Plot", and "A Concise History of the Ngaio Railway Station" put together.

Drs Daellenbach and De Kluyster displayed such promise in their first few journals that some cynics thought their originality would fade but here they are again with a brilliant new book. The layout is extremely appealing but some of the later editions have had the nude centre-fold of our society's President excluded. Right from the word go, the reader is enmeshed in a swirling, exciting tale of Dual Relaxation, Dynamos, Nonbasic Branching and academic flatulence. I was particularly impressed with the way that the underlying theme of ethical abstraction in hyperlinear logical classicism was brought out in the fascinating chapter, "Notes about Authors".

My only regret is the banal standard of the cartoons. The only one that raised even a titter from me was the old favourite with the dead sheep. I see it year after year but somehow a good laugh about the price of exports never loses its allure. In spite of this, I can unreservedly recommend the 6th Volume Number 1 of the journal for your entertainment and edification.

### FROM THE TREASURER

The subscriptions for the ORNZS year beginning 1st October 1977 are now flooding in.

May I ask any member who wishes to resign to notify the society in writing - as he agreed to do on his membership form.

Just a note on the billing form will be enough to keep my mailing lists up to date.

I also invite members emigrating, changing address, etc, to inform the society promptly, or to write to me direct at -

Applied Maths Division,  
D.S.I.R.,  
P.O. Box 1335,  
Wellington.

"Keep those cheques rolling in, folks".

Bruce Benseman

## VISITORS

A list is being compiled of overseas visitors. Some members may not be aware of a possible visit and such a list may assist in making sure that they do not miss a visitor in whom they are interested.

If you wish to know more about a visitor or to see if they can spend some time with you in return for partial support of the visit, then you should first get in touch with the contact given for each visitor. This will help ensure that the visit is co-ordinated.

### CONFIRMED VISITORS

PROF. D.V. LINGLEY of University College, London.

He is involved in stochastic processes and decision theory and will be in N.Z. from March to May 1978.

Contact: Dr G.R. Wood, Maths Dept, U of C.

PROF. R. POTTS University of Adelaide, Australia.

He is president of ASOR and involved with transportation, scheduling and networks. He will visit in May 1978.

Contact: Dr C. de Kluyster, Dept of Economics, U of C.

DR. J.M. HAMMERSLEY, University of Oxford, U.K.

With a background of probability and statistics, he will also be visiting in May 1978.

Contact: Prof. G. Petersen, Maths Dept, U of C.

### POSSIBLE VISITORS

PROF. R.L. DISNEY, Virginia Poly. Instit, U.S.A.

Stochastic processes and queues. July 1978.

Contact: Dr D.C. McNickle, Dept of Economics, U of C.

PROF. R.E. MACHOL, Northwestern University, U.S.A.

Past President of ORSA - could be addressing us on the principles of O.R. from January to March 1979.

Contact: Dr H. Barr, A.M.D., DSIR, Wellington.

PROF. B.M.P. RIVETT, University of Sussex, U.K.

Past President of ORS(UK). He has industrial experience and is interested in the concepts of O.R. Could visit some time 1979.

Contact: A.G. Smith, MSRU, Dept of Health, Box 5013, Wellington.

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It is hoped to have this list updated about twice a year. If you have any information on possible visitors, no matter who is bringing them out, please contact Andrew Smith. Also, if you need help in finding support for a potential visitor, please get in contact.

## FROM THE PRESIDENT

### A NEED FOR ANALYSIS OF UNCERTAINTY

Uncertainty is always with us. It has certainly been typified this summer by our amazing weather. Two recent projects I have been associated with have underlined the need for the O.R. analyst to be able to identify uncertainty, and devise strategies to minimise its effect. These projects have been concerned with identifying an energy R & D policy, and with structuring futures research. They raise the question of what strategy to follow when one doesn't know enough about a subject to say too much with certainty.

Ability to analyse risk and uncertainty is claimed as one of the major facets of O.R. Uncertainty was certainly a major consideration when O.R. began, in the Second World War, with statistical analysis of wartime operations. However, my memory of our conferences and journal would indicate a lack of case studies involving uncertainty, and an emphasis on deterministic models such as linear programming and dynamic programming. Although these are most useful in many situations, and deal with uncertainty to some extent through sensitivity analysis, they are only a part of O.R. methodology. Decision analysis, decision trees, search theory, Bayesian statistics (Professor Lindley's address at this year's conference will be most welcome), and game theory are all techniques useful in analysing uncertainty. They appear to be rarely discussed and even the basic literature relies heavily on texts from the fifties and sixties. In spite of this, uncertainty, either through lack of knowledge, or through the existence of a competitive situation, where the opponent's strategy is not known, continues to be a major problem for industry and government.

Perhaps the reason for our neglect relates to the exponential growth characteristics of the sixties and early seventies. However, exponential growth and time series analysis forecasts apply only to a world of certainty, where the past determines the future. They are techniques

that blind us to uncertain realities. Four years after the shock of the oil crisis, we are still trying to shrug off the effects of the tunnel vision engendered by these techniques. New Zealand's position is much less certain now than it was in the early sixties. Future trade patterns are uncertain, with protectionism much more in evidence. This must pose a problem to exporting companies. Future oil costs, and supplies, are uncertain, and a plentiful energy future may not exist. Agricultural production has always had its uncertainties because of the weather, and agricultural processing suffers from a range of uncertainties concerned with processing technology, product profitability and labour relations. Problems of possibly irreparable environmental damage are becoming more numerous and science and technology no longer appears capable of solving every problem. There appears good reason to be more concerned with uncertainty now than we have been in the recent past.

New Zealand has a need to find new directions rather than blindly following old ones. We, as O.R. analysts, can play a most useful role in our organisations by helping managers and planners identify uncertainty, and helping build creative and constructive strategies to overcome it. We may be surprised and pleased by the results.

Hugh Barr  
President.

## COUNCIL NEWS

Our President, Dr Barr, is preparing a submission to the State Services Commission asking that graduates in O.R. receive the same starting salary as graduates in economics when employed by government departments.

It would appear that 70 to 80 people will be attending the Conference in May. Good to see the boys in Christchurch are on the ball even if they don't write notes for the Newsletter.

Mr R. Harrison has replaced Mr D. Boland as the Wellington Branch representative on Council.

Dr Barr is to contact branches and corporate members to see if Council can give any assistance to them.

### NEW MEMBERS

Applications for new membership this financial year have been received from -

W. Schaap	Otago University
G. Nicholls	T.N.L.
M. Bordignon	A.N.Z.
M. Pratchett	S.P.L.
P. Chudleigh	Lincoln College

Also, NAC and NZED have become corporate members while Whitcoulls and NZPO have joined as corporate sponsors

### QUOTE OF THE MONTH

People can be divided into three classes:

- People who make things happen
- People who watch things happen
- And those who wonder what happened

### IAOR BACK COPIES AND SUBSCRIPTIONS

Members are again reminded of the value of the

*International Abstracts in Operations Research*

If you wish to take advantage of this service, your order should be addressed to -

The Secretary (IAOR),  
Box 904,  
Wellington.

Subscription price for 1978 remains at \$10.

The society still holds back copies of some issues including Volume 17 from 1977.

Members interested in purchasing these copies at \$10 per volume (four issues) should direct enquiries to the Secretary.

### 8TH INTERNATIONAL CONFERENCE ON OPERATIONS RESEARCH

JUNE 19-23, 1978, TORONTO, CANADA.

Being a member society of I.F.O.R.S., we have been allocated several places at this conference. Attendance at the conference is possible only by registration through a member society. Any members interested in the programme and/or registration should contact Andrew Smith as soon as possible at -

A.G. Smith,  
c/o MSRU, Department of Health,  
P.O. Box 5013,  
Wellington.

Phone: (Bus.) Wellington 726-600

### IFAC/IFORS SYMPOSIUM

This is to be held in March 1979 in Toulouse, France. The main topic is the comparison between techniques used in O.R. and in Automatic Control. For further information write to Andrew Smith at the above address.