



# NEWSLETTER

*Operational Research Society of New Zealand (Inc.)*

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

Editor: Kevin Hall, 9 Fairview Cres., Wellington 5.

Vol. 13 No. 3

June, 1977.

## FROM THE PRESIDENT:

### MODELLING IN ENERGY AND AGRICULTURE.

I attended the third New Zealand Energy Conference last month, and was struck by the diversity of strong views about our energy future. Wind, geothermal, energy farming, nuclear power or conservation each seemed the only solution to different groups, and there was little consensus of future demand levels. It would not be surprising if energy policy makers were confused, for there seemed a broad range of purportedly likely futures, and the most likely depended mainly on who one was talking to.

Can operational research and the scientific method help resolve these conflicting views?

O.R. models are most useful for managing what is currently happening in a system, and their most important characteristic is that they are based on observation of current relationships. The difficulty with modelling a future technology is our inability to know how current costs and efficiencies will change in the future.

This is why scientific research generally is such an unpredictable business. We are attempting to determine the unknown, and although hunch, experience and research all play a part, there is still a large element of uncertainty about the outcome. The energy optimisation models of the sixties, that "proved" the best fuel was oil, are a reminder of this uncertainty.

It seems to me that energy models do have a supporting role to play in determining energy policy, and in determining energy research, development and demonstration priorities. Firstly they provide a concise and comprehensive representation of what we already know. Secondly they give a system wide quantitative consistency test of alternative views, so holding the possibility of reconciling divergent opinion, giving insights as to important variables, and allowing identification of areas where uncertainty clouds policy decision. This may appear a rather indirect contribution, but the experience of the divergent views at the Energy

Conference leads to the conclusion it would be a very useful one. Modelling our energy future is like any other research project: before you start, there is some uncertainty as to what you will be able to achieve. The Minister of Energy could do worse than set up a strong modelling group, to refine the current short term production and long term planning models, in his new Ministry.

Another conference of interest to O.R. people, that will have occurred by the time you read this, is on modelling dynamic systems in New Zealand Agriculture, organised by the Biophysics Division, Physics Engineering Lab. DSIR.

Up to now, agricultural production has been optimised by science to make maximum use of the sun's energy and rainfall, and the result is usually highly peaked summer or autumn production. This occurs for instance in the dairy and meat industries. The conference has two objectives. Firstly to compare different agricultural production patterns to see what scope there is for common forecasting and management techniques. Secondly, and more long term, to investigate the possibilities of modelling the production, processing and distribution system to investigate whether savings can be achieved in the total system by better management of resources. Modelling has a role to play in these areas if accurate models of the production, processing and marketing operations can be built. O.R. grew up overseas in Defense and manufacturing industries but it could have its largest role to play in New Zealand in the land based industries. The future here looks interesting and challenging.

Hugh Barr.

### AMALGAMATION OF FULL AND ASSOCIATE MEMBERSHIP CLASSES:

There has been only one additional response to the proposal on this published in the last newsletter. Mr. G.R. Saunderson of Auckland has written supporting the proposed amalgamation.

In view of the lack of comment, the secretary will proceed with a postal ballot on the amendment, as required by our constitution. The closing date of the ballot will be 12th August, and all financial members of the society will receive voting papers at least 21 days before the close of the poll.

Hugh Barr  
President.

TO: The Editor,  
O.R. Society Newsletter,

Dear Sir,

AMALGAMATION OF FULL AND ASSOCIATE CLASSES:

Rather than dispense with the "Full" members, the Society should make better use of this 3rd membership class. Could we not:

- (i) Change the name from Full to Active
- (ii) Make the criterion for holding the class, either:
  - (a) a solo (or duo) performance at a Branch or National meeting, within the last year; or
  - (b) a paper accepted by our Journal, within the last 2 years (co-authorship permitted).
- (iii) Make the annual sub. less than that for Associate members.

Supporters, please put out your write hand.

John Scott.

REVIEW  
INTERFACES, VOLUME 7, NUMBER 1, PART 2  
(NOVEMBER 1976)

This is the third year that The Institute of Management Sciences has held a competition to encourage papers on the successful application of operational research/management science. The above issue of Interfaces contains the top six entries. Each paper describes a completed application which has had considerable impact on the organisation under study. They constitute a significant addition to the evidence of the value of OR/MS in the real world.

Applications range from the advisability of charging for telephone directory service, materials management, pension programme reform and training of air traffic controllers, to plywood products manufacture and cheque processing. The papers make stimulating reading and will be of interest as case

studies to anyone involved in the teaching or practice of operational research.

H.B.

NATIONAL REGISTER OF O.R. PROJECTS:

Since the 1976 Survey of O.R. Work in Wellington, a few people have suggested setting up a National Register of O.R. Projects. Out of the register would come bi- or tri- annual summaries, with detailed coverage of specific areas upon request.

The main advantage would be that practitioners working on particular problems could liaise with those who have trod their lonely path before them.

The chief disadvantage would be that members would have to be prepared to do some work. Firms would either have to fill out questionnaires annually (say a one page questionnaire for each project begun or finished during the year), or respond to someone calling to solicit the same information - confidential information would of course be excluded. Therefore a fair judge of useful demand can be made from the level of response to a questionnaire:

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TO: JOHN SCOTT, C/- O.R. SOCIETY, P.O. BOX  
WELLINGTON.  
On behalf of Firm/University Dept.,/  
Polytech. etc.:

I would be prepared to fill out questionnaire sent annually:

- yes (Enthusiastic);  yes (Luke warm);
- maybe (cold);  NO (!?\*-\*\*)

I would be prepared to answer questions if someone called personally or telephoned me:

- yes (Enthusiastic);  Yes (Luke warm);
- maybe;  NO.

SIGNED.....

TRANSLATION.....

STUDENT PAPER PRIZE;

There was only one entry for the Student Paper competition in 1976. The judges considered that this paper, although good, was not up to the high standard of previous years, and no award is being made. 1976 was the first year that the competition has not attracted a healthy number of entries. I would like to encourage students to enter in this year's competition. A student project and presentation, as required in the competition, provides one of the best means of education for a career in O.R.

Hugh Barr  
Student Paper Prize  
Convenor.

ANNUAL CONFERENCE: REMINDER.

This years annual O.R. Conference will be held at Victoria University, Wellington on August 22 - 23. Registration forms will be sent out shortly. Enquiries should be sent to Bruce Benseman; A.M.D. Box 1335, Wellington, 'Phone 727855.

NEWS OF MEMBERS:

Bob Simpson - Auckland Branch Secretary, has been transferred to Dunedin for approx. 18 months.

Ken Seal - one of the Societies founder members, has been awarded a C.B.E. in the Queen's Birthday Honours List.

CALTEX OIL (NZ) LTD.

OPERATIONS RESEARCH ANALYST.

Caltex is looking for a well qualified person at Head Office, Wellington, to take a lead in analysing and resolving problems or streamlining existing methods by applying Operations Research techniques.

If you have the qualifications; are highly self-motivated and a good communicator, come and talk to us. First ring the Personnel Manager on Wellington 721-179 or write to him at;  
Caltex Oil (NZ) Ltd.,  
P.O. Box 2297,  
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