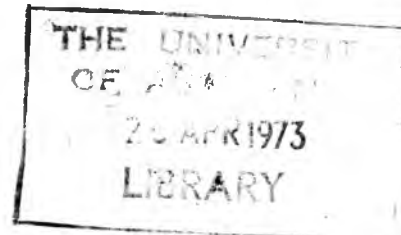




# NEWSLETTER

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

APRIL 1973



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COUNCIL NOTES

Notes from Council meeting held November 1 and the first meeting of the new Council held November 14.

- 1. Prof. Vignaux reported that the Society's application for affiliation with the Royal Society of New Zealand had been approved by the Council of the R.S.N.Z.
- 2. Council supported the idea that the Society should make a big effort to ensure that a N.Z. delegation attended the 1975 IFORS Conference in Japan.
- 3. The Council expressed its thanks to the Auckland Committee for organising the 1972 Annual Conference.
- 4. The Auckland Chairman, Mr Rosser, and the Canterbury Chairman, Dr Daellenbach, were co-opted to the new Council.
- 5. The Constitutional Subcommittee was reconstituted, Prof. Jackson, Mr Cook, Mr Rosser, Dr Daellenbach and Prof. Vignaux being appointed to it.

From the meeting of December 5.

- 6. New Auckland Committee is as follows:  
Chairman - Mr M.S. Rosser; Secretary - Mr M.G. Dodgson;  
Treasurer - Mr K.C. Nutsford; Members - Messrs R. Elder, C.D. Johanson, M. Purdie, R. Simpson and B.R. Slocombe.
- 7. The Constitutional amendment approved by the Special Meeting of the Society on November 14 has been registered by the Registrar of Incorporated Societies and is thus legally in effect.
- 8. Publication of the International Abstracts in O.R. is to be done commercially. Each sub will now cost O.R.S.N.Z. about NZ\$3.60 to distribute.
- 9. The President spoke of the service of Prof. G.A. (Tony) Vignaux to the Society: Council member since the Society's first A.G.M. (64 July 7), Vice-President. 66-67 and President 67-72.

It was agreed, subject to his acceptance, to co-opt Prof. Vignaux to the Council.

10. A tentative plan of action was formulated to resolve matters pertaining to our Constitution

- (i) preparation of background information
- (ii) suggested branch meetings to air the views of members
- (iii) Full Council meeting, based on structured agenda and position papers, immediately before Easter to discuss
  - (a) objectives
  - (b) structure
- (iv) synthesis by Constitutional Subcommittee
- (v) Newsletter to members
- (vi) discussion at Annual Conference
- (vii) Special Meeting for Constitutional amendment.

11. New Subcommittee appointments:

International Affairs - Mr Purdie  
National Events - Mr Nutsford

12. It was decided that the mailing lists should not be released to anyone for the distribution of advertising material. If such material is to be distributed it is to be done by the Council or Branch Committees themselves. Authority to approve such distribution nationally was delegated to the President and Secretary jointly and for distribution within a Branch, to the Branch Chairman and Secretary jointly.

From the 1973 February 1 meeting.

13. UNESCO has requested IFORS to study topics appropriate to "World Population Year 1974" and IFORS has turned to member societies asking that each devote a meeting or part of its conference to the matter. The Public Issues and Awareness Subcommittee has been asked to consider how O.R.S.N.Z. can best contribute.

14. The branches are to be allocated \$50 + \$1 per sub paid during 1972-73 year. On the basis of last year's sub figures and growth, this will cover their budget requests. Total Society expenditure is predicted to be about \$1,550.

15. Members will shortly receive a questionnaire asking about their views on the activities of the Society and it's future.

16. Mr Bill Foster has been appointed to the International Affairs Subcommittee.

## BRANCH NOTES

### Auckland

A most successful paper was presented at the Annual General Meeting of the Auckland Branch by Dr. Gerald Steuart on the topic of Urban Transportation. The speaker had at his disposal experience obtained in Australia, Canada, U.S.A. and several other developing countries. His ability to illustrate his paper with examples he had encountered in practice related a true to life atmosphere.

One aspect that must have appealed to everybody present was the terminology. If one did not fully grasp its topical meaning I am sure they must have appreciated the novelty of hearing specialised terms expressed by an expert in relatively simple context.

Dr. Steuart discussed the development of transport planning models from the land sea model to the transport demand model which is usually followed by traffic assignment models. Much of the paper was devoted to alternative methods of establishing traffic flow characteristics starting from a flow matrix in a format similar to the transportation type linear program matrix, to demand and cost curves as a function of the traffic flow.

Other areas where operations research has been used were briefly outlined.

The meeting closed with votes of thanks to Dr. Steuart for his stimulating paper and Mr. Slocombe as retiring Chairman for the part he played in establishing the Auckland Branch.

An extended question time was held after the Paper, with the Chairman having to force a conclusion so that coffee could be taken.

## 2. Wellington

2.1. On November 14, after the A.G.M. of the Society, Mr Graeme Hollyman, Management Services Manager for Unilever spoke on "The Practising of O.R. in N.Z." Many worthwhile observations were made by Mr Hollyman, some of which were:

- (i) Unquantifiable factors such as motivation, safety etc. are either forcing the application of O.R. into limited fields or to forget these factors when model building because they currently can't be measured. He felt it was time the effort was made to remedy the situation.

- (ii) The O.R. practitioner needs to be a generalist as well as a specialist if he wants to remain in employment when a lull in O.R. activity within the organisation sets in. The rub-off between the O.R. men and other specialists in a Management Services team can help him become a generalist.
- (iii) The turnover of a company needs to be in the order of \$80 - 100 million to justify the setting up of an O.R. group.
- (iv) One method of getting around the high development costs of a new project is to buy a package and adapt it to your situation.
- (v) O.R. men tend to be too intent on producing optimum results when 80% of the optimum, at 20% of the final cost of the project, would have done.
- (vi) The future of O.R. lies in the areas of long range planning, e.g. NDC and in modelling using program packages.

As always a lively discussion ensued.

- 2.2. The March meeting of the Wellington Branch featured George A. Lindsay, a former President of the Canadian Operational Research Society (CORS), who was making a brief business visit to New Zealand. Dr. Lindsay was involved in some of the original operational research carried out during World War II, and is currently employed in the Canadian Department of National Defence.

The first part of the talk covered the workings of CORS. Many of its problems are similar to those faced by our own society. The following points are noteworthy:

- the Society is composed of chapters, geographically very remote, but each represented on the central council;
- members may be "full" (two years' O.R. practice required) or "ordinary", but only full members have voting rights;
- CORS, and O.R. activity in Canada in general, is dwarfed by O.R. in the United States;
- meetings (in the Ottawa chapter) are run as lunch meetings on licensed premises.

Dr. Lindsay continued with a discussion of the development of O.R. from the wartime problems of World War II. The Department of National Defence where he is now employed, contains the largest O.R. team in Canada (about 25), although few organizations there have more than a dozen O.R. staff; the minimum viable level suggested by Dr. Lindsay. Many of the problems undertaken by the National Defence O.R. team now cover the strategic planning area, as opposed to pure number-crunching exercises.

### 3. Canterbury

Hans Daellenbach from the Economics Department of U.C. opened our first meeting this year with a rather provocative talk entitled "Are Cash Management Models Worthwhile?" At the beginning of every period, say day, the financial officer reviews the cash balance and determines whether the size of the cash balance is appropriate in view of the cash flows forecasted over a short-term planning horizon. He tries to strike a balance between reducing potentially idle cash and potential cash shortage. Costs involved are: variable and fixed transaction costs associated with buying or selling marketable securities or loan transactions, interest paid on loans and interest earned or interest foregone on idle balances. Two basic approaches have been expounded in the literature: short-term deterministic multi-period LP models, and stochastic control-limit models. The second half of the talk was devoted to explore the potential benefits that the use of such models could bring to users. By simulation Dr Daellenbach compared the performance of such models with the performance of a hypothetical treasurer who uses simple common-sense rules for his decisions. The results are rather surprising in the sense that even for very large firms such models could not generate an acceptable return on the investment needed for project analysis and computer programming.

About 20 people attended the meeting.

CONFERENCES/NOTICES/ADVERTISEMENTS

1. The 2nd IFORS/IFIP/IFAC Symposium: "Traffic Control and Transportation Systems" is to be held in September 1974 on the Cote d'Azur. The aim of the Symposium is to present recent advances in Traffic Control and Transportation Systems. The main subject areas of the program will be:

- urban traffic and passenger transportation
- interurban " " " "
- goods transportation systems
- transportation and community

Brochures from the Ed.

2. The Metric Advisory Board has the task of introducing metric measures over a wide range of fields in the next few years. The adoption of these new measures by an industry or a firm is likely to be extremely disruptive if not efficiently planned. The O.R. Society would like to hear from any members who have been involved in such conversions with a view to spreading any information on planning techniques to those in need of them.

Anyone who has such information please contact,

Bill Foster,  
Planning Section,  
Engineer in Chief's Office,  
P.O.H.Q.,  
WELLINGTON.

(Bill replaces Gary Dickinson as Convenor of Public Issues and Awareness Sub-committee).

3. English O.R. Scientist (graduate) seeks employment in N.Z. 30 years old with 9 years experience in wide variety of O.R. projects. Has some experience of lecturing and also of recruiting staff. Currently leads a team of 5 graduates. Present salary equivalent to about NZ\$8,550. Contact: A.G. Smith, 67 Manor Drive, Wembley Park, Middlesex, England.

CORRESPONDENCE

Dear Sir:

Mr Jahar Saha (a doctoral candidate) and myself are editing a book entitled Studies in Linear Programming and are currently in the process of securing papers. Each article (either existing or to be written) should contain a meaningful application of linear programming with emphasis on the model construction, the computational results, and the implementation of these results. Papers describing applications which have not been implemented will also be considered. Each article should be clear, concise (with as little notation as possible), and should not exceed 25 typed (8 1/2 x 11) pages. Names (of firms, products, etc.), as well as numerical data, and other priority information may be omitted and/or altered.

We intend to split 50% of the royalties evenly among the contributing authors.

Please convey the above information to those who are or have been involved in linear programming applications.

Thanking you in advance.

Sincerely,

Harvey M. Salkin,  
Assistant Professor,  
Case Western Reserve University,  
Cleveland,  
Ohio 44106.



SITUATIONS VACANT1. Systems Analyst/Programmer:

Our Client is a Wellington based oil industry body which co-ordinates the shipping of petroleum products from the New Zealand Refinery. Our client has access to an I.B.M. 360/30 computer which is being up-graded later in 1973 to an I.B.M. 370/135.

The Position is a most attractive one as it offers a variety of work and freedom of action seldom found in this field. Apart from the development, maintenance and running of programs, special research assignments are undertaken which influence major capital and operating expenditure decisions.

We are primarily looking for an analyst/programmer experienced in writing in FORTRAN for I.B.M. 360/370 systems but those experienced in other systems should apply. A knowledge of operations research techniques would be an added advantage, as would a degree in mathematics or economics.

The rewards include an attractive starting salary which will be influenced by the applicant's previous experience.

Your application giving full background details will be treated in absolute confidence. These should quote code D.P.94 and be addressed to Mr J.W. Lavelle.

Kerr Lavelle & Associates  
Management Consultants,  
P.O. Box 19-077,  
WELLINGTON

Telephone 45-787.

## 2. The New Zealand Police Department invites applications from suitable qualified persons for appointment to a new position in the Management Services Section at Police National Headquarters.

The need is for a sound O.R. man who, while not necessarily acquainted with law enforcement applications, preferably has practical experience and the ability to present his findings to management in clear terms.

Current projects include Mobile Patrol Allocation and Criminal Statistics Analysis, both by E.D.P., and Manpower Deployment Problems among many others. Accordingly, the ability to develop prediction models for Resource Allocations, Manning and Deployment Optimisation, Forecasting and Analytical Techniques is particularly sought. However, the field of investigation is very wide and the appointee would be encouraged to identify research areas of optimum benefit to the Department.

The area of application is probably without precedent in O.R. work in New Zealand and should prove stimulating. The appointee will retain his civilian status, and the Department is prepared to negotiate on salary.

Further details and conditions of appointment will be provided to members on enquiry to: The Director, Management Services Section, Police Headquarters, P.O. Box 694, Wellington, or Superintendent K.O. Thompson, Phone 47-000, Wellington.

## MEMBERSHIP STRUCTURE

This abridged paper by the O.R. Society in London makes some pertinent comments which may help you formulate opinions on our own Construction which is soon to be renewed.

- Ed.

"This question is highly charged with emotion. It has disrupted the Society before; it could easily have done so again. We determined that whatever happened any ideas put forward should be exposed to the membership well in advance, with full opportunity for explanation and discussion. Tentative proposals were therefore set out in a memorandum and circulated to all the membership. They have subsequently been fully discussed both by correspondence and at some special meetings organised by regional and study groups. The discussions were nearly always helpful, and were sometimes impassioned, but they did not really produce new ideas or better suggestions. We hope however that we now understand the full range of opinions, and have adjusted the detailed proposals accordingly.

The central proposal put forward by the Membership Committee was that there should be an open structure with only one grade of membership which everyone could join. Very few people objected strongly to this and many were extremely enthusiastic. This support seems to be based on two main considerations, apart from the advantages, particularly administrative ones, that are gained by the resulting simplification of structure. First: the proposal is the only plausible way of meeting the intentions of Marlow. Any hierarchic membership structure would necessarily leave or management colleagues holding a second-class status in the Society, and everyone now perceives this implication to be absurd. Second, and complementary to this, the implementation of other Marlow proposals for wider representation on Council and Committees of the O.R.S. - an aspect of Marlow which has received wide acclaim - will be facilitated.

If this solution is the 'only plausible' one, members may well ask why the original Marlow plan contemplated a contrary solution - a proliferation of membership grades. The truth is that we thought it was plausible at the time, but the Society has taught us better. However (see paragraph 14 of the Plan) it is easy to understand what the people at Marlow thought they were safe-guarding: 'a means of underwriting a practitioner's successful experience and practical wisdom', which we owed to managers as well as to members. Then it hardly makes sense to abandon a service to managers in the cause of bringing them into the Society on equal terms, or a service to members (into which successive committees have put twenty years' worth of diligent effort) on the grounds that not everyone is interested in this particular accolade.

From such considerations arose the idea that a Register of Practitioners should be maintained within the membership, to meet the

requirements of those who were concerned with professional standards and who felt that the Society cannot shrug off responsibility in this connexion. This body of opinion considered that there was value, both to the practitioner and to management who might seek to employ him, in providing the minimal guarantee of standards which such a Register provides. This was a more controversial issue than that of open membership, since those who wanted a professional Society were on the whole prepared to accept the idea of open membership provided that we instituted a Register, whereas those who had argued for an open Society were still against the Register.

Some of the objections to the Register were practical rather than ideological. It was feared that the committee concerned with admissions would encounter all the difficulties encountered by the present Membership Committee, though some of the pressures to include people "because they have worked so hard for the Society" would now be removed. The greater debate however hung on the issue of whether in fact the acceptance of such a Register would not inevitably re-create the hierarchy that we are setting out to avoid, i.e. that pressure might be brought to bear on members, either directly or by implication, to have their names on the Register if they were not to be regarded as in some way inferior. Clearly this must be avoided if the whole venture is not to be defeated.

The pros and cons of these arguments have been examined in great detail by the Internal and Current Affairs Committee of Council, who have decided to retain the original recommendation that we should institute a Register of Practitioners. The arguments for such a Register are powerful and cogent, and we consider that it would be irresponsible not to institute it. We believe however that the business of maintaining such a Register can and should be separated from the main business structure of the Society, probably being given to a small team specially appointed by Council, rather than being seen as one of the responsibilities of a Council Committee. It is proposed that anybody who is currently a member of the Society shall be immediately eligible to go on the Register if they so request. Appropriate standards to be used should be varied as experience requires, but to begin with will be equivalent to the existing requirements for A membership. By divorcing the Register from all questions of membership, we give ourselves freedom to re-examine the situation from time to time - and we propose a formal reconsideration after two years.

In contemplating these issues and Council's advice, members are asked to remember that there is a powerful disagreement within the Society. We think that the solution proposed meets, and does not degrade, the majority wish for an open membership. We think that it also meets the case for a service from some members who should not be curtly told that the service is not available just because it is not in universal demand: The solution has this further appeal. Registration will require a positive act of application on the part of existing 'A' members. The next review of situation will have the evidence as to how many people applied."

NEW MEMBERS1. Auckland

Harold Chambers. B.Com., B.C.A. (Hons). Economist at Winstone Ltd.

A.J. Cooper. O.R. Analyst at N.Z.F.P.

Chris Wardle. Undergraduate B.Sc. Student.

2. Wellington

Duncan Cox. B.Sc. (Hons). O.R. Officer at Todd Motors.

Pat Dooley. B.A. Carries out programming and research for the Coastal Shipping Co-ordinating Committee.

Bruce McComish. B.C.A.(Hons). Industrial Engineering Manager at Todd Motors.

3. Canterbury

Charles Edlin. Graduate of IMI. Advanced Marketing Programme, NZIM. Marketing Executive for Associated British Cables Ltd.

Joan Rodgers. B.A., Dip. Inf. Proc. Lecturer in Econometrics at Lincoln.

NEWS OF MEMBERS

## 1. Evening Post January 17, 1973.

"Massey University Appointment

Dr R.W. Cartwright, who has held the position of principal research officer of Massey University's Market Research Centre, has been appointed the centre's new director.

The centre, which was established in 1970, has until recently been under the direction of Professor A.R. Frampton.

Professor Frampton relinquished the position because of added responsibilities and commitments through his appointment as associate Dean of the Agricultural and Horticultural Science faculty.

Prior to his appointment to the Market Research Centre two years ago, Dr Cartwright studied at the University of California, and Purdue University, from which he graduated Ph.D. in Agricultural Economics."

2. Evening Post. January 24, 1973.

"Top Post in India for N.Z. Doctor"

A New Zealander, Dr I.J. Jeffery, has been appointed hospital administrator to the National Institute of Health Administration and Education in India.

Dr Jeffery has headed the New Zealand Health Department's health services research unit since it was formed in 1962.

The Indian insitute, a World Health Organisation foundation in New Delhi, will conduct studies in district health administration, then health care services at district level will be planned and promoted, and administration programmes for research and teaching will be formulated.

Educated at Auckland, Dr Jeffery graduated B.Sc at Auckland University and then gained an M.Sc. with honours in pure and applied mathematics. He graduated MB, Ch.B from Otago University in 1949 and in 1950 gained a Diploma in Public Health at London University's School of Hygiene and Tropical Medicine.

3. Lester O'Brien, a Full Member of the Society and a Council Member, has been appointed Lecturer in the Department of Industrial Management and Engineering (Prof. Scott) at Massey University. He will be lecturing on Operational Research, Technological Maths and Quality Management and Control.
4. Bruce Murtagh has recently joined the Information Science Department at Victoria University as Senior Lecturer in O.R. Bruce has a M.E. (Chem. Eng.) from University of Canterbury and a Ph.D, (Systems Studies) from University of London.

For a man of 29 his experience is considerable. From 1966 to 1969 he carried out post graduate research on the theory, numerical methods, and industrial applications of quadratic and nonlinear programming at the University of London. In 1969 Bruce joined the O.R. Group of the Fluor Corporation in Los Angeles. His work there included Capital Investment Analysis, Mathematical Programming, Scheduling and Similation. He has numerous publications to his credit and has been invited to speak at a forthcoming International Symposium on Direct Methods of Optimization. On top of this he is married with 2 children.

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