NEWSLETTER

June 1998

Operational Research Society of New Zealand (Inc.), PO Box 6544, Wellesley St. Auckland or PO Box 904, Wellington, New Zealand http://www.esc.auckland.ac.nz/Organisations/ORSNZ/

EDITORIAL

Hi members of the NZ OR/MS/Systems community,

I would like to take this opportunity of writing my first (and possibly last!) editorial in our newsletter, by discussing some of my concerns about the recent direction of our society. Firstly, I would like to make a few observations:

- The total membership of ORSNZ appears to have dropped by 30% from a peak of nearly 250 in 1985/86 to about 170 paid up members last year. (However, the 1985/86 total included some unpaid members);
- Branch meetings (in Auckland, Wellington & Christchurch) have also dropped by about 30% from an average total of 11-12 pa in the 80s to about 8 pa in the 90s;
- ORSNZ has disestablished the compulsory individual subscription to the Asia Pacific Journal of Operational Research, and replaced it with individual copies of the ORSNZ conference proceedings (I hope conference attendance doesn't drop!);
- The field of operational research has broadened from being primarily concerned with applying mathematical models to relatively well structured problems, particularly in the industrial environment (so called 'hard OR'), to structuring and considering problems from a variety of unstructured or 'messy' environments (utilising a range of behavioural and systems approaches loosely called 'soft OR');
- There has been a shift from teaching operational research in mathematics, engineering, or stand alone OR departments in the 60s and 70s, to teaching the wider field as systems or management/decision sciences in management or business departments in the 80s and 90s.

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Send submissions as word attachments by email to Production Manager, Tricia.Lapham@vuw.ac.nz

The concern I would like you to consider is whether our society is keeping up with the wider developments in the field. Should we consider changing the name of our society to perhaps better reflect the wider interests of the current members? This may also be a means of 'stimulating' the society and attracting new members, including more students and recent graduates. I will list the names of a few IFORS national member societies, to show how these societies have dealt with this situation:

SADIO	The Argentine Informatics and Operations Research Society
ORSE	Operations Research and Decision Making Society of Egypt
AFCET	French Society for Information, Organisation and Systems Science and Technology
MSSI	Management Science Society of Ireland
KORS	The Korean Operations Research and Management Science Society
MSORSM	Management Science / Operations Research Society of Malaysia
IMSIO	Mexican Institute of Systems and Operational Research
SEIO	Spanish Society of Statistics and Operational Research
INFORMS	Institute for Operations Research and the Management Sciences

Also Professor Donald de Raadt, President of the Swedish Operations Research Association, indicated at the recent APORS conference in Melbourne last December, that the Swedish society was considering altering their society's name to something like the Swedish Operations and Systems Research Association. It was suggested that this would better reflect the interests of their members and the direction their society wanted to go.

I think it is time we considered the shape and direction of ORSNZ. I have a strong personal interest in the management/decision sciences and also the systems field. This is reflected in my role as programme chair for the combined International System Dynamics Conference and 5th Australia New Zealand Systems Conference being hosted by Victoria University in Wellington on the 20-23 July 1999 (see the notice later in this newsletter - I would like to see you all at that conference!). However, for now I would like to make some suggestions for possible new names for our society:

ORSSNZ	Operations Research and Systems Society of New Zealand
NZFORMS	New Zealand Forum for Operations Research and Management Sciences

I will leave it up to you to write in to the editor of this newsletter to express your opinions, or alternatively, you could discuss this issue at a future AGM of the society. On a final note, I would like to suggest that all final year OR/MS/Systems students be given FREE membership to the Society for the last year of their studies and the first year of their professional employment, in order to build up the numbers again and stimulate activities in the branches.

That's all from me as I am now resigning as co-editor of this newsletter! However, I am very pleased to welcome my colleague, Dr Michelle Baron, as my replacement on the editorial board. Finally, I would like to thank our Newsletter Production Manager, Tricia Lapham, for her excellent work in taking over the production and distribution of this newsletter.

Regards to all, Bob.

BOB CAVANA, Victoria University of Wellington

THE SPECIALIST WITH A UNIVERSAL MIND: The Purpose of Mathematical Models Is Insight, Not Numbers

ANDREW VAZSONYI, Feature Editor, McLaren School of Business, University of San Francisco

Apparently, the columns on the use of math in decision sciences pushed the right button; I received a great many responses. The latest was from a friend of mine, Dick.

> Dick has a 14 year old daughter. "I would like her to go into management," he says. "Jean is not a people-people person, so what do you think she should do?"
> "How does she like numbers?" I ask.
> "Pretty good".
> "She should go into the quantitative end," I say. "And she should be exposed to the required math."
> "I want to be sure she understands why math is used, what math is required and how to prepare herself," he says.
> "I'll see what's available," I say.

First I check in the bookstore on the SAT math exam. I do not find the experience very helpful. I check all the math books in the bookstore – dozens of them - but they do not look relevant. I check the public library, and still cannot find anything suitable. However, looking through math college texts I find an interesting looking text: *For All Practical Purposes, Introduction to Contemporary Mathematics.* This text is used in over 500 colleges, and Part I covers management sciences in 169 pages. It opens with a three-page case study: the launching of Apollo II, and sets the stage for an engineering and production view of management science. There are four chapters on management science:

- Chapter 1: Street Networks
- Chapter 2: Visiting vertices
- Chapter 3: Planning and scheduling
- Chapter 4: Linear programming

We learn that "projects are not the only area where organization and efficiency are valuable…(P)roduction problems offer great opportunities for cost savings using management science". "The underlying theme of management science, also called operations research, is finding the best method for solving some problems – what mathematicians call the optimal solution." It also appears that "management science cannot deal with chance and uncertainty."

This is hardly the way to make students interested in taking management science. But how do we prepare material to advocate management science? There is a method I learned from von Neumann.

Von Neumann's Bridge

In 1938 my girlfriend and I were having yogurt outdoors with von Neumann at the Hangli coffee house in Budapest, on the banks of the Danube. I had a problem with an equation in the theory of games. I thought I might as well go to the fountainhead and asked Professor von Neumann for an explanation.

He said, "Tell me what you know; I will build a bridge to what you need to know."

Emulating von Neumann, I suggest that we build bridges to the students who learned math in high school, and have only a vague - often negative - outlook on management. We must start with case studies that mean something to the student like: how to manage your health, your retirement plan, the criminal justice system, which HMO to join.

I suggest we introduce math models with the example of the Pythagoras theorem of the right angle triangle: $\mathbf{a^2 + b^2 = c^2}$**.** Many of my students think that if they draw a right angle triangle, and measure the length of the sides, the results will agree with the theorem. They fail to know that the equation relates to an idealized triangle, and not to the carbon particles deposited on the paper. They also fail to know that the theorem is descriptive of the idealized triangle. To make it useful we must solve the equation and get prescriptive statements on how to do the calculations. When students write a spreadsheet program, they write a sequence of prescriptive statements, a sequence of mathematical formulas, a mathematical procedure.

Usually we teach how to solve the equation for the hypotenuse. It is less publicized how the ancient Egyptians used the theorem. The yearly flooding of the Nile posed a problem: how to survey the land again and again. To work the problem they used a long, circular rope with twelve knots equally placed. They tightened the rope by holding the first, fourth and eighth knot. They got a right angle at the fourth knot, a basic need for surveying.

The crux of the matter, as von Neumann points out, is the peculiar relationship of math to the real world. Mathematical models hold in a world of make believe, and not in the real world. Notwithstanding, mathematics is useful when dealing with the real world. Mathematics aids in calculating and gives insight to real situations, but it does not replace thought. It is a means to the end of better cognition.

In the exact sciences the distinction between descriptive and prescriptive math has always been clear. Exact sciences use such fields of knowledge as applied mathematics and numerical analysis. The title of my column is a modification of the saying by R.W. Hamming, author of the classical text, *Numerical Methods for Scientists and Engineers*: "The purpose of computing is insight not numbers". The fact is that the role of numerical analysis in exact sciences is similar to the role of mathematical models in management sciences.

Our pundits have been preaching for years that the purpose of math models is to gain understanding, generate further discussions and provide a creative language to solve managerial situations. Unfortunately, these terms are vague. We need to sharpen our statement.

Cognitive scientists stress that we make our decisions on the basis of the mental models we have. First we collect information, then we build our mental model. We manage this model and come to decisions. Math helps to build our mental models and the computer removes the onus of making tedious calculations by hand.

Call to Arms

We cannot wait until our students come with the right "background" for math; we must take a proactive attitude and include in our approach the math upgrade of our students. We must create material on Meta Management Science.

The key to success will be to build von Neumann bridges from what the student knows, or is familiar with, to what the student needs to know. Using high school math skills, the knowledge obtained in the functional areas of business (such as mathematical formulas), a bridge can be built to mathematical models, and discussion of how the models are used for benefit. Spreadsheets banish number crunching and in fact promote the design and interpretation of math models.

We need to write and promote Meta Management Science publications for present and future managers. We need to convince publishers that the publication of such works is necessary and profitable. We need to place articles in journals and magazines read not by only management scientists, but by people who can benefit from management sciences. But first, and most of all, we must convince ourselves and our bosses that creating and publishing such articles and books is a proper endeavour for us.

REPORT ON THE SYMPOSIUM ON OR, SPONSORED BY THE DGOR & GMö0R (THE TWO GERMAN OR SOCIETIES) HELD AT JENA, 3-5 SEPTEMBER 1997

SOR97 had 500 participants from most European countries, Turkey, Canada, Australia, UK, China, Kuwait, The Russian Federation States, Hong Kong, USA and NZ.

The scientific program had 2 plenaries, a panel discussion, 16 semi-plenaries, 343 contributed talks in 16 sections and 2 software demonstrations, all in 12 streams.

The SOR conference each year serves as a forum for scientists and practitioners in all areas of OR. The more industrially-orientated sessions were concentrated in a small time period for the convenience of one-day registrations from companies.

The conference was held on the campus of the Friedrich-Schiller University under the auspices of Dr Bernhard Vogel, the President of State of Thueringen – the local province. Dr Vogel gave an excellent reception after the first day in the court of the most historical building of the University. There were a large number of outside sponsors including: banks, (hospitals!), Carl-Zeiss (lenses) Daimler-Benz, and city, regional, and federal government.

The sections included the classical areas of theoretical OR and econometrics, statistics, AI, DSS's, Finance, Production; Environment, Energy and Health.

There was a lively social program, which included a city walking tour (which touched on Napoleon's victory there, and links with Goethe, Schiller, and Luther), a trip to the nearby city of Weimar, a tour of the Jena Opel car plant, a mime show and a visit to Buchenwald.

One of the highlights was the plenary by Lentra on Scheduling heuristics. Lessons for NZOR: Aggressive sponsorship solicitation, semi plenaries and careful topic grouping.

LES FOULDS, Waikato University

INTERNATIONAL SYSTEM DYNAMICS CONFERENCE COMING TO WELLINGTON

Professor Raymond Harbridge, Graduate School Director, attended the 15th International System Dynamics Conference at Istanbul in August 1997, where he presented a bid for New Zealand to hold the 17th Conference. His bid was successful, and the Conference will be held here at Victoria University on 20-23 July 1999. 1999 is an important year for Victoria University – it's our centenary year, and already a number of international conferences are planned. The University Foundation is working with the Graduate School to promote the conference.

Dr. Bob Cavana, who is Director of the University's Master of Management Studies in Decision Sciences programme, is a recognised expert in the system dynamics area. He will have a major role to play in co-ordinating the programme for the conference.

Approximately 200 conference participants are expected from around the world. Participants will be from system dynamics, systems thinking and other systemic disciplines. Presentations, panel sessions, tutorials and demonstrations will address the dynamics of socio-economic and strategic management problems using system thinking approaches and simulation models, based on a systemic feedback perspective.
Enquires: Conference Manager: Margaret Stevenson-Wright, Graduate School of Business and Government Management, Victoria University of Wellington, PO Box 600, Wellington, New Zealand
Telephone: 64 4 496 5453 Facsimile: 64 4 496 5454 email: Margaret.Stevenson.Wright@vuw.ac.nz

SUMMARY MINUTES OF THE ORSNZ 33rd ANNUAL GENERAL MEETING HELD AT THE APORS CONFERENCE IN MELBOURNE ON MONDAY 1 DECEMBER 1997

PRESIDENT'S REPORT

Membership

- 149 members have paid and there are 49 to pay.
- Fees were increased at the last meeting so the ORSNZ is in a healthy financial state.

1996 Conference

- The 1996 ORSNZ conference was a great success thanks to Ross James, the Canterbury Department of Management and the Christchurch branch of the ORSNZ.
- Future conferences will follow the following rotation:

  1998 Auckland
  1999 Victoria/Massey
  2000 Waikato
  2001 Canterbury
  2002 Auckland

Visiting Lecturer

- John Ranyard is the 1997 ORSNZ visiting lecturer.
- Any suggestions for 1998 visiting lecturer should be forwarded to Andy Philpott.

ORSNZ Council Changes

- During the year Mikael Ronnqvist and Steve Butt left the university for overseas posts and as such resigned from the ORSNZ council. We thank them for their valuable contributions. Megan Thornley has taken on the role as secretary.

APJOR

- An inquiry was made into what the cost of an individual APJOR subscription was because some members may wish to personally subscribe to this.
- The cost was not immediately known but it was noted that APJOR are thinking of increasing its subscription rates which may have an impact on its continued existence.

Web Page

- The ORSNZ web page continues to serve its purpose as a publicity vehicle for the society as well as providing some services (like OR/MS journal holdings in NZ libraries.)

Review of Mathematical Sciences

- It was suggested that those interested should read the material available on the WWW

ORSNZ newsletter

- After the December issue a team from Wellington will become the editors:
  Vicky Mabin, Bob Cavana, John George
- There was a small presentation to Hans Daellenbach by the president Andy Philpott on behalf of the ORSNZ to thank him for his outstanding contributions to the newsletter.

TREASURER'S FINANCIAL STATEMENTS

- Andrew Mason thanked the 1996 conference organisers.
- A conference profit of $2,500 led to an annual operating result of about $1,000 surplus.
- The Society of Accountants format has changed which needs some investigation because it is putting additional pressure on auditors. The society needs to consider if their current method of reporting is adequate and needs to investigate whether the existing auditor, Paul Rouse, is happy to continue in his current role.
- Andrew has provided an updated list on the web page of the society's members (subject to their approval).
- Andrew Mason thanked the honourary auditor, Paul Rouse and proposed to reappoint him.

MEMBERS OF COUNCIL

- Hans Daellenbach resigned from the council because he is no longer the ORSNZ newsletter editor. It was proposed that John George become a council member because he is now in the editorial team.

  The following list of council members was accepted:

President:	Andrew Philpott
Treasurer:	Andrew Mason
Secretary:	Megan Thornley
Members:	John Buchanan
	Bob Cavana
	John George
	Les Foulds
	Jonathan Lermit
	Vicky Mabin
	Grant Read
	David Robb

SUBCRIPTIONS

- The proposal that subscriptions should remain at the same level following last year's increase, given that the APJOR journal has been replaced with a conference proceedings mail out, was accepted.
- It was noted that the level of the Society's bank balance is steadily growing. It was suggested that maybe we use some of the subscription money to promote OR. The Treasurer pointed out that the society was likely to record a loss this year (1998) as no conference was held and the conference is the main generator of the profit. He also noted that the balance has been fairly stable for the last 7 years. It was suggested that another possible use of the money was to attempt to get more researchers to visit New Zealand. It was noted that the individual universities are largely paying for visitors currently so there was unstated sponsorship not shown in the accounts. If the universities become less willing to do this then the ORSNZ should contribute more to the costs of getting visitors. It is most probable that the ORSNZ can not sustain the full cost, therefore ultimately we will have to rely on corporations. It was suggested that we should take advantage of opportunities as they arise.
- In response to an enquiry whether we maintain students once they lose their student membership, it was pointed out that this student membership continues into their first year in employment.
- The following suggestions were made regarding the newsletter and conference proceedings –

  - we should consider making the ORSNZ newsletter an electronic publication over the next few years
  - we shouldn't make this compulsory but that we should give people the option of receiving the newsletter this way
  - we may not have printed proceedings for the next conference - others noted the value they found in the printed proceedings
  - an increase in the number of pages in the conference proceedings from 6 to 8 per paper.

OTHER BUSINESS

- IFORS '99 is in Beijing in 1999.
- In 1999 Victoria University is hosting the International System Dynamics Conference. This is the first time the conference has been held in the Southern Hemisphere. An informal group has been formed called the Australia/New Zealand Systems Conference which will join with this conference.
- Following the enquiry whether we should try in 1999 to combine all 3 conferences or whether the ORSNZ conference should be separate from the systems conferences, the council resolved to explore the options.
- The council thanked Vicky Mabin for her participation in the organisation for APORS.

Summary of ORSNZ Council Meeting Minutes for January 13 1998 held at the University of Auckland.

ORSNZ '98 CONFERENCE ORGANISATION

David Robb, with the assistance of Andrew Mason and Shane Henderson, will organise the ORSNZ Conference in 1998. The conference is being held in Auckland on Monday 31st August and Tuesday 1st September, which is the first week of the University holidays.

Council is currently considering guest speakers and is looking for sponsorship for the Young Practitioners Prize.

BYELORUSSION SOCIETY

The ORSNZ Council supported the application by the Byelorussian Society for membership of IFORS.

THEORY OF CONSTRAINTS (TOC) BOOKS

Since our article in the March issue of the newsletter, we have found several new books on TOC through amazon.com

We can heartily recommend Gerald Kendall's "Securing the Future: Strategies for Exponential Growth Using the Theory of Constraints", St Lucie Press/APICS Series on Constraints Management, Boca Raton, 1997.

It provides an accessible intro to TOC, the thinking processes and dozens of examples.

VICKY MABIN and STEVE BALDERSTONE

WAIKATO BRANCH

Yes, we are alive and well! The "Waikato Branch" is, effectively, the Department of Management Systems at the University of Waikato. We would like to make contact with others in the Waikato Region and take this opportunity to invite you to make yourself known to us.

Information about the Department of Management Systems can be found at our website http://www.mngt.waikato.ac.nz/depts/mnss/home.htm, and we'd welcome any feedback you may have on it. I mention below the staff of the department and their research interests. This is followed by a report of a recent visit to Finland by Jim Corner.

Staff and Research Interests of the Department of Management Systems

John Buchanan:	Multi-criteria decision making; decision analysis; student-centered learning; machine scheduling; systems thinking
Jim Corner:	Multi-attribute/multi-objective decision making; decision analysis; decision support systems
Chuda Basnet :	Manufacturing systems modeling; vehicle scheduling
Eric Deakins:	Systems dynamics for strategic analyses; learning organisation practices; information systems planning; business process engineering
Professor Les Foulds:	Facilities planning; world class manufacturing; vehicle and machine scheduling; political districting; group technology
Bob McQueen:	Computer supported asynchronous group communication
John Scott:	Decision making; decision support; management science; mathematical programming; transportation; learning organisations; experimental learning.

JOHN BUCHANAN, University of Waikato

A Visit to the Systems Analysis Laboratory, Helsinki University of Technology, Finland By Jim Corner

I recently was invited to act as public examiner for the doctoral thesis of a student of Professor Raimo Hamalainen of the Systems Analysis Laboratory at the Helsinki University of Technology. The student, Mari Poyhonen, who works full time for Rand, Europe, passed with flying colours, having done her work on structural and behavioural biases in attribute weighting using multi-attribute value theory. Her thesis was written using the manuscript style, where each chapter is written as a published (or publishable) journal article. The thesis then becomes a collection of perhaps loosely connected articles, with a short introduction and summary to explain how they all fit together. While this approach to writing a thesis has some weaknesses (lack of a comprehensive literature review, the articles tend to be co-authored, etc), I found the style to be refreshing and interesting.

Helsinki University of Technology (HUT) has no business school, and in the tradition of schools of technology found throughout Europe, is administratively structured around institutes, not departments. The idea is that a given professor (and there is only one full professor per lab at HUT) assembles around him/her a few junior teaching staff, plus many doctoral student researchers to collectively perform the research and teaching demands on the lab. In the case of the Systems Analysis Lab, which is responsible for teaching operations research, Raimo is the professor, who is assisted by two lecturers, and around 10 doctoral students. The students they collectively teach are mainly engineering students.

The central theme for their research is multi-criteria decision analysis, very traditionally defined, and assuming an engineering and control theory perspective, although they also do work on game theory. The past few years has centred on the development of interval methods for preference assessment when using AHP and SMART, two well known decision analytic tools based on value theory. This work recently has culminated in the HIPRE 3+ decision support software for non-interval assessment (available free at http://www.hipre.hut.fi/), WINPRE for interval assessment, and HIPRE 3+ Group Link, for interval assessments in group decision making. The Lab is heavily applications oriented, having performed work in water resources regulation, electricity markets, and forest management.

MAINLAND NEWS

As the first dumping of snow on the Southern Alps ushers in autumn and the impending ski season, it also indicates a change in season in the MS/OR staff at the University of Canterbury. The Department is pleased to announce it has appointed two full time staff members, Shane Dye and Fritz Raffensperger, and one part time staff member, Deb Chattopadhyay. Shane takes up his appointment from 1st June while Fritz is hoping start mid August. Deb also takes up his position from mid August but has already been working with Grant Read as part of the Energy Research Modeling Group for almost a year. We will profile each of these new staff over the next few issues. In this issue we profile Deb.

Deb Chattopadhyay obtained his Ph.D. in power system economics from the Indira Gandhi Institute of Development Research, Bombay, India in 1995. He spent a year at the Center for Energy Systems and Control, Washington DC as a post-doctoral research fellow. In 1996-97, he worked for the engineering consulting firm, Power Technologies, Inc. - USA in its New Delhi office. He came to New Zealand in August, 1997 to work for the Energy Modeling Research Group of the Department of Management, University of Canterbury. His current research focuses on OR modeling for competition issues in the electricity sector. If anyone would like to get in touch with Deb, his email address is d.chattopadhyay@mang.canterbury.ac.nz.

This last year has also been a successful one for our PhD students completing their theses. Our most recent PhD graduate is Glenn Drayton-Bright, with a thesis on "Coordinating Energy and Reserves in a Wholesale Electricity Market". This research included development of an LP formulation to simultaneously coordinate dispatch of, and determine prices for, both energy and "spinning reserve" (ie instantaneous backup capacity) on a half-hourly basis. This formulation has already been incorporated into the New Zealand electricity market, a world first, and should soon be employed in the new Australian national electricity market. We await further developments, as markets in North America and elsewhere are now developing along similar lines similar to those pioneered here. Glenn is now based in Wellington, working for Putnam Hayes and Bartlett (Asia-Pacific) Ltd. as a consultant on this and related issues in the electricity sector, in New Zealand and elsewhere.

In other news, the "Systems and Operational Research" module of the multimedia OR learning system Mentor is now available. This module was developed by Hans Daellenbach and Nicola Petty and has been used in our first year management science course for the last three years. Further information about the module can be obtained via the web at http://www.mansci.strath.ac.uk/systems.html.

ROSS JAMES, University of Canterbury

AUCKLAND NEWS

We are sad to report that Golbon Zakeri, our FRST fellow, has now moved back to the US to a research position at Argonne National Laboratory. Her research there will be concerned with parallel optimisation methods using networks of computers. Golbon has made a significant contribution to our group over the five years she has been with us and we will greatly miss her expertise and enthusiasm.

With Golbon's departure we begin a new search for a postdoctoral fellow to be funded by a 6-year FRST grant our group has just been awarded. Under the title of Optimisation with Business and Industrial Applications", this grant will allow us to continue our work on scheduling. rostering and stochastic optimisation problems. The emphasis FRST now places on demonstrating industry acceptance of the research they fund sits very easily with our philosophy that OR activity should be directed at solving real problems.

We have a number of very interesting student projects this year. These include the real-time packing of apples to maximise the value of the boxed product, optimisation of production schedules for Comalco, analysis of ambulance locations for St Johns, improved staff rosters for NZ Customs, trim loss analysis for Tasman Pulp and Paper, optimisation of County Power's purchasing policies and cargo load planning for Air New Zealand.

At the higher echelons, our Vice Chancellor, Kit Carson is resigning for family reasons. We await with interest the appointment of his successor.

ANDREW MASON, University of Auckland

FIRST ANNOUNCEMENT, CALL FOR PAPERS AND SESSION CO-ORDINATORS

MODELLING AND SIMULATION SOCIETY OF AUSTRALIA AND NEW ZEALAND INC., MODSIM 1999 MEETING

THEME: *MODELLING THE CHANGING STRUCTURE OF AGRICULTURAL, HYDROLOGICAL, TOURISM AND SOCIO-ECONOMIC SYSTEMS*

Overview:

The 1999 Meeting of the recently extended Modelling and Simulation Society of Australia and New Zealand Inc., will be hosted by the Department of Economics and Waikato Management School, University of Waikato, Hamilton, New Zealand over the period 6-9th December 1999. Hamilton is some 120 kilometres south of Auckland in the primarily dairy-based economy of the mid-North Island. It is also an easy one-hour drive to the premier tourist centre of Rotorua, which, as can be seen below, will be a feature of the four-day meeting. Key-note presentations and contributed sessions will be held in the Waikato Management School buildings on the University of Waikato Campus. These modern facilities and attractive venue offer an ideal location for the Meetings. Participants will be offered the choice of University accommodation, some four minutes walk from the main lecture theatres or an extensive list of motels/hotels located in the city centre.

The theme of the Meeting, which will be the inaugural meeting in New Zealand, will draw-upon the unique characteristics of the New Zealand environment, culture and economy. The Local Organising Committee, with joint Convenors, Professor Les Oxley and Dr. Frank Scrimgeour, (Economics), have involved representatives from AgResearch, the Forest Research Institute and NIWA which we expect will add extra coverage to the 1999 Meetings.

Programme:

The 1999 Meetings will comprise the following structure. Days One and Two will comprise key-note and parallel contributed paper sessions held at the Waikato Management School. Day Three will comprise a morning of scientific sessions held in Rotorua (all participants will be transported from Hamilton to Rotorua by coach), followed by a choice of afternoon visits to either local areas of interest including, geothermal 'natural wonders', geothermal power stations and trout and natural flora parks. The evening will comprise The Meetings formal dinner and prize giving, following by return transport to Hamilton. Day Four will follow the pattern of the first two days. Bound and fully refereed conference proceedings will be provided as per previous Meetings.

The Local Organising Committee wishes to follow the successful initiatives of the 1997 Meetings by actively encouraging potential Session Co-ordinators to contact the Committee with suggestions for potential Topics for the Meetings. Email, mail and WWW addresses for these and other interested parties are provided at the end of the piece. Please feel free to publicise these addresses and the existence of the Meetings via any group or personal WWW outlets.

Further information:

A Meetings WWW page is under construction at: http://www.waikato.ac.nz/depts/econ/modsim99 and a dedicated email address at MODSIM99@waikato.ac.nz. Updated information including a list of key-note speakers, registration fees and submission details and deadlines will be available by mid-1998 and will be publicised both via the WWW page outlets and hard-copy leaflets and posters. Those who would be willing to distribute such material could usefully contact either of the Convenors listed below.

Professor Les Oxley and Dr. Frank Scrimgeour
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Ph: +64 7 838 4077 and +64 7 838 4415 Fax: +64 7 838 4331
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Email: MODSIM99@waikato.ac.nz

LES OXLEY and FRANK SCRIMGEOUR

MEETINGS CALENDAR FOR 1998 AND BEYOND

EURO XVI: 12-15 July 1998, Brussels, Belgium
Contact: Jaques Tegham
Euro@mathro.fpms.ac.be

3rd Int. Conference on Systems Science and Systems Engineering: 25-28 August 1998, Beijing. Contact Prof. Jian Chen, School of Economics and Management, Tsinghua University, 100084, Beijing, China
jchen@mail.tsinghua.edu.cn

ORSNZ '98 Conference: 31 August-1 September 1998, Auckland, New Zealand

OR40: 8-10 September 1998, Lancaster, U.K.
Information: Operational Research Society, 12 Edward Street, Birmingham B1 2RX, U.K.
Email@orsoc.org.uk
http://www.orsoc.org.uk

4th Annual Australia New Zealand Systems Conference: 7-10 October 1998
University of Western Sydney, Hawkesbury, NSW, Australia
email:g.wallace@uws.edu.au

INFORMS Seattle Fall 1998 Meeting: 25-28 October 1998, Seattle, Washington
Chair: Marisa Altchuler, Boeing Computer Services, PO Box 24346 M/S 7A TH, Seattle WA 98124-0346
Marisa.altschul@boeing.com

International Conference on System Dynamics: 15-18 December 1998, Indian Institute of Technology, Kharagpur, India
Organising Secretary, Dr. Biswajit Mahanty, Dept. of Industrial Engineering and Management, IIT Kharagpur – 721302, India
email:bm@hijli.iitkgp.ernet.in

International Conference on Nonlinear Programming and Variational Inequalities: 15-18 December 1998, Hong Kong
Contact: maopt@cityu.edu.hk or http://www.cityu.edu.hk/ma

INFORMS Cincinatti Spring 1999 Meeting: 2-5 May 1999
Chair: David F. Rogers, University of Cincinnati, Ohio, 45221-0210, USA
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17th Conference of the International System Dynamics Society and 5th Australia New Zealand Systems Conference: 20-23 July 1999
Conference Manager: Margaret Stevenson-Wright, Graduate School of Business and Government Management, Victoria University of Wellington
Tel: 64 4 496 5453 Facsimile 64 4 496 5454 email: Margaret.Stevenson-Wright@vuw.ac.nz

IFORS '99 Beijing: 16- 20 August 1999, Friendship Hotel, Beijing, China
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