THE NEW ZEALAND MATHEMATICAL SOCIETY

NEWSLETTER

NUMBER 8 APRIL, 1977

REGIONAL MECHANICS AND MATHEMATICAL PHYSICS WORKSHOP

Staff and graduate students from the Department of Theoretical and Applied Mechanics of the University of Auckland, and the Departments of Mathematics of both the University of Auckland and the University of Waikato, met during 15-16 February at the Waiwera Hotel to discuss informally current research programmes in the fields of Mechanics and Mathematical Physics.

Assoc-Prof. Gordon Hookings introduced a fluid section by discussing the origin of atmospheric plumes and thermals, followed by Assoc-Prof. Don Nield who described progress and controversies about thermal instabilities, both linear and non-linear. Dr. Alfred Sneyd deduced a critical tension number for sails in the wind, and Denis Reid blamed him for the DEREIDACTYL (Mark 2) reaching less than the desired 50 metres in the recent TV2 Birdman Rally. Prof. Roger Hosking said that mathematicians should come to the aid of plasma physicists in stability theory, and David Kinzett discussed progress in a stability computation involving dissipation. Lew Hockings showed why modelling in plasma astrophysics can be fun, and Dexter Krŭl indicated various important features in computing two-phase flow in porous media related to geothermal fields.

Dr. Ian Medland introduced a solid mechanics section by discussing a technique of tension magnification to speed convergence in finite element calculations for problems with large displacement characteristics, such as cable analysis. Dr. Glenn Sinclair introduced a novel way of isolating singularities to enhance finite element packages, and Hosking and Sneyd became potential clients. Graeme Fowler spoke about the singular hazards of pile-driving, while David Lee discussed earthquake responses of buildings, mounted on isolation systems consisting of rubber pads and coulomb dampers. Grant Christie introduced a boundary integral technique for the solution of two-dimensional problems in elasticity.

Professors Segedin and Hosking acted as chairmen (after a fashion), their regimes being characterised by a liberalism unusual in these modern times. Despite the limited cuisine, the gathering unanimously supported Professor Segedin's proposal to meet again during February 1978, probably at a place where Gordon Hookings can indulge his practical interest in thermals, for which it seems that further observational data are needed.

A.S./R.H.

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ROYAL SOCIETY NEWS

Our congratulations to two members of the NZMS who were elected Fellows of the Royal Society of New Zealand in 1976, namely Prof R.H.T. Bates (Dept. of Electrical Engineering, Univ. of Canterbury) and Prof W. Davidson (Dept. of Mathematics, Univ. of Otago).

REVIEW

"Bridging the gap between secondary and tertiary mathematics"

A report of the National In-Service Course held at Hogben House in April 1976.

Reviewed by Kevin Broughan.

The report contains a wealth of valuable information and ideas. It begins with a list of course participants. This is followed by an introduction containing an explanation of how the idea for the course originated with the Department of Education's Working Party on Syllabuses in Mathematics formed in 1972.

Letters were sent to Heads of Departments in tertiary institutions before the course took place. The report contains a summary of replies received. For instance the "lack in students of the ability to express a sustained and logically expressed mathematical argument" was considered a problem by a University. In contrast a Technical Institute reply stated that "manipulative skills are lacking in many students".

The course objectives are outlined - "To consider as many of the factors as was practicable which influence the mathematics learning of students in secondary schools and in the first years at tertiary institutions, and to make suggestions and recommendations aimed at minimising any dislocation in the learning process due to the transition from secondary to tertiary education".

Summary statistics are given related to the retention rates of students in the successive years of secondary schooling and to their destinations upon leaving school. (In 1974 - Technical Institutes 10.5%, Teachers Colleges 0.9% and Universities 4.3%.)

The report contains a reasonably full summary of the discussions of the course participants on each of the following topics:

1. The objectives of mathematics education in the various institutions;
2. Whether the needs of students in mathematics education are being met satisfactorily;
3. Whether the content of mathematics courses is suitable;
4. Whether the methods of instruction are the most effective for promoting learning;
5. Whether assessment procedures are valid and reliable;
6. Whether the learning environment can be improved in any way at any of the institutions in order that the transition from secondary to tertiary mathematics might be made easier for students.

The conclusions of the group are outlined. The main part of the report concludes with a list of 32 recommendations. The appendices contain a table giving a detailed classification of pupils and their destinations upon leaving secondary school (1973), a table outlining the attainments of pupils leaving secondary school (1965 - 1973), pie graphs describing the major subjects of students taking mathematics

courses at Canterbury University and, lastly, the transcript of a lecture given to the course participants by Lindsay Johnston entitled "Some problems faced by first year mathematics students".

In the opinion of this reviewer the report is interesting and well written. The recommendations outlined therein will hopefully be widely disseminated and discussed.

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NEWS FROM THE AMERICAN MATHEMATICAL SOCIETY

The following information has been culled from the meeting reports section of the January 1977 issue of the Bulletin of the AMS. This writer has altered the wording slightly and inserted the occasional comment.

At its meeting in January 1976 the AMS Council continued (or should one say extended) its discussion on membership by reciprocity. It was decided that two amendments should be proposed to be made to the bylaws. One abolishes all AMS reciprocity agreements. The other establishes a new membership category "foreign member". This is a category for which certain individuals may be eligible (we were hoping this would be so) and which they may then elect. It carries all privileges except voting rights, with reduced dues.

At its meeting in April 1976 the Council formally recommended the changes to the bylaws outlined above. They added the restriction that the dues were not to exceed 2/3 of the dues of an ordinary member (these are US $24 for 1977). The definition of "foreign member" is in the hands of the Council. The amendments, if adopted, will be available from 1 January 1978, from which date membership by reciprocity will cease to exist.

These amendments most likely will have been voted upon at the 83rd Annual Meeting of the AMS, held in St. Louis in January this year. The outcome will be reported in a later issue of this Newsletter.

K.A.B.

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When it comes to dividing a piece of land, or to any other operation on magnitudes and spaces, the surveyors can do it because of their experience, but those who are concerned with mathematics and with the reasons for these things, while they may know how it is to be done, cannot do it.

Aristotle

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If useful knowledge is, as we agreed provisionally to say, knowledge which is likely, now or in the comparatively near future, to contribute to the material comfort of mankind, so that mere intellectual satisfaction is irrelevant, then the great bulk of higher mathematics is useless.

G.H. Hardy, "A Mathematician's Apology".

LETTERS

The Editor,
NZMS Newsletter.

Dear Sir,

Until reading the December 1976 Newsletter, I was under the impression that I was the first N.Z. University Mathematician to be born and raised in Dargaville, but apparently that is not the case. Perhaps some of your readers may be able to supply further bibliographic information about my compatriot.

Yours sincerely,

Don Nield.

The Editor,
NZMS Newsletter.

Dear Sir,

A PROBLEM IN COMBINATIONS

(see p.18, Newsletter No. 7, Dec. 1976)

Not only can the problem as specified be easily solved, but the 16 teams could play up to 15 sports under the same conditions.

For, in any league competition, each of 16 teams can play every other team once only in 15 rounds, and if we substitute "sports" for "rounds" we see that the other conditions are also met, namely, each team plays each sport once and once only and no team is playing two sports at once.

The complete draw takes longer to write out than it does to formulate, but for the 8 sport solution here is one possibility:

1st team	Sport 1	2	3	4	5	6	7	8
1	9	10	11	12	13	14	15	16
2	10	9	12	11	14	13	16	15
3	11	12	9	10	15	16	13	14
4	12	11	10	9	16	15	14	13
5	13	14	15	16	9	10	11	12
6	14	13	16	15	10	9	12	11
7	15	16	13	14	11	12	9	10
8	16	15	14	13	12	11	10	9

Yours sincerely,

H.R. Thompson.

LOCAL NEWS

Auckland: Department of Mathematics

Appointments and Promotions:

Dr Graeme Baird has been promoted from Lecturer to Senior Lecturer.

Mr John Pemberton has been promoted from part-time Junior Lecturer to full-time Junior Lecturer.

Mr John Goodman, formerly the Administrative Assistant, is now a Junior Lecturer.

The other new Junior Lecturers for the year are Mr Ross Ihaka, Dr Peter McInerney, Dr Stuart Scott (half-time) and Mrs Allison Heard.

Mr Peter Hughes has been appointed a part-time lecturer.

Departures and Returns:

Professor G.A. Hookings has returned from leave, spent at Berkeley, Santa Cruz and San Diego.

Mr D.P. Alcorn has returned from leave, spent at London, Toronto and Berkeley.

Mr C.C. King has returned from London.

Dr P.R. Hafner is on leave at Zürich.

Dr M.K. Vamanamurthy is on leave at Ann Arbor.

Visitors:

Dr F. Chipman will continue here until June, when he returns to Acadia University (Nova Scotia).

Dr A.S.B. Holland (ex-VUW), who works in functional analysis, summability and approximation theory, will arrive in June, on a year's leave from the University of Calgary.

Professor M.L. Puri, a statistician from Indiana, will arrive in May and stay for the rest of this year.

Dr John G. Herriot, of ETH, Zürich, will make a brief visit in April.

Seminars:

Three seminars were given at the end of 1976:

Dr D.S. Bridges spoke on "An Introduction to Constructive Analysis", and on "Constructive Aspects of Computation".

Professor J.C. Butcher spoke on "A New Look at Interpolation".

G.J.T.

Auckland: Department of Theoretical and Applied Mechanics

Mr Chris J. Patterson has been appointed to the staff of this Department. An Auckland graduate in Science and in Engineering, he more recently has headed the Operations Research Group of Alex Harvey Industries Ltd.

Dr Jerry H. Griffin has resigned to return to the United States, where he is now employed by Pratt and Whitney in Florida.

Mr Michael L. Chambers of the Department of Operational Research at Lancaster University is to spend six months in Auckland while on Sabbatical Leave, thereby following the example set by Dr Eric Ritchie in 1976. On his return to Lancaster Mr Chambers will be doing a further stint as acting Head of Department there.

Mr Ralph B. Chapman has been appointed to a Temporary Lectureship for 1977. After graduating B.E. in Engineering Science in 1973 he has been overseas in North America, Britain and Europe. He has been awarded a Master's Degree in Public Affairs by Princeton University.

Dr Ian C. Medland has recently been awarded a Medical Research Council grant for work on the computer modelling of an aortic valve. Mr Grant W. Christie, a M.Phil. student in this Department, will be a full time research assistant on this project.

It is, of course, no longer news to find women graduating as engineers. (Indeed in the Auckland graduating class, last year, there were 4 out of a total of 186 and the number is bound to rise fast in the future.) The first woman to complete her degree in Engineering Science was Susan Spencer (nee Murray-Brown) in 1975, followed, in 1976, by Margaret Blakeley. Both have earned excellent First Class Honours awards.

C.M.S.

Canterbury

The Mathematics Department has begun a series of Research Reports. The first four have been published and are

1. Permanent wave structures on an open two layer fluid, by P.J. Bryant,
2. Conformal killing tensors in reducible spaces, by G.J. Weir,
3. Diverging type-D metrics, by G.J. Weir and R.P. Kerr,
4. Singularities in the Kerr-Schild metrics, by R.P. Kerr and W.B. Wilson.

Peter Waylen has returned from study leave, which included England's hottest and driest summer on record, and the U.S.A.'s coldest January. He visited Cambridge, Oxford and King's College, London and participated in conferences and symposia on relativity and cosmology. Quick visits were made to the Universities of Columbia, Princeton, and Ohio State, which were snow bound, and he spent a period as a visitor to the Center for Relativity at the University of Texas in Austin.

Dr Jon Rokne from the University of Calgary is visiting Canterbury until July. His field is numerical analysis, specialising in interval analysis.

Murray Smith has had his Ph.D. approved. His thesis is titled 'Some best choice problems with uncertain recall'.

P.J.B.

D.S.I.R. Applied Mathematics Division, Wellington

Four new appointments have been made to the AMD staff. Michael Cox, formerly of B.P. in London and John dePont, formerly a student in the Department of Theoretical and Applied Mechanics of Auckland University have joined the O.R. section; Kate Hatherton and Tony Aldridge, both from Victoria University, have joined the Computing and Statistics sections.

A recent visitor to AMD from Kyushu University in Japan was Dr Takashi Yanagawa, who presented a lecture on "Ranked set sampling and generalized stratification for estimating a wide class of population characteristics."

R.B.D.

D.S.I.R. Physics and Engineering Laboratory, Lower Hutt

As many people will be aware, PEL has recently had a change of Director with Dr M.C. Probine moving up to Assistant Director General, DSIR, and Mr M.A. Collins (previously Head of Physics Division, PEL) taking his place. Mike Collins has, after only a week in the position, indicated that he does not anticipate any change in overall activity of this Laboratory.

Staffing in DSIR, as in other government departments, is still being held at previous levels and hence opportunities for graduates are few and far between. They do occur occasionally and we are very pleased to have been able to appoint Mrs L. Fradkin, who is just in the process of completing her Ph.D. in Mathematics at Victoria University under Dr G. Wake, to work with me (Applied Mechanics Section). Lara is to start tomorrow and will probably be involved in studies relating to boiling water movement in fractured permeable media (part of our geothermal research program).

We have also just received the information that we will be joined later in the year, for a period of three years, by Dr Michael Sorey of U.S. Geological Survey. Mike Sorey did his Ph.D. at the University of California, Berkeley and has been awarded an NRAC Post-Doctoral Fellowship to work at PEL. He will be involved in our geothermal modelling project.

We are also negotiating with another U.S. colleague to spend some time at PEL on our groundwater modelling work. In this case we are attempting to use the joint US/NZ scientific agreement to get him here. This may be of interest to others as a possible means of getting experienced people out to New Zealand to work with us for a time. For a U.S. resident coming to New Zealand, the funding body is the National Science Foundation. The visitor does, however, have to show the benefits to U.S. science (as well as to N.Z.).

The PEL Computer Research Section is responsible for setting up a DSIR computer network giving DSIR personnel on the various campuses access to various major government computing facilities. As a first stage, DSIR branches in Lower Hutt are being coupled to the Cumberland Centre IBM 370/168 through a hardware coupling (another computer) at PEL. This first stage should be available to some computer users in this area in April.

I.G.D.

Massey

Dean Halford and Donald Joyce are on leave at present, Dean at Monash University and Donald at the Oxford University Computing Laboratory; both will be away for most of this year.

Peter Kelly has been promoted to Senior Lecturer and Sam Choy to Lecturer.

Dr D.W. Bacon (of Queens University, Canada) gave two seminars towards the end of February, on his work on the use of power transformation weighting to develop sequential design criteria for precise parameter estimation in situations in which the error variance is not constant. Implementation of the criteria were illustrated with examples from chemical kinetics.

Otago

Dr E.W. Bowen of the University of New England is visiting our Department from mid-February to the end of May. Besides statistical inference, he is interested in mathematical education, philosophy and history of mathematics, special functions, and asymptotic series.

Professor Robert L. Wilson of Ohio Wesleyan University will be giving a seminar in April. He will also be exploring "the fashion in which Universities around the world are treating the problem of changing employment needs".

Professor S.P.H. Mandel has been granted two years unpaid leave to work with the World Health Organisation.

G.O.

Victoria

Dr C.J. Atkin, of the Universities of Warsaw, Warwick, Cornell and Cambridge has been appointed to a Lectureship in Pure Mathematics. His research field is manifold theory.

Dr L.W. Szczerba, of the University of Warsaw, is to be a Visiting Fellow in the second term. His main contribution will be a course on the foundations of geometry.

Mr F.S. Chong, from Otago University, has started work as a Junior Lecturer in Statistics.

Mr T. Schumacher resigned his Junior Lectureship in order to breed and train racehorses.

A position of Lecturer in Mathematics (Statistics) is vacant; closing date 31 May. Write to the Chairman of the Department for details.

Dr G.C. Wake and Professor D. Vere-Jones will be returning from sabbatical leave at the beginning and end of April; Dr J.H. Ansell came back in February.

J.F.H.

Dr J.F. Harper has been awarded an Overseas Visiting Scholarship by St. John's College, Cambridge, to be taken up during his time in England on refresher leave later this year.

W.M.

Waikato

There is little to report since October: three seminars, "Introduction to constructive analysis" by Dr D.S. Bridges of the University College of Buckingham (the new "private" university), "The Sampling Theorem in Communications Theory" by Dr Alan Lee of Auckland, and "Analysing a Demographic Model used in Artificial Selection Theory" by Dr D. Johnson of the Biometrics Section at Ruakura.

The first stage of the new library opened a few weeks ago, a spacious building, hermetically sealed and air-conditioned throughout. (The next stage is not due for a few years yet.) The entire department is to move into the former Library building next year.

With enrolments completed it seems that most of our courses have a few more students than last year, except for the first year Techniques courses. The drop there is provisionally attributed to a non-credit *....* course given by Psychology, into which many Social Scientists seem to have been ushered.

Leave: Dr Urch left a month ago for three months with the Physics Department at the University of New Hampshire, Durham.

The Society for Theoretical Gliding, founded by Dr A.D. Sneyd, (as reported in the last issue) is turning to practical application: an advanced hang-glider "pterodactyl" has been constructed embodying flexible wing struts. The theory seems promising, and the prototype has undergone successful pre-flight testing and modification.

M.S.

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Man, faced with uncertainty, has set up two systems to handle it - one is theology and the other is statistics.

Brian Dawkins, 11th N.Z. Maths. Colloquium

NEWS OF MEETINGS IN NEW ZEALAND

The Twelfth New Zealand Mathematics Colloquium will be held at Victoria University, Wellington, over the period 9th - 12th May, 1977. All enquiries to: Mrs A. Win, Mathematics Department, Victoria University of Wellington, Private Bag, Wellington.

The D.S.I.R. Applied Mathematics Division and the CSIRO Division of Mathematics and Statistics are organizing a joint workshop on Mathematical Models in Biology, to be held in Wellington on 12th and 13th May 1977, immediately following the Colloquium. Both models and inference from models will be considered. Anyone interested in participating should contact the Director, Applied Mathematics Division, DSIR, Box 1335, Wellington.

The 28th Annual Conference of the New Zealand Statistical Association will be held on 28th and 29th June, 1977, at the Shell Theatrette, Shell House, Wellington. The committee is seeking applications from members and other interested persons to present papers at the Annual Conference. Conference papers, which can be on either a theoretical or practical topic, should be of 40-45 minutes duration. Anyone interested in presenting a paper should apply as soon as possible to: The Secretary, N.Z. Statistical Association, Box 1731, Wellington. The title of the paper and a short summary of its contents should accompany the application. A training course on the Statistical computing language, GENSTAT, is being planned to follow the Annual Conference. The course, which will be of 5 to 7 days duration and will include both introductory and advanced lectures, is to be given by a member of the CSIRO Division of Mathematics and Statistics.

The Operational Research Society of New Zealand will hold its 1977 Conference in Wellington on 22nd and 23rd August. Abstracts of papers to be presented must be submitted by 30th April. For further details contact Bruce Benseman, O.R. Society Conference, Applied Mathematics Division, Box 1335, Wellington.

The First Circular has gone out for the Asian-South Pacific Regional Meeting in Astronomy to be held at Wellington, 5-8 December 1977. The meeting is sponsored by the International Astronomical Union and is being organised by the Royal Society of New Zealand. The participating countries include Australia, New Zealand, India, Pakistan, Indonesia, Japan, Hawaii (U.S.A.) and possibly China, Taiwan and Korea. Professor W. Davidson, Mathematics Department, University of Otago is Chairman of the Local Organising Committee and the Secretary is Dr B.M. Lewis, Director, Carter Observatory, Wellington, from whom further information may be obtained.

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BULK RATE FOR N.Z. MATHEMATICS MAGAZINE

Members of the NZMS may subscribe to the N.Z. Mathematics Magazine through the NZMS. The subscription rate is not reduced (it remains at $5.00 per volume of 3 issues), but $1.00 per subscription would go to the NZMS. If members wish to take part in this arrangement they should notify the Editor of this Newsletter; a minimum of 10 subscriptions is required to operate the scheme.

CONFERENCES 1977-78

* * 1977 * *

April 18 - 23 (Uppsala)
International Conference on Differential Equations
Details from Gunnar Berg, University of Uppsala, Box 256, 75105 Uppsala, Sweden.

May 9 - 12 (Wellington)
12th New Zealand Mathematics Colloquium
Details from Mrs A. Win, Mathematics Department, Victoria University of Wellington, Private Bag, Wellington, New Zealand.

May 12 - 13 (Wellington)
Biological Models Workshop
Details from Director, Applied Mathematics Division, DSIR, Box 1335, Wellington, New Zealand.

May 30 - June 5 (Blagoevgrad)
International Conference on Constructive Function Theory
Details from Institute of Mathematics and Mechanics, Bulgarian Academy of Sciences, 1000 Sofia, P.O. Box 373, Bulgaria.

June 3 - 4 (Toronto)
Gauss Bicentennial Symposium
Details from G. de B. Robinson, Ontario Science Centre, Toronto, Ontario, Canada.

June 5 - 10 (Tübingen)
Symposium on Functional Analysis and its Applications
Details from Prof. Dr. W. Kaup, Mathemat. Institut d. Univ., Auf der Morgenstelle 10, D-7400 Tübingen, Federal Republic of Germany.

June 20 - July 8 (Kingston, Ontario)
Sixteenth Seminar of the Canadian Mathematical Congress on Lie Theories and Applications
Details from P. Ribenboim, Department of Mathematics, Queens University, Kingston, Ontario K7L 3N6, Canada.

June 26 - July 2 (Dublin)
Conference on Vector Space Measures and Applications
Details from R.M. Aron, Conference on Vector Space Measures, School of Mathematics, 39 Trinity College, University of Dublin, Dublin 2, Ireland.

June 27 - July 1 (Keszthely)
Symposium on Universal Algebra
Details from A. Huhn, Bolyai Janos Matematikai Tarsulat, Pf 240, 1368 Budapest, Hungary.

June 28 - 29 (Wellington)
N.Z. Statistical Association Annual Conference
Details from Secretary, N.Z. Statistical Association, Box 1731, Wellington, New Zealand.

June 28 - July 15 (Oxford)
Symposium on Representation Theory of Lie Groups
Details from N.J. Hitchin, Secretary of the Organizing Committee, Mathematical Institute, 24 St. Giles, Oxford OX1 3LB, England.

July 5 - 9 (Waterloo)
Conference on Graph Theory and Related Topics
Details from U.S.R. Murty, Graph Theory Conference, Department of Combinatorics and Optimization, University of Waterloo, Waterloo, Ontario, Canada N2L 3G1.

July 9 - 21 (Durham)
LMS Durham Symposium on Applications of Sheaf Theory to Logic, Algebra and Analysis
Details from D.S. Scott, Mathematical Institute, 24 - 29 St. Giles, Oxford OX1 3LB, U.K.

July 11 - 13 (Madison)
Third Nonlinear Programming Symposium
Details from Nonlinear Programming Symposium 3, Computer Sciences Department, University of Wisconsin, 1210 West Dayton Str., Madison, Wisconsin 53706, U.S.A.

July 11 - 16 (Barcelona)
First World Conference on Mathematics at the Service of Man
Details from Mrs Roser Lluch, Collcerola 25, Barcelona 6, Spain.

August 1 - 5 (Rio de Janeiro)
International Symposium on Continuum Mechanics and Partial Differential Equations
Details from L.A. Medeiros, Instituto de Matematica, Universidade Federal do Rio de Janeiro, C. Postal 1835, ZC 00, 20.000, Rio de Janeiro, Brazil.

August 1 - 6 (Campinas)
International Symposium on Approximation Theory
Details from J.B. Prolla, Instituto de Matematica, Universidade Estadual de Campinas, Caixa Postal 1170, Campinas, Sao Paulo, Brazil.

August 7 - 13 (Waterloo)
Eighth International Conference on General Relativity and Gravitation
Details from G.R. 8, Applied Mathematics Department, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada.

August 8 - 12 (Vancouver)
International Conference on Discrete Optimization
Details from B. Alspach, DO77, Department of Mathematics, Simon Fraser University, Burnaby, British Columbia V5A 1S6, Canada.

August 16 - 27 (Canberra)
International Conference on Combinatorial Theory
Details from J.R.S. Wallis, Applied Mathematics Department, University of Sydney, Sydney, NSW 2006, Australia.

August 22 - 23 (Wellington)
N.Z. Operational Research Society Conference
Details from B. Benseman, O.R. Society Conference, Applied Mathematics Division, DSIR, Box 1335, Wellington, New Zealand.

August 28 - 31 (Adelaide)
3rd National Conference of Australian Society for Operational Research
Details from R.A. Stevens, P.O. Box 143, Rundle Street, Adelaide, South Australia 5000.

Aug. 29 - Sept. 2 (Melbourne)
48th ANZAAS Congress, Section 8 (Math. Sciences)
Details from J.K. Strachan, Department of Mathematics, University of Melbourne, Parkville, Victoria 3052, Australia.

Sept. 5 - 10 (Wurzburg)
8th IFIP Conference on Optimization Techniques
Details from 8th IFIP Conference, Am Hubland, D-8700 Wurzburg, Germany.

Sept. 6 - 16 (Durham)
LMS Durham Symposium on Homological and Combinatorial Techniques in Group Theory
Details from C.T.C. Wall, Department of Mathematics, The University, Liverpool L69 3BX, U.K.

Sept. 18 - 21 (Brighton)
Applications of Numerical Software: Needs and Availability
Details from Secretary and Registrar, Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-on-Sea, Essex SS1 2JY, U.K.

October 17 - 19 (Madison)
International Symposium on Nonlinear Evolution Equations
Details from M.G. Crandall, Mathematics Research Center, University of Wisconsin, 610 Walnut Str., Madison, Wisconsin 53706, U.S.A.

December 5 - 8 (Wellington)
Asian-South Pacific Regional Meeting in Astronomy
Details from Dr B.M. Lewis, Director, Carter Observatory, Wellington, New Zealand.

December 12 - 18 (University of New South Wales)
Australian Number Theory Conference 1977
Details from J. Mack, Department of Pure Mathematics, University of Sydney, New South Wales 2006, Australia.

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May 15 - 19 (Christchurch)
1978 Australasian Mathematical Convention
Details from 1978 Convention Secretary, Department of Mathematics, University of Canterbury, Private Bag, Christchurch, New Zealand.

June 25 - July 2 (Weimar)
Eighth International Congress on the Application of Mathematics in Engineering
Details from H. Matzke, President of the VIII IKM, Karl-Marx-Platz 2, 53 Weimar, German Democratic Republic.

August 15 - 23 (Helsinki)
1978 International Congress of Mathematicians
Details from International Congress of Mathematicians, ICM 78, Department of Mathematics, University of Helsinki, Hallituskatu 15, SF 00100 Helsinki 10, Finland.

RECIPROCITY AGREEMENTS

Australian Mathematical Society

The terms of the agreement provide for individuals who are members of one Society to join the other for half the usual fee and thereby enjoy all the privileges of that Society, other than the right to vote. This applies, of course, provided you are not resident in the country of the second Society. Current subscriptions and prices are as follows:

(1) Membership subscription (including the Gazette): $15
(with a remission of $2 for early payment)

(2) Journal - Series A: $10

(3) Journal - Series B: $2.50

(4) Bulletin: $10

Thus members of the NZMS may join the AMS for $6.50 a year. They should obtain a note of authentication and an application form from our Treasurer and send both to the AMS Secretary (Mr W. Pye, Melbourne State College, 757 Swanston St, Carlton, Vic 3053, AUSTRALIA).

Canadian Mathematical Congress

The same terms apply as for the AMS (see above). Current subscriptions and prices are as follows:

(1) Membership subscription (including newsletter): $15
(2) Canadian Journal of Mathematics: $14
(3) Canadian Mathematical Bulletin: $10

Thus members of the NZMS may join for $7.50.

Edinburgh Mathematical Society

Members of the New Zealand Mathematical Society may join the Edinburgh Mathematical Society on payment of the reciprocity member's subscription. This is £5.00 for the current session (against £7.50 for a full member). A reciprocity member receives the Proceedings of the Edinburgh Mathematical Society, but does not have voting rights. Anyone wishing to become a reciprocity member should write to the Secretary, Edinburgh Mathematical Society, James Clerk Maxwell Building, Mayfield Road, Edinburgh EH9 3JZ, Scotland.

London Mathematical Society

The same terms apply as for the AMS (see above). Current subscriptions and prices are as follows (for the year beginning November 1, 1975):

(1) Membership subscription: £3.00
(2) Journal: £6.00
(3) Proceedings: £6.00
(4) Bulletin: £3.00

Thus members of the NZMS may join the LMS for £1.50 a year. Application forms may be obtained from our Secretary.

Southeast Asian Mathematical Society

The same terms apply as for the AMS (see above). The current subscription is US$5.00, and privileges of membership include a quarterly newsletter and members' rates for conferences, meetings and occasional publications. Thus NZMS members may join the SEAMS for US$2.50. Application forms may be obtained from our Secretary.

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OTHER N.Z. MATHEMATICAL PUBLICATIONS

Mathematical Chronicle

is published by the Mathematical Chronicle Committee, Department of Mathematics, University of Auckland, Private Bag, Auckland. The editors are Professor J.A. Kalman, Dr D.B. Gauld and Dr M.K. Vamanamurthy. The subscription is $7.00 per volume of three issues, with a reduced rate of $3.50 for individual subscribers, and a further reduction to $2.50 for members of the NZ Mathematical Society.

Mathematics Magazine

is published by the Auckland Mathematical Association, P.O. Box 6855, Auckland 1. The annual subscription for individuals is $5.00 and three issues are published each year. A reduced rate is available for students. A bulk rate scheme for NZMS members is described elsewhere in this Newsletter.

Network

is published by the Mathematics Education Department of Christchurch Teachers' College (Secondary Division), Dovedale Avenue, Ilam, Christchurch 4. It exists to help provide an exchange of ideas among all those concerned with Mathematics Education in secondary schools.

N.Z. Operational Research

is published by the Operational Research Society of N.Z., P.O. Box 904, Wellington. The editor is Dr H.G. Daellenbach. The annual subscription for individuals is $6.00 and two issues are published each year.

N.Z. Statistician

is published by the N.Z. Statistical Association, P.O. Box 1731, Wellington. The editor is Dr R.B. Davies. The annual subscription for individuals is $2.00 and two or three issues are published each year. A reduced rate is available for students.

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That arithmetic is the basest of all mental activities is proved by the fact that it is the only one that can be accomplished by a machine.

Schopenhauer (1788-1860)

THE NEW ZEALAND MATHEMATICAL SOCIETY

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THE NEWSLETTER

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Contributions are invited from any one who has anything to say of interest to the N.Z. mathematics community. Local News items may be sent to one of the Honorary Correspondents or direct to the Editor (c/- Mathematics Department, Massey University, Palmerston North, NEW ZEALAND).