

CONFERENCE REPORTJoint Conference of C.S.I.R.O. Division of Mathematics and Statistics/  
Australasian Region of the Biometric Society : 29 August - 2 September 1977

Since Dr. Joe Gani was appointed Chief of CSIRO DMS in 1974, there have been some initiatives despite a tightening squeeze on funding due to Australian government policy of cutting expenditure in the public sector. These initiatives include the establishment of fledgling groups in applied and computational mathematics, and an annual scientific meeting for the Division, held on this occasion in conjunction with the Biometric Society.

Prof. Barry Ninham of the ANU and your correspondent were invited applied mathematicians, and each of us spoke on the art with illustrations from our respective interests in biophysics and plasma physics. The diversity of the research interests in applied mathematics at DMS (Canberra) can be gauged from the following titles of contributed papers:

- "Inverse unstable problems and their applications in engineering, biology and mineralogy" (H. Levin).
- "Seasonal movement of water in forests" (A. Stokes).
- "Transport in sieve tubes and plasmodesmata" (J. Blake).
- "Phase variation and the structure of Saturn's rings" (M. Diesendorf).
- "Spatial competition in plantations" (D.J.Gates and M. Westcott).
- "Numerical methods for stochastic differential equations" (F. De Hoog).
- "Ground water movement under tidal influence" (J. Knight).

An interesting model of bush-fire spread was described by Ross McMurtrie of Forestry Research (Canberra), and K. Aderogba of Nigeria discussed thermo-elastic stress around a heated cavity. Dr. G.A. Watterson of Monash University spoke on "Detecting natural selection" to remind determinist applied mathematicians that life is a game - he is a brave man in the light of prevailing political authority in Australia I understand!

The majority of the proceedings was then devoted to probability and statistics, but in this short report I can give only strongly filtered impressions. Highlights undoubtedly were the invited addresses given by Prof. D.R. Cox ("Survival data : recent developments and unsolved problems", with reference to heart transplants) and Prof. D.R. Brillinger ("The identification of point process systems" and "Analysis of variance problems under time series models"). Dr. D.F. Nicholls of ANU spoke on "The Box-Jenkins approach to the analysis of time series", and contributed papers in these areas were devoted to theory, computation, instrumentation and application - e.g. to wood

preservation, tropical rain forests, seismology and even fruit and vegetable marketing. Dr C.C. Heyde of DMS had earlier described stochastic biological research at Canberra, represented by a poster session illustrating projects on animal behaviour, nucleoli aggregation, population modelling and simulation.

Another fascinating section was on epidemiology, introduced by invited papers from Prof. S.R. Leeder of Newcastle University ("Collaboration in the development and use of mathematical functions in community medical research") and Dr. J.W. Donovan of the Australian Department of Health in Canberra ("The value of validation or the epidemiologists' contribution", with reference to infant retardation due to smoking during pregnancy. Joe Gani's linear infection model provoked thoughts of analogies in continuum mechanics and field theory.

Further statistical work on regression, residuals, multivariate analysis, and contingency tables reported at the meeting is much too extensive to attempt a summary. It is clear that trans-Tasman statistics is alive and well however, and my statistician colleagues here are advised to contemplate visiting Australia for such a future meeting. Your correspondent is no statistician (cries of 'hear, hear'?), but nevertheless even as an applied mathematician faced with a biased sample I can say how much I enjoyed the educational experience. My thanks go to Dr. Gani for his kind invitation, and best wishes for the future despite the straitened circumstances. Colleagues here will recognise that this literary toast includes our own health!

(Prof) R.J. Hosking (University of Waikato)

#### NZMS VISITING LECTURER FOR 1977

The Society has organized lecture tours for Mathematicians from time to time and this year decided to take a more formal initiative and to set up a system of Lecture tours. Under the terms of the scheme the society would organize a tour and make a grant to the lecturer equivalent to the cost of travel between University centres. It was hoped that individual departments and mathematical associations would also contribute money or accommodation and help to defray the other N.Z. expenses of the lecturer and cost of international travel if any. It was envisaged that a tour would be attempted each year, usually in the third term.

This year the Visiting Lecturer was Dr. Ivor Grattan-Guinness, a noted Mathematical Historian and Principal Lecturer at Middlesex Polytechnic. His itinerary and the lectures given are listed below. The tour was organized for the NZMS by Graham French and Kevin Broughan who wish to offer their thanks to the Departments and Associations who contributed to the Lecturer's expenses, and to the individuals who made accommodation available.

#### Itinerary:

##### October

Wed 26	Melbourne to Auckland	Sat 29	Rotorua
Thu 27	University of Auckland	Sun 30	Rotorua to Hamilton
Fri 28	Auckland to Rotorua	Mon 31	University of Waikato

November

Tue 1	Hamilton to Palmerston North	Thu 10	Te Anau to Dunedin
Wed 2	Massey University	Fri 11	University of Otago
Thu 3	Palmerston North to Wellington	Sat 12	Dunedin to Mt. Cook
Fri 4	Victoria University of Wellington	Sun 13	Mt. Cook
Sat 5	Wellington to Queenstown	Mon 14	Mt. Cook to Christchurch
Sun 6	Queenstown	Tue 15	University of Canterbury
Mon 7	Queenstown to Te Anau	Wed 16	Christchurch to Sydney
Tue 8, Wed 9	Te Anau		

Lectures:

1. What was and what should be the Calculus? - University of Auckland;
2. On early difficulties with limits: the emergence of Mathematical analysis - Massey University;
3. On the early histories of the Fourier and Laplace Transforms - University of Waikato, University of Canterbury;
4. The use of the history of Mathematics in mathematical education - University of Auckland and Auckland Mathematical Association, University of Canterbury and Canterbury Mathematical Association, Massey University, Victoria University and Wellington Mathematical Association, University of Waikato;
5. Highways and byways with the golden section - University of Otago Open Lecture.

NZMS Visiting Lecturer for 1978:

Members who wish to suggest the name of a Lecturer for 1978 are encouraged to write to Graham French or Kevin Broughan before the middle of February. The Lecturer need not be foreign. Of course it is desirable that the lecturer be a good mathematician and have something interesting to say. However ordinary human beings are also acceptable!

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NEWS FROM THE AMERICAN MATHEMATICAL SOCIETY

In the April 1977 issue of this Newsletter (Number 8 page 3) the moves within the American Society to abolish reciprocity agreements and establish a category of "foreign" membership by amending their society bylaws were outlined. The proposed amendments were voted on at the Business meeting held at St. Louis on 26 Jan 1977. The August 1977 issue of the A.M.S. Notices report briefly (p.307) "After considerable discussion the proposed amendment failed".

### EMPLOYMENT OF MATHEMATICIANS

The N.Z.M.S. sub-committee on employment of mathematicians has published a 1977 edition of its brochure on employment. It is basically an improved version of the 1976 edition, the latter being sent to all members of the Society. Two thousand copies of this year's edition were printed and about 1,700 of these have been distributed (free) around the country, mostly to students in tertiary institutions.

It is not intended to send a copy to each member of the Society unless they wish to receive their own personal copy. Should you desire a copy, these can be obtained (free to members) from:

Dr G.C. Wake,  
Mathematics Department,  
Victoria University,  
Private Bag,  
WELLINGTON.

During September 1977 the Mathematics Department of Victoria University of Wellington held a forum on employment. Speakers included a secondary teacher, an applied statistician, an operational researcher, an actuary, and the chairman of the State Services Commission. All spoke of the continuing need for mathematicians, but it was stressed that mathematics graduates must be often prepared to accept jobs that are not highly mathematical in content, at least from the job description. For example, jobs titled "Research Officer, Work-study Officer", are jobs suited to mathematically qualified people, and will often lead to significant mathematical activity.

Some of the speakers encouraged students to obtain additional qualifications (for example, Accountancy) and to thus make themselves doubly attractive to prospective employers. It was emphasised that there remains a continuing demand for good teachers of mathematics and the high proportion of graduates that currently enter the teaching profession (about 58%) is unlikely to change.

All of the speakers emphasised that mathematics graduates are often valued by employers for their "style of thought" just as much as (or even more than) their "body of knowledge", and that other key factors are the ability to relate to fellow-workers and communicate orally and in written expression.

Overall the forum seemed to have been useful to students, and it concluded in happy spirit with refreshments being served!

G.C.W.

### EDITORIAL NOTE

Following a resolution of the NZMS Council (p.8, Newsletter No.9), it was decided to include as supplements to Newsletter No. 10, full lists of New Zealand theses and occasional publications in the mathematical sciences, up to 1977. The editor would be glad to be informed of any errors or omissions in these lists. It is intended to update these lists regularly every year or so by the publication of further supplements in the same format.

EDITORS, MANUSCRIPTS WANTED!

Although the scope of publication activities open to the Society is limited, the Publication Subcommittee is anxious to make contact with authors who feel they may have a manuscript, or at least a potential manuscript, that would be of interest to the Society, and also with people who might be willing to act in the capacity of Referees or Editors. The kinds of material the Subcommittee is looking for might be roughly classified as follows:

- (i) shortish expository texts or collections of articles that would be of interest to a rather wider audience than just a section of the Society's members. Examples in this genre might include essays on mathematical education or the history of mathematics; texts on particular topics in the 7th form or 1st year university level that might usefully supplement the currently prescribed texts at these levels (perhaps even replace them);
- (ii) short monographs of high quality that might be interesting to perhaps 20-30 people in New Zealand and a similar number in Australia. The Society could undertake an initial publication of such material, ensure that it was reviewed in overseas journals, and if the results were favourable, possibly negotiate international rights with a major publishing company;
- (iii) specialist monographs of particularly high quality that could be sent directly to a firm such as Springer-Verlag and perhaps used to initiate a "New Zealand Mathematical Society Subseries" of their Lecture-Note series.

For the most part the Society is likely to be restricted in its publication style to materials that can be handled by local University printeries (multilith) or similar scale private printers. Even such a limited format, however, can be useful in providing authors with an initial avenue of publication, and the Society can assist authors both in distributing their material in Australia and in making sure that their work is reviewed and brought to the attention of larger publishing companies. If material came to hand that looked likely to supersede existing 7th form or first year texts, there is a large enough local market to warrant printing on a full-scale commercial basis, irrespective of possible overseas sales.

D. Vere-Jones,  
Victoria University,  
Publication Subcommittee.

1978 OPERATIONAL RESEARCH SOCIETY CONFERENCE

The 14th Annual Conference of the Operational Research Society of New Zealand will be held at the University of Canterbury, Christchurch, on Thursday May 18th and Friday May 19th 1978. The conference will feature a number of prominent guest speakers as well as sessions in the various areas of operational research. Participants will also have the opportunity to attend part of the First Australasian Mathematics Convention, to be held from May 15th to May 19th at the University of Canterbury.

Conference papers will be refereed and classified as "suitable for publication in the Conference Proceedings" or "suitable for publication of the abstract only". Final typed manuscripts of papers should be submitted before April 1st 1978, and abstracts must be submitted by February 15th 1978. Typing instructions will be provided with the Second Announcement.

The conference fee will be \$25.00 for members of the N.Z. Operational Research Society and \$30.00 for non-members, payable by April 1st, 1978. A late registration fee of \$5.00 will be charged after this date.

Further details may be obtained from the chairman of the Organising Committee: Dr. C.A. de Kluyver, Economics Department, University of Canterbury, Private Bag, Christchurch, New Zealand.

#### MANAWATU STATISTICS GROUP

The Manawatu Statistics Group was formed earlier this year by a group of people who felt that there should be a closer liaison between the many people around Massey and Palmerston North in general who use statistical techniques of one form or another. Currently the people involved have come mainly from Massey, DSIR, DRI, MAF and the Palmerston North Teachers College, but next year statisticians from Government Departments and private firms in the immediate area will also be encouraged to join in the activities of the group. The aim was that the regular meetings of the group would provide an opportunity for getting to know people in different areas of applications and expertise and a forum for people to discuss their own statistical problems with the group in a relatively informal and relaxed atmosphere. During the year four meetings were held and these were sufficiently well attended to justify the setting up of such a group in the Palmerston North area. A \$2.00 membership fee was levied from the members of the group and this paid for the use of Wharerata (the Massey University Staff Club) and also enabled us to bring the group's first visiting speaker, John Maindonald from Wellington. John gave an extremely interesting and entertaining talk at our final meeting for the year entitled "When is a Statistical Package Good for You?". Next year we intend to proceed along similar lines to those adopted in 1977 and also, if funds permit, we intend to continue the practice of importing visiting speakers from outside Palmerston North. All in all the Manawatu Statistics Group has had a successful first year of operation and, if the enthusiasm of its members is anything to go by, seems to be sure of a promising future.

P.J. Thomson  
(Massey University)

#### MANAWATU MATHEMATICS ASSOCIATION

A recent meeting of Mathematics teachers and lecturers from the Manawatu resulted in the re-birth of a Manawatu Mathematics Association.

The immediate aim of the Association is to offer, in 1978, a program containing such events as: Lectures for senior students, guest speakers for senior students and/or teachers and lecturers, Mathex, a Mathematics Seminar for students, a senior maths competition, careers in Mathematics, Computer Science in Secondary Schools, the teaching of junior school Mathematics, consideration of public examinations and syllabi etc.

It is intended that, as an integral part of all such functions, there should be time set aside for the specific purpose of socialising.

Any persons interested in either  
(i) contributing actively within the Association  
or  
(ii) taking part in the Association's 1978 program could contact the Secretary/Treasurer, Graeme Osborne, Awatapu College, P.O. Box 1143, Palmerston North.

The subscription for membership has been set at \$2.00 and this could also be forwarded to the above address.

G. Osborne.

LOCAL NEWSAuckland: Department of Mathematics

## NZMS Visiting Lecturer:

Dr Ivor Grattan-Guinness, the first NZMS Visiting Lecturer, gave lectures on the "Development of the Calculus from the early 17th Century", and on the "Use of History of Mathematics in Mathematical Education". That latter lecture was organized jointly by the NZMS and the Auckland Mathematical Association.

## Visitors:

Prof. A.S.B. Holland (University of Calgary, ex-VUW) is spending a sabbatical year here.  
 Prof. T. Price (University of Iowa) taught here for the third term.  
 Dr W.H. Cornish (Flinders University) spent a month here.

## Leave:

Dr M.K. Vamanamurthy has returned from leave at the University of Michigan.  
 Dr M.J.J. Lennon has gone on leave, to the University of Georgia, et cetera.  
 Dr G. Baird has gone on leave, to the University of Glasgow.

## Retirement:

Dr P.A. Dionne has retired.

## Seminars:

Wiremu Solomon (University of Auckland) spoke on: "Spaces of homeomorphisms".  
 Martin Upsdell (University of Auckland) spoke on: "Multiple Regression with binary dependent variables".  
 Dr L.W. Szczerba (University of Warsaw) spoke on: "Notions in Geometry".  
 Dr P. Davis (University of Auckland) spoke on: "Measurement and Statistical Analysis in Sociology".  
 Professor Siotani (Kansas State University) spoke on "Simultaneous confidence intervals relating to the multivariate regression matrix".  
 Professor E. Straus (UCLA) spoke on: "Euclidean Ramsey Theorems".  
 Ross Ihaka (University of Auckland) spoke on: "Spectral Analysis of Biological Rhythms".  
 Professor D.R. Brillinger (Berkeley) spoke on: "The identification of point process systems".  
 Glen Harvey (University of Auckland) spoke on: "HOM and EXT".  
 Mr J. Abbott (ANU) spoke on: "The numerical solution of large systems of equations".  
 Dr M. Deza (University of Paris) spoke on: "Coding type problems on perturbations".  
 Professor J.N. Srivastava (Colorado State University) spoke on: "Search Linear Models".  
 Dr W.H. Cornish (Flinders University) spoke on: "Left and Right Lattices".  
 Professor N. W. Bazley (University of Cologne) spoke on: "Approximation of Operators with Reproducing Nonlinearities".  
 Professor N.C.A. da Costa (University of Sao Paulo) spoke on: "Algebraic Logic", and on: "Set-theoretic Foundations of Category Theory".  
 Dr K. Tognetti (University of Wollongong) spoke on: "The Dynamics of a single-species Population".

G.J.T.

### Canterbury

Roy Kerr and Brent Wilson presented papers at the 8th International Conference on General Relativity and Gravitation held in Waterloo, Canada in August. Brent visited a number of other Canadian universities after the Conference, and Roy has begun his study leave at the Centro de Investigacion Y Estudios Avanzados del I.P.N. in Mexico City. He is at present playing bridge with the New Zealand team in Manila, and later will be continuing his study leave at the University of Texas.

Gordon Petersen was a member of the recent AUT tour of China. It is not thought that there is any connection between this tour and the SIS amendment bill. Frank Gair is away on leave at Murdoch University, Western Australia, and Bill Barit is at the Battelle Centre de Recherche in Geneva.

Our series of research reports now includes:

- No. 5 Algebras for matrix limitation, G.M. Petersen.
- No. 6 Topological methods in second order arithmetic, A.G. Gray.
- No. 7 Green functions in the early universe, P.C. Waylen.

Planning is continuing for the Mathematical Convention next May and a number of the principal speakers have been arranged. The second notice will be circulated in early February.

P. J. B.

### D.S.I.R. Applied Maths Division

Two new arrivals at AMD are Graham Weir from the University of Canterbury and Lindsay Packer from Imperial College. John Knight of the CSIRO Division of Mathematics and Statistics and John Ockendon of the Oxford University Computing Laboratory are to visit AMD at the beginning and middle of 1978 respectively, each for about 3 months. Recent visitors include Evan Porteous of Stanford University, Bob Oliver of the University of California, and Morven and Jane Gentleman of the University of Waterloo.

Departures from the Division include Steve Tucker from Auckland, David Kinniburgh from Palmerston North and John Wood from Wellington, all of whom have joined private companies.

The Division now has a vacancy for a statistician in its Auckland branch and details appear elsewhere in this newsletter.

Garry Dickinson recently visited the CSIRO-DMS and also several Social Science Institutions in Australia. Hugh Barr also briefly visited CSIRO-DMS and the Bureau of Transport Economics in Australia. Andrew Wallace of the Lincoln branch is to visit CSIRO-DMS in exchange for John Knight. Robert Davies and Mike Saunders are to attend conferences in New Delhi and Monterey respectively.

R. B. D.

### Massey

The statistics section of the department has been strengthened by the arrival of Dr Rob Pringle from the University of Natal, Pietermaritzburg, South Africa. Rob graduated B.Sc. Agric. in 1965 and completed a Ph.D. on generalised inverses in 1969, both at the University of Natal. He was a consultant biometrician to the South African Dept. of Agriculture from 1968 to 1970, and a senior lecturer in biometry at the University of Natal from 1971 to 1977. He is married with two young sons.



Mike Carter leaves just before Christmas on sabbatical leave, returning at the end of August. He will be spending six months in South Africa and six weeks in the U.K., and is also hoping to fit in a visit to Helsinki for the International Congress of Mathematicians. Donald Joyce will be back just in time to take over the editorship of the Newsletter once more.

Mike Hendy will be attending the Australian Number Theory Conference (10th - 17th December), and will lead the session on units in pure cubic number fields.

Dean Halford is back after a very stimulating period of leave at Monash University. He used the time to continue his research into homothetic symmetries possessed by solutions of Einstein's vacuum field equations in general relativity, and also taught a post-graduate course on General Relativity and a second-year class of engineering students.

The NZMS Lecturer, Dr Grattan-Guinness, spoke to us on the history of the limit concept, and on the use of the history of mathematics in mathematics education. Less formally, he also discussed with us the teaching program at Middlesex Polytechnic. His visit was much enjoyed and his talks stirred up plenty of discussion.

Talks given in our regular seminar series include: "Neville's table and numerical differentiation" (Adrian Swift), "The dynamics of a single species population" (Keith Tognetti, University of Wollongong), "Proof and plausibility" (Gordon Knight), "Operations research applied to the textile industry" (L.E. O'Brien and M. Trott), "Foldover designs" (Ross Hughes, D.R.I.) and "A glance at a few aspects of studying mathematics extra-murally" (Peter Gordon and June Gunson).

#### Otago

Dr H. Levy has returned from his leave with a new-found enthusiasm for Lie Algebras and algebraic computing.

Dr G.C. Jain and Dr G. Olive will be going on leave at the end of this year and Professor Davidson will start his leave in February, 1978. Dr Jain will spend his leave at Dalhousie University, Halifax, Canada, and at Delhi University, Delhi, India. Dr Olive will be visiting Reed College; the University of Wisconsin; Pennsylvania State University; University of California, San Diego; and The Claremont Colleges; and will attend the Annual Meetings of the American Mathematical Society and Mathematical Association of America in Atlanta, Georgia. Professor Davidson will be visiting Universities and Societies in the U.K. which have interests in his field of research: Astronomy, Cosmology and Relativity.

The 1977 NZMS Visiting Lecturer, Dr Ivor Grattan-Guinness, will be visiting O.U. and the Otago Science and Mathematics Teachers Association in November and will give talks on

"The history of mathematics in mathematical education"  
and "Highways and byways with the golden section"

Our weekly seminars continued to cover an interesting variety of topics: "Non Standard Analysis" (Dr G.F. Liddell), "The Clock-Paradox in Relativity Theory" (Professor W. Davidson), "Finite Automata Theory, Turing Machines, and Computability" (Mr D.R. Forster, Computing Centre), "Pascal's Mystic Hexagram" (Professor D.B. Sawyer), "The Development and Use of Mathematical Models in Epidemiology" (Mr G.H. Murdoch), "Inertial Forces in Rotating Fluids" (Dr R.L. Enlow), "What is the b-transform?" (Dr G. Olive), "Group Therapy" (Dr A.B. Evans), "Prolongation Lie Algebras" (Dr H. Levy), "Key Factor Analysis" (Mr B.F.J. Manly), Square Roots (Under Composition) (Dr D.G.B. Hill).

Victoria

A second round of cuts in library periodicals is biting into our effectiveness as mathematical researchers; we are wondering where, and whether, the process will end.

Professor Norman Bazley has now returned to Köln, having contributed handsomely to our work on bifurcation problems. Some comments from his Travel Report: "[N.Z. has] a rather high level of teaching and research in view of the size of the country... Some of the better mathematics students seem to be Asians who have come to study in New Zealand... There is a strong emphasis on teaching, although the number of students is low by German standards. My own impression is that the students are often given too much individual attention by senior staff members. Fundamental mathematical research at the N.Z. Universities seems to be hampered by a lack of colloquium and travel funds, coupled with insufficient interest in basic research on the side of the government and university administrators. Much good work is nevertheless being carried out..."

Our next visitor will be Dr Yoshihika Ogata, of the Institute of Statistical Mathematics, Tokyo, for the first two terms of 1978. His field is inference and stochastic processes (and he is a good go player).

Dr Sonja McKinlay has been appointed as a Lecturer in applied statistics and will arrive during December. A V.U.W. graduate, she is at present an Assistant Professor in Mathematics at Boston University and a Fellow of Radcliffe Institute, Harvard.

Dr Jock Hoe is going to the Shanghai Institute of Foreign Languages for two years to teach English and study Chinese Mathematical history.

Dr Duncan Roper has resigned but will continue to live in Wellington as resident tutor with the Foundation for Christian Studies, an independent Christian organization. He has been in the Department since 1967, developing optimization as a Stage III and Honours subject, and supervising several M.Sc. students in the foundations of probability.

The three members at present away on sabbatical, all in England, are Megan Clark, Rob. Goldblatt and John Harper. David Vere-Jones is still in demand for shorter visits overseas (Australia, Fiji and India since the last Newsletter).

J. F. H.

Waikato

The following visitors gave seminars:

- Dr L.W. Szczerba (Warsaw) "Notions in Geometry" on 21 July,
- Dr P. Smrz (Newcastle) "Differential Geometry of Fundamental Groups of Physics" on 25 July,
- Dr K. Ashton (Auckland) "Catastrophe Theory and Biology: some possible Applications" on 27 July (arranged by our Biological Scientists),
- Dr R. Epstein (V.U.W.) "The Infinite in Mathematics" on 8 August,
- Prof. L.C. Woods (Oxford) "Calculation of Stress and Heat Transport in a tenuous Gas without the Impediment of Boltzmann's Equation" on 19 August,
- Dr R. Hamming "Coding and Information Theory" on 6 September (arranged by our Computer People),
- Prof. N.W. Bazley (Cologne) "Bifurcation in non-linear Eigenvalue Problems" on 11 October,
- Dr D. Gauld (Auckland) "The Schoenflies Theorem" also on 11 October,

Dr J. Dempsey (Auckland) "The Stress Singularities in the Plane Elasticity of the composite Wedge" on 18 October, and finally, Dr I. Grattan-Guinness, the NZMS lecturer, who spoke to the department "on the early histories of the Fourier and Laplace transforms", and also to a wider audience on "the history of of mathematics in mathematical education".

Besieged by visitors, we have scarcely had time to congratulate Bill Bolstad ("It's a girl" read the inconspicuous sign posted on his door a fortnight ago), and greet Ray Littler, just back from (very short) leave at Monash.

A recent surge of interest in knots and links of low order ( $n = 3$  to 11) by three knot-theorists in the Department, and their determination to computerize their investigations, has led to much tedious activity in this direction. The 'Knot Group' wishes to express its gratitude to the Department Secretaries who have dutifully coded hundreds of knots from their diagrams.

M. S.

VACANCY FOR STATISTICIAN

NEW ZEALAND DEPARTMENT OF SCIENTIFIC  
AND INDUSTRIAL RESEARCH

*The Applied Mathematics Division requires a mathematical statistician in Auckland to take charge of its substation (staff 3) at the Mt Albert Research Centre of DSIR which houses the Plant Diseases and Entomology Divisions. The Auckland Industrial Development Division and the Auckland branch of the Chemistry Division will be moving there from the city. The Centre occupies 12.5 hectares on the slopes of Mt Albert on the western side of Auckland.*

*The duties consist of advising scientists as to the appropriate mathematical and statistical methods to use in their investigations. The successful applicant will be expected to engage in research in mathematical statistics, especially as applied to biological and industrial problems. The substation possesses a Wang 2200B computer terminal, and access to large computing facilities via the DSIR Computer Network is available.*

*Qualifications desired: honours degree or PhD, with statistics. Consulting experience and ability to deal with people essential, computing experience desirable.*

*Starting salary would be up to NZ\$ 15,324 depending on qualifications and experience, but an exceptionally well qualified applicant could be appointed at a higher level. To help in assessing prospects, an applicant with a first class honours degree, a PhD and five years' experience could be appointed at about \$12,500. Promotion is on merit, and the maximum for scientists without administrative responsibility is \$22,178.*

*For further details write to the Director of AMD, Dr H.R. Thompson, at Box 1335, Wellington.*

CONFERENCES 1978

- Jan. 16-20  
(Monash Univ.,  
Melbourne)      Seventh Biennial Conference of the Australian Association  
of Mathematics Teachers  
Details from M. Stephens, Honorary Secretary, Mathematical  
Association of Victoria, 191 Royal Pde.,  
Parkville, 3052, Victoria, Australia.
- Feb. 5-8  
(Gold Coast,  
Queensland)      1978 Australian Applied Mathematics Conference  
Details from R.D.Braddock, Department of Mathematics,  
University of Queensland, St. Lucia, 4067,  
Queensland, Australia.
- April 4-7  
(New York)      Second International Conference on Combinatorial  
Mathematics  
Details from Louis V. Quintas, Department of Mathematics,  
Pace University, New York, New York 10038, U.S.A.
- May 15-19  
(Christchurch)      1978 Australasian Mathematical Convention  
Details from 1978 Convention Secretary, Department of  
Mathematics, University of Canterbury, Private  
Bag, Christchurch, New Zealand.
- May 18-19  
(Christchurch)      14th Annual Conference of the Operational Research Society  
of New Zealand  
Details from C.A. de Kluver, Economics Department,  
University of Canterbury, Private Bag, Christchurch,  
New Zealand.
- May 24 - 26  
(Chicago)      Eighth Annual International Symposium on Multiple-valued  
Logic  
Details from Anthony S. Wojcik, Eighth ISMVL Symposium  
Chairman, Department of Computer Science, Illinois  
Institute of Technology, Chicago, Illinois 60616,  
U.S.A.
- 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.
- June 26-30  
(Los Angeles)      8th U.S. National Congress of Applied Mechanics  
Details from J.D. Cole, Mechanics and Structures  
Department, School of Engineering and Applied  
Science, University of California, Los Angeles,  
California 90024, U.S.A.
- July 6-14  
(Canberra)      Eighth Conference on Stochastic Processes and their  
Applications  
Details from Dr C.C. Heyde, Conference Organiser 1978,  
Division of Mathematics and Statistics, CSIRO,  
POB 1965, Canberra ACT 2601, Australia.

- July 17-19  
(Manchester)      International Conference on Markov Decision Processes  
Details from The Secretary and Registrar, The Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-on-Sea, Essex SS1 2JY, England.
- 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.
- August 21-25  
(Leiden)           Third ISI COMPSTAT Symposium on Computational Statistics  
Details from COMPSTAT '78, c/- Central Reken Instituut, University of Leiden, Wassenaarseweg 80, Leiden, The Netherlands.
- December 5-8  
(Wellington)      Asian-South Pacific Regional Meeting in Astronomy  
Details from Dr B.M. Lewis, Director, Carter Observatory, Wellington, New Zealand.

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TOPOLOGY CONFERENCE

Mark Schroder (Waikato) tells us that a conference on "Categorical Topology" is to be held at the Free University of Berlin at the end of August 1978, following the International Congress at Helsinki. He would like to know what interest there is among NZMS members in attending the Topology Conference and/or the Helsinki Congress (we do know that both the Incoming Vice-President and the Acting Newsletter Editor of the NZMS are hoping to visit Helsinki). Details of the Topology Conference can be obtained from Prof. Dr. G. Preuss,

Institut für Mathematik I,  
Freie Universität Berlin,  
Hüttenweg 9,  
D-1000 Berlin 33, Federal Republic of Germany.

## 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 (D. G. Hurley, Department of Mathematics, University of Western Australia, Nedlands, Western Australia 6009, 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:

- (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 conference, meetings and occasional publications. Thus NZMS members may join the SEAMS for US\$2.50. Application forms may be obtained from our Secretary.

OTHER N.Z. MATHEMATICAL PUBLICATIONSMathematical 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, Dr. G.D. Dixit and Dr. D.M. Ryan. The subscription is \$10.00 per volume of three issues, with a reduced rate of \$5.00 for individual subscribers and a further reduction to \$4.00 for members of the N.Z. Mathematical Society. The Chronicle welcomes contributions of short research articles and mathematical notes by New Zealand mathematicians.

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.

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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One could say that application's constant relation to theory is the same as that of the leaf to the tree: one supports the other, but the former feeds the latter.

*Hadamard*

THE NEW ZEALAND MATHEMATICAL SOCIETY

Official Address: Mathematics Department,  
Victoria University of Wellington,  
Private Bag,  
WELLINGTON, New Zealand.

## Council for 1977-78:

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THE NEWSLETTER

This Newsletter was compiled for the Council of the New Zealand Mathematical Society by Michael Carter, typed by Marie Tokori and Wendy Sigvertsen and printed by the Massey University Printery. The Editor is particularly grateful to the people who contributed articles and quotations, and to the Honorary Correspondents: Garry Tee (Auckland, Maths.), Cecil Segedin (Auckland, TAM), Mark Schroder (Waikato), John Harper (Victoria), Robert Davies (AMD), Ian Donaldson (PEL), H. Offenberger (Wellington Polytech), Peter Bryant (Canterbury) and Gloria Olive (Otago).

Contributions are invited from any one who has anything to say of interest to the New Zealand 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).