



NEWSLETTER

NUMBER 7

DECEMBER, 1976

FIFTH COUNCIL MEETING

The fifth meeting of the Council was held in the Mathematics Department of Victoria University of Wellington on Saturday 30 October 1976, from 10.30 am. to 5.00 pm. Extracts from the minutes follow:

Relations with Foreign Mathematical Societies

(a) SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS

It has been arranged to exchange our Newsletter for their SIAM News.

(b) AMERICAN MATHEMATICAL SOCIETY

Dr Joyce reported that he has already started sending Newsletters to the A.M.S. The A.M.S. has offered to send us the full copy of their Notices airmail, or a photocopy of the Special Meetings Information Centre Section of the Notices (which we would receive several weeks earlier). Whilst advantages could be seen in getting the fast service (and some mention was made of asking for both!) it was

RESOLVED: That the Society accept the offer from the American Mathematical Society for the full Notices with thanks.

The secretary was asked to check on the state of Reciprocal Membership with the A.M.S.

(c) CANADIAN MATHEMATICAL CONGRESS

RESOLVED: That we approve the setting up of a reciprocal membership arrangement with the Canadian Mathematical Congress in accordance with the letter from their Executive Director, dated 4 August 1976.

(d) JAPANESE SOCIETIES

Professor Vere-Jones was concerned to find that there is at present no scientific exchange agreement between Japan and New Zealand and requested that the Council draw this to the attention of the Royal Society.

RESOLVED: That the document "Scientific Exchange between Japan and New Zealand" from Professor Vere-Jones be forwarded to the Royal Society of New Zealand with appropriate explanation from the secretary and that Professor Vere-Jones be informed.

It was agreed that the secretary enquire of Professor Kalman about developments in exchanging the Chronicle for Japanese Journals.

(e) INSTITUTE OF MATHEMATICS AND ITS APPLICATIONS

Dr Joyce is shortly to visit Great Britain.

RESOLVED: That Dr Joyce be formally asked to make contact with the Institute and that a letter be sent to the Institute informing them of Dr Joyce's visit.

(f) PERMANENT ADDRESS FOR INTERNATIONAL CORRESPONDENCE

The need is felt for a permanent postal address for the Society, especially for international correspondence.

RESOLVED: That an official address for correspondence be established.

Council members had previously been canvassed for suggestions. Also the secretary had made an enquiry of the Royal Society.

MOTION: That the kind offer of Professor Malcolm that the Mathematics Department of Victoria University of Wellington serve as the official address of the Society be accepted.

The discussion over whether the honour thus bestowed on Victoria compensated them for extra (though small) postal costs incurred (which would be charged to the mathematics department) resulted in an

AMENDMENT: That the Society undertake to meet the postal costs incurred. The Motion as amended was CARRIED.

It was thought that this undertaking to meet costs was not a general precedent, as the Society is still dependent upon the goodwill of mathematics departments for secretarial and postal assistance.

Australian Mathematical Society Joint Meeting 1978

Professor Petersen reported on plans for this meeting (his report appears elsewhere in this Newsletter).

RESOLVED: That the Society invite the Mathematical Society of Japan and the South East Asian Mathematical Society to send delegates to the 1978 Colloquium.

Dr Broughan foreshadowed a motion at the May 1977 Council meeting that the Society pay for a lecturer from Australia.

Relations with the Royal Society of New Zealand

(a) NATIONAL COMMITTEE

The Royal Society has reviewed the role of National Committees. New National Committees are to be appointed early next year, nominations for which should be made by 15th March 1977.

RESOLVED: That the restructuring of National Committee be advertised in the Newsletter together with a request for nominations for the new Committee.

The importance of having a National Committee for Mathematics of wide membership was mentioned.

(b) MEMBER BODIES

Dr Davies (our representative) reported on developments within the Royal Society to give more weight to member bodies.

(c) FELLOWSHIP NOMINATIONS

The need for more fellows in mathematics disciplines was strongly felt. A coordination of efforts was supported.

RESOLVED: That Dr Davies approach the other Mathematical Member Bodies about Fellowship Nominations to the Royal Society of New Zealand.

(d) INTERNATIONAL UNION OF THEORETICAL AND APPLIED MECHANICS

RESOLVED: That Council give authority to the Secretary to write to the Royal Society asking that the possibility of New Zealand becoming a member of I.U.T.A.M. be investigated.

(e) AUSTRALIA AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Professor Hayman (Massey University) has been appointed as Local Representative of Mathematicians for the ANZAAS Conference of 1977. He has written seeking guidance.

RESOLVED: That the secretary write to ANZAAS seeking information about the 1977 Conference and inform Professor Hayman.

(f) INTERNATIONAL CONGRESS ON MATHEMATICAL EDUCATION

Gordon Knight's report on the 3rd I.C.M.E. in Karlsruhe, August 16-21, 1976 was circulated (his report appears elsewhere in this Newsletter).

RESOLVED: That Mr Knight's report be received and that he be thanked for providing it. Further, that the treasurer be empowered to pay Mr Knight the \$20 allocated and that a precis of his report be published in the Newsletter.

Publications

(a) NEWSLETTER

Michael Carter of Massey is to be acting editor during Dr Joyce's absence.

RESOLVED: That Council approves payment of \$61.60 to the Massey University Mathematics Department to cover the printing costs of the Employment Brochure and that provision be made for a further amount of up to \$50 to be spent on production of the Education Supplement.

(b) EDUCATION SUPPLEMENT TO NEWSLETTER

Dr Joyce outlined proposals for an Education Supplement containing papers from the 11th Mathematics Colloquium.

RESOLVED: That Dr Joyce be congratulated on the idea of an Educational Supplement and that he and the treasurer organise its distribution.

(c) SUBCOMMITTEE REPORT

Professor Sawyer reported. One or two monographs may be available for us to publish, and Professor Vere-Jones has been in communication with the A.N.U. over possible marketing arrangements. The Proceedings of the forthcoming 1978 Colloquium is a possible project and the Society could publish theses and research reports.

RESOLVED: That the Publications Sub-Committee produce a concrete proposal for the next Council meeting.

(d) EMPLOYMENT BROCHURE

Dr Davies and Dr Joyce reported. The format of subsequent editions would be similar. There was a need for recent graduates to supply summaries of their jobs.

RESOLVED: That Council expresses its appreciation to Doctors Davies, Wake, Romanovksy and Joyce for the production of the brochure "Employment Opportunities in Mathematics" and expresses its firm interest and recommendation to pursue further publication.

(e) POST GRADUATE TOPICS

Professor Woods reported. Subsequent editions would make more attempt at a uniform "house style" and include more advice and information for students.

RESOLVED: That Professor Woods be thanked for compiling the pamphlet.

Professor Woods' offer to do the job next year was accepted.

RESOLVED: That Professor Woods be co-opted to the Publications Sub-Committee.

The extent of distribution of the pamphlet was discussed and Dr Broughan

MOVED: That all members of the Society be given a copy of the Post-Graduate Topics brochure.

The motion was LOST.

The Vice President's Resignation

Professor Malcolm has found his University duties more demanding than he anticipated and tendered his resignation from the Incoming Vice-Presidency but was willing to continue as a member of Council if the Council wished.

RESOLVED: That Council accepts, with regret, the resignation of Professor Malcolm as Incoming Vice-President.

RESOLVED: That Professor Malcolm be co-opted to Council as an ordinary member for the remainder of this Council's term.

Opinions on how this constitutional crisis could be resolved spread between recognising a responsibility of Council to give a firm lead to the membership and taking pains not to appear to wish to pre-empt any wishes of members. On the original schedule, Professor Malcolm would be the President for the 1978 Joint Meeting at Canterbury, and Professor Petersen the Immediate Past-President. The issue was decided by giving members both a lead and plenty of notice.

MOTION: That Council express its intention to put forward Professor Petersen as President for the following year (1977-78).

The motion was CARRIED. Dr Broughan dissented.

Financial

(a) TREASURER'S REPORT

Current balance at B.N.Z. is \$1005.76.

(b) MEMBERSHIP

Membership stood at 122, including 3 honorary, 4 student and 4 reciprocal members. 14 members were not currently financial.

It was considered that now that the Society was beginning to offer tangible benefits to members the time was ripe for a membership drive. To facilitate this it was

RESOLVED: That new members can join as from next year, but receive the benefits of membership immediately.

It was reported that the Editor of the New Zealand Mathematics Magazine had offered to publicize our Society and to circulate material for us free. Some sort of annual report and description of activities, for instance. The Employment Brochure might even be mailed to a subset of their subscribers.

RESOLVED: That the Editor of the New Zealand Mathematics Magazine be thanked for his offer of cooperation in publicizing the Society's activities.

RESOLVED: That a publicity sheet be prepared, inviting membership and outlining aims and past activities of the Society.

RESOLVED: That the treasurer investigate possible institutional membership and report back.

It was suggested that he consult the Associations.

(c) TRAVEL

Professor Seber, in a letter to the treasurer, had expressed misgivings about departments' meeting all the travel costs of delegates to Council meetings such as ours. He supported longer meetings at the Colloquium.

The Council is very conscious of the need for economy (indeed, the choice of Wellington as a venue for this meeting rather than Christchurch was purely for this purpose), but has valued the intermediate meetings during the infancy of the Society as an efficient means of initiating projects.

RESOLVED: That adequate time be scheduled for the Council meeting at the 1977 Colloquium meeting with a view to avoiding the need for an intermediate meeting.

RESOLVED: That reimbursement for travel to the meeting be made to Professor Butcher (\$42), Dr Reilly (\$42), Dr Broughan (\$58), Dr Joyce (\$12), Mr Carter (\$10) and Professor Sawyer (\$82).

A sum of \$250 had been budgeted.

In the Offing

(a) PRIZES AND COMPETITIONS

RESOLVED: That Professor Malcolm be invited to organize an essay competition for 1977.

(b) COLLOQUIUM LECTURE

Professor Nonweiler (the Convenor of the 1977 Colloquium Organization Committee) has written asking about intentions.

RESOLVED: That the President be empowered to organize the 1977 New Zealand Mathematical Society Lecture with the Colloquium organizers and provision be made for up to \$100.

(c) VISITING LECTURER

Dr Broughan moved two motions relating to the implementation of a resolution of the 4th Council Meeting (see p.8 of Newsletter Number 6).

RESOLVED: That each year two Council members be appointed by the President to appoint a visiting lecturer, arrange his/her itinerary, and take responsibility for all other matters incidental to the proposal.

RESOLVED: That a full outline of the lecture(s), including references to introductory material accessible to any person who is not a specialist in the particular field, be provided by the lecturer, published by the Society, and distributed to members and others prior to the commencement of the lecture(s).

Relations with New Zealand Societies

(a) THE MATHEMATICAL ASSOCIATIONS

Professor Petersen reported on cooperation and continued progress towards an Olympiad.

RESOLVED: That Professor Malcolm and Professor Petersen continue the liaison with the Associations.

Negotiations with the Auckland Association over bulk rates for the Mathematics Magazine are proceeding.

RESOLVED: That Doctor Joyce be empowered to correspond with the Auckland Mathematical Association over bulk rate purchases of the Mathematics Magazine and to advertise the arrangements in the Newsletter.

(b) OPERATIONAL RESEARCH SOCIETY

Their Newsletter is being exchanged for ours.

RESOLVED: That Doctor Joyce be empowered to correspond with the Operations Research Society of New Zealand over bulk rate purchases of their Journal and to advertise arrangements in the Newsletter.

Employment

(a) DIPLOMAS

Replies to the President's request for information on the weight given to post-graduate diplomas in appointments and promotion were received from the Department of Education and the State Services Commission.

RESOLVED: That the replies be circulated to Heads of Mathematics Departments and the essence be reported in a Newsletter.

(b) EMPLOYMENT ADVICE

Replies to the Secretary's request for information on employment advice given to mathematics students in tertiary institutions were received from:

Waikato Technical Institute
University of Otago
The University of Auckland
Massey University
Petone Technical Institute
Palmerston North Technical Institute
Hawke's Bay Community College
Auckland Technical Institute
Wellington Polytechnic
Southland Polytechnic
Christchurch Technical Institute

RESOLVED: That the replies to the Employment Advice query be referred to the Employment Sub-Committee and the Newsletter Editor.

General

The secretary was asked to write to the Edinburgh Mathematical Society asking about progress towards reciprocal membership.

A reminder was given that Regional meetings were encouraged. (Minutes of the October meeting 1975, Clause VII).

The secretary was asked to write to the Editors of the Chronicle about the publication of Dr I. Stewart's talk at the 1976 Colloquium and future policy on N.Z.M.S. lecturers.

W.B. Wilson
Secretary

1978 AUSTRALASIAN MATHEMATICAL CONVENTION

A first notice for this event will be circulated in the very near future. It is planned to have the 13th New Zealand Mathematical Colloquium at the University of Canterbury from May 15-19 1978 inclusive, combined with meetings of the New Zealand and Australian Mathematical Societies, and of New Zealand and Australian Mathematical Associations. A committee chaired by Prof. Petersen has been meeting monthly since August to make the necessary arrangements; Prof. Petersen reports:

The proposed dates for the Colloquium fall in the 20th week of the year; that week is common to all Australian Universities while the 19th week is common to New Zealand Universities. It would seem that there is a case here for suggesting to the Vice-Chancellors in New Zealand and Australia the value of settling upon a common week for all Universities in Australia and New Zealand. By choosing to have the meeting during the 20th week we make it possible for the Australian Society to have its Annual General Meeting during the Colloquium rather than a special meeting. This is an important precedent to establish.

In addition to the New Zealand and Australian Mathematical Societies we also hope to attract visitors from New Zealand and Australian Mathematical Associations. We are planning our program to have a wide appeal. Each day we hope to have an important overseas visitor to deliver an hour's address which will be broad enough to appeal to all who may attend. During the rest of the day the group will be divided up into several different streams and these streams will feature 45 minute invited talks as well as contributed papers and splinter groups. At the moment we have about 550 dormitory beds reserved for the week. Since the meetings are going to include those of the New Zealand Mathematical Society, the Australian Mathematical Society, the New Zealand and Australian Mathematical Associations as well as the Colloquium we decided to adopt an overall title for the week and it will be known as the 'Australasian Mathematical Convention'.

Of course much of the success of the program will depend upon our being able to interest overseas speakers in coming to the convention, and to raise funds to fetch them out. I am very grateful to F. Burton-Jones, who was a Fulbright Fellow at Canterbury some time ago, for his aid in interesting various important American mathematicians in the possibility of speaking at the convention. I have myself been in contact with various important English mathematicians and have had varied reactions, from strong interest to outright acceptance of the idea. I am certain that Dr J.M. Hammersley FRS of the University of Oxford will come if we are able to finance the trip. Those of you who have read some of his articles in the Bulletin of the Institute of Mathematics and its Applications will appreciate that he is a man who will most certainly promote discussion of a lively and fruitful nature. There is also the possibility of some of our Pacific neighbours such as the Japanese sending representatives. There may be other possibilities, for instance there are possible funds for a German mathematician to visit. At the same time I have been trying to find ways of financing these visitors both within the University and outside by means of the Fulbright Program and British Council. I am grateful for any ideas which NZMS members may offer as to how such visits may be financed or who I might profitably approach.

There are going to be some mathematicians in Australia at the time whom we are inviting to give talks and I also will be looking for ways to bring them over. When some of the arrangements are more certain I shall be making a further report to members of the Society.

I am grateful to all of the colleagues in my Department who have been assisting me on this and particularly to our Teaching Fellow, Mr N.J. Gale, who has put us in touch with the Associations and has initiated an approach to the Department of Education with a view to making the meeting an in-service training course.

All inquiries and other correspondence concerning the convention should be sent to:

1978 Convention Secretary,
Department of Mathematics,
University of Canterbury,
Private Bag,
CHRISTCHURCH,
NEW ZEALAND.

PROFILES OF NEW ZEALAND MATHEMATICIANS

(1) F. Dagovitch (1910 -)

Born and raised in Dargaville, Dagovitch showed his talent quite early in life - on opening his Bursary Mathematics script, the examiner is reputed to have said "Good God!".

As a young research student, Dagovitch startled the mathematical world with an elementary solution of the 12-body problem. This was subsequently shown to be faulty when the world's first unmanned moon probe wrecked some hothouses near Levin shortly after lift-off. (New Zealand's space programme took some years to recover from this set-back, and other countries claimed the credit for pioneering the field).

Dagovitch is perhaps best known for the theorem which bears his name:

"Every weakly semi-nilpotent linear group is asymptotically almost isomorphic to the tangent bundle of a wild torus".

Concerning this theorem, Mathematical Reviews remarked "the fundamental error occurs in line 4 of the proof".

In later life Dagovitch turned away from research and wrote his celebrated texts:

Calculus Made Even Easier
Explanatory Guide to 'Calculus Made Even Easier'
(2 volumes)
What is Calculus? (sequel to 'Calculus Made Even Easier')

These were translated into Songhai and adopted by the University of Upper Volta at Ouagadougou (this may account in part for the remarkable nature of Upper Voltan mathematics in recent years).

Dagovitch is remembered with tears of laughter by his many students. He now lives quietly with his family, somewhere in the Hutt Valley.

THIRD INTERNATIONAL CONGRESS ON MATHEMATICAL EDUCATION

Karlsruhe, FRG, August 16-21, 1976

Gordon Knight, of Massey University, represented the NZMS at this congress, and his report follows:

General

The three major components of the Congress, which was attended by about 2000 people, were the invited addresses, the discussion groups, and the poster sessions at which individual papers were presented. The proceedings of the congress will be published in book form in 1977.

Invited addresses:

- Prof. Sir James Lighthill - "The Interaction between Mathematics and Society"
- Prof. M.F. Atiyah - "Trends in Pure Mathematics"
- Prof. P. Hilton - "Education in Mathematics and Science Today: The Spread of False Dichotomies"
- Prof. A. Kirsch - "Aspects of Simplification in Mathematical Education"
- Prof. G. Guilbaud - "Mathematics and Approximations"

Discussion groups:

- A1 - Preschool and primary level (age group 4-12)
- A2 - Upper primary and junior high school level (age group 10-16)
- A3 - Senior high school, college and university transition level (age group 15-20)
- A4 - University level (excluding teacher training)
- A5 - Adult and continuing education (including correspondence studies and television)
- A6 - The training and professional life of mathematics teachers
- B1 - Curriculum development
- B2 - Evaluation: methods and results
- B3 - Overall goals and objectives (why do we teach mathematics?)
- B4 - Research related to the mathematical learning process
- B5 - Educational technology
- B6 - Interaction between mathematics and other school subjects
- B7 - The role of algorithms and computers in teaching mathematics at school

Poster-sessions:

The short communications submitted by Congress participants were presented in the poster-sessions, grouped according to the various discussion-group topics. Authors were requested to personally display summaries of their communications on the poster boards provided outside the appropriate discussion-group rooms. They were asked to remain near their poster displays at specified times in order to discuss their communications with interested Congress participants.

Discussion Groups

These were, in my opinion, the most valuable part of the Congress. The major problem was to choose one group from section A and one from Section B to attend.

I attended group A5 on correspondence studies because of Massey's involvement in this area, and group B2 on evaluation because of my experience as a U.G.C. examiner. However, I consider it a great pity that there were not sufficient New Zealanders present to cover all of the discussion groups - I feel sure that we have a contribution to make internationally.

Poster Sessions

These were most successful, at least for those not presenting papers. One was able to read a paper and then ask specific questions of the author in a way that would have been quite impossible in a 15-20 minute presentation. There were also no overlap problems.

There were, in addition, presentations of work by many mathematical education projects (SMP, Open University etc.), study groups and working groups on specific problems, and exhibitions of materials, calculators and books.

General Assembly of the International Commission on Mathematical Education

This was held during the congress and I attended as New Zealand representative. I found the meeting very disappointing. With the exception of the admission of new members, no motions were accepted by the chair. Apparently all decisions (except presumably membership ones) are taken by the Executive Committee, and most items on the agenda were merely presented for information. Furthermore, insufficient time was allowed to complete the agenda.

The only outcome of significance was the support given by the Assembly to the proposal to hold the 4th Congress in the U.S.A. in 1980.

Conclusion

The Congress was an extremely valuable experience for me and I think that the NZMS might be an appropriate body to consider plans to ensure that New Zealand has a larger contingent at the next Congress, with representatives from Primary, Secondary and Tertiary level.

TWELFTH NEW ZEALAND MATHEMATICS COLLOQUIUM

This will be held at Victoria University, Wellington, over the period 9th - 12th May, 1977. A first notice will be posted during December. All enquiries to:

Mrs A. Win,
Mathematics Department,
Victoria University of Wellington,
Private Bag,
Wellington, New Zealand.

BULK RATE FOR OPERATIONAL RESEARCH JOURNAL

The Operational Research Society of N.Z. has offered the NZMS a discount of 25% for bulk purchases of their journal, N.Z. Operational Research. If members wish to take advantage of the bulk rate they should notify the Editor of this Newsletter. Provided at least 25 members are interested, copies of the journal will be sent out with the NZMS Newsletter at a reduced subscription of \$4.50.

VACANCIES

Victoria University will be advertising a vacant lectureship in statistics in 1977. No further information is available at present.

D.S.I.R. Physics and Engineering Laboratory, Lower Hutt, may have two or three vacancies for people interested in mathematical modelling of various systems - agricultural, biophysical and groundwater. No further information is presently available, but anyone interested should contact the Director, Physics and Engineering Laboratory, Private Bag, Lower Hutt.

ROYAL SOCIETY

The Council of the Royal Society of New Zealand, in a Gazette notice dated 21 June 1976, has amended the rules governing National Committees, which are the channels of communication with international scientific bodies. From 1977, each National Committee will normally consist of not more than six members and the NZMS will be asked in February for nominations for the reconstituted National Committee for Mathematics. Since nominations close on 15 March 1977, NZMS members should send any suggestions for nominations to our secretary by 1 February 1977. All members of the present committee (which includes Professors Davidson, Kalman, Petersen, Tate, Vere-Jones and Zulauf, Dr Schroder and Mr Kuzmicich) will be eligible for nomination to the new committee. The secretary would also be interested to receive at any time suggestions for nominations for Fellowships of the Royal Society.

RECOGNITION OF POST-GRADUATE DIPLOMAS

The Council of the NZMS has been investigating the recognition given by employers, with respect to appointments and promotion, of post-graduate diplomas in mathematical subjects. Replies have been received from the Department of Education and the State Services Commission.

The Department of Education regards such diplomas as equivalent to an extension of a degree, one year beyond first degree requirements. Teachers with post-graduate diplomas therefore receive one commencing salary increment. The purpose of this is to compensate a teacher who has had to meet longer course requirements for any loss of teaching salary; it is not recognition of higher status as a teacher, and a post-graduate diploma in itself is given no weight when it comes to the appointment or promotion of staff in secondary schools.

Several Public Service Departments have found post-graduate diplomas very useful for certain specific positions, and employees have sometimes been given paid study leave to undertake these diplomas. It would be expected that the value of the study would be reflected in the subsequent performance of duties, thus increasing promotion opportunities; it is unlikely that a salary increment would be automatically awarded on graduation. However, in the case of a new recruit, a particularly relevant diploma might be taken into account in determining the commencing salary.

EMPLOYMENT BROCHURE

Members will have received a copy of the NZMS brochure "Employment Opportunities in Mathematics" with the last issue of the Newsletter. Copies were also sent to Careers Officers and Mathematics departments in tertiary institutions and to related societies. Comments and suggestions for improvement have been received and it is hoped to produce a revised edition next year. The Sub-committee on Employment would particularly welcome further personal accounts of the work experiences of mathematicians in teaching, government and industry. These, and any other material, should be directed to Dr R.B. Davies, Applied Mathematics Division, DSIR, P.O. Box 1335, Wellington.

LOCAL NEWSAuckland: Department of Mathematics

Bruce Hutton has completed his Ph.D. with Warwick University and has been appointed as a Junior Lecturer.

Dr Stuart Scott recently attended a Ring Theory Seminar at Oberwolfach, and will return to our Department as a part-time lecturer in 1977.

Dr Fred Chipman, a numerical analyst from Acadia University (Nova Scotia) is spending a sabbatical year here.

Dr I.N. Herstein, of the University of Chicago, was a visitor in July and August, during which period he gave a 12-lecture course on ring theory, and a seminar on "Theorems of Dichotomy".

Professor René Thom visited the Department in August, and gave seminars "On Analytical Gradients" and "The Applications of Catastrophe Theory". He also addressed the Linguistic Society Conference on "The Problem of Linguistic Universals".

Professor Frank Harary, of the University of Michigan, gave a seminar on "Independent Discoveries of Graph Theory".

Professor Tom Berger gave a seminar on "Applications of Representation Theory on Soluble Groups".

Dr R. Littler, of Waikato University, gave a seminar on "A Conservative Property of some Stochastic Models in Genetics".

Dr P. Hill, of Waikato University, gave a seminar on "Optimal Experimental Design".

Dr N.R. Cox, of Ruakura, spoke on "Maximum Likelihood Estimation In a Linear Structural Relationship Model".

The series of seminars on Catastrophe Theory by members of the Department has continued, with the following seminars being given:

- Mr K. Ashton, on: "Applications in Biology" (two lectures)
- Dr I. Stewart, on: "Psychological Disorders"
- Dr W. Flinn, on: "A Dynamic Model for the Heartbeat".

Other seminars given by members of the Department included:

- Professor G.A.F. Seber, on: "The Line Transect Method for Estimating Ground Cover"
- Professor D. Brillinger, on: "Period Three Implies Chaos"
- Associate-Professor D.A. Nield, on: "Period Three Implies Chaos (not continuing) in Fluid Mechanics"
- Dr G. Baird, on: "Period Three Implies Chaos (continuing)"
- Miss D. Sim, on: "Applications of Semi-Markov Processes to Problems in Medicine"
- Dr S. Scott, on: "Some Topics in Near Rings"
- Mr M.A. Erceg, on: "Some Pointless Concepts in Set Theory"
- Dr D. Rhoades, on: "Stochastic Integral Equations in Least-Squares Filtering Problems"
- Dr R. Jewett, on: "Transformations of Fields"

Auckland: Department of Theoretical and Applied Mechanics

Dr Eric Ritchie, on sabbatical leave from the Department of Operational Research in the University of Lancaster, has been spending a full and active year in this Department. His New Zealand colleagues were delighted a few weeks ago to learn that he had just graduated PhD from the University of Lancaster.

Dr Roland Horne, after graduating PhD in this Department was appointed as an Energy Research Fellow working on geothermal studies under Dr M.J. O'Sullivan. He has recently left to join the Department of Chemical Engineering at Stanford University in California where, as an Assistant Professor, he is continuing his work on convective flows.

Dr George Zyvoloski has been appointed to fill the vacancy caused by Roland Horne's resignation. He comes from Santa Barbara, California (the equation of continuity thereby being satisfied), and has worked on flow in porous media and on finite element techniques.

Earlier this year we were pleased to learn that J.L. Crawford, a final year Engineering Science student, was awarded the Operational Research Society's Student Paper Prize for his paper on the scheduling of beer tankers. This follows the achievement of C.J. Hardley, also in this Department, who won the prize the previous year with his paper on cutting of steel strips.

Since the last news of this Department appeared, there have been two doctoral successes. Late last year Chris Rutherford completed his PhD for work on the simulation of water quality in rivers and more recently Barry Davidson has graduated, his thesis being concerned with the elastic stability of frameworks.

C.M.S.

Canterbury

Derrick Breach is spending his study leave in the Department of Combinatorics and Optimization, University of Waterloo, Canada, and Bill Taylor has gone on study leave to the Mathematics Department, Westfield College, London. Murray Smith has returned from 10 months' leave in the Mathematics Department, University of Sussex. He saw the advantage of the high staff-student ratio there in the benefits resulting from an intensive tutorial system.

P.J.B.

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

Robert Davies recently spent 8 weeks in Australia attending the 3rd Australian Statistical Conference and visiting the C.S.I.R.O. Division of Mathematics and Statistics. The trip was part of a continuing series of visits to the Division of Mathematics and Statistics by members of A.M.D. and vice versa.

R.B.D.

It is a safe rule to apply that, when a mathematical or philosophical author writes with a misty profundity, he is talking nonsense.

A.N. Whitehead

Massey

Adrian Swift returned from overseas leave in July. Most of his time was spent at the University of Aston in Birmingham, and at the University of Manchester. He has brought back many new mathematical ideas, and also a quantity of equipment for his model railway system.

Gordon Knight took a short period of overseas leave during August and September, mainly for the purpose of attending the Third International Congress on Mathematical Education, held in Karlsruhe, Germany. He represented the NZMS at the Congress, and a brief report appears elsewhere in this Newsletter.

Under the able leadership of Les Foulds and Mike Hendy, a number of mathematics, statistics and computing staff were involved during October and November in a self-help summer school on algorithmic methods in graph theory.

Seminars given in the department recently include:

Les Foulds (Massey)	:	"A Problem Concerned with Traffic Congestion"
Adrian Swift (Massey)	:	"Another Look at Single Non-Linear Equation Solving"
Don Joyce (Massey)	:	"Some Pleasing Results in Numerical Analysis"
Douglas Bridges (Buckingham)	:	"An Introduction to Constructive Analysis"
		"Constructive Aspects of Compactness"
		"Integration and Probability in a Constructive Setting"
Gordon Knight (Massey)	:	"The 3rd International Congress on Mathematical Education"
J.P. Tham (Massey)	:	"Vehicle Scheduling Algorithms"
David Ratkowsky (CSIRO, Hobart)	:	"Interpretation of Multivariate Data Sets"

Ministry of Agriculture and Fisheries, Biometrics Section

Dr John Revfeim left in June for a year's leave as a visiting Research Fellow at the University of Edinburgh.

Ms Elizabeth Robinson resigned in May to go overseas.

Dr Neil Cox returned to Ruakura after completing his dissertation under his namesake at Imperial College, London.

Dr Dave Johnson returned to Ruakura in September. He has been studying Quantitative Genetics at the University of Edinburgh. On his way back he is attending the 9th International Biometrics Conference in Boston.

Harold Henderson began study leave in July. He will begin work on a PhD at the Biometrics Unit of Cornell University.

Don Wright and Dave Saville have left Head Office to establish Regional Biometrics Units at Palmerston North and Christchurch respectively.

Several new Biometricians have been appointed:

Lilian Morrison and Alison Lister after graduating from Massey and John Waller after graduating from Auckland. John Jowett has joined us from the Ministry of Works and Development and Jim Courtley from the Ministry of Transport.

Chris Wallace, formerly of VUW Information Science, has been appointed Scientist in the Programming Section.

Otago

Dr J. Clarke and Mr J.A. Harraway have both returned from their Refresher Leaves - and both have been promoted to Senior Lectureships.

Mr G.H. Murdoch, who has been a Senior Demonstrator, has been appointed to an Assistant Lectureship.

Dr J.H. Harris and Dr H. Levy will be on leave starting in November. Dr Harris expects to spend most of his leave at Princeton University and Dr Levy will spend his at the University of London.

Dr G.F. Liddell presented a paper on "A Semantics in Debates" at the Vacation School in Logic which was held at V.U.W. in August. He also gave a paper on "Logic for Indefinite Propositions" at the Annual Conference of the Australasian Association for Logic, which was held in Canberra in October.

Professor A. Levine of Tulane University visited the Department from July 21 to August 31, and continued his collaboration with Professor Mandel on monitoring adverse reactions to drugs. We have also had short visits and lectures by Dr I.N. Stewart of the University of Warwick, Professor F. Harary of the University of Michigan, and Professor René Thom of the Institut des Hautes Études Scientifiques.

G.O.

Victoria

Lindsay Johnston is soon to go on sabbatical leave to England, mainly to the Institute of Educational Technology, University of Surrey.

Rob Goldblatt will be spending the long vacation as a Visiting Scientist at Simon Fraser University, with brief visits to other Canadian Universities, working mainly on modal logic.

John Harper was awarded the N.Z. Geophysics Prize for 1976.

Nine visitors (7 from overseas, 2 N.Z.) gave seminars this year in the Mathematics Department and in the Institute of Operational Research and Statistics, in addition to the many who came to the August Vacation School of Logic. We now almost feel in touch with the rest of the civilised world, in spite of the N.Z. Mathematics Colloquium again not being held in our vacation!

J.F.H.

Waikato

Dr P.D.H. Hill arrived at the start of term III to fill the vacancy left by Dr Durling's departure. He submitted his autobiography: "Wanganui Boys' College and Auckland Grammar School administered my early education and I graduated M.Sc. in mathematics from Auckland University in 1972. My interests at that time oscillated between algebra and statistics. After one and a half years as a junior lecturer in Auckland I took up a Commonwealth Scholarship in Glasgow to study statistical inference and data analysis. With the help of Professor David Silvey my research involved applying the methods of optimal experimental design theory to problems of discriminating between rival regression models. This research was mainly theoretical but Professor John Aitchison (also at Glasgow University) was involved in statistical problems of medical discriminatory diagnosis. My wife being a doctor, my future interest lies mainly in this area of the analysis of medical data."

To go by the seminars and films shown in term III, we must have hit rock bottom ... Dr R.D. Adams, of the DSIR Seismological Observatory, described "the Earth - a Mathematician's Laboratory", and a fortnight later, his colleague Dr M.J. Randall spoke on "Fracture Mechanism in Earthquakes". To complete our adsorption onto Earth Sciences, we had a double bill from the National Film Library, "Maui One - Oil from the Sea" and "Drifting of the Continents". (These followed earlier showings of "Flare on the Sun", "Ways of Water" and "Stratified Flow".)

Other seminars were given by Professor Zulauf on "Bernoulli Sums and some Number-theoretic Applications", Dr V.S. Vinge of San Diego State on "Approximation by Polynomials" (he also spoke with feeling about the opportunities denied teachers in the less well-endowed American universities), Dr Urch on "Charged Particle Diffusion in Turbulent Magnetic Fields", Dr N. Cox of Ruakura on "Regression with both Variables subject to error", and not least, a pellucid talk by Dr I. Stewart of Warwick University on "Lie Algebras".

In addition, the last week of term was enlivened by Dr Hill, who spoke on his speciality, by an "employment guide for statisticians" for our senior students (but useful for us as well), with a panel of Dr B. McRae, a local mathematical economist, and Dr C. Dyson, Dr Cox and Ms C. Robinson (one of our recent graduates), all from Ruakura, and by an end-of-season barbecue.

During the wettest winter of all time (AD, anyway), one of us experienced one of the less winning Ways of Water : namely, that habit it has of rising when it can't get away. It rose four feet up the living room walls - nor did it spare the kitchen or anything else - and thereby won Bill Bolstad a few seconds immortality on TV2 News at Six.

When its assets fell from the sky rather faster than the Dow-Jones index, the club needed a new name - so Franklin Sneyd is now president of the "Society for Theoretical Gliding".

M.S.

Wellington Polytechnic

On the evening of 8th November, the mathematics staff of Wellington Polytechnic, Wellington Teachers' College and Victoria University cooperated in a joint meeting to tell 6th and 7th form mathematics pupils their teachers and careers teachers what courses are being offered in mathematics and its applications at these institutions, and to give information about careers with a major mathematical content.

H.O.

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THE KANIA COLLECTION

Mr Peter Kania taught mathematics at several high schools, and for many years was a lecturer at Auckland Teachers' Training College. He died in May 1976, at the age of 73, and his widow most generously presented his extensive mathematical library to the University of Auckland Mathematics Department. The collection (of 2,000 books and journals) is particularly rich in books on mathematical logic, recreational mathematics and mathematical education. The Department has distributed the books to the libraries of the University of Auckland, the Auckland Mathematical Association and the Amateur Radio Association.

CONFERENCES 1976-77

- Dec.15 - 17
(Tampa) Conference on Rational Approximation with Emphasis on Applications of Padé Approximants
Details from E.B. Saff, Department of Mathematics,
University of South Florida, Tampa,
Florida 33620, U.S.A.
- Dec.27 - Jan.1
(Varanasi) International Dedication Seminar on Recent Advances in Mathematics and its Applications
Details from R.S. Mishra, Department of Mathematics,
Banares Hindu University, Varanasi,
Uttar Pradesh 221005, India.
- Dec.27 - Jan.1
(Calcutta) Advanced Mathematical Techniques in Physical Sciences
Details from M. Dutta, Centre of Advanced Study in
Applied Mathematics, 92 Acharya Prafulla
Chandra Rd., Calcutta 700009, India.
- Jan.3 - 5
(Bedford) Mathematical Aspects of Homogeneous and Heterogenous Combustion
Details from Secretary and Registrar, Institute of
Mathematics and its Applications,
Maitland House, Warrior Square,
Southend-on-Sea, Essex SS1 2JY, U.K.
- Jan.4 - 7
(Barbados) 2nd Caribbean Conference in Combinatorics and Computing
Details from C.C. Cadogan, Department of Mathematics,
University of the West Indies, P.O. Box 64,
Bridgetown, Barbados, West Indies.
- Jan.10 - Feb.14
(Armidale) 17th Summer Research Institute of the Australian Math.Soc.
Details from G.R. Morris, Department of Mathematics,
University of New England, Armidale,
New South Wales 2351, Australia.
- Jan.10 - 14
(Kyoto) Symposium on Algebraic Geometry
Kyoto University, Kyoto, Japan.
- Jan.27 - 28
(St. Louis) 1976-1977 Annual Meeting of the Association for Symbolic Logic
Details from K. Kunen, University of Wisconsin, Madison,
Wisconsin 53706, U.S.A.
- Jan.27 - 31
(St. Louis) M.A.A./A.M.S. 83rd Annual Meeting
- Feb.6-9
(Terrigal) 1977 Australian Applied Mathematics Conference
Details from N.G. Barton, School of Mathematics,
University of New South Wales, P.O. Box 1,
Kensington, New South Wales 2033, Australia.
- 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.
- June 3 - 4
(Toronto) Gauss Bicentennial Symposium
Details from G. de B. Robinson, Ontario Science Centre,
Toronto, Ontario, Canada.
- June 27 - July 1
(Keszthely) Symposium on Universal Algebra
Details from A. Huhn, Bolyai Janos Matematikai Tarsulat,
Pf 240, 1368 Budapest, Hungary.

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

A PROBLEM IN COMBINATIONS

There are 16 teams, and 8 sports. Each team is to play each sport once and once only, and is to play no team twice. Can this be arranged? Can this be arranged in an 8×8 matrix (timetable) so that no team is playing two sports at once?

Mark Schroder (Maths. Dept., University of Waikato, Hamilton) would be interested in solutions or comments on this one. No prize!

RECIPROCITY AGREEMENTSAustralian 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.

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.

The teaching of logic is detrimental to reasoning

Set theory is rich because of its intrinsic poverty.

René Thom

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 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 \$4.00 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. A bulk rate scheme for NZMS members is described elsewhere in this Newsletter.

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.

OFFICERS FOR 1976-77

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	Dr Robert Davies	(AMD, DSIR)
	Professor Desmond Sawyer	(Otago)
	Professor Brian Woods	(Canterbury)
	Professor Wilf Malcolm	(Victoria)

THE NEWSLETTER

This Newsletter was compiled for the Council of the New Zealand Mathematical Society by Michael Carter and Donald Joyce, typed by Lyn Stening and printed by the Massey University Printery. The Editors are 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), Murray Jorgenson (Min.Ag.Fish, Biometrics Section), 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 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).