

# The First 25 Years of the New Zealand Mathematical Society

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Invited Address to the 1999 New Zealand Mathematics Colloquium,  
University of Canterbury, July 6 to 9.

## FOUNDING OF THE NZMS

In 1966, the first New Zealand Mathematics Colloquium was held at Victoria University of Wellington. A New Zealand Mathematics Colloquium has been held each year since then, except for the years of the Second and Third Australasian Mathematics Conventions (1981 and 1985) and of the Australian Bicentennial National Mathematical Sciences Congress (1988) [Tee]. (The 1978 New Zealand Mathematics Colloquium formed part of the First Australasian Mathematics Convention, at the University of Canterbury.)

The Colloquia have been very useful, in enabling mathematicians in New Zealand annually to meet other mathematicians, some from overseas but mostly from within New Zealand.

The Colloquium has no permanent base, and no permanent organization. The Departments of Mathematics at each of the 6 universities in New Zealand, in cyclic order (with some variations), set up a committee to organize a Colloquium. Each successive organizing committee (after the first) has received from the previous committee a file of recent documents, the residual money; and (since 1975) the Colloquium Bell, which was donated by Dr Gloria Olive, as a physical embodiment for the Colloquium. The new committee opens a bank account with the, residual money received, the Bell is ceremonially rung at the Colloquium, and the Colloquium closes with the formal transfer of the Bell to the host institution for the next Colloquium. The organizing Committee settles its accounts, closes its bank account, and transfers the residual money to the successor organizing committee. Archives of the Colloquium are stored at the Royal Society of New Zealand.

From 1969 onwards, there was much discussion about the formation of a mathematical society in New Zealand, with Bernhard Neumann (ANU) corresponding extensively about the proposal. At the 1973 Colloquium (at the University of Waikato), the Business Meeting approved in principle the formation of a New Zealand Mathematical Society, and appointed a drafting committee to draft proposals for such a society. That committee produced bulky documentation, which it presented at the Business Meeting of the 1974 Colloquium, at the University of Auckland. After vigorous discussion, the Colloquium delegates decided to follow that Business Meeting by a meeting to found the New Zealand Mathematical Society [Tee].

At the Annual General Meeting in 1975 there were 105 members of the NZMS. Since then, the membership has mostly varied between 200 and 300 members.

## ACTIVITIES OF THE NZMS

Each Annual General Meeting of the New Zealand Mathematical Society has been held at the New Zealand Mathematics Colloquium; except that in 1981, 1985 and 1988 the AGM was held at a conference in Australia which many members attended and no Colloquium was held in New Zealand. During the past few years, the New Zealand Mathematical Society has played an increasing role in providing coordination and continuity for the series of Colloquia - but the organizing committee at the host institution for each year has remained responsible for planning and operating its Colloquium.

The NZMS became an affiliate of the Royal Society of New Zealand, and it has played a significant role in the development of the mathematical sciences in New Zealand. Reciprocity agreements have been arranged with the American Mathematical Society, Australian Mathematical Society, Edinburgh Mathematical Society, Mathematical Society of Japan, London Mathematical Society and the Southeast Asian Mathematical Society. Under those agreements, members of the NZMS can become members of any of those societies for a reduced fee, and conversely.

The NZMS has arranged various thesis competitions and essay competitions with prizes for students, and it has provided financial assistance for students to attend New Zealand Mathematical Colloquia, and some conferences overseas. The 1995 AGM was held at the Colloquium at the University of Otago, in association with the A. C. Aitken Centenary Conference. Starting with that 1985 AGM, the NZMS has awarded an Aitken Prize to one (or more) students, for the best Contributed Talk given by a student at the Colloquium. The New Zealand Mathematical Olympiad Committee has been supported since 1990 by the NZMS, to encourage secondary students to participate in the International Mathematics Olympiad. The NZMS has assisted various members with travel grants, to enable them to attend conferences overseas.

## NZMS PRESIDENTS

Most of the leading mathematicians in New Zealand have been President of the NZMS. From 1974 to 1985 the term of office was 1 year, but then it was changed to 2 years.

|           |                    |           |                      |
|-----------|--------------------|-----------|----------------------|
| 1974-1975 | David Vere-Jones   | 1975-1976 | John C. Butcher      |
| 1976-1977 | Gordon M. Petersen | 1977-1978 | Gordon M. Petersen   |
| 1978-1979 | Graeme C. Wake     | 1979-1980 | John C. Turner       |
| 1980-1981 | W. Dean Halford    | 1981-1982 | David B. Gauld       |
| 1982-1983 | Jim H. Ansell      | 1983-1984 | William Davidson     |
| 1984-1985 | Michael R. Carter  | 1985-1987 | Ivan L. Reilly       |
| 1987-1989 | Brian Woods        | 1989-1991 | Gillian Thornley     |
| 1991-1993 | Derek Holton       | 1993-1995 | Marston D. E. Conder |
| 1995-1997 | Douglas Bridges    | 1997-1999 | Rob I. Goldblatt     |

## HONORARY MEMBERS

At the 1974 meeting which founded the NZMS, the drafting committee had intended to get Bernhard Neumann elected as Honorary Life Member - but he immediately paid the first subscription. Accordingly, Emeritus Professor Henry George Forder (University of Auckland) and Emeritus Professor Jim Campbell (VUW) were elected as the first Honorary Life Members. However, the first Annual General Meeting of the New Zealand Mathematical Society (at the 1975 Colloquium, at the University of Otago) elected Bernhard Neumann as Honorary Life Member, before he could pay a second subscription.

Vaughan F. R. Jones graduated MSc (1st class Honours in Mathematics) from the University of Auckland in 1974. In 1990 he was elected a Fellow of the Royal Society of London, and was awarded a Fields Medal for his revolutionary work in knot theory. In 1991 the NZMS made him an Honorary Life Member.

He is based at the University of California - Berkeley; and in 1992 he accepted a permanent part-time appointment as Alumni Distinguished Professor of Mathematics at the University of Auckland. In 1999 he was elected a Member of the American National Academy of Sciences.

Some members of the NZMS have been made Honorary Life Members upon their retirement.

|      |                                                |      |                     |
|------|------------------------------------------------|------|---------------------|
| 1974 | Henry George Forder and Jim T. Campbell        | 1975 | Bernhard Neumann    |
| 1982 | Cecil M. Segedin and H. Stan Roberts           | 1984 | Gordon M. Petersen  |
| 1987 | William Davidson                               | 1987 | Desmond Sawyer      |
| 1990 | Gloria Olive                                   | 1991 | Vaughan F. R. Jones |
| 1994 | John A. Kalman, John C. Turner and Brian Woods |      |                     |
| 1998 | John C. Butcher and Garry J. Tee               |      |                     |

## NZMS VISITING LECTURERS

The NZMS has arranged for many distinguished mathematicians to tour the universities in New Zealand, as NZMS Visiting Lecturers. A few of those NZMS Visiting Lecturers have been based in New Zealand, but most of them have come from overseas.

|      |                                          |      |                          |
|------|------------------------------------------|------|--------------------------|
| 1977 | Ivor Grattan-Guinness [Grattan-Guinness] | 1979 | George Andrews [Andrews] |
| 1980 | Joe Gani [Gani 1981]                     | 1981 | Ivar Stakgold            |
| 1982 | Graham Read                              | 1983 | Trevor Boyle [Boyle]     |
| 1984 | Hassler Whitney [Whitney]                | 1985 | William Luxemburg        |
| 1986 | Terry Speed                              | 1987 | Saunders Mac Lane        |
| 1988 | Lee Peng Yee                             | 1989 | Ren B. Potts             |
| 1990 | David S. Moore                           | 1991 | Douglas Bridges          |
| 1992 | John Loxton                              | 1993 | Andreas Dress            |
| 1994 | Colin MacLachlan                         | 1985 | Roger Grimshaw           |
| 1996 | Valerie Isham                            | 1997 | Hyam Rubinstein          |
| 1998 | John Fauvel                              |      |                          |

## FORDER LECTURERS

Professor Henry George Forder (1889-1981) came from England in 1934, to become Professor of Mathematics at Auckland University College. He did much to advance mathematics in New Zealand, and his writings gained him an international reputation as a leading geometer. After his retirement in 1954 he continued to teach regular courses for 15 years, and in 1974 the NZMS elected him and Emeritus Professor Jim Campbell (VUW) as its first Life Members. On his retirement, Professor Forder presented a priceless collection of books and journals to the Library of the University of Auckland. In his will he bequeathed to the university of Auckland the residue of his library (with some very valuable books) plus a substantial sum of money, with the rest of his estate bequeathed to the London Mathematical Society. That Forder Bequest proved to be literally an embarrassment of riches for the London Mathematical Society. The LMS and the NZMS engaged in prolonged negotiations about the best way to use the Forder Bequest, with the Secretary of the LMS coming to New Zealand to finalize the agreed arrangement. Under that arrangement, the LMS uses the income from the Forder Bequest to send eminent mathematicians from the U.K. to New Zealand as Forder Lecturers, touring the universities of New Zealand.

|      |                       |      |                            |
|------|-----------------------|------|----------------------------|
| 1987 | E. Christopher Zeeman | 1989 | Sir Michael Atiyah, P.R.S. |
| 1991 | Peter Whittle         | 1993 | Roger Penrose              |
| 1995 | Elmer G. Rees         | 1997 | Ian Stewart                |
| 1999 | Sir Michael Berry     |      |                            |

## NZMS COLLOQUIUM LECTURES

Since 1975, the NZMS has sponsored a series of NZMS Colloquium Lectures, which have been given at the New Zealand Mathematical Colloquia (or at a replacement conference in Australia).

- 1976 Ian Stewart, "Catastrophe theory" [Stewart]
- 1977 Joe Gani, "Early mathematical models in epidemiology and genetics" [Gani]
- 1978 P. A. Moran, (1st Australasian Mathematics Convention, Christchurch), "Asymptotic analysis and fixed-point theorems"
- 1979 Wojciech Wojtyński, "The present and future of infinite-dimensional Lie groups and Lie algebras" [Wojtyński]
- 1980 Rob I. Goldblatt, "Categories and creative ideas"
- 1981 C. T. C. Wall, (2nd Australasian Mathematics Convention, Sydney) "Stability of singularities of smooth maps" [Wall]
- 1982 David B. Gauld, "Geometric topology: a small sample" [Gauld]

- 1983 Jim H. Ansell, "From seismology to singular value decomposition" [Ansell]
- 1984 William B. Bonnor, "The present state of general relativity"
- 1985 Vaughan F. R. Jones (3rd Australasian Mathematics Convention, UNSW), "Hecke algebras, von Neumann algebras, knots and braids" [Jones]
- 1988 John C. Butcher, (Bicentennial Mathematical Sciences Congress, Canberra) "Numerical ordinary differential equations and mathematics"
- 1989 Cheryl Praeger, "Designs and groups"
- 1990 Gillian Thornley, "Differential geometry - connections!" [Thornley]
- 1991 Vaughan F. R. Jones, "Knots, braids, statistical mechanics and von Neumann algebras"
- 1992 John Loxton, "Numbers in chaos, or a state of sin"
- 1995 Hans Schneider, "Aitken's student: a personal memoir"
- 1996 Mikhail Gromov, "Problems in Riemannian geometry"
- 1997 John C. Butcher, "An introduction to Padé approximations with an application"
- 1998 Leslie C. Woods, "The Tokamak disaster"

## NZMS PUBLICATIONS

The NZMS Newsletter is the most extensively-read publication of the NZMS. Number 1 was published in May 1974, and 3 or 4 issues have been published each year since then, with No.75 being published in April 1999. As with newsletters of similar societies, it provides the members with information about activities of the society, plus a variety of articles, reports, announcements and reviews; with some Supplements on Mathematics Education, Lists of Theses and Employment Opportunities.

Some articles in the Newsletter have been reviewed in *Mathematical Reviews* and in *Computing Reviews*. Gordon Knight's article on "Student evaluation of mathematical learning" was reprinted in *Canadian Mathematical Congress Notes*, and also in *SIAM News* [Knight]. William Francis Hawkins, in the course of his research for his Ph.D. on "The Mathematics of John Napier, 1550-1617" (University of Auckland, 1982), discovered that John Napier had published in 1617 a complete specification of his Promptuary for multiplication, which has a strong claim to be regarded as the first calculating machine. The Engineering technicians at the University of Auckland built a working Promptuary from Hawkins's translation of Napier's Latin text, and he demonstrated it at the 1979 New Zealand Mathematics Colloquium (University of Waikato).

Hawkins's article was published in the NZMS Newsletter, and it was reprinted in *Annals of the History of Computing* [Hawkins]. At the 1980 Colloquium (University of Auckland) Charles Rees (on leave from the University of New Orleans) gave an Invited Address on "Egyptian fractions", which was published in the NZMS Newsletter and also in the *Mathematical Chronicle* [Rees]. Some later publications on Egyptology have cited that paper.

In 1980, the NZMS published a short monograph on "Partitions: Yesterday and Today", by George E. Andrews (Pennsylvania State University), who was the NZMS Visiting Lecturer in 1979.

Many mathematicians had been concerned about the lack of textbooks suitable for secondary school and university students in New Zealand, and about the high prices charged for textbooks. Accordingly, the NZMS Council decided in 1979 to start publishing textbooks, to be written by members of the NZMS, to be sold at prices which students could afford. The secondary school textbooks included the two Mathematics Syllabus texts for students taking Bursary-level Calculus and Statistics; and the Seventh Form Applied Mathematics texts on Modelling Activities, Probability and Statistics, Computing and Numerical Mathematics, and Mechanics. The university texts included "STATUS: A Statistical Computing Package", "Calculus" and "Linear Algebra". The text "Linear Algebra" has sold well, and "Calculus" has sold very well, having been adopted for courses in most of the New Zealand universities and in some Australian universities.

In 1984 I reviewed two textbooks on numerical analysis, for the *Bulletin of the Institute of Mathematics and its Applications*. I criticized both books, which contain very many serious mistakes. The Editor of the *Bulletin of the IMA* told me that she dared not publish my critical reviews. At that period, one English judge was in the habit of sentencing publishers of critical reviews to pay enormous sums in damages, to the publisher of the book being

criticized. John M. Curran (University of Otago) was then Editor of the NZMS Newsletter. I offered my reviews to him, and he courageously published them in NZMS Newsletter No. 32 (December 1984) - after he had checked that the bank balance of the NZMS then was \$448. John Curran correctly decided that not even the most meticulous of libel lawyers would think that it was worthwhile to prosecute a society with such meagre funds!

When the NZMS was founded, an auditor accepted the invitation from the society to become its Honorary Auditor, to examine and certify the annual balance sheet. Professional auditors regard it as one of the duties of their profession to provide their services to worthy and impecunious societies, without charge. Soon after John Curran had cautiously checked the society's bank balance and found it to be encouragingly minute, the sale of textbooks began to transform the society's finances. A few years later, the Honorary Auditor presented his certification of the balance sheet for the AGM of the NZMS, with the comment that what had been an impecunious professional society a few years previously was now a prosperous publisher. He tactfully suggested that the NZMS should thereafter pay an auditor for his professional services!

The profits from publication made it possible for the NZMS to provide travel grants to students and to mathematicians, to attend conferences.

In 1992 the NZMS came to an agreement with the Department of Mathematics at the University of Auckland, to publish jointly the New Zealand Journal of Mathematics. Twenty volumes of the Mathematical Chronicle had been published by that Department of Mathematics, and the NZJM is regarded as a successor to the Mathematical Chronicle. Accordingly, the volumes of the New Zealand Journal of Mathematics have been numbered from 21 upwards, with Volume 28 No.1 being published in April 1999. From the first issue (volume 21), the NZJM has been accepted as a significant international mathematical journal, with some eminent mathematicians contributing papers, and with the papers being regularly reviewed in Mathematical Reviews and other major reviewing journals. Whilst Filip Saidak was still an undergraduate at the University of Auckland, he was corresponding with some of the leading researchers in number theory. In particular, in reply to a letter from Filip Saidak, Paul Erdős (in August 1996) commented on Filip's letter, enclosed some relevant offprints, and sent a photocopy of a 15-page manuscript on "LLProblemism number theory". That proved to be one of the last letters written by Paul Erds. Erdős's manuscript was published in the NZJM in memory of Paul Erdős [Erdős], with a Note by the Editor explaining that Erds had sent the manuscript to Filip Saidak, who had made it available for publication.

## NZMS NEWSLETTER CENTREFOLDS

The NZMS Newsletter has published a series of Centrefolds, in the form of an article (with photograph) about a mathematician in (or from) New Zealand. Those Centrefolds have remained one of the most popular features of the Newsletter.

|    |               |                          |    |               |                            |
|----|---------------|--------------------------|----|---------------|----------------------------|
| 18 | August 1980   | John Charles Butcher     | 19 | December 1980 | Henry George Forder        |
| 20 | March 1981    | Cecil Marin Segedin      | 21 | August 1981   | W. Ian Axford              |
| 22 | December 1981 | Peter Whittle            | 23 | April 1982    | Jim T. Campbell            |
| 24 | August 1982   | David Vere-Jones         | 25 | October 1982  | Derek F. Lawden            |
| 28 | August 1983   | David Spence             | 29 | December 1983 | Gordon M. Petersen         |
| 30 | April 1980    | William Davidson         | 31 | August 1984   | John Darwin                |
| 32 | December 1984 | Desmond Sawyer           | 33 | April 1985    | Wilf Malcolm               |
| 34 | August 1985   | Alex McNabb              | 35 | December 1985 | Gordon Bookings            |
| 36 | April 1986    | Michael Saunders         | 37 | August 1986   | Vaughan F. R. Jones        |
| 38 | December 1986 | Graeme C. Wake           | 40 | August 1987   | Achim Zulauf               |
| 43 | August 1988   | Peter Lorimer            | 44 | December 1988 | Brian Hayman               |
| 45 | April 1989    | Gloria Olive             | 46 | August 1989   | W. Brent Wilson [obituary] |
| 47 | December 1989 | Bernhard H. Neumann      | 48 | April 1990    | Leslie C. Woods            |
| 49 | August 1990   | Derek Holton             | 50 | December 1990 | David J. Benny             |
| 51 | April 1991    | Mervyn S. Rosser         | 52 | August 1991   | Douglas Clark Harvie       |
| 53 | December 1991 | Rob W. Goldblatt         | 54 | April 1992    | Garry J. Tee               |
| 55 | August 1982   | George A. F. Seber       | 56 | December 1992 | Bryan F. J. Manly          |
| 57 | April 1993    | Roger Penrose            | 58 | August 1993   | Roy P. Kerr                |
| 59 | December 1993 | Jim H. Ansell [obituary] | 60 | April 1994    | Jan Whitwell [obituary]    |

|    |               |                                                                               |    |               |                           |
|----|---------------|-------------------------------------------------------------------------------|----|---------------|---------------------------|
| 61 | August 1994   | John A. Kalman                                                                | 62 | November 1994 | Brian Woods               |
| 63 | April 1995    | Alexander Craig Aitken, [centenary of birth] and Peter John Bryant [obituary] | 65 | December 1995 | Mary Duncan Fama          |
| 64 | August 1995   | John C. Turner                                                                | 67 | August 1996   | Derrick Breach [obituary] |
| 66 | April 1996    | Ken Ashton [obituary]                                                         | 69 | April 1997    | Gordon Knight             |
| 68 | December 1996 | Wolfgang Vogel [obituary]                                                     | 71 | December 1997 | Gillian Thornley          |
| 70 | August 1997   | Marston D. E. Conder                                                          | 73 | August 1998   | John Fauvel               |
| 72 | April 1998    | Douglas Bridges                                                               | 75 | April 1999    | John Harper               |
| 74 | December 1998 | W. Dean Halford                                                               |    |               |                           |

## NZMS RESEARCH AWARDS

In each year since 1991, the NZMS has acknowledged the research achievements of one or more mathematicians by awarding them NZMS Research Awards, in the form of a certificate signed by the President of the NZMS.

|      |                                      |      |                                      |
|------|--------------------------------------|------|--------------------------------------|
| 1991 | John C. Butcher and Rob I. Goldblatt | 1992 | Rod Downey and Vernon Squire         |
| 1993 | Marston D. E. Conder                 | 1994 | Gaven J. Martin                      |
| 1995 | Vladimir Pestov and Neil Watson      | 1996 | M. K. Vamanamurthy and Geoff Whittle |
| 1997 | Peter J. Lorimer                     | 1998 | Jianbei An                           |
| 1999 | Michael Steel                        |      |                                      |

Before 1966, the mathematicians in New Zealand had very little contact with each other. Indeed, Professor Jim Campbell (VUW) had declared (Tee, p.145) that the only occasion when mathematicians at the New Zealand universities learned of each other's work was when they met each other on leave at Oxbridge!

Thanks to the New Zealand Mathematical Society, and to the annual series of New Zealand Mathematics Colloquia, that can no longer be said to be the case.

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