THE NEW ZEALAND
MATHEMATICAL SOCIETY (INC.)

NEWSLETTER

CONTENTS

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PUBLISHER'S NOTICE

The Newsletter is the official organ of the New Zealand Mathematical Society Inc. This issue was assembled and printed at Massey University. The official address of the Society is:

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Aroon Parshotam Landcare (Palmerston North)

EDITORIAL

I have just completed a second proof-reading of the current issue, with all departments filled except the editorial. It is

my prerogative to decide whether or not to include an editorial, just as it is yours as to whether you wish to read the ramblings of the editor. As I have been rather heavily overloaded with the usual administration and research activity one finds piled up on return from leave, I have had little time to muse on the content for this issue. As I discussed this predicament with a colleague, he suggested a Russell paradox solution, "write an editorial explaining why there is no editorial!". However as many of our loyal correspondents are probably even busier than I, in loyalty to them, I cannot opt out that easily.

Among the many duties that have been my responsibility, the presentation of my inaugural professorial lecture was delivered to the university community last month. I resisted the temptation to make it equation-free. I believe that with the appropriate commentary, the math-phobic can be exposed to some of our symbolic reasoning, by providing them with a balanced delivery of the subject that I feel has an intrinsic beauty and simplicity, and which cannot be appreciated in full prose.

I wonder how many of you have accessed our world wide web page and checked out the newsletter. (The address is given on the opposite page.) You may have noticed that some of the pictures appear in colour, a feature that we cannot afford to duplicate in the printed edition. However apart from that, there should be no differences in content, but rest assured, there are no plans afoot to do away with the paper printed edition (yet!). I trust this service will continue, I would like some feedback as to its use in electronic form.

One of the pleasurable editorial duties is that of commissioning material for the centrefold section. I am always ready to receive suggestions: there are more mathematicians among us to honour in this way than there are editions to cover them. The mathematician featured this month is someone that I believe I have only met once, as she has been living in Australia for many years. However I was very pleased to learn much more of her interesting and productive career.

In contrast, as editor one also learns with sadness of the death of members of the Society. I have inserted a brief note with the article from the Auckland Mathematics Department news detailing the retirement function for Ken Ashton, noting his recent passing. My condolences to his family, his friends and colleagues. I hope that we can present in the next issue a fuller note commemorating Ken's life among us.

Mike Hendy

NZMS NOTICES

1996 NEW ZEALAND MATHEMATICS COLLOQUIUM AND ANNUAL MEETING OF THE NZ MATHEMATICAL SOCIETY

The 1996 NZ Mathematics Colloquium will be held at Massey University, Palmerston North from 1-4 July 1996. The Colloquium will be held in conjunction with the annual meeting of the New Zealand Mathematical Society.

There will be an informal gathering and registration with snacks provided from 5pm on Sunday 30 June. The main programme commences at 9am Monday 1 July and will conclude by 4.30 pm Thursday 4 July. There will be an outing on Tuesday afternoon.

Thursday 4 July will be a Theme Day on Mathematical Physics. Paul Callaghan, Professor of Physics at Massey University has accepted an invitation to speak on Thursday. Professor Callaghan has recently been awarded a DSc from Oxford for his work in the field of Nuclear Magnetic Resonances and his book `Principles of NMR Microscopy' is a basic text for researchers in this area. We caught up with him as he returned from the Antarctic where he is involved in a collaborative research project using NMR to investigate the unfrozen brine water in the sea ice of McMurdo Sound.

The First Circular will be distributed in February with a call for offers of contributed papers to be submitted by 30 April. Registrations close on 31 May and abstracts of contributed papers are due by this date. We have not yet finalised our panel of Invited Lecturers and the Committee would welcome any recommendations from members.

Mike Hendy, Convenor
Gillian Thornley, Secretary

AITKEN PRIZE (NZMS STUDENT PRIZE)

The NZ Mathematical Society offers a prize for the best contributed talk by a student at the annual NZ Mathematics Colloquium.

Known as the Aitken Prize, in honour of the New Zealand born mathematician Alexander Craig Aitken, this prize will be offered for the second time at the 1996 Colloquium to be held at Massey University in Palmerston North

during the week 3-7 July 1996.

The prize will consist of a cheque for NZ$250, accompanied by a certificate.

Entrants for the prize must be enrolled (or have been enrolled) for a degree in Mathematics at a university or other tertiary institution in New Zealand in the year of the award. During the Colloquium, they should give a talk on a topic in any branch of the mathematical sciences.

A judging panel will be appointed by the NZMS Council, and make recommendations to the NZMS President and Vice-President for the award. Normally the prize will be awarded to one person, but in exceptional circumstances the prize may be shared, or no prize may be awarded.

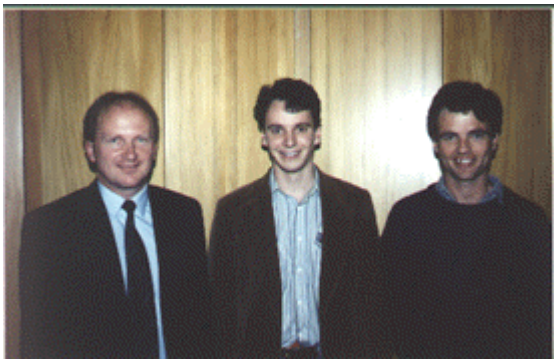
Entrants should clearly indicate their willingness to be considered for the award when they register their intention to contribute a talk at the Colloquium. For the 1996 Colloquium, this information is required by the organising committee by April 30, to Secretary, 1996 NZ Mathematics Colloquium Committee, Mathematics Department, Massey University, Private Bag 11-222, Palmerston North, New Zealand.

Photographs taken during the Aitken Conference Dinner in Dunedin in August which have been provided by Harold Henderson.

From left to right: Marston Conder, NZMS President 1993-95; Bernhard Neumann, Honorary Life Member NZMS; Derek Holton; NZMS President 1991-93

George Aitken (Edinburgh)
son of Alexander Craig Aitken

Elmer Rees (Edinburgh)
Forder Lecturer 1995



From left to right: Marston Conder; Chris Stephens, Winner of NZMS Aitken Prize 1995; Charles Semple, Highly Commended

NZMS AWARDS 1995

Honorary Life Memberships of the NZ Mathematical Society have been conferred upon Professors Roy P. Kerr and Wilf G. Malcolm, in recognition of their valuable contributions to mathematics in New Zealand. [Readers may recall both have been featured in the centrefold section of this Newsletter, Professor Malcolm in issue #33 and Professor Kerr in issue #58, where some details of their careers may be found - editor.]

NZ Mathematical Society Research Awards for 1995 have been made to

Vladimir Pestov

(Victoria University of Wellington)

"for his creative and ingenious research in areas ranging from topological groups and Lie theory to the nonstandard analysis of superspace, in which he has solved long-standing open problems as well as demonstrating his breadth and depth of understanding and a gift for elegant and colourful exposition"

and to

Neil Watson

(University of Canterbury)

"for an outstanding series of research articles on harmonic functions and potential theory, in which he has introduced new ideas and tools, and deep analyses, that have resulted in new and improved approaches to classical theorems and led to their generalisation to more abstract situations".

The judges' report stated: "The field of nominees for the 1995 awards was truly outstanding. If the Society had chosen to have made several awards all in this one year it could have done so with great and justifiable pride in these achievements of its members. However, it seemed appropriate to limit the number of awards to two in the hope that the other excellent candidates will allow their names to be put forward again. The judges very much hope this happens so that the excellent standard of New Zealand mathematical research can be further recognised and encouraged."

The Aitken Prize (for the best talk/paper presented by a student at the annual NZ Mathematics Colloquium) was offered for the first time in 1995, and was awarded to Chris Stephens, a PhD student at the University of Canterbury, for his paper "Global optimisation requires global information". Also Charles Semple (graduate student at Victoria University of Wellington) was highly commended for his paper "Large matroid representation over partial fields".

These awards were announced and presented during the Aitken Centenary Conference held in Dunedin during the week 28 August-1 September 1995.

Marston Conder

Immediate Past President, NZ Mathematical Society

LOCAL NEWS

- AgResearch
- University of Auckland
  - School of Mathematical and Information Sciences
  - Department of Computer Science
  - Department of Mathematics
  - Department of Statistics
- University of Canterbury
- Landcare
- Massey University
  - Department of Mathematics
  - Department of Statistics
- University of Otago
- Victoria University
  - ISOR
  - Department of Mathematics
- University of Waikato

AgResearch

Simon Woodward from Whatawhata spent May-June in England, Scotland, the Netherlands and France meeting other researchers involved in grazed pasture modelling. He reports that agricultural modelling is dominated by computer simulation, which is especially strong at Wageningen Agricultural University and at the Macaulay Land Use Research Institute in Aberdeen. Simon attended the 1995 World Conference on Natural Resource Modelling held in Pietermaritzburg, South Africa, again dominated by rangeland ecologists and computer simulators, although there were some fisheries mathematicians, agricultural economists, theoretical ecologists, and dynamical systems people, including one Graeme Wake.

Dr Asit Kumar Saha has joined the Modelling Group at Wallaceville for one year to work with Mick Roberts on the possum parasite and possum Tb modelling projects. Asit comes to us from the Indian Statistical Institute, Calcutta. His previous research work has been on models for reaction/diffusion systems and pattern formation (Mathematical Just-So Stories). Also joining the Wallaceville Group this week is Dr Rowland Kao from the Department of Physics, University of Guelph. It is a sign of the times that two new colleagues are arriving to take up positions funded by FRST contracts, and we are already completing the bids for the next funding period. Visitors at Wallaceville have included Professor Andrew Barbour and Christof Luchsinger, of the Institute of Applied Mathematics, University of Zurich; and Professor Andrew Dobson from the Department of Ecology and Evolutionary Biology, Princeton. Professor Dobson's visit was part of an ongoing collaboration developing models for possums/Tb and parasites.

Mick Roberts

UNIVERSITY OF AUCKLAND

SCHOOL OF MATHEMATICAL & INFORMATION SCIENCES

Ivan Reilly visited Canada during July. At the University of Waterloo he was a guest of Professor Jack Kalbfleisch, Dean of the Faculty of Mathematics. With Chris Wild (who also visited then), Ivan Reilly drafted a document for a possible exchange arrangement between their Faculty and our School. He then visited Carleton University in Ottawa. From July 13th to 25th, Ivan Reilly led the NZ team for the 36th International Mathematical Olympiad at Waterloo. The group of leaders were unanimous in selecting question G5 as the nicest question submitted this year, and the first question (of six) chosen for the IMO tests. The proposers of the questions were then identified, and question G5 had been proposed by Alastair McNaughton (Tamaki). Congratulations to Alastair, on the equivalent of a gold medal for the best question of 1995! The NZ team acquitted itself well, with James McGowan winning a silver medal and Tim McLennan winning a bronze medal.

Ivan Reilly has been appointed as NZ Liaison Officer for the University of California Education Abroad Program (in succession to Professor Brian Davis). He attended an orientation program for such persons at the Universitywide Office of EAP at UC Santa Barbara late in October. He took the opportunity then to make professional visits to UC Berkeley and UC Davis.

The Student Resource Centre has been burgled, 4 times in 2 months! Those events have aroused considerable concern about the safety of people working in the Mathematics/Physics block at night. On the first occasion, the burglars went to much effort to remove a massive safe which was secured by stout bolts to the foundations of the building. Presumably they transported it to some remote place where they blasted it open - to reveal a completely empty safe!

DEPARTMENT OF COMPUTER SCIENCE

Cris Calude and Douglas Bridges have lectured on randomness and on constructive mathematics, respectively, in Vienna, as guests of the Gödel Society (June). Cris Calude organized a Summer School entitled "Chaitin complexity and applications" at Mangalia on the Black Sea (27 June - 6 July), and he gave some invited lectures at the universities of Siegen and Hagen, in Germany.

The Fifth Joint Auckland/Waikato Colloquium was held on October 27th, with the following lectures: John Grundy, "Software environment support for integrated formal program specification and development"; Matt Humphrey, "A formalisation of Minard's Napoleonic visualisation"; John Cleary, "How to efficiently receive weather faxes while sailing"; Murray Pearson, "A virtual simulation of tree pruning", Bill Rogers, "Parsing two-dimensional expressions"; Ian Witten, "Building a digital library for computer science research"; Sally Jo Cunningham, "More bibliomania"; and Lloyd Smith, "Applications of music transcription".

Seminars

Dr Alfs Berztiss (University of Pittsburgh), "Design cliches for software safety".

Dr Gill Dobbie (VUW), "A foundation for deductive object-oriented database systems".

Professor Hubert L. Dreyfus (University of California at Berkeley), "From Socrates to expert systems: the limits and dangers of calculative rationality".

Achim Schneider (Hypermedia Unit), "Hypermedia support for university activities".

Dr Reinhard Klette (Technische Universität Berlin), "Surface from motion - without and with calibration", and "Surface reconstruction based on visual information".

Jenny Shearer, "Who owns the Internet?".

James Webb, "Probabilistic algorithms for solving combinatorial optimisation problems".

Dr Clarence S. W. Lau (Chinese University of Hong Kong), "A Cost-effective near-line storage server for multimedia systems".

Dr Kevin Novins (University of Otago), " Volume rendering".

Professor Hermann Maurer (Hypermedia Unit), "The future of the Web".

Dr Steve Reeves (University of Waikato), "Vernacular Program Derivation".

David Norman, "Emergence in Artificial Intelligence: a study of the properties of cellular automata and genetic algorithms".

Colleen Thornton (Software Consultants Ltd), "A day in the life of a software house".

Dr Jennifer Lennon (Hypermedia Unit), "Flexible link architectures in Hypermedia systems".

Ulrich Gönther, "T-Code synchronization",

Professor Zbigniew Michalewicz (University of North Carolina at Charlotte), "Heuristic methods for evolutionary computation techniques".

Dr T. Ahrndt, Dr R. Riederer and Dr J. Teiwes,

(Universität der Bundeswehr, Munich), "Computer systems for diagnosis and therapy of speech disorders".

DEPARTMENT OF MATHEMATICS

A retirement ceremony for Ken Ashton was held on Friday July 28, with several colleagues giving brief lectures about mathematical topics related to his interests. Many other people then gave spoken tributes to him, with several former students telling how they had been inspired by his lectures. Ken celebrated his 60th birthday on November 4th.

[It is regretfully noted that Ken Ashton died on Sunday November 19th. - editor].

At the Tamaki Campus, Graeme Wake has arrived as the foundation Professor of Industrial and Applied Mathematics. Dr Alex McNabb is a Research Fellow in Applied Mathematics, Dr Simon Watt is a Postdoctoral Fellow in applied mathematics, and Dr Kumar Vetharaniam is an AgResearch Postdoctoral Fellow.

John Butcher, Marston Conder, Vaughan Jones, Gaven Martin and Graeme Wake (jointly with Alex McNabb) have each received research grants in the first batch of Marsden Fund awards.

Dr Brent Everitt has gone to Aberdeen University, for a 1-year lectureship.

Margaret Morton has gone on leave, to the USA, Canada, Australia, China and the Philippines. John Butcher is on leave, in Europe and the USA. Boris Pavlov is on short leave, at the Solvay Institute in Belgium and at St Petersburg.

Colin Fox has gone to Scott Base, to continue his research on ice in the Ross Sea. David McIntyre and David Gauld attended a Summer Topology Course at Maine, in August. Stuart Scott was a Main Speaker at the Near-Ring Conference at Hamburg in August.

Gaven Martin has returned from leave, at many places around the world.

Recent visitors include Dr Paul Gartside (Oxford) as Post-doctoral Fellow, Professor Sergei Avdonin (St Petersburg State University), and Professor Roger Grimshaw (Monash), the NZMS Visiting Lecturer for 1995.

The 4th biennial conference of the New Zealand Association of Mathematics Teachers was held at The University of

Auckland and The Aotea Centre from 27 to 31 August 1995. There were just on 600 participants from all levels, early childhood to tertiary, all bringing with them their particular mathematics education interests. The conference was a good mix of workshops, plenary addresses, forums, commercial displays and socialising. Feedback from teachers, invited speakers, workshop presenters, sponsors or those with commercial displays indicate that, in the main, it was a very successful conference from their point of view.

The conference theme, "The many faces of mathematics education" endeavoured to focus on both the challenges and possibilities for the future, as well as all that has already been achieved. That demanded a programme which would provide debate and discussion about mathematics education from many perspectives. However, the new school curriculum and the unit standards proposed by the Qualifications Authority were foci of attention.

The plenary sessions were very well attended, with invited speakers from Australia, England, The Netherlands and the USA addressing such issues as "Coping With change", "Learning Mathematics in a Social Context", " Curriculum Renewal in Upper Secondary Schools", " Tasks and Talk in Mathematics Classrooms" and "Student perspectives of the Mathematics Classroom". Two important international guests were Pierre van Heile, world-famous mathematics educator and theoretician; and Jan de Lange, Director of the Freudenthal Institute director and Professor of Utrecht University All keynote presentations have been published in the latest New Zealand Mathematics Magazine (Vol 32. No 3), and videotapes are available from NZAMT.

At the A. C. Aitken Centenary Conference, held at the University of Otago from August 28 to September 1, Garry Tee gave the Colloquium Address on "Alexander Craig Aitken, (1895-1967)". Contributed Talks were presented by:

Jianbei An, "The number of Sylow B-pairs of some finite groups".

John C. Butcher & Ying Mai, " High-order ODE methods for time-dependent PDEs".

Marston Conder, "Applications and adaptations of the low index subgroups process".

David B. Gauld, " Summer Workshop: Huia 1994 and Tolaga Bay 1996".

Sina Greenwood, "Volterra spaces".

Paul R. Hafner, "Some comments on the (7,6) cage".

David W. McIntyre, "Intervals in the lattice of topologies".

Alastair McNaughton, "How to diversify assessment of problem-solving skills in the Senior High School" and " The locus of the zeros of polynomials under closed-path integration".

Tim Marshall, "Homomorphisms of edge-coloured graphs".

Geoff Nicholls, "Specifying and sampling a distribution on triangulations".

Boris Pavlov, "New class of dissipative operators in mathematical physics quantum dynamics on a Markovian background and irreversibility".

Arkadii Slinko, " Coalgebraic Lie coalgebras".

Stephen Taylor, "Modelling and stabilisation of nonlinear beams".

Mavin K. Vamanamurthy, "Extremal rings and quasiconformal mappings".

Mark C. Wilson, "Primeness of enveloping algebras".

Seminars

Dr Paul Bonnington (Department of Mathematics), "A Nebesky-type formula for relative maximum genus".

Professor Petar Kenderov (Bulgarian Academy of Sciences), "A dynamical systems approach to the polygonal approximation of plane convex contacts".

Dr Norm Levenberg (Department of Mathematics), "An elementary problem in (one-variable) potential theory".

Professor John C. Butcher (Department of Mathematics), " Some numerical applications of real and complex analysis".

Professor Shangmin Cao (Liaocheng Teachers College, China), "Mathematics education in China".

Professor Ralph Stanton (University of Manitoba), " A discussion of one-designs".

Professor Jan de Lange (Freudenthal Institute, Utrecht), "Some developments in mathematics education".

Professor Boris Pavlov (Department of Mathematics), "Riesz bases of exponentials or reproducing kernels and nonstandard problems of spectral analysis",

Dr Brent Everitt (Department of Mathematics), "Recent applications of Schreier coset diagrams".

Dr Pierre van Hiele (The Netherlands), RSNZ Lecturer, "Difficulties with the introduction of a new topic and a new theory and their solution".

Professor Hans Schneider (University of Wisconsin, Madison) "Why did Frobenius hate graph theory?".

Professor Sergei Avdonin (St Petersburg State University), "Riesz bases from scalar and vector potentials, with applications to control theory".

Professor Jozef Siran (Bratislava, Slovakia), "Face 2-colourable triangular embeddings of complete graphs".

Dr Warren Moors, (Department of Mathematics), "l^* does not admit an equivalent mid-point locally uniformly rotund norm".

Dr Sergei Federov (Department of Mathematics), "On the Nevanlinna-Pick interpolation problem in multiply-connected domains".

John MacCormick, "Rearranging the arithmetic Fourier transform algorithm".

Dr Andrew Reztsov, "On the relationship between packing problems, minimal lattice rules, and some extremal problems for trigonometric polynomials".

Dr Paul Gartside (Oxford University), "Topological consequences of algebraic structure" (3 parts).

Dr Kay Nieselt-Struwe (Department of Physics),

" Invariants of sequence space geometries".

Dr Michael Smyth (Department of Mathematics) "Some fixed-point free maps".

Jiling Cao (Department of Mathematics), "On completeness of quasiuniform function spaces".

Kerry Richardson (Department of Mathematics),

" Elementary models and subspaces".

Professor Bruce Gilligan (University of Regina, Saskatchewan), "The interplay between topology and complex analysis on homogeneous complex manifolds".

Professor Tony Michel (University of Notre Dame), "Associative memories via artificial feedback neural networks".

Professor Roger Grimshaw (Monash), "Solitary waves generated by flow interaction with topography".

DEPARTMENT OF STATISTICS

Russell Millar has been appointed as Lecturer at Tamaki. His major research interest is marine statistics.

Alastair Scott has received a research grant in the first batch of Marsden Fund awards.

Robert Gentleman, Maxine Pfannkuch, Chris Triggs and Chris Wild received 4 of the 15 Distinguished Teaching Awards for 1995.

Kathy Edmunds is in hospital again.

Recent visitors include Professor Simo Puntanen (University of Tampere, Finland), Professor Bernard Flury (Indiana University), and Professor Raymond J.Carroll (Texas A&M University), winner of the COPS Medal (equivalent to a Nobel Prize) in 1988.

At the A. C. Aitken Centenary Conference, held at the University of Otago from August 28 to September 1, Contributed Talks were presented by:

Andrew Balemi & Alan J. Lee, "On the mean squared error of the sandwich estimator in Liang-Zeger estimation".

James Curran, "Statistical analysis of forensic glass evidence".

Robert Gentleman, "Statistical computing with R",

Alan J. Lee, "Standard error estimation using Liang-Zeger methods".

Mohammad M. Salehi & George A. F. Seber, "Two-stage adaptive cluster sampling".

Alastair Scott, " Fitting models to survey data".

Seminars

James Curran (Department of Statistics), "Statistical analysis of forensic glass evidence".

Andrew Balemi (Department of Statistics), "On the mean squared error of the sandwich estimator in Liang-Zeger Estimation".

Professor George A. F. Seber (Department of Statistics), "Estimating the prevalence of non-communicable diseases using capture-recapture methods".

Professor Peter Donnelly (Queen Mary College, London), "Statistical issues in DNA profiling" .

Professor Elizabeth A. Thompson (University of Washington, Seattle) "Monte Carlo likelihood in genetic analysis" .

Dr Malcolm Faddy (University of Queensland),

"More on extended Poisson process modelling and analysis of count data" .

Dr Geoff Nicholls (Department of Mathematics),

"A parametric model of coloured patterns and its sampler" .

Professor Bernard Flury (Indiana University), "Principal points and self-consistent approximations" .

Professor Simo Puntanen (University of Tampere, Finland), "How good is ordinary least squares?" .

Professor Raymond J. Carroll (Texas A&M University), "Functional estimation in measurement error models"

Garry J. Tee

UNIVERSITY OF CANTERBURY

DEPARTMENT OF MATHEMATICS AND STATISTICS

The department has received University approval to set up a Biomathematics Research Centre based around the expertise of a number of new and existing members of the department, and contacts with biologists, both here and overseas. James Sneyd and Mike Steel are co-directors of the centre.

Congratulations are due to all those listed below:

To David Robinson who remarried on 26 August. His new wife Sue brings with her two teenage boys.

To James Sneyd and Mike Steel who were recently awarded Marsden grants of approximately $30,000 each over three years for research and the funding of two PhD students (see advertisement in this newsletter).

To Julian Visch on the award of his Masters degree. His thesis entitled "Fuel consumption models for traffic modelling by the Canterbury Regional Council", was completed under the supervision of Easaw Chacko.

To Neil Watson on his NZMS Research Award.

To David Wall who has just been awarded a Swedish teaching exchange grant for 1996, from the Council for the Renewal of Undergraduate Education, which is part of the National Agency for Higher Education in Sweden. The exchange will be with Dr Peter Olsson, Division of Mechanics, Chalmers Institute of Technology, Göteborg, Sweden. David has just returned from Sweden where he spent a successful and substantial part of his current study leave.

To William Joyce who has been awarded an M.Sc. with distinction for his thesis "A one dimensional generalised autonomous homogeneous Kuramoto-Sivashinsky equation", completed under the supervision of David Wall.

To Angéle Hamel who has been awarded a FORST postdoctoral fellowship for two years. She will be working with Professor Phil Butler in Physics.

Rick Beatson

LANDCARE

Store of Science Information behind the Wall

Demolition of the Berlin Wall has opened up new scientific information for scientists all over the world, according to a Landcare Research scientist. Aroon Parshotam, a mathematical scientist working in biosphere processes at Manaaki Whenua-Landcare Research in Palmerston North, visited Britain and Europe on a British Council Higher Education Link exchange.

He is involved in joint research into soil carbon turnover modelling with scientists in Britain. While in Britain he took the opportunity to visit Denmark and East Germany to present lectures to modelling groups also working on joint projects with the historic Rothamsted Crop Research organisation in Britain.

He said his visit to Bad Lauchstadt in East Germany was the highlight of his trip. The area is the site for some of the oldest land and soil experiments in Europe, dating back about 180 years and for several decades hidden behind the Wall.

"They were fascinated that someone from New Zealand would visit their soil institute as no other scientists from NZ had visited them before. They have so much collected data. It made me realise that in the West we are playing a lot of computer games. In East Germany they have been collecting real information which is now open to the rest of the world" .

Aroon said although he and his German colleagues could not speak the same language, they were able to communicate through mathematics, using symbols rather than words. New Zealand had a high reputation amongst world scientists and was doing well in its scientific work. The work being done in Germany and New Zealand on the impacts of climate change on soils and land systems was similar in many aspects, and no other groups appeared to be working in this area using the same approach and methodology.

He said East Germans and Russians had some land experiment sites which went back hundreds of years, using data collected and recorded by monasteries. The information now becoming available would be very useful throughout the world, because they had been very thorough in detailing experiments through hundreds of crops using cheap labour in an industry which was able to feed a nation.

The main purpose of the trip was to visit the long term classical experimental sites at Rothamsted, which were established 150 years ago and now form the basis of much that is known about the effects of fertilisers on soils in New Zealand. He is involved in joint research with the experimental station on carbon turnover in soils and greenhouse gas exchanges between land and the atmosphere. He has also recently participated in a NATO Advanced Study Institute on "Evaluating Soil Organic Matter models using datasets from different land-use and Climate Conditions", Rothamsted, UK, as New Zealand's NZ/UK/Australia Tripartite representative on terrestrial ecosystems and climate change.

Soil changes influence the earth's carbon cycle, and consequently climate and Landcare Research scientists at Palmerston North have adapted concepts developed by British scientists with Dr Parshotam developing mathematical modelling techniques.

Aroon Parshotam

MASSEY UNIVERSITY

DEPARTMENT OF MATHEMATICS

Inaugural Lecture:

On his return from a recent period of leave, Mike Hendy presented his Inaugural Professorial Lecture to about 120 staff on the subject of "Origins" detailing some of the work that he has been engaged in recently on the analysis of historical signals in DNA data.

Staff update:

Graeme Wake, Alex McNabb, together with post-docs Simon Watt and Kumar Vetharaniam, were farewelled on the eve of their departures to Auckland. Alex McNabb has subsequently been made an Honorary Research Associate of the Department.

Associate Professor Dean Halford has taken up a 2-year appointment as Head of the Department. Mike Carter has been appointed Associate Dean (PN) of the Faculty of Information and Mathematical Sciences, as well as Deputy Head of Department. Promotions with effect from 1996 have been awarded to Robert McKibbin (to Associate Professor), John Giffin, Charles Little and Bruce van Brunt.

Dr Mahyar Amouzegar has taken up his position as Lecturer. With interests in Operations Research, he is a valuable addition to our small OR team.

News of appointments to various other vacancies will be provided in the next Newsletter.

Staff travel/conferences:

Adrian Swift took a short period of overseas leave mainly to attend 2 conferences. He presented a paper at the large ICIAM'95 conference, held in Hamburg, Germany, which attracted nearly 4000 delegates, including 3 from NZ. After ICIAM, he travelled to Manchester to attend LAA'95, a small IMA-sponsored conference on linear algebra and applications. Before his return, he divided his time between enjoying the English summer and working at the University of Aston on some MATLAB ideas.

Robert McKibbin and PhD student Chris Palliser attended the 17th NZ Geothermal Workshop at the University of Auckland during November. Robert presented a paper on modelling the effects of non-condensible gases on hydrothermal eruptions, and was also elected as a member of the Board of Directors of the New Zealand Geothermal Association.

Professor Wolfgang Vogel received 3 invitations as an invited speaker at international conferences in Oberwolfach (Germany), Hanoi (Vietnam) and Nagoya (Japan). Moreover, he has invitations to visit the University of Hong Kong and the Max-Planck Institute for Mathematics. He is also now nominated for the Editorial Board of the New Zealand Journal of Mathematics.

Mike Hendy has returned from his sabbatical at the University of Bielefeld in Germany, followed by two young mathematicians from that university. Dr Daniel Huson will be spending 3 months at Massey, and then visiting Canterbury. Dr Sören Perrey has taken a 2 year FRST-funded Post Doctoral fellowship at Massey. Both will be working in collaboration with Mike and with Professor David Penny of the Molecular Genetics Unit, Massey. Daniel is accompanied by his wife Elke and son Marlon, and Sören is accompanied by his wife Marlies and son Samuel.

Seminars:

We enjoyed having a visit from Professor Elmer Rees of the University of Edinburgh as the 1995 Forder Lecturer. Professor Rees delivered lectures (see list below) and participated in various discussions with members of the Department. Other visitors and Massey staff contributed to our seminar series, which continues to provide variety.

Scholar update:

Shane Dye (a Mathematics PhD graduate currently doing post-doctoral work at the University of Trondheim in Norway) and his wife Philippa have produced a baby boy, Crispin.

Mrs Hee Kyung Kim has been awarded a Massey University Doctoral Scholarship. Mrs Kim comes from South Korea, where she earned an MSc, and is working with Bruce van Brunt on functional differential equations.

The Industrial Research Ltd Bursary in Applied Mathematics for 1995 has been awarded to Grant Redhead, who is currently investigating the fluid mechanics of the trumpet as part of his MSc studies, supervised by Robert McKibbin. The presentation was made by Dr Graham Weir, leader of the Applied Mathematics Group at IRL, at a special luncheon in July to celebrate the occasion.

One of our honours students, Nicholas Allsop, is a Visiting Scholar at Sydney University for six weeks over the summer.

ANZIAM'96: New Zealand is to host the next ANZIAM (Australia New Zealand Industrial and Applied Mathematics) conference in Masterton in February 1996. Graeme Wake, who has also recently been elected for a term as President of ANZIAM (a division of the Australian Mathematics Society), is the Convenor of the meeting; Robert McKibbin and Adrian Swift are Secretary and Treasurer respectively. A conference notice can be found elsewhere in this issue.

1996 Mathematics Colloquium: Massey University is to host the 1996 Mathematics Colloquium on 1 to 4 July next year. Mike Hendy is the Convenor, with Gillian Thornley as Secretary, Peter Kelly as Treasurer and team

members Marijcke Vlieg, Bruce van Brunt and Kee Teo. The topic for the Theme Day on the Thursday will be "Mathematical Physics". A notice appears elsewhere in this issue, and conference circulars will be forthcoming in due course, but put the dates in your new diaries now!

Charles Little and co-author Paul Bonnington (University of Auckland) have had their book "The foundations of topological graph theory" published by Springer (ISBN 0-387-94557-1). The work uses the concept of a 3-graph in an attempt to place topological graph theory on a purely combinatorial yet rigorous footing.

Moves are afoot to incorporate the use of MAPLE and MATLAB in many Mathematics courses here from next year, with numerical and algebraic computing being taught alongside analytical methods.

Seminars

Dr Graham Weir (Applied Mathematics Group, Industry Research Ltd) "Mathematical Framework for Crevice Corrosion" .

Dr Yuji Kamoi (Massey) "Semigroups, Gröbner basis and its applications" .

Professor Elmer Rees (University of Edinburgh) "Critical points, Lagrange multipliers and applications", "Areas, Volumes and Dissections" .

Kim Hee Kyung (Massey) "Finite Dimensional Operator".

Seung-Hee Joo (Massey) "On strongly Mori domain" , "Extensions of polynomial rings on Mori domains".

Kelvin H Watson (Massey) "Practical considerations for the Graph Theoretic Facility Layout problem" .

Fiona Taylor (Massey) "Heuristic approaches to determining Multiple Search Paths" .

Dr Charles Little (Massey) "3-Graphs".

Dr John Hudson (Computer Science, Massey) "Esher, hyperbolic geometry and critical pairs".

Dr Shaun Cooper (Massey, Albany) "Some generalizations of Euler's beta integral and Jacobi's triple product identity".

Robert McKibbin

DEPARTMENT OF STATISTICS

Since the publication of the last Newsletter Jeff Hunter has been converted from an Acting Dean into a real one. With all uncertainty about its future removed, the Faculty of Information and Mathematical Sciences is busily polishing regulations for its new degrees, the Bachelor of Information Science and associated Diplomas and Masterate.

We had three visitors to shed brightness on the darker moments of the second semester. Despite our best efforts we were only able to persuade one, Govindaraju (Raj), to stay. Chuck Gates and Ann Mitchell have returned home. Raj is from Bharathier University in India. His interests (apart from keeping warm) are in statistical quality control and acceptance sampling. His wife and child are predicted to complete immigration formalities some time around the end of the year.

Our persuasive efforts have failed too with Charles Lawoko. He is leaving to become the statistical guru for the Business Faculty at Queensland University of Technology. Charles will be missed not only by the Department, but by Massey and Palmerston North.

Richard Barker has completed his PhD and is now working for Landcare in Christchurch.

More temporarily, Siva Ganesh has returned and Doug Stirling has gone. Doug has been at Wollongong writing the Models'n'Data book with David Griffiths, but is now on his way to Britain.

Seminars (individuals are from the Statistics Department unless otherwise stated)

Renate Meyer (Department of Statistics, Auckland University), "Nonlinear eigenvector algorithms for local optimization"

Bruce Dunning, "Use of statistical language"

Yu Hayakawa (ISOR, Victoria University), "Mixed Poisson-type processes with applications in software reliability"

Chin Diew Lai, "On the increase of the expected lifetime by parallel redundancy"

Bernard Flury, (Department of Mathematics, Indiana University) "Principal points and self-consistent approximations"

Charles Gates, (Texas A&M University) "Estimating Arribada size using a modified instantaneous count"

Ann Mitchell, (Imperial College, London) "Rao's distance measure"

K Govindaraju, "Fractional acceptance numbers"

Terry Moore, "Distributions for hazard data with bounded lifetime"

Shayle Searle, (Cornell University) "Notes on BLUP: A unifying derivation and some summing-to-zero properties"

Greg Arnold, "Trellis"

Richard Barker, "Multi strata mark-capture models with ancillary re-sightings"

Hugh Morton, "The effects of lane choice for 200 and 400 metre running"

Prof G Ferrari, (Department of Statistics, University of Florence) "On purchasing power parities calculation at the basic headings level and related topics"

Mark Bebbington, "Synthetic seismicity models"

Greg Arnold

UNIVERSITY OF OTAGO

MATHEMATICS AND STATISTICS

As with most of you, I'm sure, early November finds us up to our ears in exams for marking etc. Consequently, the call for news is not readily heeded as minds are occupied with other matters. Nevertheless, we shall report the news from Otago, albeit cursorily.

First off I should mention that the Aitken Conference went off well, as many of you can confirm. The final number of participants (for all sections combined) exceeded two hundred and thirty. The proceedings will appear in the new year.

There will be a conference held here 24-28 June 1996 on "Decision Making and Risk Assessment in Biology". The conference is intended to bring together biomathematicians, ecologists, environmental scientists, resource managers and statisticians with a common interest in the application of quantitative methods to ecological and environmental problems. Contributed papers on any quantitative aspect of biological risk assessment may be presented at the conference. Abstracts are required by 1 March 1996.

While there have been seminars at regular intervals since the last news contribution, I am afraid that the details are not at hand. Suffice it to say that you guys really missed some beaut talks!

David Fletcher has just returned from nine months leave spent mainly in Sydney. He looks fit and well, and, in contrast to the rest of us, unflustered by the exams.

On the subject of leave, this correspondent will be heading off in January for thirteen months leave. One consequence of this is that this will be my last contribution as Otago correspondent. This may seem to be the best news I have ever reported here but even better is the news that taking over from me will be Bram Evans. I leave you in his capable hands.

Robert Aldred

VICTORIA UNIVERSITY

ISOR

By the August vacation, ISOR was getting quite thin on numbers. Peter Smith commenced study leave in June, while Megan Clark and David Vere-Jones started in August. There was a further exodus of staff to conferences, in particular the Aitken Conference in Dunedin.

Peter Smith initially visited the University of Washington in Seattle, and is now visiting the University of Exeter/British Telecom. Megan Clark is visiting Chester College of Higher Education at Chester.

David Vere-Jones has been working in China and is now at the Tokyo Institute of Technology until March 1996. In China he was working with Professor Ma Li at the State Seismological Bureau in Beijing, as part of a joint Asia 2000 project.

In August, Peter Thomson attended the ISI Meeting in Beijing. Tony Vignaux attended a Maximum Entropy Workshop in Santa Fe, and then went on to London to attend his book launch. The book is entitled "Interpreting Evidence: Evaluating Forensic Science in the Courtroom", and is coauthored with Bernard Robertson, who was a member of the Law Faculty at Victoria, and is now a member of the Business Law Department at Massey.

Bevan Blair (Stochastic Models in Finance), Suzette Lizamore (Topics in Maximum Entropy Applications) and Grant Telfar (Acceleration Techniques for Simulated Annealing) have submitted their MSc theses. Bevan is now studying for a PhD at Lancaster University. Grant has joined a number of other ISOR graduates working at Core Management Systems Limited, in Wellington.

Ross Renner has recently been promoted to Reader/Associate Professor. Ross's work as consulting statistician is well known and highly appreciated by staff and generations of graduate students whose research and careers have been assisted by his expertise. His success is due to the breadth and depth of his knowledge and ability to use statistics in an innovative way to solve a wide range of problems. Less well known, is the international reputation that he has gained through the application of these skills in independent research and collaborative work with scientists from several disciplines. In particular, his development of the new technique of endmember

analysis is considered seminal, in that it provides earth and marine scientists with a much better approach to the solution of fundamental problems than has previously been available.

Visitors in the last few months have included Professor Norberg from the University of Copenhagen and Professor Mark Matthews from MIT. Mark worked with David Vere-Jones on evaluating the M8 Algorithm, an earthquake prediction algorithm used by Russian seismologists.

Yu Hayakawa and David Harte

DEPARTMENT OF MATHEMATICS

Rob Goldblatt was an invited contributor to the 10th International Congress of Logic, Methodology, and the Philosophy of Science held in Florence in August, where he gave a talk on the relationship between modal propositional logic and first-order quantificational logic.

Peter Donelan has just ended over five years on the AUS Branch Committee and 18 months as Branch President. He is looking forward to having more time to focus directly on his mathematics research interests, commencing with research and study leave in Liverpool working with Chris Gibson.

Mike Doyle is going to the University of Victoria, British Columbia, at the end of November for a few weeks. The purpose of the trip is to discuss his Masters work in Parameterised Complexity and Bounded Treewidth, with Mike Fellows of the Computer Science Department. This is being funded partly from a Marsden Fund Research Assistantship (Rod Downey) and partly by the University of Victoria, BC (Mike Fellows).

Mike plans to finish his research and have commenced writing his thesis by the beginning of March next year which is the 1st anniversary of his enrolment in the MSc Part II as a part time student. I understand that this thesis, which is still to be written, has already been cited (!) by his supervisor Rod Downey in the book currently being written by him and Mike Fellows.

Lindsay Johnston ran a Study Group on Wavelets throughout the 1995 academic year.

Rod Downey now has a Personal Chair in Mathematics, and Vladimir Pestov has been promoted to Reader. Your humble correspondent has become a SLOB...

Mark McGuinness

UNIVERSITY OF WAIKATO

DEPARTMENT OF MATHEMATICS AND STATISTICS - CENTRE FOR APPLIED STATISTICS

Nye John has been awarded a Marsden Fund grant for work on the topic "Factorial Experiments in Complex block structures". In the area of experimental design, David Whitaker has discovered a fascinating class of Linear Programs with integer coefficients and real solutions which are integers.

Our secretary Angela Hayward has had the sad misfortune of having to leave her position because of illness. Her replacement is Karen Devoy (Susan's sister), an import from the Academic Section of the Registry. She will become the Statistics Secretary from next year. Please contact k.devoy@waikato.ac.nz.

Heather Rae attended the NZ Association of Mathematics Teachers 4th Conference at the University of Auckland in August and presented a

paper on catch-up mathematics at the tertiary level. She also attended the National Conference of Student Learning Support Centres at Victoria in May and discussed the "Skills in Mathematics" series of learning texts being developed and used at Waikato.

Alfred Sneyd attended a conference in Riga, Latvia with Alec Zwart, in August. It was the 14th International Riga Conference on Magnetohydrodynamics, which specialises mainly in metallurgical applications. They gave papers on Aluminium reduction cells. They also visited St Andrews and gave two seminars, one on astrophysical MHD and one of Aluminium cells again.

Zhu Nan presented a paper on removing terms from Knapsack Problems at the OR conference at Victoria in October.

Kevin Broughan attended the conference HPC-ASIA'95 in Taipei in September and presented a paper on parallel symbolic-numeric mathematical

software. He also represented NZ on the Steering Committee for the series of conferences. The next one is scheduled for early 1997 in Seoul.

Professor Bridges was an invited speaker at the international conference in "Truth in Mathematics" at Mussomeli, Sicily, in September. This was an unusual gathering of mathematicians, logicians and philosophers interested in the foundations of mathematics. The setting was a small, hill-top town in central Sicily, with a mediaeval castle on a 150 metre outcrop of rock on the edge of town, where the opening ceremony was held.

The department has been reviewed and has had a number of problems highlighted. The student/staff ratio and part one teaching program are related areas requiring close attention. The Mathematics Department was well served through the review process by the external mathematicians Marsden Condor, Donald Melrose (Sydney) and Walter Neumann (Melbourne) with Warrick Silvester (Biology, Waikato) being the convenor and is grateful for their efforts. The Department of Statistics was not part of the review. Copies of the report may be obtained from glenys@waikato.ac.nz.

The Working Party on internet usage has (thankfully!) supported the continuation of our link to the outside world so any reported addresses are still extant! However some restrictions on who can contribute or link to our department's WWW page are to be implemented.

The Centre for Applied Mathematics and Theoretical Physics, created to formalize and enhance the relationship between physics and applied mathematics has been ceremonially inaugurated but is awaiting the appointment of a new Professor of Physics, for further development. Contact Ernie Kalnins for further details: e.kalnins@waikato.ac.nz.

As I write the smoldering brains of exam markers permeates the department. This is the final report from the old Department of Mathematics (and Statistics) which does not pass without a wimper (meaning obscure). The new and separate departments of Mathematics and Statistics are to begin on 1 January 1996. Professor Nye John is to be Chairperson of the Department of Statistics with members being all the current statisticians and members of the Centre for Applied Statistics. As for the future, the less said of that the better - does it even exist? (Anon).

Seminars

Roger Grimshaw (Monash University) "Solitary Waves Generated by Flow Interaction with Topography".

Roger Grimshaw (Monash University) "Interaction of a Solitary Wave with an External Force".

Ted Buchwald (University of the South Pacific) "Linearised Evaporation from a Soil of Finite Depth in a Wetted Region".

Douglas Bridges (University of Waikato) "Constructive Truth in Practice".

Elmer Rees (University of Edinburgh) "Geometry of Grasping".

Elmer Rees (University of Edinburgh) "Areas, Volumes and Dissections".

Kevin Broughan

BOOK REVIEW

Lattice Methods for Multiple Integration, by I.H. Sloan and S. Joe, Oxford Science Publications, Clarendon Press, Oxford, 1994, 239pp, NZ$ 120.00, ISBN 0-19-853472-8.

Numerical integration, in up to four or five dimensions, can be carried out using product rules based on one dimensional methods. However, as the dimension is raised further, this approach becomes increasingly inappropriate and alternative methods are needed. A lattice rule is a systematic scheme for selecting sampling points, in preference to a random choice as in the Monte-Carlo method. The authors of the present book have for many years been pioneers in the development of this subject, and this account of lattice rules is written with both authority and style. In the relatively brief time since lattice rules have come under investigation, the achievements have been remarkable. It is now possible to obtain accurate approximations to integrals in up to 20 dimensions, together with realistic and reliable error estimates. Numerical comparisons convincingly support the use of these methods over older and cruder alternatives. Lattice methods clearly have an important place in modern computations. An additional feature of the subject, and of this account of it in particular, is the range of interesting mathematics that is used in its development. It is good mathematical reading as well as useful and important computational science.

John Butcher, University of Auckland

SPRINGER-VERLAG PUBLICATIONS

Information has been received about the following publications. Anyone interested in reviewing any of these books should contact David Alcorn.

Anosov DV (ed) Dynamical systems IX: Dynamical systems with hyperbolic behaviour (Encyclopaedia of Mathematical Sciences, 66). 235pp.

Berenstein CA Complex analysis and special topics in harmonic analysis. 482pp.

Curtain RF An introduction to infinite-dimensional linear systems. (Texts in Applied Mathematics, 21) 698pp.

Eisenbud D Commutative algebra. With a view toward algebraic geometry. (Graduate Texts in Mathematics, 150) 800pp.

Fulton W Algebraic topology. A first course. (Graduate Texts in Mathematics, 153) 435pp.

Gander W Solving problems in scientific computation using Maple and MATLAB. (2nd ed) 315pp.

Havin VP (ed) Commutative harmonic analysis III. Generalized functions. (Encyclopaedia of Mathematical Sciences, 66). 235pp.

Holmes MH Introduction to perturbation methods. (Texts in Applied Mathematics, 20) 387pp.

Howes NR Modern analysis and topology. 403pp.

Jost J Riemannian geometry and geometric analysis. 401pp.

Kirillov AA (ed) Representation theory and noncommutative harmonic analysis II. Homogeneous spaces, representations and special functions. (Encyclopaedia of Mathematical Sciences, 59) 266pp.

Kuznetsov YuA Elements of applied bifurcation theory. (Applied Mathematical Sciences, 112) 515pp.

Lang S Introduction to diophantine approximations. (2nd ed) 130pp.

Malliavin P Integration and probability. (Graduate Texts in Mathematics, 157) 322pp.

Nelson R Probability, stochastic processes and queueing theory. 583pp.

Nualart D The Malliavin calculus and related topics. 266pp.

Viehweg E Quasi-projective moduli for polarized manifolds. (Ergebnisseder Mathematik und ihrer Grenzgebiete. 3. Folge, 30) 320pp

Zeidler E Applied functional analysis. (Applied Mathematical Sciences, 108) 479pp.

David Alcorn, (email: alcorn@math.auckland.ac.nz)

CONFERENCES

****** (1995) ******

December 4-6 (Cairns, Queensland) **6th Annual International Symposium on Algorithms and Computation (ISAAC95)**

Contact Dr Bob Cohen, Department of Computer Science, University of Newcastle, Callaghan, NSW 2308, Australia.

e-mail: isaac95@cs.newcastle.edu.au

December 18-21 (Singapore) **1st Asian Technology Conference in Mathematics**

Contact Dr Fong Ho Kheong, Chair, ATCM 95 Organising Committee, C/- Nanyang Technological University, National Institute of Education, 469 Bukit Timah Road, Singapore 1025.

e-mail: fonghk@nievax.nie.ac.sg

****** (1996) ******

January 29 - February 2 (Melbourne) **Mathematics in Industry Study Group**

Contact K Landman, University of Melbourne, Australia.

e-mail: misg@maths.mu.oz.au

February 4-8 (Masterton, New Zealand) **32nd Applied Mathematics Conference (ANZIAM `96)**

Contact ANZIAM `96, Department of Mathematics, Massey University, Private Bag 11222, Palmerston North, New Zealand.

e-mail: anziam@massey.ac.nz

May 29-31 (Wellington, New Zealand) **Science - Women and our future**

Contact Karen Field, 86 Daniell Street, Newtown, Wellington 6002, New Zealand.

e-mail: hancox@actrix.gen.nz

July 8-12 (Adelaide) **Fortieth Annual Meeting of the Australian Mathematical Society**

Contact R R Huilgol, Discipline of Mathematics, Flinders University, P O Box 2100, Adelaide, South Australia 5001.

e-mail: raj@maths.Flinders.edu.au

July 1-4 (Palmerston North, New Zealand) **1996 New Zealand Mathematics Colloquium**

Contact the Secretary, Dr Gillian Thornley, Department of Mathematics, Massey University, Private Bag 11222, Palmerston North.

e-mail: G.Thornley@massey.ac.nz

July 8-12 (Sydney) **Sydney International Statistical Congress**

[Comprising: 13th Australian Statistical Conference, (July 8-12)

Computer Science and Statistics: 28th Symposium on the Interface

(July 8-10)

IMS Special Topics Meeting on Contemporary Nonparametrics (July 10-12)]

Contact Director, SISC-96, CSIRO Division of Mathematics and Statistics, Locked Bag 17, North Ryde, New South

Wales 2113, Australia.

e-mail: sydney96@syd.dms.csiro.au

July 15-19 (Graz, Austria) **Seventh International Conference on Fibonacci Numbers and their Applications**

Contact John Turner, Department of Mathematics and Statistics, University of Waikato, Private Bag 3105, Hamilton, New Zealand.

Mike Carter, Massey University

MATHEMATICAL VISITORS TO NEW ZEALAND

NZMS Visitors List 42

The main purpose of this list is to enable other institutions to invite visitors to spend time with them. Anyone wishing to issue such an invitation should do so through the principal contact person.

The information for each item is arranged as follows: Name of visitor; home institution; whether accompanied; principal field of interest; dates of visit; principal host institution; principal contact person; comments.

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Professor Dan Archdeacon; Dept of Maths and Stats, University of Vermont, USA; accompanied by 14 yr old son; combinatorics; 27 January to 4 April 1996; University of Auckland; Dr Paul Bonnington.

Dr Brian Bowditch; University of Southampton; ; hyperbolic and differential geometry and geometric group theory; 10 December 1995 to 10 January 1996; University of Auckland; Professor Gaven Martin.

Professor Don Cohen; Applied Mathematics, California Institute of Technology; ; February 1996; ANZIAM 96 invited speaker; Professor G C Wake.

Professor Ellis Cumberbatch; Claremont Colleges Graduate School, California; accompanied; applied mathematics; February 1996; ANZIAM 96 invited speaker; Professor G C Wake.

Professor Odo Diekmann; University of Utrecht, The Netherlands; ; mathematical biology; February 1996; Professor G C Wake (also AgResearch Wallaceville; Mick Roberts); ANZIAM 96 invited speaker

Janet Dixon; University of Georgia; accompanied by husband, Philip Dixon (next entry); algebra and calculus; January to December 1996; University of Otago; Professor Bryan Manly.

Philip Dixon; University of Georgia; accompanied by wife, Janet Dixon (previous entry); statistics; January to December 1996; University of Otago; Professor Bryan Manly.

Professor Eusebius Doedel; Concordia University, Montreal; ; Computational Mathematics; February 1996; ANZIAM 96 invited speaker; Professor G C Wake.

Dr Anthony W F Edwards; University of Cambridge; unaccompanied; Likelihood, phylogenetic inference; January to March 1996; Massey University; Professor Mike Hendy; supported by the Royal Society.

Dr Sergey Federov; St Petersburg University; ; functional analysis; February 1994 to February 1996; Auckland University; Professor B Pavlov.

Professor Bernard Flury; Indiana University; ; 1 September to 30 November 1995; University of Auckland; Professor George Seber.

Dr Paul Gartside; Oxford University; unaccompanied; topology; September 1995 to April 1996; University of Auckland; Dr David McIntyre.

Alan Graham; Open University, England; unaccompanied; mathematics education; November and December 1996; University of Auckland; Dr Michael Thomas; was a visitor as part of British Council funded LINK scheme in 1993.

Professor Brian Gray; School of Mathematics and Statistics, University of Sydney; accompanied; Mathematical chemistry; February 1996; University of Auckland; Professor G C Wake.

Professor J. Haefner; University of Colorado; ; representation of algebras and group rings, graded rings, general module theory; 1 to 30 June 1996; University of Canterbury; Dr Kevin O'Meara.

Dr Jim Hartman; The College of Wooster, Ohio, USA; ; applied statistics; May 1995 to May 1996; University of Otago; Professor Bryan Manly.

Dr Daniel Huson; University of Bielefeld; accompanied by wife (Elke) and baby (Marlon); combinatorics (tiling), biology; November 1995 to January 1996; Massey University; Prof Mike Hendy; followed by; February 1996; University of Canterbury; Dr Mike Steel.

Dr Hajime Ishihara; Japan Advanced Institute of Science & Technology, Ishikawa; unaccompanied; constructive mathematics; October-December 1995; University of Waikato; Professor D.S. Bridges; tentative at this stage.

Dr Thomas Kaijser; Linkoping University, Sweden; accompanied by son; stochastic iterations, fractal coding; now until July 1996; University of Canterbury; Dr Peter Renaud.

Professor Gerhard Kristensson; Department of Electromagnetic Theory, Lund University, Sweden; ; early 1997; University of Canterbury; Dr David Wall; Erskine Fellow.

Professor Curt C Lindner; Auburn University, Alabama; ; Steiner triple systems; February 1996; University of Canterbury; Dr Derrick Breach.

Professor Rainer Loewen; University of Braunschweig, Germany; accompanied by wife (Irmgard); geometry and topology; 23 February to 5 April 1996; University of Canterbury; Dr Guenter Steinke; Erskine Fellow.

Dr Jonas Lundstedt, Department of Electromagnetic Theory, Royal Institute of Technology, Stockholm, Sweden; ; pde's, mechanics, computational mathematics; 3 February 1996 to 4 March 1996; University of Canterbury; Dr David Wall.

Professor John Mason; Open University, England; unaccompanied; mathematics education; August/Sept 1996; University of Auckland; Bill Barton; Visitor as part of British Council funded LINK scheme.

Dr Aisling Mccluskey; University College Galway; unaccompanied; topology; Febuary to April 1996; University of Auckland; Professor Ivan Reilly

Dr Marti McCracken; Universidad De Concepcion, Chile; ; statistics; 1 July to 31 December 1995; University of Otago; Prof Bryan Manly.

Professor Ray Mines, New Mexico State University, may be accompanied by wife; Jan-April 1996; constructive algebra and foundations of mathematics; University of Waikato; Professor D.S. Bridges.

Professor Isaac Namioka; The University of Washington (Seattle); accompanied by his wife; functional analysis and topology; August 1996; University of Auckland; Dr Warren B. Moors.

Dr. Katja Nieselt-Struwe; Max-Planck-Institut for biophysical chemistry in Göttingen; accompanied by husband and son and daughter; theoretical biology; 15 July 1995 to 15 July 1996; University of Auckland; Dr. Peter Wills; Feodor-Lynen scholar (Alexander von Humboldt Foundation);

Dr Peter Oliver; ; ; ; 24 March to 24 April 1997; University of Canterbury; Dr Mark Hickman; Erskine Fellow.

Dr Peter Ollson; Division of Mechanics, Chalmers Institute, Goteborg, Sweden; accompanied by wife and 2 children; pde's, mechanics, computational mathematics; 20 December 1995 to January 1996 and June/July 1996; University of Canterbury; Dr David Wall.

Professor Jeff Paris; University of Manchester; accompanied; logic; December 1995; University of Waikato; Graham French; tentative at this stage.

Dr Soeren Perrey; University of Bielefeld; accompanied by wife (Marlies) and son (Samuel); combinatorics (game theory), mathematical biology; November 1995 to October 1997; Massey University; Professor Mike Hendy; Post-doctoral Fellow.

Dr Burkhard Polster; University of Adelaide; ; geometry; March 1996; University of Canterbury; Dr Gunter Steinke.

Assoc. Professor Reinout Quispel; La Trobe University; ; Dynamical systems, numerical methods; February 1996; Massey University; Dr Robert McLachlan.

Dr Gordon Royle; University of Western Australia; ; combinatorial computing; January 1996; University of Auckland; Professor Marston Conder and Assoc. Professor Peter Gibbons.

Professor Robert Russell; Burnaby, Canada; ; applied mathematics; 1 September 1995 to 30 August 1996; University of Auckland; Dr Vivien Kirk.

Professor Romano Scozzafava; School of Engineering; Universita 'La Sapienza', Rome, Italy; ; subjective theory of probability in engineering; 9 August to 30 September 1996; University of Canterbury; Dr Frank Lad; Erskine Fellow.

Professor Alfred Karl Seeger; Max Planck Institut fur Metallforsching, Institut fur Physik, Stuttgart, Germany; accompanied by wife; solid state physics, special functions; 2 January to 27 March 1996; University of Waikato; Professor E Kalnins.

Professor Jiang Shouli; Shandong University; unaccompanied; topology; February to July 1996; University of Auckland; Professor Ivan Reilly.

Professor Leonard Scott, University of Virginia; accompanied by wife; group theory; 9 to 15 December 1995; University of Auckland; Dr Jianbei An.

Professor Anne Penfold Street; University of Queensland; ; combinatorics; February 1996; University of Canterbury; Dr Derrick Breach.

Professor Juergen Stueckrad; Department of Mathematics, University of Leipzig, Germany; algebraic geometry; March 1996; Massey University; Professor W Vogel.

Professor C I Vinsonhaler; University of Connecticut; accompanied by wife (Patty) and 2 children; algebra (abelian groups, partially ordered sets), teaching problem-solving skills, U.S. Calculus Reform Project; 13 May to 28 June 1996; University of Canterbury; Dr Kevin O'Meara.

Dr Tandy Warnow; Department of Computer Science, University of Pennsylvania; unaccompanied; theoretical computer science, combinatorics, computational biology, linguistics; 6 November to 2 December 1995; University of Canterbury; Dr Mike Steel; recipient NSF Young Investigator Award.

Richard Wilson; Universidad Autonoma Metropolitana, Mexico; ; topology; early 1997; University of Auckland; David Gauld

Professor Lawrence Zalcman; Bar Ilan University, Israel; accompanied by wife; complex analysis; 5 March 1995 to 12 March 1996; University of Auckland; Dr Joel Schiff.

The following overseas visitors will be attending the Tolaga Bay Workshop "Statistical mechanics conformal field theory and quantum groups" from 5 to 13 January 1996:

Rodney Baxter Australian National University.
Dietmar Bisch, University of California at Berkeley.
Peter Goddard University of Cambridge, England
Louis Kauffman, University of Illinois at Chicago
Ruth Lawrence, University of Michigan at Ann Arbor
Tetsuji Miwa, RIMS, Kyoto Japan.
Nicolai Reshetikhin, University of California at Berkeley.
Tim Ziman, CNRS, Toulouse, France.

Further details from David Gauld or Vaughan Jones.

Please note: Production of these lists is dependent on me receiving information. When you know about a visit (whether it be definite, very likely, or possible), would you please forward the details to me at the earliest convenient time. Thank you.

David Robinson, N.Z. Mathematical Society Visitors' Co-ordinator

Department of Mathematics and Statistics, Private Bag 4800, University of Canterbury, Christchurch, New Zealand

email: d.robinson@math.canterbury.ac.nz, fax: (03) 364 2587

CENTREFOLD

MARY DUNCAN FAMA

The wedding of an old gym mate took me to the Gold Coast in mid-November and created an opportunity to visit some more mathematical friends and colleagues in Brisbane and Wollongong. High on my priority list was a trip to the Queensland Centre for Advanced Technology at Pinjarra Hills, Brisbane, to catch up with Dr Mary Fama who works there for the CSIRO Division of Exploration and Mining. I had first met Mary (then Mary Duncan) in 1962, when she joined Applied Mathematics Laboratory, DSIR, shortly after graduating BA (First Class) in mathematics at Oxford after a first degree at Canterbury, New Zealand. We collaborated on a major project concerned with the deformation of ceramics during firing cycles and skirmished with haystack and woolbale problems, but Mary's interests gradually drifted towards elastic media problems involving beams, sewer pipes (as Mary says - good for cocktail party conversion) and ice strains. Somewhere along the way, she developed great expertise in programming and finite element analysis. In 1964 she left for Harvard with a Fulbright Travel Grant, a New Zealand Federation of University Women Fellowship and a Harvard Fellowship, completed a PhD in Applied Mathematics presenting a thesis on "The effect of a ring stiffener on the stress in a cylindrical shell with a longitudinal crack", and returned to the DSIR in 1967.

Marriage to Peter Fama and sharing divergent professional opportunities seems to have been raised to an art form from here on. There followed a year as temporary lecturer in the University of Sydney Department of Applied Mathematics in 1969, a year as a Rothman's Research Fellow in their School of Engineering and three years in the Department of Theoretical and Applied Mechanics in the School of Engineering at the University of Auckland, on a research contract concurrently supported by DSIR to work on NZ insulators and their stress strain characteristics. This work received meritorious commendation from Auckland University.

In 1973, Ian Dick, the founder of the Applied Mathematics Laboratory, and at that time head of the Mines Department, persuaded Mary to join his department as a research consultant to work on problems of mine structure and safety. Ian had a genius for finding talent and putting it to work in his organisations. Work here on the analysis of hollow inclusion cells for stress measurement led to a widely acclaimed publication in 1980 concerned with a definitive analysis of the CSIRO Hollow Inclusion Cell. Somewhere in here we need to fit in motherhood and three children (one set of twins) plus three terms as a temporary lecturer in the Mathematics Department at Waikato University in 1980.

In mid-1983, Mary and the family moved to Brisbane where Peter, a forensic psychiatrist, became Deputy Medical Superintendent of Wolston Park Hospital, and Mary joined the Geomechanics Division of CSIRO. A decade of work there on rock stress and elastic deformation analysis has established Mary as a leading international figure. It's not surprising she was invited to contribute a core chapter to Comprehensive Rock Engineering, the definitive work on rock engineering.

Her most notable research achievement is probably the development of a fundamentally new mathematical description of the constitutive behaviour of weak rock, including coal of course. This led to the development of a unique software package, FESOFT used to formulate a new coal pillar design method, in a world first, which was used for the design of the long narrow pillars for a major CSIRO-industry collaborative project for the new (to Australia) highwall mining technique. This involved a major breakthrough concerned with the methodology used to derive the modelling input parameters.

Let me return to my original story of a visit to CSIRO last month. I rang Mary shortly after arriving in Brisbane and found she had just arrived home from a trip to London to see her son, Chris. My friend (chauffeur) Mabo and I were invited out to have lunch. We were greeted by Mary on arrival and taken into her office where she had been busy on

a stress analysis problem which had arrived that morning from a coal mining company. Mary explained that she had designed for the company a system of pillars for the company of minimal volume to be left during the mining process to support the roof. Apparently the pillars were looking so good, the miners, in typical fashion, were planning to rob more coal from the pillars. Fortunately they requested a new analysis (to be done in an afternoon!) - and Mary was able to use the results of a hasty finite element analysis to persuade them not to be so greedy.

I should also mention she has been on the editorial board of Mining Science and Technology (1987-1991), has published over fifty papers, conference and other reports, receives many invitations to participate in and deliver keynote addresses at international conferences and has professional affiliations with five scientific, mathematical, geomechanical and mining societies. During her idle moments, Mary follows her interests in music and books and has developed a new interest in horseriding starting from last year. Her son Mick is doing a BSc, Chris is doing a PhD in relativity at ANU, and Suze has a BA Honours in anthropology and has a particular interest in tool behaviour in primates.

Alex McNabb

ANZIAM '96 CONFERENCE

Upwards of 120 participants are to converge on Masterton 4th-8th February 1996 for the annual Australasian Applied Mathematics conference. The largest and most long-standing regular such meeting in the southern hemisphere (started 1966), it is traditionally held away from a University centre and in a resort.

This is the third time it has been held in New Zealand...(1987 at Wairakei, 1991 at Hanmer Springs) and in 1996 the venue is the Solway Park Conference Centre in Masterton. It encompasses all areas of Applied Mathematics... modelling, methodology, numerical analysis, mathematical physics and biology, and operations research. For both Australia and New Zealand applied mathematicians it is regarded as the premier event on the conference calendar.

An impressive list of invited speakers have been included...

Don Cohen from the California Institute of Technology Ellis Cumberbatch from Claremont, California

Odo Diekmann from Utrecht in The Netherlands Eusebius Doedel from Montreal

Shigeo Kimura from Japan Alex McNabb from Auckland

Phil Pollett from Brisbane.

Also a mini-symposium on "MATHEMATICS IN AGRICULTURE" is arranged as part of the conference highlighted by the lecture by Odo Diekmann whose visit to New Zealand is sponsored by AgResearch, New Zealand's largest Crown Research Institute.

The conference is noted for its informal atmosphere and relaxed style. The overwhelming reaction of previous participants has been that this is welcomed. A full social programme has been included with a half-day excursion, barbeques, conference dinner and accompanying persons are catered for.

To be assured of accommodation and paper acceptance intending participants need to register before 8th December. Late applications maybe accepted without a guarantee of accommodation at the main venue. Further detail can be obtained from the Secretariat, ANZIAM@massey.ac.nz or the Conference Director, Graeme Wake, University of Auckland, Tel (09)373-7599 ext 6826 or fax (09) 373-7001 or e-mail g.wake@auckland.ac.nz

This is an important occasion for New Zealand applied mathematics and provides an opportunity to highlight its central role and ubiquitous nature.

Graeme Wake

NOTICES

MATHEMATICA CONTINUES TO DEVELOP

Ray Hoare, owner of Hoare Research Software, recently attended the Mathematica Developers conference in Champaign, Illinois. About 200 users, developers and resellers heard Stephen Wolfram, founder of the company that makes Mathematica, describe the recent activities of his 200 staff.

A notable development in recent time has been the production of applications packs, that make it easy to put the immense but sometimes daunting power of Mathematica to work on the user's problems. The packs contain pre-programmed documents that get you started quickly, or which add functionality. For instance (there are many more functions than these in the packs mentioned) the Mechanical Systems pack contains tools to model the motion of multibody mechanical systems. The Finance pack contains finance calendar functions and sensitivity measures for Options.

There are now more than 20 of these packs, many of them designed to facilitate teaching of mathematical concepts.

A link with Microsoft Word 6 is about to be released, which will allow you to create a document with all the layout power and flexibility of Word, that incorporates the mathematical and graphics capability of Mathematica.

These additions, and major developments of the user interface, are designed to expand Mathematica's user base. In future, many more people will find that Mathematica provides an accessible as well as a powerful and accurate tool for their needs for computation in many areas of education, industry and finance.

Ray also caught up with developments in Matlab, SPSS and several other programs while he was away - email him if you want details.

Ray Hoare, Hoare Research Software

Email Ray_Hoare@hrs.co.nz

PETER DSCHENFFZIG FOUND

In the NZMS Newsletter No.64, I reported that Hans Lausch (of Monash University) is doing research into refugee mathematicians during World War 2. Many refugees in the U.K. were interned, and thousands of them were deported to internment camps in Australia. Many were killed by Nazi submarines, on their way back to England - but some stayed in Australia. Felix Behrend was released from detention and appointed to the Department of Mathematics at Melbourne University, He had organized mathematics courses for other refugees in internment camps. Peter Dschenffzig took those courses, and Hans Lausch had evidence that he had later lectured in mathematics at universities in England, South Africa and New Zealand. I had never heard of Peter Dschenffzig, and Hans Lausch appealed for information about him.

Three weeks after my report was published in Newsletter No.64 (for August 1995), I received a letter from a poet friend:

"Dear Garry,

Bera MacClement sent me your query about Peter Dschenffzig. I know him well: he happens to be myself"

I have been a friend of the poet for many years, when he was a Senior Lecturer in the Department of English at the University of Auckland (now retired). Never had he mentioned to me that he used to lecture in mathematics, under another name!

I had placed a photocopy of pages 16 & 17 of the Newsletter No.64, with my note about "Sculptures by Leigh Christensen", in our Department of Physics Common Room. Dr Bera MacClement saw that photocopy, with the enquiry about Peter Dschenffzig also appearing on page 16. She knows the poet through Friends of the Earth, and she had chanced upon a mention by him that his name had formerly been Peter Dschenffzig. She knew that the poet had lectured in English at Makerere University College in Uganda (not in South Africa), so she considered that Hans Lausch's enquiry probably related to him, and she posted the photocopy to him.

Hans Lausch is delighted with the fruitful outcome of his appeal for information.

Garry J. Tee, University of Auckland

NEWS ABOUT NZ SCIENCE

Keep up to date with what happens in science and technology around New Zealand with the recently-launched Science Digest - a summarised newsletter published monthly by The Royal Society of New Zealand.

The four-page Digest is packed with short, easy-to-read news items about science and technology.

The Digest's key role is to communicate news from the national Society to branches, constituent societies, and individual members of the Royal Society, and to other organisations such as universities, polytechnics, research institutes, educational organisations and schools.

The Society has a growing and varied range of activities such as in science and technology education; science publishing (including seven science journals); specialised science committees, involvement in awards, fellowships, lecture tours etc; plus liaison with Government science agencies, universities, polytechs and industry. Single copies of Science Digest are distributed to each Royal Society branch, individual scientific societies and affiliated societies, as well as to each CRI, research association, and relevant university and polytechnic departments. Societies may care to insert the Digest with their newsletters or to reprint relevant items. Science Digest has been designed to be easily photocopied for further distribution. Up to 10 copies will be made available free of charge to branches and constituent and affiliated societies. Bulk supplies (over 10 copies) are available at cost to any organisation.

If you want a free copy of Science Digest mailed each month to your address, become a member of the Royal Society. The individual membership fee is $40 a year which goes to support the many aspects of the Society's work.

News from constituent societies, and branches can be sent to the Communication Editor, The Royal Society of New Zealand, Box 598, Wellington Fax (04)473-1841 or E-mail: science.digest@rsnz.govt.nz

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"SILVER MEDAL AT THE 36TH INTERNATIONAL MATHEMATICAL OLYMPIAD"

New Zealand was represented at the 36th International Mathematical Olympiad by the following team : James McGowan, Burnside High School; Clare and Tim McLennan,Riccarton High School; Jasper Morrow, Onslow College; Russell Neilson, Rotorua Boys' High School; Kevin Ross, Burnside High School. Ivan Reilly of The University of Auckland was team leader; David Wallace of Wellington (NZ's first IMO silver medalist -1988) was deputy leader and Arkadii Slinko, also of Auckland University, was team coach. The IMO was held in Toronto from July 16-25 and the questions proved harder than usual.

Thus it was most encouraging that James McGowan achieved a silver medal - only the second to be won by a NZ student since our first participation. It is harder now to reach that standard as the fragmentation of the old USSR has meant many more top level students from that area. Tim McLennan gained a bronze medal and Russell Neilson just missed one but obtained an `honourable mention'. The team and the NZ Mathematical Olympiad Committee are most grateful for financial support from the NZMS.

Gordon A. Hookings

e-mail hookings@mat.auckland.ac.nz

Questions from the First Day, July 19, 1995

1 Let A, B, C and D be four distinct points on a line, in that order. The circles with diameters AC and BD intersect at the points X and Y. The line XY meets BC at the point Z. Let P be a point on the line XY different from Z. The line CP intersects the circle with diameter AC at the points C and M, and the line BP intersects the circle with diameter BD at the points B and N. Prove that the lines AM, DN and XY are concurrent.

2 Let a, b and c be positive real numbers such that $abc = 1$. Prove that

$$\frac{1}{a^3(b+c)} + \frac{1}{b^3(c+a)} + \frac{1}{c^3(a+b)} \geq \frac{3}{2}.$$

3 Determine all integers $n > 3$ for which there exist n points

$$A_1, A_2, \cdots, A_n$$

in the plane, and real numbers

$$r_1, r_2, \cdots, r_n$$

satisfying the following two conditions:

(i) no three of the points

$$A_1, A_2, \cdots, A_n$$

lie on a line;

(ii) for each triple

$$i, j, k \quad (1 \le i < j < k \le n)$$

the triangle

$$A_i A_j A_k$$

has area equal to

$$r_i + r_j + r_k$$

.

Time allowed: - $4^1/2$ hours.

Each problem is worth 7 points.

Questions from the Second Day, July 20, 1995

4 Find the maximum value of X_0 for which there exists a sequence of positive real numbers $X_0, X_1, \cdots, X_{1995}$ satisfying the two conditions:

(i) $X_0 = X_{1995}$.

(ii) $$X_{i-1} + \frac{2}{X_{i-1}} = 2X_i + \frac{1}{X_i}$$ for each $i = 1, 2, ..., 1995$.

5 Let *ABCDEF* be a convex hexagon with

AB = *BC* = *CD*,
DE = *EF* = *FA*,
and

$$\angle BCD = \angle EFA = 60^\circ$$

.

Let *G* and *H* be two points in the interior of the hexagon such that $\angle AGB = \angle DHE = 120^\circ$. Prove that

$$AG+GB+GH+DH+HE \geq CF$$

.

6 Let p be an odd prime number. Find the number of subsets A of the set $\{1,2,...,2p\}$ such that

(i) A has exactly p elements, and

(ii) the sum of all the elements in A is divisible by p.

Time allowed: - $4^1/2$ hours.

Each problem is worth 7 points.

REPORT AND MINUTES OF MEETINGS

MINUTES OF THE TWENTY-FIRST ANNUAL GENERAL MEETING

TUESDAY 29 AUGUST, 1995

The meeting was held at the University of Otago and began at 5.25pm.

PRESENT: Marston Conder (Chair), David Alcorn, Rod Ball, Rick Beatson, Mike Camden, Shaun Cooper, David Gauld, Lynne Gilmore, Paul Hafner, Angele Hamel, Harold Henderson, Derek Holton, Ernie Kalnins, Chris King, Dennis McCaughan, Mark McGuinness, David McIntyre, Ingrid Rinsma-Melchert, Bernhard Neumann, Mick Roberts, John Shanks, Arkadii Slinko, Chris Stephens, Garry Tee, Mavina Vamanamurthy, Graeme Wake, Shayne Waldron, Mark Wilson.

APOLOGIES: Douglas Bridges, Dean Halford, Mike Hendy, Margaret Morton, Gloria Olive, Wolfgang Vogel.

1. MINUTES OF THE TWENTIETH ANNUAL GENERAL MEETING

It was moved from the chair that the minutes of the previous meeting be accepted as a true and accurate record. The motion was carried.

Matters arising:

(a) Mathematical and Information Sciences Council: Marston Conder outlined the establishment of this Council which has now been accredited by the Royal Society of NZ as its standing committee for Mathematical and Information Sciences, with our electoral college representative, currently Graeme Wake, as convenor.

(b) Joint meeting with Australian Mathematical Society: this is now confirmed to take place in Auckland during the week 7-11 July 1997.

(c) NZQA Unit Standards in Mathematics: A somewhat emotional debate surrounded this issue, following a brief report from Derek Holton on the trial in some schools of the unit standards which seem certain to be imposed, and comments also from Mike Camden.

(d) MoRST/FoRST funding: Marston Conder reported on discussions held by a small working party prior to the establishment of the Marsden Fund, and it was agreed that the NZMS should continue to monitor the funding situation for research in the mathematical sciences, together with other constituents of the Mathematical and Information Sciences Council.

2. PRESIDENT'S REPORT

The President's report was delivered to the meeting and will be published in the NZMS Newsletter. It was moved (Bernhard Neumann/ David Gauld) that the President's report, with a correction to its date, be approved. The motion was carried.

3. TREASURER'S REPORT

Mark McGuinness (NZMS Treasurer) presented the financial report, with a recommendation for no subscription increase, and this report was approved.

4. ANNUAL SUBSCRIPTIONS

A report from the Membership Secretary, John Shanks, was circulated. It was moved (Mick Roberts/Ingrid Rinsma-Melchert) that there be no change to membership subscriptions for 1996. The motion was carried.

5. ELECTION OF COUNCIL MEMBERS FOR 1995-98

Previously received nominations for the two vacancies on Council were Stephen Joe and Mike Hendy. In the absence of other nominations from the floor the chair declared these two persons elected to Council. This was greeted with acclamation.

6. 1996 NZ MATHEMATICS COLLOQUIUM

It was announced (following the Colloquium business meeting) that the NZ Mathematics Colloquium would next convene at Massey University in the first week of July 1996.

7. NZ JOURNAL OF MATHEMATICS

David Alcorn reported on behalf of the Journal Committee, including an explanation for a delay in the current issue caused by typing problems, and noting a rise in the cost of paper was likely to lead to a moderate increase in the price of subscriptions.

8. RSNZ ELECTORAL COLLEGE REPORT

Graeme Wake reported on the detailed activities of the Royal Society of NZ and its efforts to play an active role in advising Government on scientific research. In particular (with respect to the Mathematical and Information Sciences Council) he mentioned input on NZQA proposals, administration of the Marsden Fund, and efforts to synchronise conference dates.

9. PROPOSAL FOR OPTIONAL ACCREDITATION

Marston Conder explained a draft proposal for a three-tier accreditation structure similar to one adopted by the Australian Mathematical Society. A brief discussion followed, and members were invited to submit comments to the NZMS Secretary before a revised draft would be published in the NZMS Newsletter in advance of required changes to the Society's Constitution.

10. GENERAL BUSINESS

(a) Marston Conder announced the establishment of a home page for the Society, including sub-pages on various NZMS activities, and with links to pages for the Newsletter and the NZ Journal of Mathematics. [The URL address appears on page 2 of this newsletter - editor.] Discussion took place on the notion of a central directory of NZ mathematicians, and members were invited to convey suggestions to the NZMS Secretary.

(b) A vote of thanks was moved (David Gauld/Derek Holton) to the outgoing President and carried by acclamation. Marston Conder then moved a vote of thanks to the outgoing Council, and again this was carried by acclamation.

The meeting closed at 6:30 pm.

MINUTES OF THE THIRTY-SEVENTH COUNCIL MEETING

MONDAY 28 AUGUST, 1995

The meeting was held at the University of Otago and began at 5.00pm

PRESENT: Rick Beatson, Marston Conder (Chair), Ernie Kalnins, Dennis McCaughan, Mick Roberts.

APOLOGIES: Douglas Bridges, Robert Chan, Mike Hendy, Mark McGuinness, Margaret Morton.

1. MINUTES OF THE THIRTY-SIXTH COUNCIL MEETING

The minutes of the previous meeting (held by teleconference on 25 November 1994) were received and approved. Matters discussed by email earlier in the year were also noted.

Matters arising from the minutes:

(a) Joint meeting with the Australian Mathematical Society: This has been confirmed for the week 7-11 July 1997 at Auckland, with the possible participation also by the NZ Statistical Association.

(b) Publications: David McIntyre has taken over as publications convenor and is looking into the possibility of NZMS publication of an undergraduate text in discrete mathematics.

(c) Careers Brochure: this has now been completed and widely distributed.

2. TREASURER'S STATEMENT

A report from Mark McGuinness on the state of the Society's finances was tabled and approved. Also a report from John Shanks (Membership Secretary) was tabled and approved, and it was decided to recommend no change to the annual membership subscription for 1996.

3. REQUESTS FOR FINANCIAL ASSISTANCE

The following grants discussed by electronic mail in May were formally approved: $500 to the NZ Mathematical Olympiad Committee, $200 to Charles Semple (Wellington), $500 to Vivien Kirk (Auckland), and $300 to Fiona Taylor (Massey).

Grants of $200 made by the organisers of the Aitken Centenary Conference on behalf of the Society to the following student participants were endorsed: E. Balakrishnan (Massey), I. Pestov (Wellington), C. McDonald (Wellington), T. Rangiwhetu (Wellington), C. Semple (Wellington).

Several additional requests for grants were considered, and with limited funds set aside for disbursement it was decided to attempt to support as many postgraduate students and young post-doctoral researchers as possible. The following grants were made:

$100 to Nan Zhu (Waikato); $150 to Irene Pestov (Wellington); $200 to each of David Bryant (Canterbury), Angele Hamel (Canterbury), Kerry Richardson (Auckland), and Alexander Zwart (Waikato). All other grant requests were declined.

4. COUNCIL NOMINATIONS FOR 1995

Nominations for the two forthcoming vacancies on Council were discussed, and it was noted with approval that Stephen Joe had agreed to serve as NZMS Secretary if elected.

5. MATHEMATICAL AND INFORMATION SCIENCES COUNCIL OF NZ

Marston Conder reported on activities and concerns of this new body, which is to meet regularly as the RSNZ standing committee on Mathematical and Information Sciences, with our electoral college representative (currently Graeme Wake) as convenor. Graeme Wake has offered to continue in that role until the next college representative election to be held in 1996.

6. NZ JOURNAL OF MATHEMATICS

A report from the Editor (John Butcher) and additional comments from the NZJM Committee describing the progress of the journal were received and approved.

7. NZMS RESEARCH AWARD 1995

Marston Conder read a report from the judges in which they stated how impressed they were with the field of candidates for this year's award. [The awards were subsequently announced at the Aitken Conference Dinner, to Vladimir Pestov (Victoria University of Wellington) and Neil Watson (University of Canterbury), notices were released to the press, and citations appear on page 7 of this Newsletter - editor.]

8. NZMS AITKEN PRIZE

Marston Conder reported on arrangements for the assessment of student candidates for the Aitken Prize, and the judging panel was approved.

9. NZMS VISITING LECTURESHIP

Ernie Kalnins reported on arrangements for the visit by Roger Grimshaw (Monash) in 1995, and candidates for the 1996 Visiting Lectureship were discussed but it was decided to postpone the selection until after the AGM.

10. FORDER LECTURESHIP 1997

Marston Conder announced that Ian Stewart had accepted the offer of the Forder Lecturership for 1997 (subject to confirmation by the LMS Council in October).

11. PROPOSAL FOR OPTIONAL ACCREDITATION

Marston Conder tabled a draft proposal outlining a three-tier accreditation structure based on the scheme adopted by the Australian Mathematical Society, and this was discussed in advance of placing it before the AGM for consideration.

12. WORLD WIDE WEB SITE

The draft NZMS home page was noted and discussed, especially with regard to its location and possible links to pages for the Newsletter, the Journal (including a table of contents), and a directory of NZ mathematicians. Some concern was raised that the home page appeared to reflect activities of university mathematicians rather than the Society as a whole.

13. NZMS HONORARY MEMBERSHIP

In recognition of their contributions to mathematics in New Zealand, Roy Kerr and Wilf Malcolm were elected to honorary memberships of the NZMS. A letter and certificate will be sent to each of them.

14. GENERAL BUSINESS

General business consisted of final approval of some matters that were held over from earlier.

The meeting closed at 7:20 pm.

MINUTES OF THE THIRTY-SIXTH COUNCIL MEETING

FRIDAY 25 NOVEMBER, 1994

The meeting was held by teleconference and began at 2pm.

PRESENT: Rick Beatson, Douglas Bridges, Marston Conder (Chair), Mike Hendy, Ernie Kalnins, Dennis McCaughan, Mark McGuinness, Margaret Morton, Mick Roberts.

APOLOGIES: Robert Chan (by email).

Marston welcomed Dennis McCaughan and Mick Roberts to their first Council meeting.

1. MINUTES OF THE THIRTY-FIFTH COUNCIL MEETING

The minutes of the previous meeting (held on 8 May 1994) were received and discussed.

Matters arising from the minutes:

(a) Joint meeting with Australian Mathematical Society: We are still awaiting confirmation from the AMS Council, but tentative approval has been given for a joint AMS/NZMS meeting at Auckland, 7-11 July 1997. It is hoped that this meeting can be held back-to-back with the International Congress in Mathematical Physics proposed for Brisbane in 1997.

(b) Peter Renaud (NZMS legal advisor) has approved the publications agreement received from the NZJM, it has now been signed by Marston Conder (on behalf of the NZMS) and Associate Professor Vamanamurthy (Acting Head of the Mathematics Department, University of Auckland).

(c) David McIntyre (Auckland) has agreed to be the new Publications Convenor.

(d) Mike Hendy reported that Oxford Publicity had agreed to give a $350 donation plus $50 to cover costs to the NZMS for inclusion of material with the NZMS Newsletter.

2. TREASURER'S REPORT

Mark McGuinness gave a report on the state of the Society's finances, and this was approved.

3. GRANT REQUESTS

The following grants were approved:

- NZ Mathematics Olympic Committee ($500) to help with the cost of sending a team to the 35th IMO in Hong Kong in 1995. - Irene Pestov ($250) to attend a two meetings in Australia in 1995: the Mathematics in Industry

Study Group (Melbourne) and ANZIAM'95 (Perth) - Mark Johnston ($500) to attend the TIMS/ORSA Joint National Meeting in Los Angeles in 1995.

4 COUNCIL NOMINATIONS FOR 1995

Bob Chan and Mike Hendy are due to retire from Council in 1995, and an announcement calling for nominations to fill these two vacancies will be included in the next NZMS Newsletter. Also a new Secretary will be required in 1995 when Margaret Morton relinquishes this position.

5. NZ MATHEMATICS COLLOQUIUM

The 1995 Mathematics Colloquium will be held in Dunedin from August 28 to September 1, as part of the Aitken Conference. It was agreed that the NZMS would provide the organisers of the Mathematics Colloquium $1500 to cover general expenses, and $1000 for assisting students to attend the Colloquium (with distribution of this $1000 to be arranged in consultation with the NZMS President).

6. NZMS VISITING LECTURERS.

A report has been received from Colin Maclachlan, the 1994 NZMS Visiting Lecturer, and will be printed in the next NZMS Newsletter. Roger Grimshaw (Chair of Applied Mathematics at Monash University, Australia), will be the 1995 NZMS Visiting Lecturer. He is likely to tour in November 1995. Ernie Kalnins agreed to act as tour coordinator. Nominations are now being called for the 1996 NZMS Visiting Lecturer.

7. MATHEMATICAL & INFORMATION SCIENCES COUNCIL

Marston Conder reported that the Mathematical Sciences Council of NZ has been renamed the Mathematical and Information Sciences Council of NZ (with inclusion of representatives of the Informatics special interest group of the NZ Computer Society), and has been accredited as the RSNZ standing committee on Mathematical and Information Sciences. A report on its September meeting will be published in the NZMS Newsletter.

Marston Conder reported on the restructuring of the PGSF classification, and on establishment of the "Marsden Fund" (which is hoped will provide more grants for research in the mathematical sciences). It was decided the working party should remain in place to monitor further developments.

9. UNDERGRADUATE SCHOLARSHIPS

Council members discussed correspondence from Robert McLachlan (Massey University) proposing that the NZMS set up a fund for undergraduate scholarships in the mathematical sciences. It was agreed that this was an excellent idea, and Robert should be co-opted to Council and asked to convene a working group (along with Douglas Bridges and Mark McGuinness) to pursue the proposal further.

10. CAREERS BROCHURE

Liz Godrey (Liaison Officer for Women in Engineering and the Physical Sciences at the University of Auckland) is now in charge of producing a brochure and posters advertising careers in the mathematical sciences, with 25% sponsorship from each of the NZMS and NZSA. This project is well underway, with an expected completion date in February 1995.

PRESIDENT'S REPORT 1994/95

I am pleased to report on the activities of the NZ Mathematical Society for the year 1994/95.

Mathematical and Information Sciences Council

One of the most exciting and significant developments over the last two years has been the establishment of the Mathematical and Information Sciences Council of NZ, comprising executive representatives of the NZMS, the NZ Statistical Association, the Operational Research Society of NZ, the NZ Association of Mathematics Teachers, the Informatics group of the NZ Computer Society, and Fellows of the Royal Society of NZ. This Council has now been accredited by the Royal Society of NZ as its standing committee for Mathematical and Information Sciences, with Graeme Wake (our electoral college representative) as convenor. As well as providing liaison between the constituent societies, it has the prospect of becoming a strong and effective lobby group for well over 2000 professional mathematicians, statisticians and mathematics teachers in New Zealand.

Joint Meeting with Australian Mathematical Society

The Council of the Australian Mathematical Society has enthusiastically agreed to our proposal to hold a joint conference in Auckland,

during the week 7-11 July 1997. This will be the first such meeting after a break of several years, but now that NZ universities are moving towards semesters I hope it will not be so long before the next one! It should be a great event, with possible joint participation also by the Statistical Association, and with the likely attraction of many overseas participants and speakers to and from the 1997 Congress of the International Association of Mathematical Physicists to be held in Brisbane the following week.

International Mathematical Union

Last year I attended the General Assembly of the International Mathematical Union in Luzern, two days before the International Congress of Mathematicians in Zurich. Aside from the usual politics of electing IMU committees, it was announced that the next ICM is to be held in Berlin in 1998, and that the IMU has designated the year 2000 as "World Mathematical Year". Also a provisional bid was lodged by Australia to host the ICM in 2002, which of course I was very pleased to support as NZ delegate. I am grateful to the Royal Society of NZ for assistance with my travel costs in attending this meeting.

National issues

The NZMS made a positive submission on the establishment of the Marsden Fund (for basic research), and supported a proposal that Quantitative Methodologies for Generic Modelling be designated as a "key science area" by the Ministry for Research, Science and Technology. Also submissions were made to the NZ Qualifications Authority on their draft unit standards in Mathematics, and Council is keeping a watching brief on possible changes to Bursary exams.

Visiting Lecturers

The fifth Forder Lecturer is Elmer Rees, of the University of Edinburgh, a particularly appropriate choice in this Aitken Centenary year as he is the current holder of the Chair previously occupied by Aitken in Edinburgh. We are grateful to the British Council and the London Mathematical Society for supporting his visit.

The 1995 NZMS Visiting Lecturer is Roger Grimshaw (Professor of Applied Mathematics at Monash University), whose tour in November this year will be co-ordinated by Ernie Kalnins. Council is in the process of selecting the NZMS Visiting Lecturer for 1996.

Financial Grants

Council has made the following grants between May 1994 and July 1995:

NZ Mathematics Colloquium 1995 $ 1500

Student travel for 1995

(eight students) 2000

NZ Journal of Mathematics 1000

Forder Lecturer 1995 750

Research fund assistance (one grant) 500

Donation to NZ Mathematical

Olympiad Committee 500

Total $ 6250

Careers brochure and posters

The NZMS collaborated with the NZ Statistical Association and university departments in the production late last year of an upbeat careers brochure and posters on the theme "Maths adds Opportunities". These have been widely circulated to schools around the country, and the feedback has been very positive. Our thanks and almost all of the credit for their production must go to Liz Godfrey (a Liaison Officer at the University of Auckland).

NZMS Student Prize

The NZMS Council has established an annual prize for the best talk or paper presented by a student at the NZ Mathematics Colloquium. Known as the Aitken Prize, in honour of the Dunedin-born mathematician Alexander Craig Aitken (1895-1967), this prize will be awarded for the first time in 1995.

NZMS Research Award

NZ Mathematical Society Research Awards for 1995 go to **Dr Vladimir Pestov** (Victoria University of Wellington) "for his creative and ingenious research in areas ranging from topological groups and Lie theory to the nonstandard analysis of superspace, in which he has solved long-standing open problems as well as demonstrating his breadth and depth of understanding and a gift for elegant and colourful exposition", and to **Dr Neil Watson** (University of Canterbury) "for an outstanding series of research articles on harmonic functions and potential theory, in which he has introduced new ideas and tools, and deep analyses, that have resulted in new and improved approaches to classical theorems and led to their generalisation to more abstract situations".

The judges for this year's round described the field of nominees as truly outstanding, and considered that the Society "could have chosen to make several awards all in this one year, with great and justifiable pride in these achievements of its members". I am grateful to the judges for their efforts, and especially for their encouraging comments on the standard and health of mathematical research in New Zealand.

Honorary Memberships

The NZMS Council has elected Professors **Roy Kerr** and **Wilf Malcolm** to Honorary Life Memberships of the Society, in recognition of their contributions to mathematics in NZ over several years.

Personal

It is a pleasure to offer congratulations to a long list of NZMS members for awards and distinctions received over the last year: to **Bernhard Neumann** (NZMS Honorary Life Member) on his award of Companion of the Order of Australia, **Rod Downey** on his award of the NZ Association of Scientists Research Medal for 1994 and on his appointment to a personal chair in Mathematics at Victoria University of Wellington, **Ivan Reilly** on his appointment to a personal chair in Mathematics and Mathematics Education at the University of Auckland, **Vernon Squire** on his election to a Fellowship of the Royal Society of NZ, and **Mike Steel** on his award by the RSNZ of the Hamilton Memorial Prize for 1994.

With sadness we note the deaths of J.T. Campbell in July 1994 and Peter Bryant in November 1994, and offer sympathy to their families. Both made substantial contributions to the NZ mathematical community, and they will be missed by all of us.

Finally I would like to thank members of Council and others for their valuable contributions to the Society's activities, especially Margaret Morton (Secretary), Robert Chan and Mike Hendy, who complete their terms on Council this month, Mark McGuinness (Treasurer), John Shanks (Membership Secretary), and John Butcher and Mike Hendy, Editors of the Journal and the Newsletter respectively. Also I would like to offer particular thanks to Derek Holton for representing the NZMS on the NZQA's Advisory Group (not an easy exercise), to Harold Henderson (President of the NZ Statistical Association) for his regular communication on several important issues, and to all those people who provided support and advice during my term as President.

Marston Conder

29 August 1995

GRANTEE REPORTS

Zhu Nan: University of Waikato

During Aug 31 and Sept 1, I attended the 31st Annual Conference of the Operational Research Society of New Zealand. The Conference was held in Wellington. OR people are interested in solving real problems by mathematical methods with the aid of computers. The dairy industry, telecommunications, electricity, forestry, transportation, farming, etc., are fields in which advanced OR methods are being used.

Many of the reports on theory and practice of OR given by the participants were very interesting. I know the Conference will prove useful for me in future research. At the Conference I gave a report "On dominated terms in the general Knapsack Problem". The research work is supervised by Associate Professor Kevin Broughan. The Knapsack Problem is an NP-hard problem in Mathematical Programming, and in many cases a very large number of integer variables can be eliminated before a solution method is used. I am very grateful to the New Zealand Mathematical Society for their generous support.

Alec Zwart: University of Waikato

In August 1995 I attended the MAHYD 95 conference on magnetohydrodynamics (MHD) at Jurmala in Latvia. The

conference covered all aspects of MHD theory and engineering, including the modelling of phenomena in aluminium reduction cells, on which topic I presented a poster. Most of the attendees were either European or Russian, so my supervisor and I were of some interest, having travelled from so far to attend! It was most interesting to see some of the other work taking place in the field of MHD, and to make contacts with those studying areas related to my own.

The town of Jurmala is a very beautiful seaside resort, a small town embedded in a pine forest next to the Baltic. Just before we left, we had the opportunity to see the old section of the Latvian capital Riga, with its beautiful architecture and rather sad history.

I wish to express my gratitude to the New Zealand Mathematical Society for their support. Attending the conference was an experience both amazing and very rewarding

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Vivien Kirk: University of Auckland

In May and June of 1995 I spent three and a half weeks in the USA. The main reason for my trip was to attend the Third SIAM Conference on Applications of Dynamical Systems, but I took the opportunity to visit several colleagues as well. The SIAM meeting was held in Snowbird, Utah from May 21 to 24. This meeting is held every two years or so, and is one of the main meetings in the Dynamical Systems community, with about 400 participants from many disciplines, especially Mathematics, Physics, Biology, Chemistry and Engineering. Most participants gave a talk or a poster or both, with the consequence that the programme was very interesting but completely overwhelming. I was particularly impressed with the standard of the plenary talks; the speakers had without exception made a large and very welcome effort to ensure that their presentations
were accessible to their audience, a task made more difficult than usual by the wide range of disciplines represented at the conference.

I spent three days before the conference visiting colleagues in the Mathematics and Physics Departments at the University of California, Berkeley, and spent two and a half weeks after the conference working on collaborative projects at Utah State University, Logan and at Northwestern University. These visits were all stimulating and good progress was made on a number of projects.

I am most appreciative of the hospitality given to me by people at the various institutions I visited, and am grateful to the New Zealand Mathematical Society and to my department for helping cover the costs of this most valuable trip.

Applications for Financial Assistance

The application form is printed in the Newsletter, Pp37-38.

POSITIONS AVAILABLE

Two PhD studentships

University of Canterbury

New Zealand

The Biomathematics Research Centre (a research centre currently being set up, associated to the Department of Mathematics and Statistics at the University of Canterbury, New Zealand) is offering two PhD studentships (of approximately NZ$12,000 each, for each of three years) beginning in 1996, to exceptional students, one for each of the following two projects. The closing date for applications is January 15, 1996. Applications, including full cv, should be sent to the respective supervisor at: Department of Mathematics and Statistics, University of Canterbury, Private Bag, Christchurch, New Zealand (Fax: (0064)-3-364-2587). The successful applicants will be notified on February 1, and would be expected to start in March, 1996. No course work is necessary for a PhD in New Zealand, and PhD fees for New Zealand and Australian citizens are NZ$2400 in 1996. For further information, please contact either of the supervisors directly.

Project 1: (supervisor, James Sneyd; j.sneyd@math.canterbury.ac.nz)

Title: Mathematical models of calcium oscillations and waves.

This project will involve the construction and analysis of models of intracellular and intercellular calcium wave propagation, and their comparison to experimental data. An interest in differential equations, bifurcation theory, reaction-diffusion equations and scientific computing is desirable. No background biological knowledge is necessary, but the student will be expected to learn considerable amounts of cell physiology during the course of the

thesis.

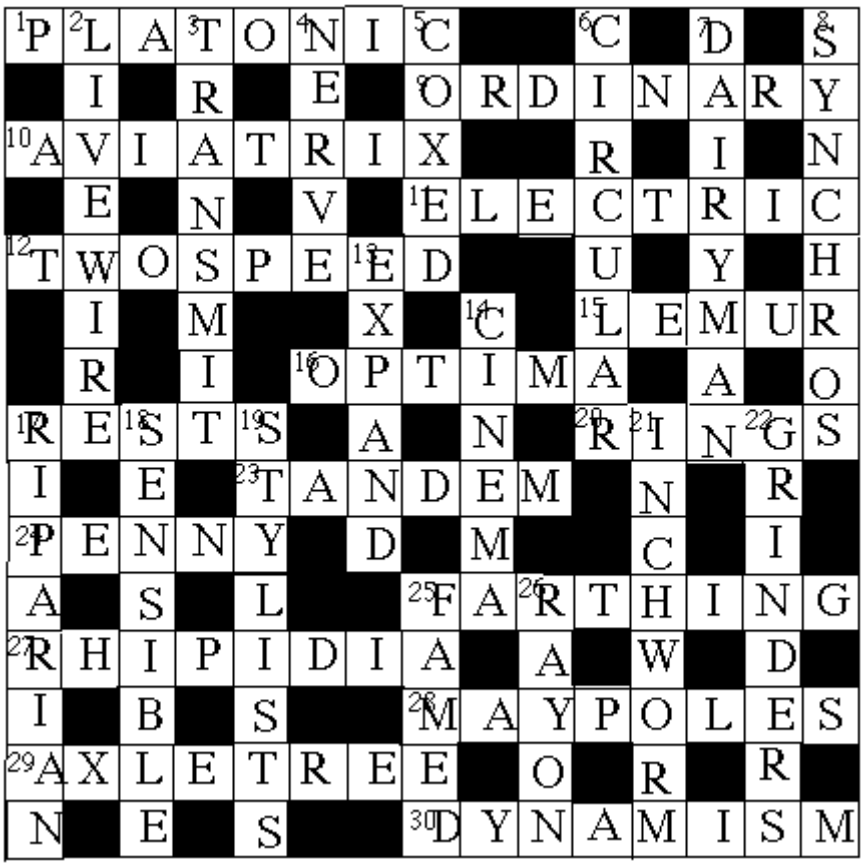
Project 2: (supervisor, Mike Steel; mas@math.canterbury.ac.nz).

Title: Analysis of "covarion" models of site substitution in DNA sequences, with an underlying evolutionary tree.

This project aims to develop new techniques and theory for analysing certain models for DNA sequence evolution, and to test the results on real data. The ideal applicant would have expertise in probability theory and discrete mathematics; some programming skills, and some background in genetics. An ability to communicate with biologists would also be useful!

CROSSWORD N^{o}46

by Matt Varnish



ACROSS

1. Soul to soul for a great year? (8)

9 Commonplace 24 25. (8)

10 High flier one by way of triple cross. (8)

11 Extraterrestial cleric could be charged. (8)

12 Doubly rated gentleman's conveyance? (3-5)

15 Roman ghost from Madagascar hear a preliminary proposition. (5)

16 A little work before Tiny one for test results. (6)

17 Intervals of silence in purest sounds. (5)

20 Calls mathematical systems. (5)

23 Possibly a 12 for the former Miss Bell. (6)

24 and 25. Cheap distant object with pedalled front wheel. (5, 8)

27 With it with personal proof in state a number of fanlike inflorescences. (8)

28 Can rods be the axes of country dancing? (8)

29 Garlic and sapphires here according to Old Possum. (8)

30 Nothing left off the 11 motor is mass of restless energy. (8)

DOWN

2 Sharp one lethal if 11. (4, 4)

3 Send on over smart tin. (8)

4 Cheek a body's messenger. (5)

5 Had one over the eight? (5)

6 Round advertising material. (8)

7 Many raid split milk worker (perhaps a misspelt Pepys). (8)

8 Vernacular water events could lead to shy corns. (8)

13 Increase, due to adult movie's adverse criticism? (6)

14 In came damaged films. (6)

17 Tear Aristotle briefly an adjective for banks. (8)

18 Line Bess made thinking well. (8)

19 Pighouse rotas for hairdressers. (8)

21 Short measure still part looper caterpillar. (8)

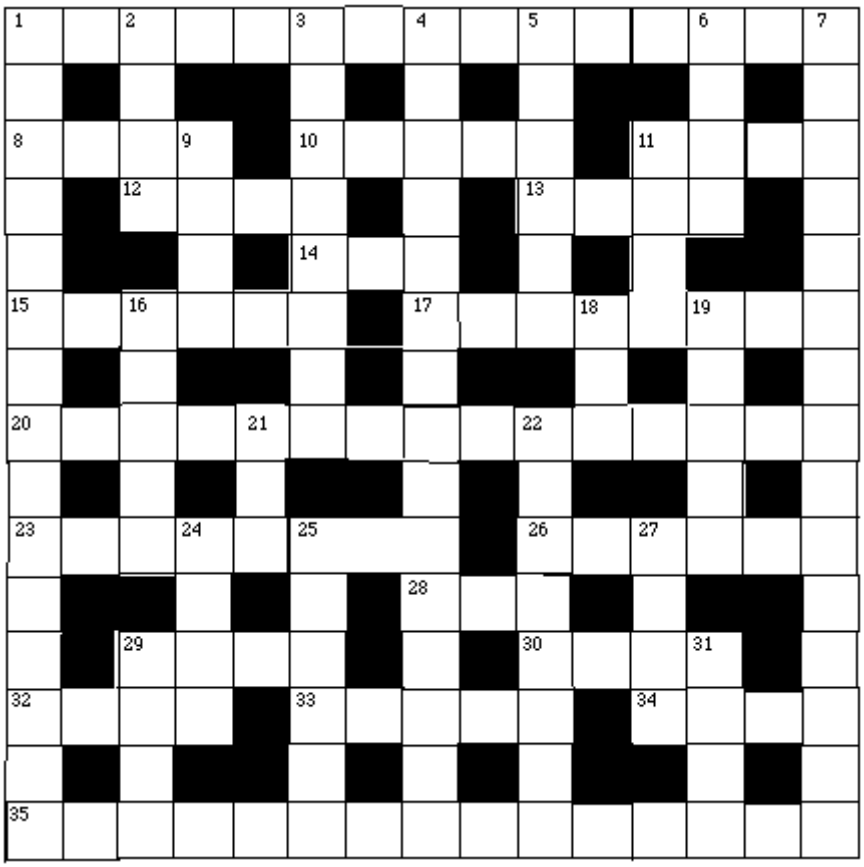
22 Hardworking yachtsmen are few in Ecclesiastes. (8)

25 Noted a thousand in notes. (5)

26 God there is material. (5)

CROSSWORD NO. 47 - PLAY FAIR A BIT

by Matt Varnish



ACROSS

1 PA ZA YA EQ ET VZ VZ CB EY PN DU PO RB AG BP GL CR BY PC (15)

8 Slide in backward two-toer flower (4)

10 Priests' hand-warmers (or `Strine literature?) (5)

11 Cry painless colour (4)

12 Not a good thing to go down? (4)

13 A cat maybe a small thing (4)

14 Bright shiner endlessly alone (3)

15 Gold disc to exist before the last worker (6)

17 Make free of the sole noun (8)

20 *(The keyword for a Playfair grid, omitting J. It is self descriptive in a sense.)* (15)

23 Partly so, something in cell (8)

26 About the First Gentleman of Europe (6)

28 One in seven, one in opposites (3)

29 Loyal meadow left (4)

30 A strange plant (4)

32 Muddled assent for an unfledged eagle (4)

33 Once a disturbed water, big, ... (5)

34 ... small, thanks to the Royal Navy (4)

35. NC OP QO BG NB AT QY PC TZ EU EB HT IG RV GN UA (15)

Down

1 Community feeling to bring house lines together (15)

2 Victoria's archbishop honey possum (4)

3 Records attempt rich fabric (8)

4 Throwing some light while playing unlit mime scenes (4-11)

5 Attack makes donkey sicken (6)

6 Bit of a list to make up time (4)

7 Divinely divided cedeing old stone (as is Kiwi in retirement paradise?) (6-9)

9 Headless `face in a mystic light' encompassing spirit (4)

11 Repetitive up and downer (2-2)

16 Each once worth two sounding trays (5)

18 Three quarters of 27 dismissed (3)

19 Elba's blackness (5)

21 Step of the father (3)

22 Her and no other, the Hideaway operator (8)

24 Scots grandchildren make public cry (4)

25 Foursquare but not square shortbob pine (6)

27 Got on untreated toes the beginnings of a painful end (4)

29 Den of the evil liar (4)

31 The month leads a civilization (4)