

The New Zealand Statistical Association

Newsletter

Number 48

January 1999

Science Honour to Bruce Weir



Professor Bruce Weir was recently made an honorary Fellow of the Royal Society of New Zealand. Professor Weir is a world leader in the demanding field of theoretical and statistical genetics. This is reflected in his holding the highly prestigious W.N. Reynolds Chair at North Carolina State University,

and the awards, honours and invitations that he is now receiving.

His research began on quantifying descent relationships among sets of genes in populations subjected to evolutionary forces, and he has produced a large body of work in that area. He has used these descent measures to separate the effects of selection and linkage in selfing populations. A major application has been to formulate means, variances and covariances among relatives for quantitative traits, for predicting responses to artificial selection. His theoretical work has led on to relating linkage disequilibrium to recombination rates for locating genes of interest, to designing sampling schemes for DNA sequences in studying molecular evolution, and to incorporating effects of population structure into calculations for DNA forensics.

Alongside his population genetic theory, he has developed tools for making inferences from genetic

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Mathematical Science Undervalued in New Zealand

New Zealand's capacity to undertake effective applied mathematical research is in danger due to government, industry and business attitudes. More information is given on page 12.

50th Anniversary Conference of the NZSA

Victoria University of Wellington
5-7 July 1999

As part of the celebrations of 50 years of the New Zealand Statistical Association the 1999 conference will be in Wellington, where the first conference was held in 1949. To help mark this special occasion we would encourage all members to attend. The organising committee is currently seeking a range of overseas statisticians to provide keynote addresses to help celebrate our golden jubilee.

As usual we are seeking contributions from New Zealand statisticians for presentation at this conference. Possible topics include history, medical statistics, statistics education, data mining and risk management. Papers in these and other areas will be welcome.

The main source of information will be a conference web page

<http://www.mcs.vuw.ac.nz/stat/nzsa99>

Information and facilities available include:

A listing of accommodation options and rough prices.

It will be the responsibility of registrants to find their own accommodation.

Registration and submitting of abstracts.

Timetable and listings of invited and contributed talks, being updated as the programme develops.

Further Enquiries:

Email: nzsa99@mcs.vuw.ac.nz

NZSA 1999 Conference Secretary

PO Box 1731

Wellington NZ

NZSA Website

A website for the NZSA is under development at

<http://stat1.stat.auckland.ac.nz/nzsa/>

More information is given on page 6.

Bruce Weir

from page 1

data for distinguishing between the effects of current sampling and those genetic differences that reflect various real evolutionary processes. He has given tools for characterising the associations among genetic loci or the relationships among populations. His coancestry-based genetic distance now forms a foundation of studies of human evolution. He has used likelihood methods for improved searches for disease genes, and comparing rates of change in different branches of evolutionary trees or different parts of genomes. His algorithm serves to interpret the many complicated instances of multiple contributors to forensic DNA samples.

The recent practical applications include a key part of the dramatic advances being made in detecting human disease genes, and a huge contribution to a forensic revolution. He provided statistical advice to the FBI and to several US states as the use of DNA matching was being embedded into case law. He served as an expert witness in the criminal and civil trials of O.J. Simpson. His statistical genetic work in the forensic field has helped to settle some initial controversies and has now been encapsulated in his new book *Interpreting DNA Evidence*.

In recent years his published output has been greater than ever, in new and exciting areas.

In addition to research, teaching, other faculty duties, writing and editing books, and consultancy work, he has performed very important services in science. These include a major workload on the editorial boards of top-ranking journals, the central role in organising the Second International Conference on Quantitative Genetics, helping organise other conferences, and serving on some key national committees.

As an expatriate New Zealander and member of NZSA, he has maintained a strong and ongoing connection with New Zealand since leaving Massey University in 1976. In 1992 he achieved a real coup by obtaining US National Science Foundation funds for staging an international conference on molecular evolution in New Zealand. He has recruited NZ doctorate students (John Reynolds and Ken Dodds) and NZ postdocs (Ian Painter and James Curran). His Summer Institute in Statistical Genetics attracts scientists from around the world, and has always had NZ participants, as well as having NZ guest lecturers. Of special note is his strong and multi-faceted relationship with ESR in Auckland to support the forensic use of DNA profiling in New Zealand. Thereby, the application of highly advanced theoretical work is of huge significance in solving very serious crimes.

We congratulate Bruce on this honour.

Change of Editor



This is my eighth, and last, Newsletter. I welcome Russell Millar as the new Newsletter editor as from the next issue. I also thank Harold Henderson for his assistance and patience in the oft-delayed production of the Newsletter.

Richard Penny

Russell Millar



Russell did his undergraduate and MSc study at Auckland and graduated PhD from the University of Washington in 1989. Involvement with a salmon management problem in Washington led to an interest in fisheries and he took a research scientist position with the Canadian Dept of Fisheries and Oceans (St John's, Newfoundland). In 1992 he returned to New Zealand as a lecturer at the University of Otago. He joined the University of Auckland team in 1996.

Russell's main research area is modelling and applications to fisheries research. His research includes estimating the mixing proportions of salmon in mixed stock fisheries, determining growth curves, modelling the size-selectivity of fishing gear, and estimating population abundance. Recently, he has been applying Bayesian methods to implement state-space models for stock assessment, and using generalized linear mixed models to estimate the abundance of snapper in and around the Leigh Marine Reserve.

President's Column



The highlight for this quarter was the association's one-day annual conference held at Massey University on Friday 4 September. It was particularly pleasing to see the high number and quality of papers presented by younger members of the association. Hoare Research Software

again donated prize money, this time for the best paper by a 'young' statistician. The prize was shared with first place going to Ken Miller, second place to Sharon Clark and third place to Mike Eglinton all from Statistics New Zealand.

Many thanks to the various members of the association who contributed to this being a success. In particular Siva Ganeshalingham, Stephen Haslett, Frances Krsinich, Richard Penny and Harold Henderson.

We are now planning for, and looking forward to, our 50th Anniversary Conference to be held on 5-7 July 1999 at Victoria University as part of their centennial celebrations. The themes for this conference are still under discussion but current suggestions are:

- History of Statistics
- Education
- Data Mining
- Risk Analysis
- Medical Statistics

One of the highlights of the conference will be the publication of the *History of Statistics in New Zealand* by Stan Roberts. Further information about the conference can be obtained from Victoria University by emailing:

nzsa99@mcs.vuw.ac.nz

David Harte is convening a small sub-committee organising the conference.

David Scott from Auckland University is currently in the process of setting up a web page for the association and an initial version can be viewed at:

<http://stat1.stat.auckland.ac.nz/nzsa/>

As usual, association sub-committees (especially education and SAPQC) have been hard at work, and reports from these are published separately in the Newsletter. A number of the convenors of the sub-

committees have expressed their intention to stand down at the 1999 AGM so other members are requested to give some consideration now to their availability to assist in one of these critical roles.

The 1998 International Statistical Institute Annual Report contains a small article on the New Zealand Statistical Association in the section on National Statistical Associations. We are also one of the constituent societies of the Royal Society's Standing Committee of Mathematical and Information Sciences and I represented the association at the September meeting. The main topic for discussion was the report, 'Mathematics in New Zealand: Past, Present and Future' prepared for the Ministry of Research, Science and Technology by Jeff Hunter and colleagues (see page 12). Concern was expressed about the need for follow-up on the recommendations in this report and the role that professional societies could take to strengthen the mathematical sciences in New Zealand. Ideas are sought from members as to how the executive committee could best effect this.

I would like to welcome these new members to the NZSA:

Nisar Ahmed	Trevor Atkins
Jonathan Briggs	Marianne Cherrington
Valmai Copeland	Bruce McCorkell
Kaylene Murdoch	Gang (John) Xie
Irene Hudson	Peter McMillan
David Fletcher	Steven Johnston
Lois Curry	Patrick Cordue
Karen A Lawrence	Maree Luckman
Ari Samaranayaka	John Cornish
William Scott	Kenneth Miller

The association continues to be active and have a public presence and this is due to the individual contributions made by members. I thank you all for your efforts and support and wish you a happy 1999.

Sharleen D Forbes

Deadline for next Issue

All submissions for the next *Newsletter* to Russell Millar by 31 March.

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New Zealand Statistical Association President's Report 1997/8

It is my pleasure to report on the activities of the association for the 1997/8 year.

A new executive committee was elected at the Annual General Meeting held during the Association's 1997 annual conference at Auckland University. The committee had a short initial meeting following the AGM on 11 July 1997, then subsequent meetings on 19 December 1997, 19 March 1998, 12 June 1998 and 21 August 1998 through tele-conferencing between the members in their various workplaces. Thanks to AgResearch for tele-conferencing support.

The major work of the association continues to be undertaken by its committees and editors. In 1997/8 these were:

- Education - convened by Mike Camden
- Publications - convened by Denny Meyer
- Science Fairs - convened by Jenny Mason
- Standards - convened by Jeff Hunter
- Young Statisticians - convened by Niki Thorne
- Survey Appraisals and Public Questions Committee (SAPQC) - convened by Stephen Haslett
- Journal editor - Murray Jorgensen
- Newsletter editor - Richard Penny

I thank all the convenors and editors for their efforts over the 1997/8 year and record the following highlights.

Education

Membership of this committee is currently Jean Thompson (JAD consultancy), Caroline Smith (Correspondence School), Alec Neil (NZCER), Lesley Hooper/Sarah Hone and Sharleen Forbes (Statistics New Zealand), Brian Corbitt (TOPNZ) and Mike Camden (Wellington Polytechnic). The committee has representatives on the following New Zealand Qualifications Authority groups: the National Standards Body for Mathematics, Science and Technology, the Mathematics Advisory Group and the Review Committee for the NZ Diploma in Business. The main thrust for the year has been to raise the level of statistics in teachers' meetings and conferences. Members presented a workshop on "Active Statistical Investigations" (involving skipping, pulse rates, "instant" and "living" graphs) at the 1997 New Zealand Association of Maths Teachers (NZAMT) conference in Palmerston North, arranged a joint NZSA/Statistics New Zealand seminar for a Wellington Maths Association Meeting, and have agreed to support a keynote speaker to the 1999 NZAMT conference in Dunedin.

Publications

No new publications were initiated this year but we still have four for sale. Present stock levels of these are:

<i>School Projects in Mathematics and Statistics</i>	135
<i>Statistics at Work</i>	29
<i>Understanding Surveys</i>	211
<i>Women with Maths: Making a Difference</i>	132

Science Fairs

There were 22 school science fairs this year, most taking place during July and August. \$80 of prizes were offered for each fair and members of the association acted as judges at all but 3 of them. Judges were encouraged to split the prizes into senior and junior prizes where possible and certificates were also awarded for other good exhibits. The standard of exhibits this year was variable with no prize being awarded at one fair. However, some judges reported that standards had improved with sophisticated techniques and computer technology being more widely used. Again this year several judges reported that the level of statistics used in the junior exhibits was more encouraging than in the senior exhibits. Thank you to all those involved in the science fairs as these help raise the profile of statistics, and the Association, in the school system.

SAPQC

The profile of the Association has also been raised this year, particularly with the media, by the release of two appraisals dealing with Department of Social Welfare (DSW) data. The appraisal of the methodology and limitations of DSW's Towards a Code of Social and Family Responsibility: Public Discussion Document, February 1998 focused on analytical constraints given the form, content, coverage, and likely response rates to the document. The other appraisal addressed DSW's "fraud and abuse" statistics (see page 7). Both these appraisals had wide newspaper coverage and also resulted in radio interviews. I thank Stephen for the considerable personal time and effort he has put into these appraisals on behalf of the association.

Journals

Under Murray Jorgensen's editorship the two final issues of the *New Zealand Statistician* were published this year as well as the two inaugural issues of the new combined journal with the Statistical Society of Australia Inc. Murray has worked hard for the association to ensure that the combined journal meets our members' needs. He is currently editing the Applications section of this new journal, *The*

Australian and New Zealand Journal of Statistics, and requests that members of the association submit applied papers for consideration so that the practical emphasis of the Statistician can be retained in the new journal (see page 11).

Newsletters

Three issues of the NZSA Newsletter came out in the last 12 months - in November, May and August. Richard Penny has worked on improving the range of NZSA information delivered to our members by publishing the audited financial statements and AGM information, as well as the normal section and office holder reports. He intends in his last year as editor to also provide summaries of Executive meetings. He also wishes to make the Newsletter even more a forum for the ideas and hobby horses of the members, as the Newsletter needs to reflect the divergent and differing views of all NZSA members. Richard will also continue to search for stories and articles outlining the day-to-day activities of our diverse membership.

Special History Project

Stan Roberts has been hard at work on the preparation and writing of a history of statistics in New Zealand. It is hoped that this work will be completed and printed in time to be presented as part of the association's Jubilee Conference to be held in Wellington this year. Past presidents, secretaries, editors, and other officers have been asked for their input on some preliminary notes about our association by the end of September. Stan would also welcome a few paragraphs from anyone else involved in past activities of the NZSA, particularly in its early years. You can send material to the NZSA email or postal addresses, or contact Stan directly on (04) 389 9571.

Conferences

The 1997 annual conference held at Auckland University from 9-11 July 1997 was a great success. Of particular note were the joint plenary sessions with the New Zealand Mathematics Society, the invited sessions, and the number of young statisticians presenting papers. Congratulations to David Scott and the other local organisers for a well run and stimulating conference. As many members of the association attended the 14th Australian Statistical Congress (ASC14) on the Gold Coast this year the executive committee decided to have only a one-day conference this year. Many thanks to the staff from Massey, and the other executive committee members, who have been involved in the organisation of this, our 49th annual conference. Thanks to Hoare Research Software for continued sponsorship of prizes for young statisticians at our conferences. 1999 is the year of our Golden Jubilee conference which is to be

held in Wellington, the birth-place of the association. This is expected to be the major focus for the next year, and members are asked to give early notice to new and older, especially retired, colleagues about the conference.

Membership

Our Association membership at June 1998 was 353. Within New Zealand there were 271 ordinary, 29 student, 6 Corporate, 2 life, and 6 retired members. Overseas there were 34 ordinary, 3 student and 2 retired members.

Obituaries

It is with regret that the association marks the sudden passing of two of its members.

David Nightingale died on 27 May 1998 while working for the Samoan Government to improve mathematics education for their students. Mathematics education was a life-long pursuit for David who taught at Feilding Agriculture College, Nelson College and then was Principal of Buller High School. David was a School Certificate mathematics examiner and, with other colleagues, pioneered alternative School Certificate internally assessed courses in the Nelson-Marlborough and Canterbury regions. He led the team which researched and wrote the New Zealand Qualifications Framework mathematics unit standards for the secondary school and industry sectors over the period 1995-1997. Members of the association's education committee, in particular, worked closely with David on the statistics unit standards and found his support of project and applied (rather than calculation-based) statistics courses to be invaluable. David gained the respect and affection of all those with whom he worked and he will be greatly missed.

John Revfiem died as the result of an accident in Tauranga recently. He also started his professional career as a teacher, first at Tauranga College then at Seddon Memorial Technical College. After returning to university to get his masters degree he joined the Ministry of Works Laboratory, then the Biometrics Group of the Ministry of Agriculture and Fisheries (MAF) where, among other projects, he worked on the analysis of hormone concentrations in Booroola sheep. John was noted at MAF for his helpful and pleasant manner, and his ability to both understand the scientists' needs and to provide them with a practical interpretation of the results of his statistical analyses. John was an avid learner gaining a Diploma in Mathematical Statistics and a PhD from Manchester University and later doing post-doctoral study at Edinburgh University. He left MAF in 1979 to join the Meteorological Service which he retired from in 1989. Retirement was delayed for several

years, however, when he became Principal Scientific Officer in the Fiji Meteorological Service from 1991-1994. Singing was one of John's early passions, he was active in the university choir and latterly was a member of the Applied Mathematics Division's Musica Statistica. John was known to, and will be missed by, many members of the association.

Our sympathies go to the widows and families of John and David.

Acknowledgements

Finally, I would like to thank all those members of the association who have contributed to our activities this year. I also thank the association for its support of me personally, particularly during my illness and operation at the end of last year. A particular thanks to the other officers of the association for their hard work and dedication in the 1997/8 year.

Sharleen Forbes
President, New Zealand Statistical Association

Education Committee

As usual a busy time for those in the Education subcommittee, and new blood is always welcomed. Amongst our tasks were:

Arranging for the "NZSA Invited Speaker" for the NZ Association of Maths Teachers' conference in Dunedin, in 2001. This will be the first time NZSA has supported an NZAMT speaker in this way. We're hoping that Dr Jane Watson, University of Tasmania, will be able to come.

Arranging input into an Education stream for the NZSA jubilee conference.

Requesting that the Ministry of Education's work for Maths (teacher professional development opportunities, resources) includes appropriate items for statistics.

Putting the Education Committee into the NZSA History Project. It seems the committee was born in September 1986.

The prescription for Quantitative Business Methods for NZ Diploma in Business is now revised (by a team including a NZSA rep) and ready for use in 1999. It is nicely modernised (or post-modernised), with a commitment to learning by using software, and a new section on Statistics and Quality.

We welcome Karen Lawrence from Massey (PN), who is joining us by e-mail.

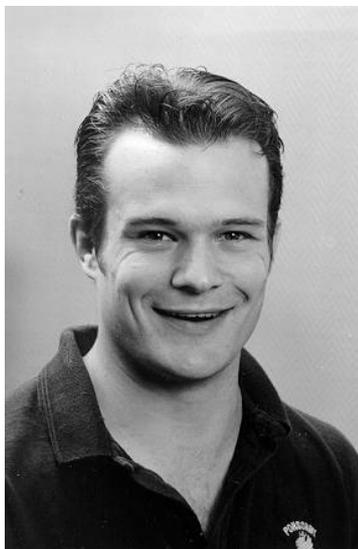
Thanks to those Dunedin members who are planning to contribute workshops to the NZAMT Conference. This is a very effective way of working with teachers to improve statistics education in schools.

The NZ School Journal now has a similar publication called "Connected", also published by Learning Media, with a science focus. Members are asked to think about contributing some ideas.

Mike Camden



NZSA Young Statistician Prize winners at the NZSA conference: Kenneth Miller (first), Sharon Clark (second), Len Cook (Government Statistician) and Michael Eglinton (third)



*Jonathon Briggs
Convenor Young Statisticians on NZSA Exec*

NZSA Website

A website for the NZSA is under development at <http://stat1.stat.auckland.ac.nz/nzsa/> Members will find useful information there including links to the journal and the annual conference. Prospective members may join up using a form available at the site. Only minimal graphics have been used and the layout of the site is very simple so that it is cheap and quick to access.

The site has been developed by an Auckland University student, Rachel Merriman under the guidance of David Scott. If you experience any problems when accessing the site, or you have suggestions about changes or further developments, please email David at d.scott@auckland.ac.nz

Department of Social Welfare Fraud Statistics Misleading

This is a copy of the news release sent out by the NZSA.

The Survey Appraisals and Public Questions Committee of the New Zealand Statistical Association today announced that the Department of Social Welfare (DSW) figures for “fraud and abuse” of \$63 million in the 1997 fiscal year, and \$102 million in the 1998 fiscal year are misleading. These figures form part of DSW’s *Statistical Information Report* as presented to Parliament, and the 1997 figure has been quoted, for example, in the recent DSW advertising campaign against benefit fraud.

DSW’s Benefit Crime Unit derive the above figures, in part, by information matching DSW data to other Government Agencies data. For example, a person receiving a benefit from DSW while working can be detected by data matching with computer records from the Inland Revenue Department. Generally such procedures allow DSW to see whether a person is receiving a benefit for which they are not entitled under DSW regulations.

In February 1997, DSW’s assessed details of the total amount of benefits paid out to people when they were not entitled to it. At that time the Benefit Crime Unit reported that 60% of their total figure in the *Statistical Information Report* is not fraud as defined in the Crimes Act (where intent to defraud must be established), nor is it fraud as it is more commonly understood. The DSW figure from the Benefit Crime Unit is thus misleading, in that it does not measure what it claims to measure.

Rather, the inflated “fraud” figures seem to have resulted from inaccuracies in DSW’s internal systems when initially paying out benefits or when ceasing to pay benefits, and an administrative decision within DSW to include a proportion of the figure for non-fraudulent overpayment of benefits as being within the jurisdiction of the Benefit Crime Unit for accounting purposes.

Hence to suggest that there was \$63 million of “fraud and abuse” in the 1997 fiscal year and \$102 million of “fraud and abuse” in the 1998 fiscal, is misleading on two counts. It is misleading because it reflects an administrative decision on the part of DSW. More importantly, it is misleading because, even on DSW’s own admission, a substantial part of that figure is not fraud in the legal, or even common sense meaning of the word.

Earlier concern at aspects of the DSW’s accounting practice on “fraud” has been expressed by the Audit Office through a Parliamentary Select Committee. In 1995/96 the Social Services Committee noted that they were “concerned that

the department should recognise the impact of inaccurate estimates of benefit fraud on Income Support clients and on the public perception of those clients”.

The legal question of whether the DSW figures as reported to Parliament in its *Statistical Information Report* currently constitute “Official Statistics” within the meaning of the Statistics Act lies outside the jurisdiction of the SAPQC. “Official Statistics” in the Act is defined to include “statistics derived by Government Departments from... administrative and registration records which are published regularly”. The onus under the Statistics Act is for Government Departments to seek approval for release of Official Statistics from the Government Statistician. This has not been done for DSW “fraud” figures presented to Parliament and later used in their advertising campaign.

The SAPQC recommends that, in future, statistics presented to Parliament and/or statistics to be used in public relations and advertising campaigns by Government Departments are deemed “Official Statistics” under the Statistics Act, and are therefore subject to approval by the Government Statistician through Statistics New Zealand, before such use. The SAPQC also recommends that the Government Statistician be adequately funded by the relevant Government Departments for this additional workload.

The Survey Appraisals and Public Questions Committee (SAPQC) is a standing committee of the New Zealand Statistical Association (Inc). The Association was established in 1948, and the SAPQC has been in existence for about 20 years.

The objects of the SAPQC are:

To raise the standard of practice and the level of public understanding of statistics in New Zealand by:

- (a) conducting independent appraisals of sample surveys, opinion polls and other statistical statements in relation to their statistical validity, and to the needs of the users of the survey results;
- (b) conducting examinations of statements made in the public domain and of significant public interest, that have statistical content, or whose validity depends on statistical considerations.

The SAPQC deliberations follow a formal request from the Wellington Downtown Community Ministry for an appraisal of Department of Social Welfare statistics on fraud.

*Contact: Associate Professor Stephen Haslett
Convenor, Survey Appraisals and Public Questions
Committee, New Zealand Statistical Association
14 August 1998*

1998/99 NZSA Executive



Some of the exec at the 1998 conference: (L to R) Harold Henderson, Stephen Haslett, Frances Krsinich, Philippa Graham, Sharleen Forbes, Rod Ball, Stan Roberts, David Harte, James Reilly, Mike Camden, Jeff Hunter.

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NZSA Executive Meetings

These are edited versions of the Executive minutes published for the information of NZSA members. For details, or the official minutes, contact the NZSA secretary at NZSA@stats.govt.nz.

12 June 1998

PRESENT: Mike Camden, Niki Thorne, David Scott, James Reilly, Denny Meyer, Harold Henderson, Sharleen Forbes, Frances Krsinich, Steve Haslett, Jeff Hunter (part)

1998 NZSA Conference organised.

1999 NZSA Conference planning started.

SAPQC Report on Code of Social and Family Responsibility discussed. Exec thanked Steve Haslett for all his work. It was noted that this generated a lot of publicity for the NZSA.

NZSA Web Page to be set up.

Science Fairs: Len Cook has agreed to continue SNZ's sponsorship.

SAPQC: Currently have a request about a North Health survey on mental health. This is being dealt with.

A national maths congress in Wellington in 2001. NZSA considering dovetailing this with our conference.

The review of mathematical sciences has been sent to the Ministry.

Proposed memorandum of understanding between NZSA and SSAI regarding the new journal discussed. The memorandum will need to be ratified at the AGM.

21 August 1998

PRESENT: Philippa Graham, Sharleen Forbes, Frances Krsinich, Denny Meyer, James Reilly, Jennifer Brown, Rod Ball, Steve Haslett, Harold Henderson, Wiremu Solomon, Mike Camden, Murray Jorgensen

1998 NZSA Conference discussed

NZSA/SAPQC: After some discussion it was decided that Harold Henderson should convene a subcommittee with Jennifer Brown and possibly Gary Dickinson to look at the procedures for SAPQC. This committee will also think about procedure/protocol for nominating an acting president when the president is unavailable.

1999 NZSA Conference discussed. Organising committee be put on the AGM agenda.

Len Cook has approached Sharleen asking if we would be involved in the ISI 2005 conference which we hope to have in NZ.

Reports from Subcommittees:

EDUCATION: Finding a speaker for NZAMT 99.

SCIENCE FAIRS: Fairs have been going well. The new certificates are a success and the NZSA logo has been included in all the programmes. 6 more fairs in September and 2 in October.

SAPQC: Copies of the report on the Code of Social and Family Responsibility have gone to libraries. The results from the code are likely to be released in December. NZSA likely to be asked to comment, so we need to establish who will do this.

Conferences

50th Anniversary Conference of the NZSA

Victoria University of Wellington
5-7 July 1999

First Western Pacific/Third Australia-Japan Workshop on Stochastic Models

23-25 September 1999
Christchurch, New Zealand

A brochure and call for abstracts is enclosed with this Newsletter.

15th Australian Statistical Conference

3 -7 July, 2000
Hilton International Hotel,
Adelaide, South Australia

The keynote speakers and topics will be announced shortly.

Contact details:

ASC15 SAPMEA Conventions
68 Greenhill Road
Wayville SA 5034, Australia
Email: 15ASC@sapmea.asn.au

Web: www.sapmea.asn.au/15ASC.htm

Ph: +61 8 8274 6060

Fax: +61 8 8274 6000

SEEM3 THIRD CONFERENCE ON STATISTICS IN ECOLOGY AND ENVIRONMENTAL MONITORING

Estimating Animal Abundance and Related Parameters — Honouring the Contribution of Professor George Seber to Ecological Statistics

University of Otago
Dunedin, New Zealand
6-10 December, 1999

<http://www.casm.otago.ac.nz/courses/SEEM3/>
email enquiries to: igoodwin@maths.otago.ac.nz

Programme and Invited Speakers

Contributions on many aspects of fisheries and wildlife biometrics are expected but there will be particular emphasis on mark-recapture application and theory and general sampling methods for wild animal populations. Invited speakers include:

Anne Chao, (National Tsing Hua University, Taiwan)

Ken Burnham, (Colorado Cooperative Fish and Wildlife Research Unit, USA)

Jim Nichols, (Patuxent Wildlife Research Center, USA)

Ken Pollock (North Carolina State University, USA)

Sessions planned include:

Closed-population mark-recapture Models

Analysis of long-term (20+yr) data sets

Recent advances in open-population mark-recapture models

The contribution of mark-recapture methods to the development ecological theory

Australian and New Zealand Ecological Case Studies

Sampling fish and wildlife populations

Important Dates

EARLY REGISTRATION BEFORE Friday, 31
October 1999

ABSTRACTS DEADLINE Friday, 31 August
1999

Writing Applied Statistics Articles for the A&NZJS

The 300-odd members of the NZ Statistical Association represent a wide variety of sorts and conditions of statisticians and the 60-odd members who are university academics make up a proportion that is small by international standards. This has been the reason for a tradition of articles on applied statistics in the NZ Statistician that is continued in the

Applications Section of the A&NZJS, reinforced by the contributions of Australians and people from other countries both to the pool of articles submitted and to the referees able to review them.

It is harder to obtain good articles describing applications of statistics than those describing developments in theory and methodology of statistics. There are a number of reasons for this. Some interesting applied work is done for a client person or company who may wish the data to remain confidential. Sometimes this may be overcome by coding the data, for example replacing x by $y = a + bx$ for some undisclosed a and b . Using old sets of data is another possibility, as commercial sensitivity may reduce with time, unlike statistical interest.

Another reason for fewer applied articles is that publication of articles in learned journals is clearly seen as a measure of job performance by employers of university statisticians, but may not be given as high a weighting by other employers. This means that some statisticians may need to write up articles in their own time. (I wonder how W. S. Gosset got on in this connection?)

There is a lot of academic culture and convention regarding what form an academic paper should take. It is not as restrictive as some people imagine but it can have some teeth: a while ago, frustrated with a series of misunderstandings from referees of earlier versions of a paper I wrote a paper that had the form of a question and answer dialogue between the author and an imaginary referee-like questioner. This only made matters worse with the next referee, who found this dialogue form inappropriate. A more conventional re-write was eventually accepted.

I believe that there are many applied statisticians who have good material that they would like to submit to the journal if they were not anxious about what form it should be submitted in and how much work it would take to convert it to that form. If you are in this situation I would be happy to have you send the work to me, not as a formal submission to the journal, but just as a document for me to look over as a possible basis for such a submission. I will look it over and give you my opinion on its potential suitability and what changes I would recommend to make it more suitable.

I am happier now than earlier about the rate of submission of applied statistics articles to the A&NZJS, but I still feel that we could do better. If you are hesitating on the brink of submitting an article, feel welcome to get in touch with me. I will advise you as well as I can.

Murray Jorgensen
Applications Editor

Australian and New Zealand Journal of Statistics

Mathematical Science Undervalued in New Zealand

New Zealand's capacity to undertake effective applied mathematical research is in danger due to government, industry and business attitudes.

The failure of New Zealand industry to recognise the significance of the mathematical sciences was revealed as a major concern on Monday at the release of "Mathematics in New Zealand: Past, Present and Future". The report, prepared for the Ministry of Research, Science and Technology, and compiled by a review team appointed by the Royal Society of New Zealand Standing Committee on Mathematical and Information Sciences, was released during a discussion forum at Science House in Wellington.

The review, chaired by Massey University at Albany's Institute of Information and Mathematical Science head, Professor Jeffrey Hunter MRSNZ, investigated current trends in mathematics, the role of mathematical sciences inside and outside of educational institutions, contributions to the economy, and factors likely to affect their role in the future. The report also provided the Ministry with recommendations for strengthening the role of mathematics in New Zealand.

For the full Press Release see
http://www.rsnz.govt.nz/ctees/mathinfosci/math_sci_report_pr.html

Science and Technology National Standards Body

Chairman's Report 1997-98

The establishment of the Science and Technology National Standards Body (NSB) created an opportunity to provide co-ordinated development of qualifications that meet the real needs of users. The task of the NSB is not an easy one in that it has a dual responsibility. There is a need for generic standards in mathematics and the natural and applied sciences to underpin many of the qualifications developed by ITOs in response to the Government's Industrial Training Strategy. There is also a need for new qualifications for members of the science and technology community who are dispersed throughout many businesses across the whole economy.

Project teams and support networks, several hundred strong, have been formed to assist with analysis of the requirements of the sector and in developing appropriate standards. A start has been made on satisfying the most pressing needs, with qualifications at Certificate and Diploma levels being registered. There is much more to be done: new

work is required on many topics, for example on post-secondary mathematics, and there is an on-going requirement to refine the standards to take account of feedback from users, employers, providers and the learners themselves.

In an era when society is ever more dependent on science and technology to maintain living standards, New Zealand needs to continue to improve its standard of education and training in these areas if it is to meet the competitive demands of world trade. The high level of demand for material produced by the NSB reinforces the need to continue its work programme.

Sadly, the initial vision of the NZQA Board has not been followed through by the Executive and the investment of a great deal of time and resources by users has not been recognised as worthy of continuing support. The lack of funding made 1997 a very difficult year for the NSB.

The NSB and its Advisory Committees wish to acknowledge the loyal support they have received from the Staff and many highly talented people in the sector.

D P Bryant, Chairman

Developments in Statistics New Zealand

Work commenced on the development of a national Gaming Survey. The main purpose of the survey is to update national information on the nature and prevalence of problem and pathological gambling in New Zealand. Statistics New Zealand is undertaking the survey as a member of a consortium for the Department of Internal Affairs. The survey is to be based on interviews obtained from cold calling of randomly selected telephone numbers of households to achieve consistency with the methodology used in a previous survey. This is the first time Statistics New Zealand has used this method and it is facing the challenge of obtaining sufficiently high response rates.

Development work for a Childcare Survey was completed. The survey has been commissioned by the Department of Labour and was conducted as a supplement to the Household Labour Force Survey in the September 1998 quarter. The supplement was administered to all households in the Household Labour Force Survey with at least 1 child aged under 14 years and is expected to include about 4,000 households. The objective of the survey is to provide base data on childcare use and demand, the interaction between childcare use and labour force participation, assess the extent to which barriers to childcare use exist in New Zealand, and measure the current situation in terms of access.

Local News

Waikato

Recent developments in the department include the appointment of James Curran to a lectureship. James, a graduate of Auckland University, is due to take up his position in September 1999, when he completes a post-doctoral fellowship at North Carolina State University. From 1 February we will also welcome I-Ming Liu, who has a one year lectureship with the department. I-Ming completed her PhD at the University of Florida, and comes to us from the National Chung Hsing University, Taiwan.

Sharon Gunn, a tutor with the statistics department, has also been working on research for her PhD, looking at the learning environment of statistics students.

Nye John recently hosted Emlyn Williams (CSIRO, Australia) for another short visit. Lyn Hunt is currently in Brisbane, working with Kaye Basford from the University of Queensland and Murray Jorgensen recently visited Victoria University, Wellington, to discuss Computer Network Modelling with David Harte and Peter Smith. In December, Nye John and Judi McWhirter will attend and present papers to IBC98 in Capetown. An honorary lecturer, Harold Henderson, from Ruakura, is also planning to attend.

Ray Littler, who has been visiting with Larry Weldon at the Department of Mathematics & Statistics at Simon Fraser University, Burnaby, BC, Canada, is due back early January 1999. Murray Jorgensen will commence his sabbatical by attending Uncertainty 99 at Fort Lauderdale, Florida, January 1999. He will then be at Monash University working on Minimum Message Length Inference with Chris Wallace and David Dowe of the Computer Science Department. Towards the end of his sabbatical, he is planning to visit with Geoff McLachlan at the University of Queensland.

Success for our DPhil students, includes the appointment of Kathy Ruggiero to a lectureship at Massey University, Albany Campus, commencing 1 February, 1999. She will continue her DPhil studies part-time and plans to submit mid year, 1999. The department extends their best wishes to Kathy. Samuel Manda is about to submit his DPhil thesis entitled "A Nested Random Effects Model Analysis of Child Survival in Malawi". He returns to his lectureship at the University of Malawi, Zomba Campus, in early December 1998.

Interviewing has begun for a Time Use Survey starting in July 1998 and running for 12 months, with results due in December 1999. The survey will provide statistics on the time commitments of New Zealanders - both men and women. It will identify the time spent on unpaid productive activities, such as household work, caring for family members and other people, and voluntary work in the community. In addition, the statistics will cover participation in paid work, education and training, leisure and personal care. These time-use statistics will be used to improve public sector policy making and programme development in the health, employment and welfare sectors, and for population-based policy advice - for example, women, Maori and youth. Statistics New Zealand will use the data for improvements to the national accounts. About 8,500 people aged 12 and over will be included in the survey. Each respondent will be asked to complete a 48-hour time diary. The survey will over-sample Maori in order to provide reliable time use statistics for Maori as well as for the general population.

Tax Database Developments: A new and enhanced database is in the process of being developed in order to facilitate the use of information from the Inland Revenue Department as a replacement for data directly surveyed from respondents. This database is due to be completed in the 1998/99 program year. The new database is considered to be a key system in Statistics New Zealand's ongoing process of reducing survey compliance costs on businesses.

During the year, work commenced on the re-design of the Annual Enterprise Survey (AES). This has a number of goals which include the extension of industry coverage, cost efficiencies and a reduction in business compliance costs. Industry coverage will be extended to include Agriculture and Commercial Property Operators and Developers in AES 1998. In addition, the mailout, set for 7 August, will see a reduction in the number of enterprises in the survey sample from the 30,000 in AES 1997 to 20,000 in AES 1998.

This compliance cost reduction has been made possible by the utilization of administrative data from the Inland Revenue Department which will provide business financial report information for some small to medium sized enterprises in place of the AES survey questionnaire. Further information on the design of these surveys can be obtained from Robert Templeton, Chief Methodologist, Statistics New Zealand, P.O. Box 2922, Wellington, New Zealand (Email: Robert_Templeton@stats.govt.nz, tel. 64-4-495 4836, Fax 64-4-4954 757).

Robert Templeton

Recent Seminars in the Department

Kathy Ruggiero, (DPhil Student, Department of Statistics, University of Waikato) “Multi-factor alpha-designs”.

Bill Bolstad, (Department of Statistics, University of Waikato) “Why Isn’t Everyone a Bayesian? The Millennium Perspective”.

J D Kalbfleisch, (University of Waterloo, Ontario, Canada) “The Estimating Function Bootstrap”.

Katrina Sharples, (Department of Preventive and Social Medicine, Otago Medical School) “Evaluation of surgical interventions: decompression of the cervical spine”.

Sharon Gunn, (Department of Statistics, University of Waikato) “Curriculum response to the changing nature of Statistics”.

Alain C. Vandal, (Department of Statistics, University of Auckland) “Interval orders and interval censored data”.

Judi McWhirter

Massey

After a year of reorganisation we have reached a plateau. There is no longer a Statistics Department, but there is a group of statisticians at Palmerston North in an Institute of Information Science and Technology, which they cohabit with computer scientists and information engineers, and another group at Albany in an Institute of Information and Mathematical Sciences, which they cohabit with mathematicians, computer scientists, information scientists and a few proper scientists.

Amongst the structural changes have been a few people changes. Dick Brook retired at the end of June. Dick arrived in 1971 from Adelaide via East Africa, Oklahoma and North Carolina. He was always a staunch supporter of a broad interpretation of statistics, making the subject accessible to everyone regardless of their mathematical beliefs. The very successful Diploma and Masters of Applied Statistics were his initiatives. He was editor of this Newsletter from 1987 to 1989, organised the 1988 Conference on the novel theme ‘Statistics and the Law’, and contributed to the Association’s Committees on various occasions.

In October we welcomed Graham Wood and family. With Graham we now have a Professor of Statistics, someone to confront the problems which ordinary people prefer to ignore. He is still smiling and friendly. Perhaps the real confrontations have yet to begin.

And others are moving around the world. Steve Haslett has just returned from a trip including Trinity

College, Southhampton, Sorrento, Iowa and Texas A&M, catching up on multi-level modelling and small area estimates for survey data. Mark Bebbington is visiting various sites in California and the rest of US discussing stochastic models for volcanos and earthquakes. And Chin Diew Lai is on a short visit to Singapore.

Greg Arnold

Canterbury

It’s been a while since we had a Canterbury update so this one will start by going back in time.

Mike Steel spent July to September at Cambridge University taking part in the “Biomolecular Function and Evolution in the Context of the Genome Project”. A large number of statisticians working in the genetics area took part, including co-organiser Peter Donnelly, Simon Tavare, Anthony Edwards, Michael Newton, Masami Hasegawa, and Joe Felsenstein.

Jennifer Brown was in London in May as the 1998 Novartis Bursar and attended the Novartis symposium on Environmental monitoring. She then spent 2 months with the US Environmental Protection Agency in North Carolina working on spatial models for predicting air pollution. In July she was back in Europe for the International Congress of Ecology and then back to USA for the Joint Statistics Meeting of the ASA and CSA in Dallas, Texas.

Malcolm Faddy, our new Professor, arrived in August and has made valuable contribution to the department including a promise to teach stage 1 statistics. We’ll be holding him to his word.

Marco Reale our new statistician will be arriving in February which will mean that we will have a full complement of staff for the first time in a while.

Our new building is up and running. We had the official opening on November 12. The new computer labs are all ready for the new teaching term. Any visiting statisticians to Christchurch needing a home for a few days/weeks are welcome to contact Jennifer Brown and we should be able to provide office space. All rooms come complete with views of the Southern Alps.

Forthcoming conferences/workshops being organised by the Biomathematics Research Centre are:

Statistical Methods for Environmental Management Workshop 10-11 June 1999.

An international phylogenetics conference in Kaikoura 28th February-5th March 1999. Visit <http://www.math.canterbury.ac.nz/biomath.html> for more details.

Jennifer Brown

Lincoln

Chris Frampton returns from a stimulating trip to Italy - sampling 'great wine, great food, great clothes, great cars.' Oh and he presented a paper too, on sampling biodiversity at the big ecological conference in Florence. Lots of kiwis there apparently - nothing like an exotic location to flush that rare nocturnal bird out into the light.

Malaysia - never a dull moment, as Alison Lister and I re-discover every year. This year the arrest of Anwar Ibrahim, ex-deputy PM, was the most talked about and yet taboo subject. Based in Kajang (the 'satay capital' of Malaysia - he who is tired of satay, is tired of life), just outside KL, we missed all the demo's downtown and of course didn't see anything on tv or in the papers. So we didn't find out much about it until we got home. But hey, we were there! Other Malaysian highlights were for me a trip to Kota Kinabalu to snorkel the reefs and trot up and down Mt Kinabalu which is a bit higher than Mt Cook but being in the tropics has no snow on it.

Back home, I've been visiting old friends at Statistics New Zealand. Richard Penny has helped me fit partial proportional odds models to some data on factors affecting plant extinction. You can fit these models in SAS - if you can find version 5.18. Luckily Statistics New Zealand still nurses a mainframe with this on it (probably the last site in the country? - the universe?), but even there it's an endangered species. I've been prodding SAS to re-include code for these models - if anyone out there feels the same way, please get in touch. By way of thanks, I teamed up with Pat Coope of Statistics New Zealand and we gave SMASH a couple of seminars on logistic regression and the proportional odds model.

Jim Young

Otago

As many people will already know, Bryan Manly has been chosen as the editor for 1999-2001 for the Journal of Agricultural, Biological and Environmental Statistics (JABES), which is published jointly by the American Statistical Association and the International Biometric Society. This journal was started in 1996 as a vehicle for the publication of papers on statistical methods of immediate practical value to researchers and statistical consultants in the areas covered. One of Bryan's goals will be to get the journal more widely read and cited by nonstatisticians. Bryan attended the 5th International Conference on Teaching Statistics, held in Singapore

20-27 June to talk about the use of projects in teaching sampling methods. He also attended the Joint Statistical Meetings in Dallas from 4-15 August to meet people involved with the production of JABES, and give a talk as part of a special session on developments in randomization methods of inference.

David Fletcher attended the International Ornithological Congress in Durban, South Africa. He did this in his role as statistician with a FRST-funded team from the University's Zoology department that is working on the sustainability of harvesting of muttonbirds (titi) by Maori. The conference was attended by over 900 delegates, and was held at an impressive new conference centre (the Non-Aligned Movement held a congress there the following week). One of the plenary sessions was given by Les Underhill, Professor of Statistics at the University of Cape Town, who provided a good example not only of applied statistics (to model moult cycles), but also of communicating such work clearly to those of a less mathematical bent. David is now looking forward to a week of fieldwork, banding the muttonbirds, on Stewart Island in January.

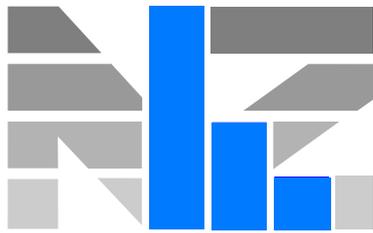
David Fletcher

Submissions to the Newsletter

The Newsletter welcomes any submissions of interest to members of the New Zealand Statistical Association. News about New Zealand statisticians, statistical organisations, statistics in education, or statistical curiosities are suitable for inclusion. Letters that raise issues of importance to statistics in New Zealand are also welcomed. Photographs of past and present statisticians and statistical gatherings are of particular interest. All photos will be copied, added to the NZSA photographic archives, and returned.

Advertising In the Newsletter

The Newsletter accepts advertising of interest to statisticians in New Zealand. Advertising is placed subject to space considerations. Personal advertising by NZSA members will be published free. Other advertising is \$250 per page, \$140 per half page, and \$75 per quarter page. Other sizes can be quoted on request. All advertising requests should be directed to the editor.



The New Zealand Statistical Association

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Email nzsa@stats.govt.nz

Web stat1.stat.auckland.ac.nz/nzsa

The NZ Statistical Association, founded in 1948, is New Zealand's only association for professional statisticians. The association has about 400 individual members and is growing strongly. Many of its members are employed by universities, government departments, or research institutes, with growing participation by senior students, who are offered free membership for their first year.

The constitutional aims and objectives of the association are *the encouragement of theoretical and applied statistics in New Zealand*. In 1992 the association agreed on a more comprehensive set of vision and mission statements including the short description:

The mission of the NZSA is to lead New Zealand to value and make intelligent use of statistical thinking and good statistical practice.

Services to Members

Members receive *The Australian and New Zealand Journal of Statistics* quarterly and are kept up to date on statistical happenings within New Zealand and interesting overseas developments with regular newsletters. A feature of the New Zealand statistical year is the annual three-day conference, normally held in mid-year. At the 1995 annual conference the association adopted a 'Code of Ethics'.

Links with other Bodies

The association is an affiliated organisation of the International Statistical Institute and maintains close relations with a number of statistical societies around the world. It is also a member body of the Royal Society of New Zealand and is part of the Mathematical Sciences Council of New Zealand.

Survey Appraisals and Public Questions

The Survey Appraisals and Public Questions Committee aims to raise the standard of statistical practice and the level of public understanding of statistics in New Zealand by conducting independent appraisals of sample surveys, opinion polls and other statistical statements in relation to the statistical

validity of their results. It is regularly called upon to comment on contentious polls and surveys.

Education

The Education Committee aims to improve the quality of statistical education for New Zealand students. It participates in advisory groups related to curriculum matters and helps organise conferences and courses for the benefit of those teaching statistics at all levels. With the support of some of our corporate members, the association sponsors prizes for statistical excellence at each of the regional Science Fairs.

Application to join NZSA

Complete the online form on the NZSA web site or send this form to NZSA, Box 1731, Wellington.

I wish to join the New Zealand Statistical Association

Name:.....

Address:.....

.....

.....

Phone:.....Fax:.....

Email:.....

Permission to publish email address: Yes/No

Occupation:.....

Gender: Female/Male (for statistical purposes!)

Employer:.....

Areas of Interest:.....

Ordinary members NZ \$35, Overseas \$40

Student and Retired NZ \$20, Overseas \$22.50

(NOTE: First year free for students)

Payment details, in increasing order of cost to NZSA

*Payment by automatic payment or telebank:

Please ensure that your name will appear on our bank statement (e.g., Subs Mary Smith, Dunedin)

Bank 020 Bank of New Zealand

Branch 500 BNZ Centre, Wellington

Account 0019525-00 New Zealand Statistical Association

*Payment by cheque: Make out to New Zealand Statistical Association (Inc)

*Payment by MasterCard or Visa:

Please supply this information

Credit Card number

Cardholder's name

expiry data

amount \$NZ.....

Signature:.....Date:.....