



The New Zealand Statistical Association  
www.stat.auckland.ac.nz/nzsa

# Newsletter

Number 53 February 2001

## Biometrics/NZSA 2001

Christchurch, New Zealand

10-13 December 2001

The next New Zealand Statistical Association conference is joint with the Australasian Region of the International Biometric Society and will be held at the Park Royal Hotel, Christchurch from Monday 10th to Thursday 13th of December 2001.

### Conference Themes

Changing information needs in environmental and biological statistics

Statistics in the post-genome era

Bioinformatics

Applied Statistics

Experimental Design and Analysis

### Confirmed Invited Speakers

Peter Clarke -	Experimental design
Malcolm Faddy -	Discrete data modelling
Tony Pettitt -	Reflections on biometrical modelling: directions and tensions
Terry Speed -	Microarray data analysis: questions, answers and statistics
Bruce Weir -	Bioinformatics

### Venue

The Park Royal is Christchurch's premier hotel, situated in the centre of Christchurch in Victoria Square.



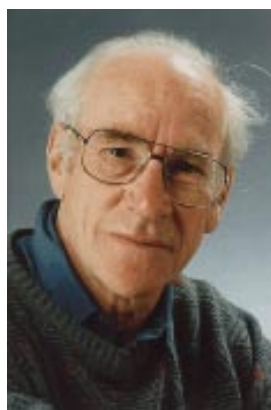
Victoria Park with Park Royal in the background

*continued on page 2*

## Symposium in honour of Professor David Vere-Jones

Victoria University of Wellington

19-21 April 2001



Emeritus Professor David Vere-Jones will be 65 years of age on 17 April 2001. This Symposium is being held at Victoria University of Wellington, New Zealand, to celebrate the occasion and to acknowledge David's many far-reaching contributions across a broad spectrum in probability, statistics and the mathematical sciences. As

part of that celebration David will be presented with a special festschrift written in his honour.

The dates of the Symposium are from midday Thursday 19 April 2001 to midday Saturday 21 April 2001 and the Symposium will partially overlap an international statistical seismology workshop held at the same venue. Further details are given on the web site [www.statsresearch.co.nz](http://www.statsresearch.co.nz) or by email to Peter Thomson at [peter@statsresearch.co.nz](mailto:peter@statsresearch.co.nz)

## Announcement of AGM

The 2001 annual meeting of the New Zealand Statistical Association will be held during the David Vere-Jones symposium at Victoria University of Wellington.

### Become a member of the NZSA

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.

To join (first year is free for students), complete the online form at our website

[www.stat.auckland.ac.nz/nzsa](http://www.stat.auckland.ac.nz/nzsa)

## Biometrics/NZSA 2001

The Christchurch Square (city centre) is only 5 minutes walk away from the conference venue and the 200 hectare Hagley Park is 5-10 minutes walk away.

Christchurch (<http://www.ccc.govt.nz/>), the gateway to New Zealand's scenic South Island, is a city of 330,000 situated on the coast of the Canterbury plains. The spectacular Southern Alps run along the west side of the plains and to the east is Banks Peninsula. Christchurch, known as the Garden City, has many lovely parks and gardens. The Square contains Canterbury Cathedral and other historic buildings, and the Arts Centre, 5 minutes from the Square, provides the ideal place to find Christmas gifts.



*Punting on the Avon River*



*Gondola*

### Satellite Workshop

Southern Summer Institute in Statistical Genetics (Thursday Dec 13 pm - Saturday December 15), University of Canterbury. Directed by Bruce Weir. <http://statgen.ncsu.edu/sisg>

### Provisional Programme

Sun	7pm	Reception
Mon		Talks & gondola buffet
Tues	9am - 12.30	Talks
	1pm - 10 pm	Conference trips
Wed	9am	Talks
	5pm	AGM of regional IBS
	6pm	Conference Dinner
Thurs	9am - 12.30	Talks

See

<http://nzsa.rsnz.govt.nz/Conference/home.htm>

for further information and for registration details and accommodation options.

*David Baird*  
*Chair of Local Organising Committee*  
 Email: [David.Baird@AgResearch.co.nz](mailto:David.Baird@AgResearch.co.nz)

Welcome to the start of the real third millennium (according to the Gregorian calendar) and to issue 53 of the NZSA newsletter. I hope that you all had a good rest from the rigours of our profession over the Christmas break and are starting up refreshed. Research has shown that Christmas holidays are good for longevity. Apparently, the number of Christmas



holidays you enjoy is positively correlated with life expectancy!

I'm really looking forward to this year. Last year I didn't have the opportunity to participate in any conferences or symposiums, but as you would have already seen from page 1, there are going to be some good meetings this year. I encourage you to visit their information websites and start making plans.

In following good statistical principles, I performed a pilot study of Fiordland tramping by sending two experimental units (Alan Lee and John Pearson) to independently assess the Milford Track. Reports were good, though I'm not entirely sure that I believe John when he says he had great fun despite four days of constant rain. On the basis of this successful pilot study a few of us from U. of Auckland have decided to perform a larger scale experiment of Fiordland tramping, to begin shortly after conclusion of the joint Conference in Christchurch in December. Join us if you can.

For this issue, I wish to thank David Fletcher (U. Otago) for his article about Bryan Manly's distinguished career in statistics. Thanks also to all the other contributors. You'll notice that because of Judi McWhirter's broken leg, Murray Jorgensen "stood in" for her and contributed the U. of Waikato local scene.

Our president (David Scott) is quiet for this issue, but that's not likely to last. By the time this goes to press he will have thrown off the shackles of being acting HOD and by the time the next deadline comes around he may even have recovered from the experience!

Finally, I'd like to welcome our new Government Statistician, Brian Pink. Brian has kindly contributed an article introducing himself and giving us a little insight into his position (see page 5).

*Russell Millar*

## Statistics at Science Fairs

The NZSA has just completed its involvement with yet another year of science fairs. We have been involved with the science fairs for many years and, for the last 3 years, we have been joined by Statistics New Zealand, which has allowed us to increase our sponsorship to two special prizes for statistics at each fair. Just over 20 science fairs are held around the country every year and are open to all school and college students. While there are usually no specific categories in the fairs for statistical projects, these prizes are to encourage and reward the good use of statistics in any experiment. The NZSA also provides judges for most of these fairs and I think it is generally felt that just talking to the students raises their awareness of good statistics - most students will not have had much formal training in experimental design.

Things have changed rapidly over the years, with the concept proving so popular that many fairs have had to restrict the number of entries per school, thus dramatically raising the overall standard. Most of the fairs have now become 'science and technology' fairs, with the introduction of sections for technological creativity, while the science part has been limited to experiments (and thus sparing us the job of viewing endless rows of papier mache volcanoes spewing up vinegar and baking soda). The wide availability of PCs and Excel has produced a mixed blessing, with much more legible exhibits but a preponderance of inappropriate 3-dimensional graphs and charts.

The range of topics continues to amaze - there will always be the millions of (non-replicated) tests to see which battery lasts the longest and which soap powder cleans the whitest, but there are always the gems in there. One of the most original I have seen has involved testing the theory that the length of your ears relates to your handedness - i.e., that right handers have longer right ears and vice versa. Why would this be, you may well ask (and why would you want to know, if it is!). I have also seen a rather ingenious test involving toast, butter, and a flipping device to prove or disprove sod's law. Of course, there are always the very serious and complex experiments from senior students, though I have often felt that the simpler experiments presented by the Form 1's and 2's can have equally good experimental design and interpretation of results.

In case you are interested, it seems that the senior girls, Form 3 and above, are more than holding their own these days at science (or perhaps they are more prepared to spend the necessary hours to undertake the work), winning 17 of the 30 senior prizes and 25 of the 33 senior certificates of merit. Honours were

more or less even among the juniors, with girls winning 8 of the 18 junior prizes and 23 of the 46 certificates of merit.

Finally, I would like to offer a big thanks to all those members who have judged for us this year and also to their employers for allowing them the time. And thank you also to Statistics New Zealand for their continued sponsorship. We may not be able to offer the large prizes now offered by some sponsors but I know our presence and our judges are highly valued around the country. Many of these judges have been involved for many years, and I hope will continue on for many years to come, but I have recently found it difficult to find members to judge in Whangarei, Gisborne, Hawkes Bay and Nelson. If you live in any of these places and might be interested in being involved next year, please just let me know.

*Jenny Mason*

*NZSA Science Fair Coordinator*

*Email: jenny\_mason@stats.govt.nz*

## PhD funding in "Applied Knot Theory"

**Phenomenological investigation of the human experience of wood in the interior environment**

Forest Research and the U. of Canterbury Department of Maths and Stats are looking for a PhD student with skills in statistics, especially in structural equation modeling and multivariate analysis.

This research project seeks to uncover the cultural and individual dimensions to the experience and meaning of wood in the interior environment. Phenomenological data collection methods, structural equation modeling and multivariate analysis will be used to understand individually and jointly, the cognitive attributes, emotional constructs, physical attributes and symbolic values. Home-based versus work-based environments may also be contrasted. The objective is to determine how wood products, used for interior and environmental design, can impact both physical and emotional wellbeing.

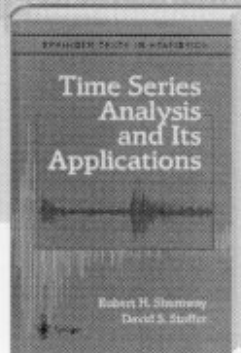
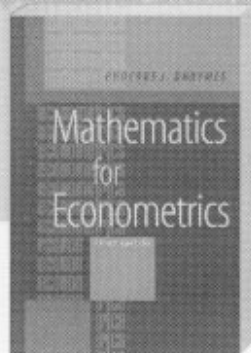
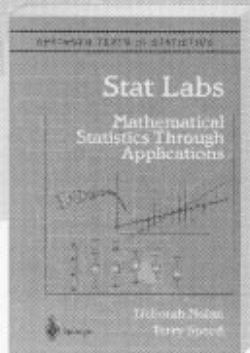
The position is based at the University of Canterbury in Christchurch, New Zealand, and will also involve significant interaction with the internationally recognised New Zealand Forest Research Institute. The position will attract a competitive research scholarship and funding is available for three years.

Please email for further details.

*Irene Hudson(i.hudson@math.canterbury.ac.nz)*

*Brad Ridoutt (Brad.Ridoutt@ForestResearch.co.nz)*

# Springer for Statistics



D. Nolan, T.P. Speed

## Stat Labs

Mathematical Statistics Through Applications

Integrating the theory and practice of statistics through a series of case studies, each lab introduces a problem, provides some scientific background, suggests investigations for the data, and provides a summary of the theory used in each case.

2000. XVIII, 282 pp. 45 figs. (Springer Texts in Statistics) Softcover \* DM 69,-; £ 24,-; FF 260,-; Lit. 76.200 ISBN 0-387-98974-9

P.J. Dhrymes

## Mathematics for Econometrics

Aimed at filling the gaps in the typical student's mathematical training to the extent relevant for the study of econometrics, this book provides proofs in almost every case and includes a verbal discussion of certain mathematical results.

3rd ed. 2000. XIII, 240 pp. Softcover \* DM 92,-; £ 31,50; FF 347,-; Lit. 101.600 ISBN 0-387-98995-1

R.H. Shumway, D.S. Stoffer

## Time Series Analysis and Its Applications

This book provides a modern introduction to time series analysis that will be useful as a reference to students in statistics, engineering, and economics.

2000. XIII, 549 pp. 152 figs. (Springer Texts in Statistics) Hardcover \* DM 159,-; £ 55,-; FF 599,-; Lit. 175.600 ISBN 0-387-98950-1

J.M. Steele

## Stochastic Calculus and Financial Applications

This book is designed for readers who want to develop professional skills in stochastic calculus and its application to problems in finance.

2000. Approx. 335 pp. (Applications of Mathematics. Stochastic Modelling and Applied Probability, Vol. 45) Hardcover \* DM 129,-; £ 44,50; FF 486,-; Lit. 142.460 ISBN 0-387-95016-8

M.S. Handcock, M. Morris

## Relative Distribution Methods in the Social Sciences

1999. XIII, 265 pp. 41 figs. (Statistics for Social Science and Public Policy) Hardcover \* DM 119,-; £ 41,-; FF 449,-; Lit. 131.420 ISBN 0-387-98778-9

S.C. Morton, J.E. Rolph (Eds.)

## Public Policy and Statistics

Case Studies from RAND

2000. XII, 243 pp. 36 figs. (Statistics for Social Science and Public Policy) Hardcover \* DM 98,-; £ 34,-; FF 370,-; Lit. 108.230 ISBN 0-387-98777-0

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Springer



## New Government Statistician

In October last year it was announced that Brian Pink had been appointed as Government Statistician and Chief Executive of Statistics New Zealand after a career in official statistics in Australia spanning over 30 years. Prior to his appointment, Brian headed up the Statistical Support Group in the Australian Bureau of Statistics (ABS). As Group Manager he reported to the Australian Statistician, had a permanent staff of almost 900 people spread across 8 offices, a field interviewer workforce of some 650 and an annual budget totalling around \$A110 million.



*Brian Pink*

Brian's career in statistics began in 1966 in the Sydney office of the ABS. He subsequently moved to Central Office in Canberra in 1975 where he worked primarily in various fields of economic statistics. Between 1987 and 1993 he spent 6 years in Perth as Deputy Commonwealth Statistician and Government Statistician for Western Australia. In this role he was also one of three Electoral Redistribution Commissioners for Western Australia. He returned to Central Office in 1993 to head up the Technology Services Division with responsibility for all aspects of the development and operation of the ABS IT and communications environment with a professional IT staff of over 450 and a budget of over \$50 million.

He has also held a number of honorary positions in the past decade as follows;

1999-00	Member of the Editorial Advisory Board, MIS Australia magazine
1996-99	Member of Lotus Worldwide Customer Support Council, Boston
1996	Member, Faculty Review Committee, Faculty of Engineering, Computing and Statistics, University of Canberra
1995-99	President, Fujitsu Users Association of Australia
1993-97	Member, Australian Government Information Exchange Steering Committee
1993-95	Member, Lotus Executive Council, Boston
1990-93	Member of the Board of WA Crime Research Centre

Given his background it is not surprising that Brian is a very strong advocate of the importance of official statistics. At the 5 yearly Users of Statistics Conference in late November last year, he posed the question "What are official statistics?" and quoted from the July 1993 United Kingdom White Paper on Open Government where it said:

"Official statistics are collected by government to inform

debate, decision making and research both within government and by the wider community.

They provide an objective perspective of the changes taking place in national life and allow comparisons between periods of time and geographical areas.

Open access to official statistics provides the citizen with more than a picture of society. It offers a window on the work and performance of government itself, showing the scale of government activity in every area of public policy and allowing the impact of public policies and actions to be assessed.

Reliable social and economic statistics are fundamental to ...open government (and) it is the responsibility of government to provide them and to maintain public confidence in them."

Brian also sees the role of an official statistician as being partly one of a scientist, partly one of an artisan and partly one of a diplomat. The scientist in the statistician comes from the application of scientific methods to the design and conduct of statistical collections. Statisticians roam across the disciplines of empirical experiments seeking evidence to test hypotheses about society and its many transactions and interactions; to observe, to classify, to enumerate and to extrapolate using mathematical and statistical techniques along the way. The artisan that is the statistician then emerges and seeks to portray the rich tapestry of society in visual representations such as statistical tables, graphs and more recently multi dimensional data cubes and through stories told through textual commentary and analytical descriptions. The role of the diplomat is the function that the statistician must perform in finding a mutually acceptable balance between the competing demands of users, the willingness of respondents to participate in statistical surveys and the capability of the statistical agency to deliver within the resources made available to it.

Brian has a Commerce degree from the University of NSW, is remarried with 2 adult children from his first marriage, is a keen golfer, tennis player and surfer when time permits, and a lover of rugby, cricket, good food and good wine.

## New Members of NZSA

The NZ Statistical Association welcomes the following new members:

Richard Barker	Maaike Bendall
Paul Cowpertwait	Zaneta Park-Ng
Brian Pink	Lyn Skilling
Sue Triggs	Alain Vandal
Ko-Kang Wang	Camie Yim

## News from the Education Subcommittee

The committee has continued to have regular meetings. The main emphasis has been on reviewing statistics in the NCEAs (the National Certificate in Educational Achievement qualifications that are soon to replace School Certificate through to bursary exams). The Ministry of Education has been receptive to the submissions we have made, and while not all of these have been implemented, some real progress has been made. We are keen to avoid the situation in Scotland, where the Royal Statistical Society has stated that the miswording of examination questions is “a very serious matter”. One scrutineer believes that every statistics paper in Scotland since 1997 has contained serious errors which have disadvantaged candidates. We are keen to see this avoided here, and also wish that a correct philosophy towards statistics is fostered. To this end we propose to make submissions to the Minister on both the place of statistics in the NCEAs and in “Mathematics in the New Zealand Curriculum”.

The committee is also looking forward to the **NZ Association of Mathematics Teachers Conference to be held in Wellington on 2nd to 6th July 2001** at the Duxton Hotel. We propose to help sponsor an overseas plenary speaker as well as encouraging local statisticians to offer papers at the conference. Offers of papers could be made to Sylvia Bishton at [sylvia.bishton@wce.ac.nz](mailto:sylvia.bishton@wce.ac.nz) or could come via the committee by sending them to me at [alex.neill@nzcer.org.nz](mailto:alex.neill@nzcer.org.nz).

*Alex Neill  
Convenor  
Education Subcommittee*

## Bryan Frederick John Manly, Statistical Ecologist Supreme

by David Fletcher

As many of you will be aware, Bryan Manly recently left the University of Otago after 27 years. He is now working as a consultant for WEST Inc., a company based in Laramie, Wyoming. WEST was started by Lyman McDonald, a long-time friend and collaborator of Bryan. In September this year, David Fletcher visited Bryan at his new home in Laramie and interviewed him about his career. The following article is the result of this interview.



*Bryan Manly*

Bryan grew up in West London just after the Second World War. Until he did his A-levels, he was

keen on physics. He found it a bit too descriptive and so became an applied mathematician. He went on to do a degree in Applied Mathematics at the City University in London. This course contained a combination of pure and applied maths, computing and statistics. He decided to specialize in statistics in his third year. Bryan saw the light, so to speak, when he attended a lecture by Alan Winterbottom, and thought that “this [statistics] was fantastic!”. In 1994, Bryan attended a conference on industrial statistics because he knew that Alan was one of the organizers!

As it was a “sandwich” course, he spent a year working for a company called English Electric in London. There he was asked to fix a program on factor analysis, using a second-generation valve-operated (DEUCE) computer. It was only much later that Bryan discovered what factor analysis was all about! Bryan’s final-year project at City University was on sequential analysis. He wrote this work up and it was published in Series A of the Journal of the Royal Statistical Society in 1967 (An approximate method for calculating the average sample number in certain sequential tests, Series A130: 239-243), despite it being rubbished by his supervisor!

Immediately after finishing his degree, Bryan went to work for Fisons, a large pharmaceutical and chemical company, for 18 months. There he was involved in measuring components of variation in fertiliser composition, running surveys of farmers, and a host of other things. Bryan then decided he wanted to go into teaching and research, and applied for an Assistant Lectureship, then a common route into academia in the UK for those with a bachelor’s degree. So, at the age of 22, he was appointed to a post in the Mathematics Department at Salford University, and given just two weeks to prepare for three courses. The three years he spent at Salford were not his happiest in a university: there were 45 members of staff, but according to Bryan, you felt that you were very much on your own (“it was a dreadful place!”). However, he continued his work in sequential analysis, and started working on an MSc thesis without being registered.

During his time at Salford, Bryan discovered that he enjoyed consulting. One day a biologist, who was working on dragonflies, came into the department tearoom wanting help with a t-test. Bryan was the only statistician in the room at the time, and offered to help. The biologist, Mike Parr, then mentioned mark-recapture, about which Bryan knew nothing. Having listened, he became interested and went to Mike’s office. There he was shown the capture histories: numerous sheets of paper containing zeros and ones. All this in the year following the publication of the work of Jolly and Seber!

Primarily, Mike wanted to compare the survival rates of different colour classes. In passing, Bryan suggested that one could also obtain an estimate of abundance using the ratio of the number of individuals captured to the estimated probability of an individual

being captured. Mike checked the literature and suggested they publish this first, before worrying about survival rates! This led to what is now known as the Manly-Parr method, published in the *Transactions of the Society for British Entomology* (1968, Volume 18: 81-9). As Bryan's interest in mark-recapture analysis grew, he realised that no work had been done on checking the properties of the estimators, which eventually led to him carrying out the simulations described in the *Journal of Applied Ecology* 7: 13-39.

In 1968, Bryan met and collaborated with Lawrence Cook, a geneticist and friend of Mike Parr. He was working on an experiment looking at the feeding preferences of birds given pastry pellets of two colours, with the ratio of the number of pellets of each type varying. He was interested in whether or not the birds would tend to overeat the rarest type of "prey". Bryan persuaded Lawrence to abandon the approach he had adopted for quantifying selection, and this led to what is known as Manly's Selectivity Index, published in 1972 in the *American Naturalist* (Volume 106: 719-36). Bryan also discovered that there were big gaps in the literature on using field studies to quantify selection. This was very much a British field, exemplified by E.B. Ford's book *Ecological Genetics*.

Bryan describes this period at Salford as a crisis, in that he made the decision to leave the "hard" maths of sequential analysis for the world of biology. He felt that the mathematics in biology was easier, but more useful, and his work would be read by many more people. Bryan decided to go in this direction even though he knew it wasn't so highly regarded by his colleagues. Eventually, they were happy with this move, as he was publishing papers, albeit not as mathematical as they might have liked! But for Bryan it was also a really exciting time, with "so much to do in the area". Bryan was particularly impressed by Mike Parr and Lawrence Cook, who he describes as "very good scientists, who were passionate about their research". They were already taking a quantitative approach to their work and had no-one to help them.

During this time Bryan was desperate to leave the UK for an academic post in a developing country such as in Africa. Roger Mead and Robert Curnow, from Reading University, interviewed him for a post in Nigeria, a country with which their university had established a link. He was subsequently offered a job there in Agnomy (sic!). Meanwhile, Bryan had heard that the students there had tried to blow up the Vice Chancellor. He had also received a letter from one of the staff suggesting that morale there was very low. So he declined the offer.

After also considering an offer of a post in Uganda, Bryan finally took up a Lectureship in Statistics from the University of Papua New Guinea. Before accepting, he needed to look at an atlas to see exactly where it was he would be going! The fact that he was offered three times his UK salary

helped. He then told Lorna, his wife, who hadn't know about any application (!).

So Bryan and Lorna and their three children (one, three and five years old) left for Papua New Guinea by boat from Southampton in 1970, with Bryan wearing his first-ever suit, bought for £5. His colleagues and friends in Salford thought him completely mad, but Bryan discovered that it was a "great place". In those days it was a very safe community for expatriates. They also experienced a huge boost in their living standards. Accommodation was provided, there was a 10% tax, and the children's school was on campus.

Bryan continued his research on natural selection and mark-recapture and began to write his book *Statistics of Natural Selection*. He was also sent by the Government to a World Health Organization conference on the "Statistics of Family Planning". This may have been partly because Bryan was the only statistician in the country! During his time in Papua New Guinea, Bryan kept in contact with Mike Parr, who eventually took early retirement from Salford and lived for a while in Africa. He now lives in Dorset, and Bryan plans to visit him next time he is in the UK. After three years, during which time Papua New Guinea gained independence and self-government, Bryan and Lorna decided to leave, knowing that they did not want to return to the UK.

Bryan and Lorna considered moving to Australia, but hadn't thought about New Zealand. Then Bryan saw an advert for a position at Otago University. George Seber was the Professor of Biometrics at the time, and was leaving, after only a year, to return to Auckland. He encouraged Bryan to come and run the new Biometrics Unit, which George had set up. Bryan had never met George, even though they had written a joint paper on animal life tables, that appeared in *Biometrics* in 1973 (Volume 29: 487-500).

They came to Otago in 1973, arriving in mid-winter from the tropics. There was ice on the pavement and they immediately went out and bought a heater to use in their motel. The statistics group at that time had only two members: a young John Harraway and Gopi Jain. The chair in Statistics was still vacant after the departure of Geoff Jowett. Bryan was appointed as a Senior Lecturer, with just a BSc and a few publications to his name. He also took over the Biometrics Unit. Not long after Bryan's arrival, Steve Mandell was appointed as Professor of Statistics. Bryan says that the average teaching load in those days was three courses all year, but as there was no internal assessment, this made things a little easier than such a load would be nowadays.

Bryan's first collaboration at Otago was with Charles Higham, now Professor of Anthropology, leading to three papers on prehistoric remains in Thailand, which appeared in archaeological journals in the early 1980s. He also provided statistical advice to PhD students. One big disappointment in those days was the lack of interest in quantitative research by

the staff (as opposed to the students) in the zoology department.

After three years at Otago, Bryan applied for an associate professorship at the University of Western Australia, but then decided against it. Desmond Sawyer, his Head of Department then suggested that Bryan should apply for an associate professorship at Otago. He didn't succeed, perhaps because one of his external referees said that Bryan's interests were too diverse, even though most of his papers were on the theme of natural selection. He was eventually promoted to associate professor three years later, in 1979.

In 1978, Bryan took sabbatical leave at Louisiana State University in Baton Rouge in the US. He was delighted to at last meet people with the same interests in the biological sciences. Up until then, in both the UK and New Zealand, he had never met statisticians who shared his approach to the subject. He felt this common link most especially while attending a conference on environmental impact assessment that was held in the department in Baton Rouge. He met and formed a friendship with Lyman McDonald, and decided that his next sabbatical would be in Laramie, Wyoming, where Lyman was Head of the Zoology Department. The fact that a statistician had been appointed to be head of a science department impressed Bryan greatly.

At Otago, Bryan recalls that the statistics group was dominated by the mathematicians. One professor of Applied Mathematics even stated that "Statistics is a cult subject!" at a Science Faculty Meeting, much to the amusement of many from other science departments. In the mid-1980s, Derek Holton arrived as the new Professor of Pure Mathematics and supported statistics as being a useful subject. Not long after arriving, Derek read the manuscript for Bryan's book on natural selection and decided he would put Bryan forward for a personal chair. This coincided, as it happens, with the resignation of Ivor Francis, the Professor Statistics, who had arrived a few years earlier. This meant that Bryan was appointed to the department chair rather than a personal one. One of the first things he did when he was appointed was to allow staff time for consulting, which had been the initial avenue for his journey into statistical ecology at Salford.

In 1988, Bryan went on sabbatical leave to Laramie. There he became interested in computer-intensive methods and decided to write a book on the topic. He had already ventured into this area in the research he carried out while writing his book on natural selection. Earlier in Dunedin, a meeting with one of his consulting clients motivated him to write a book on multivariate analysis. The client had got hold of a copy of Bryan's cluster analysis course notes from a friend, and told Bryan that this was "the only literature on this that I can understand".

During this sabbatical year, Lyman McDonald mentioned that he had a number of consulting

problems that were concerned with resource selection. He discussed with Bryan the link between this area and natural selection. This led to the idea of applying the same theory to a different area, and eventually led to their book on the topic some four years later.

In 1994, Bryan was made a Fellow of the Royal Society of New Zealand, received a DSc from City University in London, and was presented with a Distinguished Statistical Ecologist award at the 6th International Ecology Congress in Manchester, UK.

One of the features of Bryan's career has been his remarkable output. He has published over 150 papers, and seven books:

The Statistics of Natural Selection on Animal Populations (1985)

Multivariate Statistical Methods: a Primer (1986, 2nd Edition 1994)

Stage-Structured Populations: Sampling, Analysis and Simulation (1990)

Randomization, Bootstrap and Monte Carlo Methods in Biology (1991, 2nd Edition 1997)

The Design and Analysis of Research Studies (1992)

Resource Selection by Animals: Statistical Design and Analysis for Field Studies (1993, with Lyman McDonald and Dana Thomas)

Statistics for Environmental Science and Management (2000)

As we might expect, there is yet another book to appear soon, on Population Ecology (with Professor Mark Boyce from the University of Alberta).

Of all his books, Bryan regards the one on Monte Carlo methods as his favourite. As an example of its importance, it is worth noting that the National Centre for Ecological Analysis and Synthesis at Santa Barbara placed it at the top of the list of books for their new library. Bryan says that writing books has become easier. For example, the one on natural selection took 14 years, although it has to be said that much of that time was spent on research, as he discovered new problems to work on during the course of writing it. By contrast, his recent book Statistics for Environmental Science and Management, took less than a year to write from start to finish.

Bryan feels that Statistics as a discipline is in a lot better shape now than it ever was; it is no longer regarded as simply a branch of mathematics. He feels that a lot of this is due to the work of people like Ronald Fisher (of course) and George Box. He is also excited by the challenges posed by the advent of huge data sets, for example those collected by GIS systems. Computer-intensive methods can clearly play a role, but how are they to be used practically with so much data? For example, we may have  $10^7$  pixels providing data on resource selection for the whole population, but wish to use just 100 pixels in order to carry out a logistic regression. What guidelines do we need for sampling such data sets? Classical statistical methods are less relevant here than in other



contexts, and Bryan wonders if statisticians are keeping up with the play? On this note, he feels that it is unfortunate that many statistics graduates don't know how to operate a GIS system

One of Bryan's earliest influences was the sequential analysis work of George Barnard. It was George who suggested that Bryan continue writing papers instead of doing a PhD. He also says that George Seber's book on animal abundance was, as we might expect, a crucial early influence on his career.

Bryan only expected to stay at Otago for between three and five years. His philosophy then was to not stay in a place too long. But not wanting to unsettle his children, and being appointed professor both made a difference. He has left partly because he got tired of teaching. He did not want to end up "retired in the job" as some people do! He says that when he was younger, he couldn't have imagined not wanting to teach. He also feels it is a good time for him to change to being a full-time consultant. The first few problems he has worked on are really difficult – his old friend Lyman McDonald saved them up for him! Bryan still has roots in New Zealand (two daughters and five grandchildren) and plans to visit twice a year and to maintain contacts.

In a talk given to the Royal Statistical Society's 150th Anniversary Conference in London in 1984, Professor Robert Curnow argued strongly in favour of statisticians becoming knowledgeable in their area of application, in order to both fully understand the problems posed and to see them in a wider context. Bryan Manly is an example of a statistician who has done this par excellence. His contributions to the life sciences, and in particular ecology, are remarkable. The statistical community, both in New Zealand and worldwide, owes him a great debt: he is a statistician who is admired and respected because he is also an outstanding scientist.

*David Fletcher*



## Deadline for next Issue

All submissions for the next *Newsletter* to Russell Millar by 30 June 2001 please.

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## Local Scene

### University of Canterbury

Easaw Chacko, Irene Hudson and Michelle Dalrymple recently attended the Generalized Linear Models Workshop at Auckland University on December 4-5, 2000. We congratulate the speakers and Derrick Bennett for a great job.

Marco Reale is currently researching at the University of Lancaster - but cannot quite escape the email admin! Mike Steel and colleagues went through a review of the Biomathematics Research Centre in 2000, and the Innovative Health Care Technologies arm (IHT) of the Research Centre for Health Care Technology NZ (CHCTnz) gained NERF funds and renewed enthusiasm.

Irene has recently visited the School of Public Health, Medicine and Biostatistics at the University of Hawaii in early December as part of an Erskine travel grant. Teaching and research methods were discussed and compared between UH and UC. She travelled to Australia to follow up work at QUT and the University of Wollongong etc., on ideas addressed at the National Maths Symposium on Non-linear Time Series, Stochastic Networks and Allied Modern Statistical Techniques (ANU, Canberra July 2000) and at the 15th Australian Statistical Conference, July, Adelaide, Australia.

Jennifer Brown recently attended the National Possum Control Agencies annual meeting and presented work on improvements to the national possum monitoring protocol. She also attended the Animal Health Board meeting aimed at improving the statistical analysis of possum populations.

Irene and Marco recently gained a UC research grant to investigate the feasibility of introducing the statistical package R to teaching programs at the University of Canterbury. Irene has taken the gamble of introducing SAS for the first time to first year statistics students in 2001 and refocusing the course, particularly in Term 1, to research design and interpretative thinking. With this in mind I have added Wild and Seber's book "Chance Encounters" to our main text to broaden the focus. I thank Chris Wild for his support to date.

Marco Reale, Irene Hudson and Julian Visch organised the NZ statistics conference at the University of Canterbury on September 1, 2000. We were pleased with the number and variety of papers submitted. Special thanks go to Marco for his enthusiasm and momentum throughout; and to Doris

Barnard (Head Tutor) for her excellent arrangements for lavish food and coordinating the reception desk with lively UC postgrads! Three University of Canterbury PhD students presented talks at the NZ Statistical Conference, and Irene presented time series sinusoidal equations for whole tree variation. There was hot competition for the young best presenters award at this conference – the judges had no easy task. We congratulate Taweesak Siripornpibul on his NZSA conference presentation about design and sampling, Michelle Dalrymple on her paper on the relationship between SIDS and climate in Canterbury, and Robin Turner on her paper about structural equation modeling and bootstrap methods applied to the study of personality and brain blood flow.

A keen team across NZ are now coordinating a joint meeting in Canterbury for December 2001 of the NZSA and the Australasian Region of the International Biometric Society - see the front page of this newsletter for details.

*Irene Hudson*

## University of Auckland

Where to begin? Perhaps with the various comings and goings. Robert Gentleman has now left us for Harvard and Rachel Fewster has joined us on a 3 year lectureship. Justine Saunders has joined us to do a PhD (funded by a Tuapapa scholarship) working with Marti Anderson to study kelp holdfast communities. We've also been joined by our new postdoc, Trevor Willis, who will be helping Marti to study marine communities. Trevor will spend much of his time at the Leigh Marine Lab but will also share an office at the Tamaki campus.

Chris Triggs is now on leave in Seattle at the U. of Washington through to the middle of the year. A bunch of academics (including Alan Lee and Alastair Scott) are looking at February 1 with dread because it marks the end of their leave.

Several members of the department enjoyed success in the recent round of promotions. Congratulations to Joss Cumming, Ross Ihaka, Renate Meyer, Ross Parsonage and Matt Regan. Ross Parsonage is also to be congratulated for gracefully reaching one of those ages with a zero on the end!

We've had some additions to families. Edmond Smith was born to David and Susan Smith late last year. Matt Regan got a German shepherd pup with very big paws and Joss Cumming got a ridgeback pup.

Summer school is on at present and our 1st and

2nd year service courses are being taught. A new 1st year class, Stat 191, is being developed by Matt Regan and helpers for the Bachelor of Business and Information Management degree starting up this year.

The December workshop on Generalized Linear Models was well attended and a great success. One of the invited speakers, John Neuhaus from University of California (San Francisco) is staying with us for a few months to work with Alastair Scott.

In late October Marti Anderson and Russell Millar went to the Mokohinau Islands at the edge of the Hauraki Gulf to practice identification of marine species. Marti then spent much of December putting that practice to use, by doing marine sampling off Coromandel and Northland.



*RV Proteus at the Mokohinau Islands*

*Russell Millar*

## Statistics New Zealand

**Arrivals:** John Crequer (new), Tracey Savage (returning from OE) and Victoria Wilcox (after a year's study leave).

**Departures:** Pete McMillen and Geoff Kuzmicich.

It is now officially Dr Sharleen Forbes, and as part of that she gave an invited talk at a conference on statistical education in Jordan recently. Mike Doherty, Sharon Clark and Richard Penny went to the Australian Statistical Congress in Adelaide in July, all presenting a paper or two. Richard also attended the two day workshop prior to ASC with Peter Mohan from the SNZ training and development section. John Cornish has been to Botswana and Korea. Alistair Gray went to Moldova to help them with business surveys and four members of the Moldovan Statistical Office subsequently visited us. Pat Coope has been to the Gold Coast for a workshop on longitudinal data.

Most of SNZ in Christchurch has moved to a new building on Madras Street. The general consensus is that it is an improvement, with the main complaint about being 4 blocks further from the centre of town. One general comment is how much quieter it is. We are planning a "house-warming" lecture and supper for all NZSA members who can come sometime in February.

*Richard Penny*

## University of Otago

David Fletcher visited the Macaulay Land Use Research Institute in Aberdeen in September, working with Jon Yearsley on sensitivity analysis for density-dependent population models. During his stay he enjoyed the delights of hill climbing and witnessed the national panic arising from the petrol blockades. He then went to EURING 2000, the regular conference on mark-recapture data, held at Point Reyes, near San Francisco, stopping off en route to give seminars (and enjoy the local wildlife) in Colorado and Wyoming. This stopover allowed him to visit Bryan Manly, recently settled into his new life as a consultant in Laramie.

At EURING 2000 David presented joint work (with Richard Barker and PhD student Paul Scofield) on estimating density-dependence using mark-recapture data. The location of the conference was eerily similar to the Otago Peninsula (without the fresh winds!) and included the delights of watching humming birds at close range.

*Irene Goodwin*

## Massey University

As a result of the university's repositioning exercise we are soon to lose 2.6 staff. Terry Moore and Bruce Dunning will be leaving us early in 2001. Greg Arnold, or at least 60% of him, has already moved to Landcare. They have all contributed hugely, in different ways, to what used to be the Department of Statistics, and will be greatly missed. But the administrators say we were over-staffed, and they are all honourable men.

Steve Haslett went to the Office of National Statistics UK in August/September, and can report that Len Cook is well and is working hard at explaining NZ vernacular to the locals. He also went to Trinity College Dublin, and the Bureau of Labor Statistics in Washington DC, and gave a seminar to the Washington Statistical Society. Research covered during his leave centred on generalized linear models and sample surveys. He attended the WinBUGS course (along with Barry and our resident Bayesian, Howard) at QUT in late November.

Chin Diew Lai has been on sabbatical this year, a highlight of which was to attend and present at the International Conference in Mathematical Methods in Reliability at Universite Victor Segalen in Bordeaux.

Doug Stirling is still away on sabbatical, currently visiting Larry Weldon at Simon Fraser University in Vancouver. He has also spent some time with David Griffiths at Wollongong.

Two new visitors have arrived. Chungui Qiao arrived in August after completing his PhD at the University of Queensland. He has considerable experience in agricultural science, and is working on genotype by environment problems. Roger Peck is here on sabbatical from California State University in Bakersfield. His main interest is the use of technology in statistical education.

Congratulations to Mark Bebbington who has secured Marsden funding to continue his work on stochastic modelling of earthquakes, and to honours student Ryan Sherriff who has been awarded an AGMARDT Doctoral Scholarship to work on statistical genetics.

*Geoff Jones*

## Lincoln University

We note with sadness the death of Associate Professor Bruce Robson suddenly in Christchurch on October 25. An obituary is at

<http://www.massey.ac.nz/~RMcLachl/robson.html>

## AgResearch



*Zaneta Park-Ng*

We welcome Zaneta Park-Ng to the statistics team. She began in Palmerston North in November. Zaneta comes to AgResearch with a background in Genetics/Botany/Plant Ecology and Statistics. At Victoria University, she has recently completed an MSc thesis, principally based on allozyme work, entitled "Systematic studies of the native Clematis species of New Zealand". Zaneta has also been involved with the 200-level Applied Statistics course at Victoria University for several years. Zaneta has two children and works unusual hours at AgResearch, including 10 hours at home per week. She notes that it is wonderful to find an employer who is flexible enough to cope with such an arrangement.

Dave Saville (Lincoln) had a hot, humid week in Tokyo in mid August at the International Association of Statistical Education Round Table Conference on the Teaching of Statistics to Researchers. He delivered an invited paper "A hands-on, interactive method of teaching statistics to agricultural researchers". This paper described his experiences of running annual winter workshops in statistics over the last 23 years. While in Tokyo, he also presented a paper at the Institute of Statistical Mathematics entitled "Fisher's geometric view of the linear model p-value".



Neil Cox presented a one-day course to DOC staff on exploratory data analysis using Excel. Harold Henderson and Neil Cox led a graduate statistical consulting course at the University of Waikato. Martin Upsdell has made a good recovery from a heart attack. He has been considered an outlier by the consultants who after intensive investigation can not come up with any good cause for the heart attack.

*Harold Henderson*

## University of Waikato

To get the bad news over with first I should report that Judi McWhirter, your regular correspondent, is currently laid up with a broken leg, and has been unable to write this report. I suspect the main silver lining to that cloud for her is that she has had to hand over the teaching of summer school introductory statistics to Ray Littler.

James Curran, our seminar coordinator, has managed to coordinate quite a list of seminars since the last Newsletter in August. We have had the following talks from visitors and locals:

Automatic differentiation (AD) - Why doesn't everyone do it?  
Dr David Fournier, Otter Research, Victoria, British Columbia

Multiple objective combinatorial optimization. Dr Matthias Ehrgott, Engineering Science Department, The University of Auckland

Updating formulae in an analysis of variance model. Professor J A John, Statistics Department, University of Waikato

Statistical problems in forensic science. Dr James Curran, Statistics Department, University of Waikato

Using multinomial mixture models to cluster Internet traffic. Dr Murray Jorgensen Statistics Department, University of Waikato

Some applications of orthogonal arrays. Dr D. Raghavarao, Temple University, USA

A comparison of permutation methods for linear models. Dr Marti Anderson, University of Auckland

Computational algorithms for censored data. Dr Robert Gentleman, Department of Statistics, University of Auckland

James has set up a web page,

<http://www.stats.waikato.ac.nz/seminars.html>

with further details of these and coming seminars if you are interested.

I would just like to add a personal note about our most recent seminar visitor, Dr David Fournier. Dave and I were fellow graduate students at the University of British Columbia Department of Mathematics. We both completed rather theoretical theses in pure mathematics. We also both found that the real world brought us down from the high level of abstraction at

which we had been operating. In Dave's case he became involved with fisheries modelling in British Columbia. If you have followed his work in the Canadian Journal of Fisheries and Aquatic Sciences, you will know that he seems to get into rather large nonlinear models for the population dynamics of fish stocks. The fitting of these things is nontrivial, and "Automatic Differentiation" is the main tool that he uses to accomplish this. It may be thought of as a way of applying the "chain rule" of calculus to functions defined by computer programs. Dave has developed the "AD Model Builder" software package to fit nonlinear statistical models in applications such as fisheries and finance.

Dave Whitaker and I have been busy lately writing articles for the forthcoming Encyclopedia of Environmetrics (Wiley). I have produced entries for "Iteratively Reweighted Least Squares", "Robust Regression" and "The EM Algorithm". Dave has handled "Branch and Bound" and "Dynamic Programming".

Some books are emerging from two of our innovative first year courses. Nye John and Dave Whitaker are writing a textbook on Management Statistics stressing "Statistical thinking" rather than formulas. Bill Bolstad is writing an introduction to Bayesian Statistics aimed at mathematically well-prepared first year students. These books are based on material for the Waikato courses 0655.160 and 0655.122, respectively.

Bill Bolstad, Lyn Hunt and Murray Jorgensen attended the workshop on Generalized Linear Models at Auckland University December 4 & 5. Khangelani Zuma from Durban, South Africa has arrived to do a PhD under Bill Bolstad. Bill Bolstad and Samuel Manda have had a paper accepted to appear in JASA in March 2001.

Lyn Hunt has been on leave for this semester, spending most of her time with Kaye Basford of the Faculty of Agriculture, University of Queensland. Dave Whitaker will be on leave in Semester A, 2001.

On Monday 18 December, Kathy Ruggiero successfully defended her PhD thesis "Resolvable block designs for factorial experiments". The thesis was under the supervision of Professor Nye John. Kathy teaches at Massey University, Albany Campus.



*Murray Jorgensen*