

## HIGHLIGHTS OF NZSA CONFERENCE August 14 - 17, 1988. Massey University, Palmerston North

### Invited Speakers: (Biographical details are given elsewhere in this newsletter)

Hon. Margaret Shields, Minister of Statistics.  
Dr Alan L Tyree, Associate Professor of Law, University of Sydney.  
Dr Craig F Anesly, NZI Professor of Banking and Insurance, University of Auckland.

### PANEL DISCUSSION (Monday, 15)

#### *The Statistician as expert witness.*

Starring:

Lawyers:

Alan Tyree  
Chris Goodsell

Statisticians:

Neil Cox  
David Rhoades  
Craig Anesly



*"It is customary, sir, that the jury's decision is given verbally, even if you are a statistician."*



*"I never expected statisticians to adopt this role, even under user-pays."*

### PANEL DISCUSSION (Tuesday, 16)

#### *Statistical consulting under user-pays.*

Starring:

Ray Littler  
John Maindonald  
Alan Tyree  
+ others

### WORKSHOPS ON COMPUTER SOFTWARE (Wednesday, 17)

Some details on these are given on the last page of this newsletter.

#### In this issue

Peter T. bows out gracefully  
Report on ABNMS Congress  
Conference Registration form

# President's Column



This column will be my last as President of the Association and, perhaps, my shortest! The main reason for the latter is that this Newsletter follows hard on the heels of an action-packed April issue. As for the former, I have enjoyed my stint as President, but feel that it is time for me to stand down. Two years is an ideal presidential term; long enough to remain enthusiastic and enjoy the job, but not so long for it to become a burden.

What has happened since the last Newsletter? Richard Penny has circulated posters and membership brochures to key people for distribution. This has already led to a number of new members. If you know of people who might benefit from membership of the Association, please give them a photocopy of the introductory offer for first time members printed in the April Newsletter. The Association's publications and, in particular, the new booklet 'Understanding Surveys', that were advertised in the last Newsletter are all selling well. Note that supplies of the John Bibby books are limited - so be in while stocks last.

The Association responded to a request from the Royal Society of New Zealand for assistance for the Science and Technology Advisory Committee. They required details of case studies and success stories where Science and Technology have had substantial beneficial effects for social and economic development in New Zealand and an indication of areas which, in our view, are of high national strategic importance for Research and Development. As you are aware, the membership was surveyed and the results incorporated into a formal response that was organised and coordinated by Jean Thompson. This response is printed elsewhere in the Newsletter.

An ICOTS Local Organising Committee meeting was held at Otago University on 28 May. This was a well attended and successful meeting. The major items covered were the programme, including the final firming up of the dates of the Conference, and ways of funding overseas and local speakers. Any suggestions you might have to make concerning the latter will be gratefully received. We especially need to consider ways of raising local finance to assist school teachers. The costs of registration, together with fares and accommodation, make ICOTS 3 a

relatively expensive exercise. It is anticipated that the Association's 1990 Annual Conference will be held in conjunction with ICOTS 3. *For your diaries the dates of ICOTS 3 are 19-24 August 1990 - don't forget.*

A project entitled 'Ethnic and gender differences in performance in mathematics' submitted by EIME (Equity in Mathematics Education), a group of statisticians and mathematics educationalists, has become our first official project directed towards ICOTS 3. Thanks are due to Judith Archibald who acted as independent assessor for this project. As was the case with the Statistical Society of Australia's biennial projects, we look forward to the results from this project both in the period leading up to ICOTS 3 and at ICOTS 3 itself. Any suggestions for other projects?

We would appreciate learning of people who might wish to serve on one or other of the Association's committees. If you are keen to play a role then please advise us. The Association's health and vitality continues to depend on a good supply of hardworking enthusiasts.

For my part, I would like to take this opportunity of thanking you all, especially the Association's committee members, for your continued support. It is much appreciated. I look forward to seeing many of you at the forthcoming Annual NZSA Conference which promises to be both stimulating and enjoyable.

Peter Thomson

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## From the Editor, New Zealand Statistician

I would be very happy if the organising committee of the August conference of the August conference recommended the invited and contributing speakers to submit a written version of their papers to the New Zealand Statistician. Note the blurb under Guide to Authors (back inside cover) requesting articles to be non-technical, entertaining and succinct; 10 manuscript pages. I intend to publish all the abstracts in the December issue: if you can get them into Macwrite or Word 3 (Mac-disketttable) the first time around, I'd be delighted!

Jocelyn Dale

# New Zealand Statistical Association (Inc.)

## Annual General Meeting

Tuesday, 16 August 1988, 11:30 a.m.  
Whararata, Massey University

## Agenda

1. Apologies
2. Confirmation of minutes of the 1987 AGM
3. Matters arising from the minutes
4. President's report
5. Matters arising from the President's report
6. Treasurer's report
7. Subscriptions for 1988-89
8. Election of Officers: President, Secretary, Treasurer, Corporate Members' Representative and five committee members
9. Election of SAPQC committee members
10. Election of Auditor
11. Annual Conference 1989
12. General

## NOTICE

### Nominations for the 1988/89 Executive Committee

Members are invited to submit written nominations for the positions of President, Secretary, Treasurer, five Committee members and one Corporate Members' Representative. Nominations should be submitted to the Secretary of the Association by 13 August 1988 and should include the signatures of the nominator, seconder and the consent of the nominee. Nominations will also be received from the floor at the AGM.

## FROM THE EDITOR

### THRESHING THOSE OLD STATISTICS

*Alis extendum*, to be threshed by others, was the motto of the Royal Statistical Society when it was founded in 1834. The potted history which appeared in the 1984 journal of the Society revealed that the explanation of this curious phrase lay in the determination of the founders to deal only in facts and not opinions. By 1857 the motto was quietly dropped for it became obvious that someone will always try to interpret data so that it would be strange to deny statisticians this right.

Anyone who glances at the timetable for this year's NZSA Conference will realise that statisticians have moved far from the restriction of not threshing the data collected by others. Indeed, the modern statistician must not only thresh the data but grind the grain into palatable flour that can be digested by others.

package the flour in an attractive way and, in the current climate of user-pays, market and sell the product. A bewildering array of skills are now required.

The first panel discussions at the conference will consider such questions as whether the statistical and legal professions can communicate, how should statistical evidence be packaged and presented and how could statisticians stand above the confrontation of the courtroom process. The second session will consider other aspects of presenting data and the effects of user-pays on the type and amount of consulting. The three invited speakers, the Hon. Margaret Shields, Dr Alan Tyree and Professor Craig Anesly, come from very varied backgrounds. All in all, it sounds as if it will be a most absorbing conference. See you in August.

Dick Brook

## Response to a request from the Royal Society of NZ for Assistance for the Science & Technology Advisory Committee

The New Zealand Statistical Association consider that the science of statistics should be accorded greater support in New Zealand since it can be applied to advantage in practically every endeavour.

Japan recognized the crucial importance of statistical methods applied to industrial processes and technological research almost 40 years ago. This policy was championed by the Japanese Union of Scientists and Engineers (JUSE) and widely accepted by industry. The application of statistics is internationally recognized as one of the key factors in the amazing growth of Japanese industrial success and its subsequent economic position in the world today.

Despite the high calibre of New Zealand's statisticians we have yet to make such a contribution in New Zealand to date.

We know we can contribute, we are willing to help and we have the skills to be effective. Indeed we are very effective in the areas where we are invited to apply our skills. However, we are frustrated by the lack of perception, even amongst scientists, of the needs for our skills. Part of the problem is that there are too few of us and so the work we do is not widely seen.

We consider therefore that it is of high National strategic importance that we have in New Zealand:

- Research into quantitative methods with applications to commerce, agriculture, social sciences and industry
- More fully trained statisticians
- A raising of numeracy in the general population and the teaching of effective elementary statistical skills at all levels of education
- Publicity about the potential value of using our skills of the kind given by JUSE in Japan (maybe given by RSNZ).

To achieve these aims there needs to be a great increase in the resources provided by government to educational institutions and government departments involved in the training of practical, experienced statisticians.

We have canvassed our members and enclose a selection of case studies or success stories demonstrating the wide variety of areas where statistical methods are at present being used to improve efficiency.

**C J Thompson**  
Secretary, NZSA

[The above was accompanied by a listing of 34 case studies and success stories obtained from NZSA members.]

## PROMOTING CAREERS IN STATISTICS

The third Careers Day in Mathematical Sciences for interested women students went well. About 300 young women from the 6th and 7th form converged on the University of Auckland. There were various activities, from extended presentations by those with careers in mathematics to visits to 4 University departments where the students could meet role models.

The statisticians would have met about 2/3 of the students. We introduced ourselves, giving a quick run-through of our career paths, then we each spoke about a project we had done in our jobs. Lynne Gilmore and Joanna Stewart described the Dunedin Longitudinal Study on childhood development and has personal computers ready to interview the students about their alcohol consumption and attitudes. Jocelyn Dale showed slides on a horticultural experiment she had collaborated in, for improving harvest-time fruit quality. To get the correct premiums for contents insurance, Linda Nicholls outlined the steps she went through, working with management, doing statistical analyses and communicating the findings.

We also handed out a brochure on careers in statistics. Don't forget to ask those young women you interview about jobs in statistics *where* they first heard about them! This careers day may prove to be one of our best marketing opportunities!

**Jocelyn Dale, Lynne Gilmore, Linda Nicholls, Joanna Stewart**

## STATISTICAL METHODS IN DISCRIMINATION LITIGATION

When expert witnesses testify as to what quantitative data show about the relationships among variables, they draw on a rich tradition of statistical thought unknown to most other participants in litigation. Confronted with such evidence, the courts have remarked that "statistics are not irrefutable", that they "come in infinite variety" and that to be relied upon, "statistical evidence ... must be meaningful".

Nevertheless, statisticians and other experts appearing in discrimination litigation have a professional responsibility to use methods that are well adapted to the problems to which they are applied, and to choose from the "infinite variety" of statistics those that are most "meaningful".

The literature on statistical methods in discrimination litigation is filled with articles and books in which lawyers explain to each other what statisticians are saying, and to a lesser extent with articles in which statisticians explain to each other what lawyers are saying.

Science, social science, and medicine do not operate under the adversarial model, although one might be forgiven for drawing the opposite conclusion from the literature. Consequently, the use of statistics in these fields does not reflect the roles played by the participants (including the statistician), which are a prominent feature of legal disputes.

Like oil and water, law and statistics do not naturally mix. We could use some more soap.

**D H Kay and M Aickin (Eds)**

# *Review of Quantitative Business Methods: A Work Approach to Statistics and Probability*

*Authors: Rob Prince and Mark Westwood*

This book is one of a set of three by these authors, the other two dealing with Financial Mathematics and Sampling Methods respectively. A brief examination reveals that the other two texts are constructed in a similar vein to the one reviewed here.

An initial cursory reading of this text gave one the impression of a practical, problem solving approach to the subject with plenty of worked examples. A more thorough examination reveals that, as a book for learning how to perform statistically related computations, it succeeds very well. However, as a book for learning something useful about statistics and probability, it is unsatisfactory and quite out of touch with the current teaching and practice of statistics. Students who undergo a course taught from this book will be likely to come away with the entirely misleading impression that doing statistics is the performance of working with a few computational formulae.

The book is divided into six chapters representing something of a tour de force of statistical techniques. Chapter 1 covers graphical presentation of data, which is very good place to start. However it seems to confine itself to simply running through a list of diagrams (pictograms, line graphs, pie charts etc.) illustrating these with examples. This is legitimate enough as a start, but no real attempt is made to assess the value of these diagrams or even to discuss what constitutes an informative graph or a misleading graph. The examples given, a few of which are based on real data, serve merely to illustrate the mechanical aspects of the construction of the graphs. A serious deficiency in this chapter, as in the rest of the book, is the absence of any of the exploratory methods which are so important in current statistics.

Chapter 2 begins with considerable promise giving several examples of interpretation of simple statistical statements. However, the artificiality of the examples is all too obvious and the discussions are not carried far enough. There are plenty of sources, even from local newspapers, which carry far more relevant statistical statements which could be discussed. There seems to be an urgency in this chapter to jump straight into the computational aspects of data summary, generously described as 'analysis'. The emphasis on formulae and computation in the book leads to a great deal of space being allocated to the appalling formulae for computing the mean (and later the standard deviation) for grouped data. The formulae are technically correct but, for students, they remain as one of the more confusing aspects in learning about statistics. Inclusion of examples and comments on skewness of data is a very good idea but the use of real examples of datasets which are skewed is needed as well as some discussion of the subsequent effects of skewness on simple inferences. Chapter 3 is devoted to correlation and regression. As before the emphasis is completely on the mechanical aspects of this topic and as a result does a disservice to the student's ability to comprehend and interpret relationships between variables. There are some brief statements made on spurious correlation but this hardly represents a serious discussion of the topic. The introduction of the term 'coefficient of determination' hardly serves any useful purpose since the justification for its use is too glib and it is not used in any useful way in examples. The material on

regression is focused on computing and drawing the least squares line and predicting from that line. Some effort goes towards discussing some of the pitfalls of regression and prediction, but this is clearly subsidiary to the act of calculation of numbers.

Chapter 4 concerns index numbers and as a means of stating what they are and how they are calculated it is very good. However there seems to be very little attempt made to discuss how one is to interpret various indices, only how to calculate them.

The subject of time series is covered in Chapter 5. As a description of what time series are and of the various simple components that are looked for this chapter does very well. This section would be considerably improved by the use of real data, of which there are many examples in business, social statistics, trade statistics and many others.

The placing of the section on probability in Chapter 6, the last in the book, is a very good idea. The subject of probability is, for many students, an extremely difficult one to grasp and it is appropriate that the subject is formalised after students have some concepts of uncertainty and variability. The heavy use of tree diagrams in evaluating compound events is to be commended here. As with the rest of the book, emphasis is on computation which for this subject at this level seems the most appropriate. There still remains the problem of the artificiality and apparent lack of relevance of the examples. This could be easily improved.

In summary, this book is to be recommended only as a means of seeing the mechanical aspects and formula computation of simple statistics. Overall, the rationale of the book seems to be based on the mistaken impression that one merely needs to know the right formula in order to get the 'right answer'. It is assumed that the target audience for this book are initiates (although the target audience is not defined in the book). In this case, the book attempts too wide a coverage of topics at too little depth. First time students of statistics would be much better served by a book which focuses on understanding fewer concepts and practices.

**Kelly Mara (AMD, DSIR)**

## **MISTAKES ABOUND IN STATISTICS**

American government statisticians got their sums wrong on Tuesday.

As reporters rushed news of the latest trade balance to anxious exchanges worldwide, they discovered some of the figures were wrong.

Eight errors littered a key table breaking down the unjust trade balance by commodities. A ninth botched the American trade balance with West Germany.

Commerce Department spokesman Adren Cooper said the agency's census bureau had failed to crosscheck the data.

**The Dominion, 20 June**

Nobody's perfect! My bad day is Monday. Ed.

# THE AUSTRALIAN BICENTENNIAL NATIONAL MATHEMATICAL SCIENCES CONGRESS

The Australian Bicentennial National Mathematical Sciences Congress was held at the Australian National University in Canberra, Australia from May 16 to May 20 1988. I was fortunate to be a member of the party of five DSIR Applied Mathematics Division scientists attending the conference. The conference was arranged through the National Committee for Mathematics of the Australian Academy of Science and subsumed the biennial conference of the Statistical Society of Australia, the annual conference of the Australian Mathematical Society and, apparently, the New Zealand Mathematics Society Colloquium.

About 410 people registered for the conference, 30 from New Zealand and 25 from countries other than Australia and New Zealand.

The conference was split into two streams, Mathematics and Statistics. Most of the papers which I attended belonged to the Statistics stream.

## Memorable Talks

(Unfortunately, there was not sufficient space to print John's comments on all talks but watch this space in the next newsletter . . . Ed)

**Joe Gani, University of California at Santa Barbara, USA**

**Epidemic Modelling and AIDS** (Plenary Session)

After the presentation of a Festschrift to him, Professor Gani reviewed the modelling of epidemics from John Graunt's "Bills of Mortality" to Bartlett's Threshold Theorem for Recurrent Epidemics and then reviewed current modelling of the AIDS epidemic. It seems that fairly simple stochastic models fit the data quite well, but some refinement is needed to take account of the varying levels of sexual activity within the "at risk" groups. It was a highly polished and entertaining talk on a sombre subject.

**T.M.F Smith, University of Southampton, UK**

**Total Survey Error** (Invited Lecture)

Errors due to random sampling are just one sort of error in Sample Survey work. Smith pointed out three other major sources of error:

The Sampling Process (including ill-defined target population, inadequate coverage by the frame, inefficient design, non-response).

The Measurement Process (including ill-defined objectives, bad questionnaire construction, data capture problems, response coding, data entry).

The Inferential Procedure (biased and inefficient estimators, interpretation).

Following a discussion of this list of errors the main thrust of the talk was that the relative contributions of the Measurement Process errors can be assessed by extending the design and analysis to include interviewer, coder and data entry effects in a large (unbalanced) variance components model and using MINQUE or REML to estimate the variance contributions of each source.

It was a nice presentation that reaffirmed the close connections between sample survey design and analysis and experimental design and analysis - connections exploited by Cochran, Fairfield-Smith and the other early contributors to these fields but ignored by many of today's workers and teachers.

**Bill Armstrong, Armstrong, Armstrong and Associates, Glen Waverly, Australia.**

**The Corporate Statistician** (Invited Lecture)

Bill seems to be absolutely and unashamedly stricken with the Deming management philosophy. His talk was "vintage Bill Armstrong" and I felt he had an initially sceptical audience eating out of the palm of his hand, by dint of an enthusiastic, honest, high-energy presentation littered with anecdotes and with a soupcon of homilies.

The major thrust of his talk was that industry and the community at large needs well-trained statisticians to measure and control variability in industrial processes and services. Bill maintains that many processes have "controllable" variables which give the operators the illusion of control over the process. Adjusting the controllables usually results, in Bill's opinion, in the introduction of more variability into the process. This "tampering" extends also to other rival management philosophies, JIT (Just-in-time) for example, which Bill claims give the same illusion of control (more knobs to twiddle) but contribute in the end to more variability. Experienced statisticians are able to design experiments to detect sources of variability and estimate the magnitude of the variation contributed by each source to the process. If the statistician has some knowledge of human and organizational needs then such a "Corporate Statistician" should be able to use the information obtained from the designed experiment to bring about a change, for the better, in the process.

His message was, I think, new to many of the predominantly Australian audience, but may have been "old-hat" to some of the New Zealand contingent. His presentation was, however, excellent and we, the NZ Statistical Association, should invite Bill to speak at some sort of meeting or seminar for statisticians and potential clients when he next visits.

### Miscellanea

I sat in on the Statistical Society of Australia Policy Session. Two of the items up for discussion were that the society investigate evolving into a professional association with a code of ethics and that the society monitor the decline in numbers and quality of students entering statistical programmes. Both of these items were "sent up" to the executive committee for discussion. The first item seemed to split those present into two camps, those who thought that adopting the mantle of a professional body would make the society more effective at such things as lobbying for financial support and curriculum changes in schools and universities, and those who thought the effort in drawing up and policing a code of ethics would be better directed at the primary tasks, that is the lobbying. My sympathies lie with the second camp. There were wry smiles from some of the New Zealand contingent when, during the discussion, a member of the Australian Bureau of Statistics bemoaned the fact that his organization had to recover 4% of its budget by charging for services.

### Feedback

In the spirit of equal respect for the needs of conference organizers and conference participants, and just to show readers that I'm au fait ("I'm au fait, You're au fait") with some of the conventions in the human potential movement, I present a round of negative feedback for the organizers, followed by a round of positive feedback:

- (-) No note paper in the conference satchel.
- (-) No buffer-time at the end of each paper-forquestions and session-hopping. (The 20 minute time slot for each paper could have been split into 15 minutes for interrogatories and travelling time).
- (-) It rained.
- (-) No hint that there were SIAM, RSS, ISI, IMS and NZMS, or even NZSA, official representatives at the conference. They should have been welcomed and put on display at the Opening Session.
- (-) A printed "Congress Programme and Abstracts of Papers" that gave this gentle reader whiplash.
- (-) I almost died of thirst and hunger before and during the opening speeches at the conference dinner. The speeches should be towards the end of the nosh-up.
- (+) Generally excellent plenary sessions and invited lectures.

- (+) Very good hostel accomodation.
- (+) Real coffee at the morning and afternoon breaks.
- (+) A half-day recess midweek to prevent OD-ing on statistics.

(Comments have been noted by the 1988 NZSA Conference Committee, but these matters have been in hand already . . . Ed)

### Conclusions

Almost all the invited and plenary papers were worthwhile and I regard them as "roadsigns" pointing to areas that I should have kept current in and papers that I should have read in the past five years.

The contributed papers provided me with evidence that the problems which surface in my consulting work are as important if not more important than some of the problems addressed by research statisticians in the universities.

Developments in statistical computing in the US seem to revolve around using high computer power and good graphics to approximate nonlinear functions (ACE, SMART, LOESS, MARS). Errors are assumed to enter additively and usually as normal independent random variables. Some of the procedures (ACE and SMART) seem to require large samples for the model divination and testing phases.

In contrast, it would seem that statistical computing developments in the UK, as exemplified by Nelder at least, involve the now-ubiquitous generalized linear model, and therefore a larger variety of error distributions, and the provision of a knowledge-based front-end to this existing methodology to guide both naive and sophisticated data analysts through model-fitting steps.

I imagine some sort of synthesis will take place one day with ACE-like methods for choosing "optimal" transformations of covariates being placed alongside a GLIM-like algorithmic engine under the bonnet/hood of an anglo-american expert system, with graphical accoutrements, of course.

### Acknowledgement

I am very grateful to DSIR Applied Mathematics Division for allowing me to attend this conference and for providing travel grant.

**JOHN REYNOLDS**

Statisticians in the agricultural businesses of the Ministry of Agriculture and Fisheries met at the end of May at the Ruakura Agricultural Centre for **MAF Stats 88**. Two full days were scheduled beginning after lunch on Monday. A heavy fog caused flights to be cancelled throughout the country on Monday morning. The Lincoln contingent found that the fastest way to Hamilton was to fly to Auckland and then drive from there. With this manoeuvre Dave Saville arrived in time for the session on **Mathematics and Statistics Education** to give a talk entitled questions, answers and statistics; Sharleen Forbes flew in mid-session to present the place of statistics in secondary education. John Waller spoke on recent experiences in school science fairs and on a statistics booklet that local teachers have been developing. We had invited teachers to this session and it was pleasing to see their interest not to mention the arrival of our out-of-town speakers!

Sessions were held on a number of themes. In a session on **nonlinear regression and optimization**, Martin Upsdell spoke on statistical numerical minimization and Murray Jorgensen discussed fitting nonlinear models using Minitab.

**Statistical evidence in legal proceedings** was discussed by Peter Johnstone and Neil Cox drawing from their recent court experiences and Doug Edmeades, after a year in Wellington on the MaxiCrop case, spoke on science, farming and the law.

**Variance Component estimation**. Isabelle Gravett showed some pitfalls in REML, Dave Johnson discussed Multivariate REML and Ken Dodds demonstrated the use of REML in calibration.

Various approaches for the analysis of **Pulsatile Data** were considered. David Duganzich dealt with Pulsar, an adhoc method based on robust smoothing, Judi McWhirter reviewed current methods and proposals for new refinements. Harold Henderson demonstrated a simple regression method, Bill Bolstad spoke about Multi-process models and Roger Littlejohn detailed recent modelling approaches and his modifications to models of Diggle and Zeger.

We discussed the **Future role of Statisticians in MAF** in our increasing commercial environment. Peter Wood from MAFQual challenged us to consider our role in quality improvement. Ray Littler shared experiences of the Waikato Centre for Applied Statistics (WCAS). Chris Dyson discussed being the 'expert' in an expert system. Statisticians from the **Forest Research Institute** in Rotorua also joined us. It was interesting to interact with them and to get their views on commercialisation as they are further down the track than us.

Making guest appearances, Nye John spoke on quality improvement methodology and Jock Mackay



considered implementation of experimental design in industry, keynoting an afternoon on **Industrial Statistics**. This was followed by reports of our WCAS reading group on this subject. Barbara Dow gave an introduction to fractional factorials, Martin Upsdell discussed analysing unreplicated experiments, Ray Littler considered analysing dispersion and topics in robust design and Dave Johnson dealt with identifying dispersion effects with some innovative uses of REML. The paper by Box with discussion in the February 1988 issue of *Technometrics* is a good place to begin.

**Field Trials**. David Baird summarised recent work on Nearest Neighbour Designs, Chris Dyson put the case for systematic designs and Ray Littler followed up with a systematic trial.

Dave Saville demonstrated the advantage of using geometry and other ideas in introductory statistics as detailed in his forthcoming book with Graham Wood.

**Statistics, database and graphics packages** were demonstrated over extended lunchtimes. PC statistics packages included Statgraphics, SAS, Systat, Statistix, and Gauss and PC databases included SIR with SIR Graph and Paradox. Murray Jorgensen demonstrated using Minitab for nonlinear modelling using a set of macros he is developing. Flexicurve being developed by Martin Upsdell was also available for viewing. Peter Johnstone discussed examples he uses for teaching Genstat 5. The new version of the Macintosh statistics package Data Desk Professional was rotating point clouds in 3D with Harold Henderson driving the mouse. Publication quality graphics demonstrated included SAS Graph with a program developed at Invermay to interact with the user to write the SAS program and Tellgraf with Cuechart. MuMath for symbolic manipulation was demonstrated by Mick Roberts. Regional variation is evident. If your favourite package was not being demonstrated perhaps you should enlighten us, you might make a sale!

One evenings entertainment was a University Challenge quiz with teams from the South Island, lower North Island, WCAS and Ruakura. Despite the obvious handicap of producing questions, questionmaster, scorer and adjudicator the Ruakura team was a clear winner.

**Harold Henderson**  
Statistics, Ruakura



## RETIREMENT OF TOM ROBERTSON, DIRECTOR BIOMETRICS, MAFCorp

In more than 30 years with MAF, interrupted by four years lecturing at Otago with Geoff Jowett, Tom has seen and managed many changes. He helped bring in the 'computer age', and saw data processing change from being carried out on calculators by a bevy of intelligent and very high spirited 'research computer' girls, to the punch card and the VDU. Then came devolution and the spreading of biometrics centres throughout the land, leaving a hard core of 'hard cases' at Head Office to try and encourage mathematical 'nous' in, and to apply statistical techniques to, MAF management.

Tom will be especially remembered for his early work in Tb control; for his expertise in recruiting good staff and his dedication in championing their interests; for his more than expert knowledge of complex experimental design considerations and for his willingness to pass on to others his own wide statistical knowledge.

We wish you well, Tom, in your retirement.

Liz Viggers

## NEWS FROM MAF BIOMETRICS, WELLINGTON

The main event is the retirement of Tom Robertson on 22 June. Liz Viggers has written a separate paragraph. The other event is that the Biometrics group in Wellington has moved from MAFCorp to MAFQual, one of the four MAF businesses. (The others are MAFCorp, MAFFish and MAFTech.) We moved because most of our work comes from MAFQual - other MAF Biometricians are in MAF-Tech. Our transfer means we will soon be moving to a quieter and larger area on the 4th floor of Gillingham House.

David Harte

## OUT OF THE MOUTHS OF BABES AND VET STUDENTS

- I would use a double blind as a single one might be unhealthy to their sight.
- Double cross designs.
- The mediums are similar.
- Visibly compering frequencies.
- Retrospective samples make use of hysterical data.

R J Brook

## NZSA NEWSLETTER EXCHANGE WITH OVERSEAS ASSOCIATIONS

I have written to a number of Statistical Associations in the Pacific area. So far we have had responses from five of them. They are

- i) Asociacion de Estadisticos de Costa Rica,
- ii) Hong Kong Statistical Society,
- iii) Institute of Mathematical Statistics,
- iv) Pakistan Statistical Association, and
- v) Statistical Society of Australia.

We will be exchanging Newsletters between our Associations in the hope of keeping each other better informed of events and successes of our respective associations.

David Harte

## OTAGO NEWS

Brian Manly is on leave in the U.S.A. for this year. He is centred at Lararnie.

A group of six from the Department of Mathematics and Statistics, including two statisticians, attended the May National Mathematical Sciences Congress in Canberra. The statisticians were Malcolm Faddy, who arrived from Birmingham late last year, and John Rayner. The latter gave a talk on smooth tests for goodness of fit (yet again). Also there was Invermay's Roger Littlejohn, who talked on analysing hormone profiles.

The Department of Mathematics and Statistics' consulting group was originally called the Biometrics Unit. The title was later changed to Statistics Unit to more accurately reflect the work done. Now that Vernon Squire has taken up the chair in Applied Mathematics, he has joined the team and widened its scope. To reflect this, the group is now called the Centre for Applications of Statistics and Mathematics: CASM.

John Rayner

## NEWS FROM CANTERBURY

John Deely was a Visiting Professor at Purdue Statistics Department during the month of May.

Dr. Frank Lad (not Dr. Frank as appeared in the last newsletter) has joined the Statistics Group.

John Deely

# NEW ZEALAND STATISTICAL ASSOCIATION 1988 ANNUAL CONFERENCE TENTATIVE PROGRAMME

## SUNDAY, 14 August Wharerata (Massey Staff Club)

- 5:00 - Registration
- 7:30 - Social, finger food, drinks

## MONDAY, 15 August

- 8:30 - 10:30 Registration, Wharerata
- 9:30 - 11:30 General papers (including morning tea)
- 11:30 - 12:30 Invited Talk. Dr Alan Tyree  
*Statistics and the Law*
- 12:30 - 2:00 Lunch, Wharerata
- 2:00 - 5:00 The Statistician as expert witness  
Talks plus panel discussion
- 5:00 - 6:00 Margaret Shields, Minister of Statistics
- 7:00 - Conference dinner, Oriental restaurant

## TUESDAY, 16 August

- 9:00 - 10:00 General papers
- 10:30 - 11:30 Invited Talk. Professor Craig Anesly  
*Modelling Growth Curves as Non-Linear Time Series*
- 11:30 - 12:30 Annual General Meeting
- 12:30 - 2:00 Lunch, Wharerata
- 2:00 - 5:00 Consulting under user-pays  
Talks plus panel discussion

## WEDNESDAY, 17 August

- Workshops on computer statistical software.

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## Biographical Data on Invited Speakers

### **Hon. Margaret Shields, Minister of Statistics**

Mrs Shields received her training as a social scientist while rearing her children and working part-time. She began as a part-time student and graduated in 1973 from Victoria University.

Mrs Shields was elected MP for Kapiti in 1981 and again in 1984. In 1987, Margaret Shields was appointed Minister of Women's Affairs and Statistics.

### **Dr Alan Tyree**

Dr Tyree has a Ph.D. in Mathematics from Massey University, where he was a Senior Lecturer but decided to change direction in 1974 and moved to Victoria University, Wellington, where he graduated with an L.I.B.(Hons). He is now an Associate Professor of Law at Sydney University. He has published books on the New Zealand Banking System and Expert Systems in Law. His unique background enables him to communicate with statisticians and lawyers.

### **Professor Craig Anesly**

Professor Anesly graduated from Canterbury University and worked as an actuary for three years in Wellington and London. After gaining a Ph.D. at the University of Michigan in Statistical and Management Sciences, he was on the faculty of the Graduate School of Business at the University of Chicago for ten years. This year, he has taken up the NZI Chair of Banking and Insurance at Auckland University. He has been called as an expert witness in several court cases.



## What You get for Your Conference Fees

Full Registration Fee includes:

- \* Attendance at all sessions 15/16 August
- \* Morning/afternoon teas 15/16 August
- \* Lunches 15/16 August
- \* Welcome Reception 14 August
- \* GST

Partial Registration Fee includes:

- \* Day attendance at sessions
- \* Morning/afternoon tea
- \* Lunch
- \* GST

Software Workshop Fee includes:

- \* Attendance at sessions
- \* Handouts
- \* Morning tea

## Software Workshops

At this early stage we have one definite offer, and two highly probable ones.

**Data Desk**, the original Macintosh statistical program will be there.

**Statlab**, the innovative teaching program will almost certainly be demonstrated by its author, who will be selling autographed copies of the disks for no extra charge.

**SAS** will probably be fighting to show that more bytes and bucks really are better.

We would like to demonstrate Genstat V on a micro and a Minitab which does ANOVA.

Please indicate your interest.

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## New Zealand Statistical Association (Inc)

### 1988 Publications Catalogue

*Statistics at Work (1982; edited by S. Gubbins, D.A. Rhoades and D. Vere-Jones)* \$13.50

A handbook of statistical studies for the use of teachers and students. Includes eleven case studies accompanied by exercises, numerous references for further reading together with suggestions for class work and projects. Illustrates the practical importance of statistical ideas in a range of applications in a New Zealand context.

*StatLab (1987; by W. Douglas Stirling)*  
(NZ or US) \$99.00

StatLab is a computer program for teaching statistical concepts to students in introductory statistics courses. StatLab runs on the Apple Macintosh, and covers most topics in such courses and can be used by students in practical classes or by teachers in classroom demonstrations. It is sold with a 180-page book containing detailed instructions for 16 practical classes and a full manual about the program. Site licenses are available.

*Understanding Surveys (1988; edited by V. Duoba and J.H. Maindonald)* \$10.00

This booklet provides a non-technical introduction to sample surveys and the many ways in which surveys are used. The focus is on the design of a survey and on the collection of survey data. It has been adapted

for New Zealand needs from a document prepared by the American Statistical Association and contains many examples of New Zealand surveys. It includes exercises and can be used in statistics, social science and other courses to give students a brief introduction to sample surveys.

*Quotes, Damned Quotes, and ... (2nd edition 1986; compiled by John Bibby)* \$7.00

An anthology of sayings, epithets, and witticisms - several of them something to do with statistics!

*Notes Towards a History of Teaching Statistics (1986; by John Bibby)* \$12.50

This book examines the development of a subject and the evolution of a profession. Three key themes relate to the institutional development of numeracy, continual "identity crises" in statistics, and the agonising emergence of a new profession. These themes are illustrated using a wide variety of episodes including Florence Nightingale's designs for an Oxford professor, Karl Pearson, and many, many more. Useful historical background.

Further information on these publications can be obtained from NZSA Publications, Department of Mathematics and Statistics, Otago University, PO Box 56, Dunedin.

**REGISTRATION FORM**

**ANNUAL CONFERENCE OF THE NEW ZEALAND STATISTICAL ASSOCIATION  
14 - 17 AUGUST 1988**

SURNAME: \_\_\_\_\_ FIRST NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_  
 PREFERRED NAME (Name Tag) \_\_\_\_\_  
 AFFILIATION: \_\_\_\_\_  
 POSTAL ADDRESS: \_\_\_\_\_ TELEPHONE: \_\_\_\_\_

CONFERENCE INFORMATION: Please tick your preference.

\* I wish to present a paper  Abstract enclosed   
 \* I wish to attend the NZSA Conference on: Monday  Tuesday  Wednesday

**AMOUNT PAYABLE**

ITEM	RATE	AMOUNT DUE
I have enclosed the following:		
Full Registration Fee: (14 - 16 August)	\$55.00	\$ _____
Late Registration Fee: (if paid after 22 July)	\$60.00	\$ _____
Full-time Student:	\$20.00	\$ _____
Partial Registration Fee: (one day)	\$30.00	\$ _____
Full-time Student: (one day)	\$10.00	\$ _____
Conference Dinner:	\$25.00	\$ _____
Software Workshop Fee: (17 August)	\$15.00	\$ _____
ACCOMMODATION:		
Halls of Residence (Bed & Breakfast) per day	\$32.45	\$ _____

TOTAL PAYMENT ENCLOSED: \$ \_\_\_\_\_  
 Cheque payable to Massey University.

ACCOMMODATION: \_\_\_\_\_ Date Out: \_\_\_\_\_  
 Date In: \_\_\_\_\_  
 Total Nights: \_\_\_\_\_

**Cancellation Policy:**  
 Cancelled accommodation prior to the 22 July 1988 will be returned in full. After this date a \$30.00 accommodation cancellation fee (if applicable) and \$5.00 administration fee will be retained.

**CLOSING DATE FOR ACCOMMODATION: 22 JULY 1988.**

NOTE: Delegates are requested to pay accommodation costs in advance. Please complete form and return with fee to:  
 NZSA Conference Organiser  
 Mathematics and Statistics Department  
 Massey University,  
 PALMERSTON NORTH  
 Telephone: (063) 69-099 extn 7536