

statistical  
society of  
australia

# newsletter

31 august 1989

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## EDITORIAL

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Bob Forrester, Doug Shaw, Eden Brinkley

The first issue of the *SSA Newsletter* appeared twelve years ago in May 1977. Since then, the Newsletter has fulfilled several of the aims expressed in this first edition, namely the inclusion of Branch Notes, conference notices and visitor information. There have also been a large number of articles on statistical topics covering a wide range of issues. One rather disappointing feature is that there have been very few letters to the Editors.

Since the establishment of Sections within the Society we have been including material received from the Sections in each issue of the *Newsletter*. Unfortunately most Sections have failed to provide us with information on a regular basis about their activities. We would be pleased to publish more material in this area, as we feel the *Newsletter* is an ideal medium for Section Chairs to inform members of the activities of these special interest groups within the Society.

In the past twelve months we have been endeavouring to improve the appearance and appeal of the *Newsletter*. We have been pleased to see that we are obtaining more material relating to individual members of the SSA.

Since the membership of the Society is scattered over a wide area, and inter-branch contact is limited, we feel that items of this nature help to keep members of the Society informed about their colleagues. Please continue to provide us with interesting news items about your fellow members.

The last few issues of the *Newsletter* have appeared later than we would like. In the main this has occurred due to the late arrival of material, and some clashes in the typesetting with special issues of the *Journal*. It is our aim to have the *Newsletter* ready for despatch on the last day of the month of its publication. Commencing with this issue we have included in the back at the bottom of this page a date which is the deadline for the receipt of material for the next issue. Please note that there is no guarantee that material received after this date will appear in the current issue of the *Newsletter*.

The Editors are always interested to hear the views of readers on ways in which we might make the *Newsletter* a more informative and useful publication for the statistical profession. We are also interested in suggestions, or better still contributions, which can form articles for inclusion in the *Newsletter*.

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*The views of contributors to this Newsletter should not be attributed to the Statistical Society of Australia.*

*Deadline for next issue: 31 October 1989.*

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## CENTRAL COUNCIL, ASPAI AND BRANCH REPORTS

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### Central Council and ASPAI

The Central Council meeting was held in Adelaide on 5 July, in conjunction with STATCOMP '89. All Branches were represented at the meeting.

#### Mathematical Sciences Council

Central Council agreed to proceed with the formation of a Mathematical Sciences Council, jointly with the Australian Mathematics Society and the Australian Association of Mathematics Teachers. FASTS have indicated that they would welcome a unified mathematical sciences voice. With the combined membership of the three societies, the MSC will get a seat on the board of FASTS, and so we will have more direct representation. Additionally, Council felt that it was to our advantage to be involved in the formation of any Mathematics Sciences Council. Negotiations between the three societies are continuing.

#### Australian Journal of Statistics

Professor Charles McGilchrist was appointed as Editor of *The Australian Journal of Statistics*, replacing Professor Stephan Maritz, who has completed his term as Editor. Council warmly thanked the outgoing Editor, and the Associate Editors, for their contributions.

#### General

The WA Branch has agreed to stage the 11th Australian Statistical Conference in Perth in 1992.

Council agreed to continue the Society's membership of FASSO. A report of FASSO's activities appeared in the last Newsletter.

The SSA will become an affiliate member of the Total Quality Management Institute of Australia, and of the American Association for the Advancement of Science.

### New South Wales

#### ATS Technology

The May meeting of the Branch heard William S. Cleveland (AT&T Bell Labs) speak on 'ATS Technology'.

ATS Technology is an approach to fitting curves and surfaces to data when distributions are not necessarily Gaussian. The three steps are averaging (A), transforming to stabilise variance (T), and smoothing using loess (S). Salient features are that it is easy to apply, provides diagnostic procedures and has high efficiency for moderate or large sample sizes.

After this description Bill covered in detail the ideas of loess smoothing which involves local fitting of linear or quadratic functions. He illustrated loess smoothers for several data sets and discussed diagnostic procedures.

Bill gave detailed expositions with examples of the use of ATS technology for regression with a binary response, density estimation and for estimating the spectrum of a time series. Each application requires an appropriate choice of the averaging and transformation procedures.

#### Statistics in Meteorology

At the June meeting of the Branch, Dr John Haslett (Trinity College, Dublin) spoke on 'Space Time Modelling in Meteorology', with emphasis on spatial interpolation methods.

The history of the topic went back to Galton, who in 1863 had produced diagrams indicating the scale of weather patterns in Europe. In Numerical Weather Prediction the objective is to model the motion of the Earth's atmosphere; this requires statistical interpolation.

John explained and illustrated the concept of Optimal Statistical Objective Analysis in this connection.

As part of a project evaluating Ireland's wind power resource, the problem of estimating mean wind speed at a new site was considered. Only a short run of data would be available at this new site, so extensive data at other stations in Ireland were also used.

#### Marketing Official Statistics

The speaker at the July meeting of the Branch was Mr Len Cook, New Zealand Deputy Government Statistician. Len spoke on 'Marketing Initiatives for Official Statistics', in which he discussed the commercialisation of official statistical activities, and contrasted this with the requirement to provide official statistics for the public good. Len described the policy environment in New Zealand which requires a proportion of the Department's costs to be recovered from commercial activities.

There are important constraints (such as confidentiality) which can limit the nature of commercialisation. The NZ Department of Statistics (and also the ABS) holds much information which could be provided on a commercial basis. The boundary between public good statistics and commercial statistics is not always clearly defined.

Len identified the pricing strategies that can be adopted for both commercial and public good statistics and services. He looked at criteria for the development of new markets for statistics and illustrated how various types of products and services could be beneficial to commercial users.

In conclusion Len stated guidelines for the delivery and accessibility of statistics and statistical services.

## Victoria

### Training Statisticians for the Workplace

The program at the May meeting included a slide show produced by the American Statistical Society. This show, which lasts for about half an hour, is currently being used to promote the statistical profession. It describes statistical science as the science of decision-making in the face of uncertainty and illustrates the use of statistics in almost every avenue of human endeavour. It also shows how statisticians use the 'tools' of sampling, forecasting and quality control, and work in conjunction with management in decision-making and problem solving. Finally the show focuses on the opportunities for future statisticians and stresses the view that 'we are drowning with information, but lacking in knowledge' and that the demand for statisticians can only increase in the near future.

From the discussion came the view that the show was far too long and the pace was too slow. It attempted to show too many fields in which statistics were used and many of the slides seemed outdated or irrelevant to the Australian scene. The audience was left wondering whether a statistician becomes a market researcher, an economist or whatever else, or does he or she remain a statistician?

The rest of the program consisted of three short contributions related to the training of statisticians. Dr G.A. Watterson (Monash) commented that, in general, the concepts taught today were in fact very similar to those taught in the 50s with the obvious difference in applications due to the advent of statistical packages. Mr I. Philips (Dept of Labour) who recently graduated from the University of Melbourne, commented on the lack of training in communication and the need to stress the use of simple techniques, such as graphs and tables, in communicating results. Mr N. Garnham (Swinburne) outlined the teaching/learning method known as 'Problem Based Learning' and indicated its relevance to the training of statisticians, particularly in M.Sc. courses.

### Detecting the Greenhouse Signal

The Earth's surface is 30°C warmer than it would otherwise be in the absence of naturally-occurring 'greenhouse gases' (water vapour, carbon dioxide and ozone). There is an urgent need to provide accurate and timely predictions of the rate of increase, due to human activities, in the concentration of greenhouse gases. On June 27 Mr W.R. Kininmonth of the National Climate Centre, Bureau of Meteorology, spoke to the Branch on the

statistical problems of detecting the greenhouse signal.

He pointed out that it was difficult to obtain consistent weather records (e.g. unaffected by changes in micro-environment or instrumentation), and that the strength of evidence of 'the greenhouse effect' varied considerably across Australia and across time. Any trends are confounded with other powerful geophysical processes, e.g. the *El Nino* phenomenon. He concluded that much more statistical analysis needs to be done, and challenged statisticians to help analyse the 5 gigabytes of data available.

### Opinion Polls in the News

Dennis Muller, an Associate Editor of *The Age* newspaper, gave an entertaining and informative talk about the history of the Saulwick Age Poll. This poll has been conducted by Irving Saulwick since 1971. Prior to that, the only newspaper to regularly report survey results was the Herald using the Roy Morgan Gallup poll. The Saulwick Age Poll is aimed at either the popularity of politicians, or current political issues or pertinent social issues. Many topics have been tracked over the years using the same or similar questions and provide a useful indicator as to how public opinions have changed. Dennis stressed how *The Age* takes a responsible approach to polling through such means as using a reputable consultant to manage the poll, never leading with the results of a poll (usually page 4), publishing adequate information about each poll according to the Press Council guidelines (including standard errors) and not claiming that a poll will predict voting results.

Using face-to-face interviews for many years restricted the immediacy of poll results as it took four weeks to complete a poll. Since 1987 all polls are carried out by telephone using *The Age* facilities and with strict monitoring and quality control. Irving Saulwick was present for this talk and in the discussion indicated his approach to dealing with the problems of coverage and no next-day call-back that this method entails in order to provide immediate results on topical issues. Compromises have had to be made, but from his long experience and detailed research into the effect of call-back patterns Irving Saulwick was confident that the polls generally give reliable and valid results with acceptable non-sampling error levels.

Whether or not the results of polls affect election results appears to be an open question as both 'halo' and 'underdog' effects can be found in any poll and follow-up studies have failed to make a case for either effect dominating the results.



## South Australia

### Latin Squares and Response Surface Designs

On May 30, 1989, the Branch was addressed by Debbie Street of the Biometry Section of the Waite Agricultural Research Institute. This was Debbie's valedictory address: she has now moved to a Senior Lectureship at the University of New South Wales. Debbie has been a hard-working member of our Branch, and we wish her well in her new job.

It is well-known, and easy to show, that the twelve  $3 \times 3$  Latin square designs are equivalent when considered as designs for three treatments with two orthogonal sets of blocks. Is this still the case when each square is viewed as a partial replicate of a  $3 \times 3 \times 3$  factorial design to be used for fitting a second order response surface? In a recent paper, J. Stuart Hunter says that the answer is "no". This talk examined the  $3 \times 3$  squares in some detail, and looked at what happens when the squares are augmented to include the points of a Box-Behnken design.

### Quality Function Development, and Other Quality Matters

On July 26, 1989, the Branch was addressed by John Field of CSIRO DMS in Adelaide. John is the current President of the S.A. Branch, as well as Secretary of Central Council.

Quality function development (QFD) is a system for designing products or services based on customer demands. Using QFD, customer requirements can be translated into appropriate technical requirements for each stage of development and production.

The talk described QFD using a simple example, and then covered other aspects of John's recent trip to the USA. John attended the Annual Quality Congress of the American Society of Quality Control and a course on Taguchi methods run by George Box, and spent some time with Joiner Associates and the Madison Area Quality Improvement Network.

## Western Australia

### Quasi-Likelihood and Optimality

Prof. Chris Heyde (ANU) gave an excellent talk on "Some current unifying themes of quasi-likelihood and optimality". His address was the major event for our May meeting on the 23rd. Prof. Heyde's talk was mainly focused on recent progress towards a general unification under the umbrella of quasi-likelihood of two of the principal themes in statistical estimation theory. One of the themes was the 'least squares' theory, which is founded on finite sample considerations; and

the other was the good old 'maximum likelihood' procedure, whose justification is primarily asymptotic. A record number of members and visitors attended the meeting, the talk and the post-meeting dinner.

### Statisticians — Where to in the 1990s?

The role of statisticians will change if we wish to remain a viable, recognised and "in-touch" profession. This was the major theme of Robert McEntyre's (Manager, IBM Quality Centre, IBM Australia Ltd.) informative and entertaining talk at our June meeting. Rob started by putting forward some key questions,

- Where are we now as a profession?
- Where do we want to be in the 1990s?
- How are we going to get there?

that need to be focused on for some hard hitting answers. He discussed each of these 'questions' in turn and the audience participated in the discussion throughout.

Each statistician will have his/her own perspective of "where we are now" as a profession. We are technocrats, involved with organisations including Universities and CAEs, CSIRO, Government agencies such as the ABS, State Departments of Agriculture, to name a few. We teach, consult and research. But how do others perceive us?

Where do we want to be? We need to broaden our horizons. We need to take a leading role in consulting to management on many analytical issues, not necessarily quantitative. We need to be perceived not as the "number crunchers of the back room", but as experts and generalists who can contribute broadly to the improvement of organisations, in their effectiveness and efficiency. In the long term, we want to contribute to the economic growth of the country.

How are we going to get there? In future training of both statistical and non-statistical undergraduates, and also post-graduates in our profession, we need to consider our strengths and weaknesses in areas such as:

- broad economic issues
- management theory and technique
- effective communication and teamwork
- revamped course work at undergraduate/postgraduate level
- stronger interaction with other professions
- marketing and image making.

Rob McEntyre concluded the talk by saying "We have a positive future, if we are prepared to acknowledge change, and change". Although there were a few criticisms, most of the audience generally agreed with Rob's ideas and perseverance regarding the role and future of statisticians.

## Asbestos and Health, The Western Australian Experience

The July meeting of the Branch was addressed by Dr. Nick De Klerk of NH&MRC (Medicine, UWA), who presented an interesting talk on the WA experience of asbestos-related health problems and diseases. Asbestos is the encompassing name given to the series of naturally occurring magnesium and iron silicates, which, because of their properties of resistance to heat and chemicals, flexibility and strength, have become more and more commonly used especially in the last 80 years. Over the same period of time, knowledge of the harmful effects of asbestos on health has also evolved. Because of the discovery and exploitation of the crocidolite (blue asbestos) deposits at Wittenoom in WA, the state now has the highest recorded rate of malignant mesothelioma in the world. Nick described the history of the Wittenoom experience from the medical viewpoint and outlined some of the medical, epidemiological and statistical issues which have been examined and are still being investigated.

### 11th ASC, Perth — 1992

An initial Conference Committee has been formed, Chaired by Prof. Tim Brown. The other members are Dr Peter Taylor (Secretary), Dr Ross Maller (Treasurer), A. Prof. Ian James, A. Prof. Bill Perriman, Dr Matt Knuiman, Dr S. Ganeshanandam, Dr Geoff Yeo and Dr John Henstridge. The first meeting of the committee was held on May 4, 1989 at Curtin University to discuss issues such as Conference venue (UWA), dates (early July 1992), sponsorships, themes etc.

This committee will be seeking suggestions and input from members of all Branches with particular reference to programming and directions for the conference.

### Change in Committee — WA branch

Our current President (A. Prof. W.S. Perriman) and Vice-President (Dr G. Yeo) are leaving Perth (for a short time). Bill will be visiting Hanoi University, Vietnam and Academia Sinica (Inst. of Statistical Science) Taipei, Taiwan initially; and then will take up appointment as a Visiting Professor at Queen's University (Canada) from September 1989 to June 1990.

The WA branch had a 'Special General Meeting' on July 18, 1989, and elected Prof. T. Brown and Dr M. Knuiman to serve as President and Vice-President respectively until the end of 1989. The other committee members are Mr M. D'Antuono, Dr G. Riley, Mr P. FitzGerald, Dr B. Clarke, and Dr S. Ganeshanandam (Secretary).

## Canberra

### Multiple Outliers in Linear Regression

Professor Stephen Portnay addressed the Branch on this topic at its meeting on 2 May, 1989. Professor Portnay introduced some of the history of the problem of multiple outliers and noted that diagnostics such as Cook's  $D$  and other 'delete one' diagnostics can easily fail to find outliers when they are grouped or 'masked'. Such outliers can be identified successfully using methods which are highly robust to the presence of multiple outliers. Professor Portnay described two such approaches, one based on the use of a high breakdown bound estimation and the other based on a novel generalization of the notion of sample quantile to the regression model in which outliers are identified by examining the extreme 'regression quantiles'. The methods were compared through examples and the regression quantiles based method appears to perform quite well in practice.

### On Epidemiology

At the Branch meeting of 30 May, 1989, Dr Patty Solomon of the National Centre for Epidemiology and Population Health described the function of the Centre and its research activities. The Centre is one of a series of new initiatives in population health established by the Commonwealth Government and the Australian National University. Its primary role is to carry out research in epidemiology and population health in close association with social, biomedical and statistical scientists.

After giving an overview of the research at the Centre, Dr Solomon illustrated the mathematical approaches that arise in epidemiology by discussing the study of the Australian AIDS epidemic and cardiovascular epidemiology. The talk focused on current research on the development of short-term predictive models for HIV infection and AIDS in Australia. The relative merits of selective versus broad-based intervention strategies for heart disease were discussed and methodological implications for the AIDS epidemic examined.

### The Consumer Price Index

Mr Glen Cocking of the Australian Bureau of Statistics addressed the June meeting of the Branch on the CPI. The presentation covered the conceptual basis of the CPI and the practical problems of establishing its weighting base and compiling it each quarter. The different methods of reflecting changes in housing costs were explained and the practical and conceptual advantages and disadvantages of each method were discussed and illustrated by theoretical examples.

## Coverage-Robustness and Regression Diagnostics in Heteroscedastic Regression

The Branch was addressed by Dr Alan Dorfman, Tulane University, New Orleans, on this subject at its meeting on 25 July 1989. Dr Dorfman noted that carrying out a regression when the variance structure is unknown can be a tricky business, involving complicated diagnosis and modelling of that structure. Sometimes, however, simpler methods are available. If the main goal is sound inference, for example sound confidence intervals for the regression coefficients, then one proposal that has been made would use straight OLS regression and robust-against-heteroscedasticity variance estimators, such as the jackknife and its variants. Indeed, one such variance estimator (the weakest) is currently available on SAS. This proposal, taken seriously, would work a small revolution in regression methodology, since it would mean the abandonment of the standard time-hallowed ANOVA-based variance estimator as the default estimator.

However, it may be shown that, in unbalanced designs, i.e., high leverage situations, even the robust variance estimators are vulnerable to poor coverage. A remedy outlined at the talk is to regard the leverages as functions of design *and* weights, and to re-weight, not in accord with the supposed variance structure, but so as to achieve constant leverage (or near-constant, if you want to hedge your bets). This approach totally sacrifices the goal of efficiency, but it does achieve sound coverage to a reasonable approximation. Dr Dorfman outlined how, despite the (possible) efficiency loss, the method can be practically useful, as a supplement to more conventional approaches. In particular, in some instances,

it can abrogate the need for the usual plethora of regression diagnostics, and, in other instances, be a useful guide to their use.

## Queensland

### Some Applications of Finite Mixture Models

At the May meeting of the Branch, Assoc. Professor Geoff McLachlan spoke on 'Some Applications of Finite Mixture Models'. The role of finite mixture models in exploratory data analysis was stressed. Applications of mixture models to data sets with a genuine group structure were also discussed. The modelling of the distribution of renal venous renin ratios in patients with hypertension was one such application. This technique could possibly be used in the diagnosis of renal artery stenosis potentially curable by surgery.

### Application of some Computer-Intensive Statistical Methods in the Earth Sciences

Dr Nick Fisher addressed the branch at its July meeting on the 'Application of some Computer-Intensive Statistical Methods in the Earth Sciences'. Nick highlighted the diverse statistical problems encountered when analysing data from the Earth Sciences. The advantages of using those Computer-Intensive Statistical Methods (CISMs) which are relatively free of assumptions as 'data-analytic tools' during the exploratory phase of analysis were outlined. Two such methods discussed were Classification Trees and Projection Pursuit. Other CISMs, more rigorous in terms of their adherence to model assumptions, such as the so-called Bootstrap methods were proposed as providing valid statistical inference for previously intractable situations.

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## NEWS ABOUT MEMBERS

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Philip McCloud has joined the Mathematics Department of Monash University as a Lecturer in Statistics and Director of Statistical Consulting. He brings with him the applied experience gained as a biometrician with the South Australian Department of Agriculture. Philip received his Ph.D. last year from Flinders University for a thesis on categorical repeated measurements, done under John Darroch. Philip, Brenda and the kids are settling happily into Melbourne.

The Biometric Services unit of the Victorian Department of Agriculture & Rural Affairs (DARA) is seeing a lot of comings and goings in Head Office this year. Stuart Crosbie left in early March to take up the position of Quality Assurance Manager with the New Zealand Dairy Board. In a little over three years as Manager of Biometric Services, Stuart built the group up from two to nine, and greatly changed its role. Formerly the biometrician's task had been to analyse with

"home-built" software experiments designed mainly by scientists; now we have key inputs into the design of experiments, as well as advising on the analysis, using GENSTAT, and the presentation of the results.

In May, Graham Hepworth, formerly with the Victorian Dept of Conservation, Forests & Lands joined the Victorian Department of Agriculture and Rural Affairs. Graham had previously worked mainly with Forestry experiments, but is enjoying the transition to the great diversity of activities which occur in DARA.

Ken Russell left at the end of July after two years as Resource Biometrician. He has returned to the University of Wollongong as Senior Lecturer and Director of Statistical Consulting. He will use the consulting experience gained with DARA in the Director's role, and will once again be able to put his ideas about statistical education into practice in the classroom.

Peter Franz sets off to the University of Reading in September, to do the course for the Master of Science in Biometry. Peter has a year's Study Leave from DARA. He will also attend a GENSTAT Conference and other statistical activities.

Joining Biometrics (DARA) some time in September will be Dr John Reynolds, as the new Manager. John is another of the Kiwis who have ventured to this side of the Tasman. For the last seven-and-a-bit years, John has been a consultant biometrician with the Applied Maths Division of New Zealand's DSIR. As well, he was Foundation Editor of the NZ Statistical Association's Newsletter, and Editor of *The New Zealand Statistician* for several years. We wish John well in Australia.

John Hodges, Queensland Branch, has recently moved from his position as Director of Government Statistician's Office to the Department of Industrial Affairs as Director of the Division of Accident Prevention. The new 'Work Place Health and Safety Act' is the baby of that division.

Another Queensland member, David Smith, has now assumed the mantle of John's old position. At the end of July the State Government Statistician's Office moves to the second floor of the Executive Building Annex, 102 George St, Brisbane. Soon to be operational at their new premises will be a brand new computing system.

Congratulations are also due to the Treasurer of the Queensland Branch. Since the last newsletter Janet Bodero has remarried and is now Janet Chaseling.

Tony Pettitt, who is currently Principal Research Scientist and Leader of the Biometrics Unit at the CSIRO Cunningham Laboratories, has been appointed as Head of School and Professor of Mathematics at the Queensland University of Technology. Tony will be starting his new duties on Melbourne Cup Day, which is, as he says, "an auspicious day for a statistician to begin a new job".

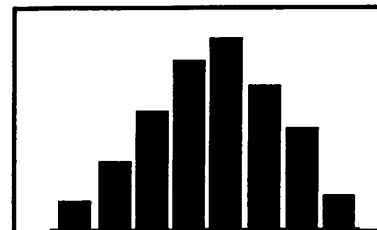
Under an exchange agreement between ANU and the University of California, Ross Cunningham from ANU will be leaving in September for Santa Barbara, where he will be a Visiting Professor. Professor Joe Gani will be arriving from Santa Barbara mid September and will be a Visiting Fellow at ANU until August 1990. Joe is an Honorary Life Member of the Society and many long-time friends will be pleased to see him again. Ross will be returning to the ANU in January 1990.

Professor Peter Diggle is in the Statistics Research Section of the School of Mathematical Sciences at ANU until the beginning of December, when he is to return to the University of Lancaster. Both he and Sue Wilson spend one day a week at the National Centre for Epidemiology and Public Health, where Patty Solomon is located full time.

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## SPECIAL INTEREST SECTIONS

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### Medical Sciences

#### New Report on AIDS Projections for Australia

*Predicting the course of the AIDS epidemic in Australia and evaluating the effect of AZT: a first report has just been completed by Patty Solomon and Sue Wilson. This report was highly motivated by the recent Report of a Working Group on short term prediction of HIV infection and AIDS in England and Wales (the Cox Report).*

The primary results address: prediction of the incidence of new cases of AIDS; prediction of deaths from and prevalence of AIDS; estimation of HIV prevalence; and future directions for statistical modelling. There are 14 appendices in which details are presented on: background to surveillance of AIDS and HIV infection in Australia; summary of data; evidence for behaviour change amongst homosexual men and intravenous drug users in Australia; extrapolation forecasting of new cases of AIDS; subgroup prediction; forecasting using an actuarial approach; back projection methods for estimating HIV incidence; overall distribution of survival time for Australian AIDS patients; predicting deaths from and prevalence of AIDS; qualitative comparisons of the rate of growth of AIDS amongst homosexual men and intravenous drug users in Australia; a review of other general accounts and an annotated bibliography.

Further information and copies can be obtained from: Dr Patty Solomon, National Centre for Epidemiology and Population Health, The Australian National University, GPO Box 4, CANBERRA ACT 2601.

#### 10th ASC Workshop on Statistics and AIDS

Dr Ron Brookmeyer has agreed to be a keynote speaker for the workshop "Statistical modelling of AIDS and other epidemics" as part of the 10th Australian Statistical Conference. Another speaker is being sought. Contributions will also be sought from local participants. Could individuals or groups who would like to

contribute please contact Dr John Hopper (University of Melbourne, Faculty of Medicine Epidemiology Unit, 151 Barry Street, Carlton, Vic. 3053) on (03)-344-6991 or by e-mail on u5531300@ucsvc.dn.mu.oz

### Statistical Education

Two meetings have been held in Melbourne for people who teach Statistics and who want to find better ways of doing so (don't we all?). The first meeting was held at the end of March, and a second took place early in July. We have formed special interest groups (for example, people teaching Statistics for Engineers), each led by a convenor, and the aim is to find ways of extending co-operation amongst teachers, sharing ideas, and considering common problems. Enthusiasm is high (people are travelling from Ballarat, Bendigo and Churchill), and I am most encouraged by this development. If you live within travelling distance of Melbourne and would like to know about future meetings, please contact the Branch Secretary, Nick Garnham. If you are not in the Victorian Branch, encourage your Branch to consider following Victoria's example.

Responses to my article in the last Newsletter are still drifting in, so I will wait until the next issue before making comments in this medium. One letter came from the ISI office in the Netherlands, so obviously the Newsletter travels far.

The response to the request for suggestions for Continuing Education courses to be held in conjunction with the next Australian Statistical Conference could best be described as underwhelming. If there is a topic that you have always wished to learn about if only someone would summarise it nicely and give some practical examples, I would like to hear from you. Box-Jenkins techniques? Re-sampling methods such as the bootstrap? The newer types of experimental designs? Please let me know. My (new) address is on the back page of this Newsletter.

Ken Russell

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## FASTS Report

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FASTS' Board representing each of the discipline areas in science and technology meets twice a year. On 22 June the Board and the Executive met in Canberra. The following is a precis of the report to the meeting by the President, Professor Frank Larkins.

### Maturity of FASTS

After  $3\frac{1}{2}$  years FASTS is paying dividends and has become a credible S&T lobby group looked to for lead-

ership by the S&T community and increasingly approached by the Government, Opposition and industry for advice. The intense media activity of the last six months culminating in the Government's May Statement is a vindication of the vision people had when FASTS was established. FASTS has become a professional organisation which provides a progressive and constructive viewpoint — an independent and alternative analysis.



## The Importance of Our Standing Committees

FASTS needs to draw on the expertise of its membership for analysis and advice. FASTS could not simply be a reactive organisation. We need to anticipate events and provide counsel before decisions are made that may lock in a Minister or Department. We need to look at options, and to have a long-term vision for S&T in Australia for five, ten years and longer. Standing Committees are the means by which FASTS can do this.

### Solidarity of the S&T Community

Whilst individual societies need to represent their discipline area, issues affecting S&T as a whole have been better served by collective bargaining by the whole S&T community through FASTS. Even where other organisations could cover some areas they have fared better with assistance from FASTS. With regard to the ARC, FASTS really has had a unique role in co-ordinating input. Likewise with the 150% tax incentive, industry appreciated FASTS' role in representing its interests.

### Australian Research Council Membership

With the resignation of Professor Max Neutze (Humanities and Social Science) and the untimely death of Professor Kevin Stark (Earth Sciences and Engineering) attempts were made to break the nexus whereby chairs of disciplinary committees also had membership of the Council. FASTS met with the members of the disciplinary committees and took a letter to the Minister, John Dawkins, which 37 members had signed, supporting the continuation of the nexus. FASTS also made strong representations on the issue followed up with a letter. It appears the Minister has now acknowledged the merit of FASTS' position and will take action consistent with the principles FASTS advocated.

### Australian Industry Research Group

The President reported on his talk (copy available on request from FASTS) to the AIRG which comprises the R&D Managers of Australia's 60 largest companies having a significant R&D interest.

### Discipline Review on Teacher Education in Mathematics and Science

The President reported on his work on the Steering Committee of the Review and as alternate Member of the Review in SA and Victoria. A draft report should be available at the end of July. It will consist of a volume of Statistics, one on a State-by-State analysis and one on recommendations to the Federal Government — many in co-operation with the States.

### Crisis in Science for Primary Industries Conference

The President reported on the successful conference organised by the Australian Geoscience Council, FASTS and the Australian Institute of Agricultural Science. He and Ruth Dircks were speakers at the conference. (Ruth is the President of the Australian Science Teachers' Association and a FASTS' Board Member.)

## New Executive and Board to be Elected in November

FASTS has gathered a momentum which needs to be conserved and increased with the new Board and Executive. Thought should be given to who might serve on these.

### USERS of S and ACE

For anyone who has purchased S from Siromath, or Ace from Graphics Computer Systems, or an S source-code licence from AT&T, CSIRO Division of Mathematics and Statistics now offers an *S Software Support Service* featuring:

- Regular upgrades, including bug-fixes, new dms functions, the latest version of S available from AT&T and improved graphics facilities.
- A Newsletter
- A Hotline Service for rapid response to problems

Contact Sue Clancy on (02) 467 6549 or (02) 416 9317 [Fax], or by *email* using [clance@dmssyd.dms.oz](mailto:clance@dmssyd.dms.oz) for more information.

*No wonder they're held every five years. A report by the NSW Law Reform Commission reveals that 873 collectors were bitten by dogs during the 1986 Census, with 106 of them going on to claim compensation. Collectors were hampered by dogs on no fewer than 12,878 occasions: one collector was bitten by a horse and another was bailed up by one. A third met with a large bull standing guard at a house. A few collectors were driven off by geese, two pursued by pet emus, one attacked by nesting plovers and another chased by a large pig.*

# MATHEMATICAL STATISTICIAN

- expanding consulting business
- stable clientele
- diverse range of projects
- Sydney CBD location

**MIRA Consultants Ltd** is a risk management consultancy, formed in 1985 specialising in risk analysis, risk engineering and risk financing. Backed by secure shareholding from the seven State Government Insurance offices, the business is independently managed and operated. The business has a strong government client base and is currently extending its resources to offer a competitive range of corporate consulting services to a wider market.

MIRA's actuarial services are highly regarded in the industry, and provide both actuarial and statistical staff with an interesting spectrum of client projects. Statistical, financial and computing projects on hand emphasise financial modelling, generalised linear modelling, optimisation techniques, and fitting loss distributions. The technical content of the work is balanced by practical involvement with client's projects, the opportunity to use advanced techniques, and support from a range of software packages including SPSS, GLIM, SPIDER and LOTUS as well as APL and Fortran programming languages.

To complement the existing professional team at MIRA, a mathematical statistician with at least two years working experience is needed. Technical competence and the ability to work autonomously are essential. Previous exposure to a commercial environment and experience in determining client/user needs are preferred, but enthusiasm for building effective client relationships and for promoting the objectives of a consulting business will be highly regarded.

The key competencies necessary for success in this role include:

- tertiary studies in mathematical statistics;
- strong theoretical and conceptual skills;
- experience in multivariate analysis;
- knowledge of financial mathematics;
- experience in mathematical programming.

Persons interested in this position, who have less post graduate experience are also encouraged to express their interest as further developments of the business are anticipated in the near future.

Remuneration for this position including company superannuation, will be competitively geared to attract a person with the appropriate experience and potential. Applications or telephone enquiries will be treated in the strictest confidence.

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## AUSTRALASIAN CONFERENCES

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### CONFERENCE SUMMARY

**Workshop on S Software, 12–16 February 1990, Wellington, N.Z.** (Full details Newsletter 48.)

Information: Ray Brownrigg, DSIR AMD, PO Box 1335, Wellington, N.Z. Telephone +64 (4) 727 855; Fax +64 (4) 710 231; E-mail ray@dsiramd.dsir.govt.nz  
Peter Thomson, VUW ISOR, PO Box 600, Wellington, N.Z. Telephone +64 (4) 721 000; E-mail peter@vuvisor.vuw.ac.nz

**Data Analysis Workshop, February 1990, Australian National University, Canberra, ACT.** (Full details Newsletter 47.)

Information: Dr Sue Wilson, DAW Co-ordinator, Statistics Research Section, Mathematical Sciences School, ANU, GPO Box 4, Canberra, ACT 2601. Telephone (062) 494460.

**Workshop on Statistical Modelling of AIDS and Other Epidemics, 30 June–1 July 1990, University of NSW, Sydney, NSW.** (Full details Newsletter 48, 10th ASC.)

Information: Dr John Hopper, University of Melbourne, Faculty of Medicine Epidemiology Unit, 151 Barry Street, Carlton, Vic. 3053. Telephone (03) 344 6991; E-mail u5531300@ucsvc.dn.mu.oz

**10th Australian Statistical Conference, 2–6 July 1990, University of NSW, Sydney, NSW.** (Full details Newsletter 48.)

Information: Dr Doug Shaw, Chairman of the Programme Committee, SIROMATH Pty Ltd, Level 5, 156 Pacific Highway, St Leonards NSW 2065.

**Workshop on Statistical Methods in Image Analysis and Processing, 6–7 July 1990, University of NSW, Sydney, NSW.** (Full details Newsletter 48.)

Information: Mark Berman, CSIRO DMS, PO Box 218, Lindfield NSW 2070. Telephone (02) 413 7568.

**The Third International Conference on Teaching Statistics (ICOTS 3), 19–24 August 1990, University of Otago, Dunedin, New Zealand. 46.)**

Information: Dr Lucette Carter, UFR de Sciences Economiques, Université de Paris X, 200 Avenue de la République, 92001 Nanterre, France. Fax +33 (1) 4097 7571; E-mail Carter@frmeu51.bitnet

Dr Eric Sowe, Dept of Econometrics, University of NSW, PO Box 1, Kensington, NSW 2033, Australia. Fax +61 (2) 662 8845; E-mail 64B1100@csdvx3.accu.csd.unsw.oz

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### Workshop on S Software, 12–16 February, 1990

An international workshop on the New S Software will be hosted by the DSIR Applied Mathematics Division and Victoria University of Wellington Institute of Statistics and Operations Research, 12–16 February, 1990. The primary goal of this workshop is to provide an international forum for the exchange of information relating to current and future research and development using the S software.

The workshop is oriented towards major S users and developers around the world, and will feature one of the principal authors of S from AT&T Bell Laboratories, John Chambers.

Numbers are expected to be limited, so intending participants are requested to send an abstract of at most one page describing their interests in S and potential contributions towards the workshop.

For further information contact:

Ray Brownrigg, DSIR AMD, PO Box 1335, Wellington, N.Z., E-mail: ray@dsiramd.dsir.govt.nz; telephone: +64 (4) 727 855; fax: +64 (4) 710 231  
or Peter Thomson, VUW ISOR, PO Box 600, Wellington, N.Z., E-mail: peter@vuvisor.vuw.ac.nz; telephone: +64 (4) 721 000.

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### 10th Australian Statistical Conference, 2nd Pacific Statistical Congress, 2–6 July, 1990

The Programme Committee has been advised of two workshops to be held in conjunction with the Conference; each workshop will also contribute a session to the main Conference programme.

- The section on Statistics in the Medical Sciences will organise a workshop on 'Statistical Modelling of AIDS and Other Epidemics'. This workshop will be held on the weekend preceding the Conference, and will contribute a Conference session on Monday July 2. Associate Professor Ron Brookmeyer of The Johns Hopkins University has accepted an invitation to be a Keynote Speaker at the workshop and Conference.
- There will be a workshop on Image Analysis on the weekend following the Conference, with a Conference session on this topic on Friday July 6. Professor Mike Titterington will be Keynote Speaker for the workshop.

Further details of the Conference programme may be obtained from the Chairman of the Programme Committee, Dr Doug Shaw, SIROMATH Pty Ltd, Level 5, 156 Pacific Highway, St Leonards NSW 2065.

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### **Workshop on Statistical Methods in Image Analysis and Processing, 6-7 July, 1990**

This workshop, being organised jointly by the Consortium for Research in Computer Intensive Statistical Methods, the CSIRO Division of Mathematics and Statistics, Macquarie University and the University of Western Australia will be held at the University of New South Wales on the 6th and 7th July, 1990 (at the tail of the 10th Australian Statistical Conference). Professor Ulf Grenander of Brown University and Professor Mike Titterton of the University of Glasgow have agreed to be keynote speakers. At this stage, it is expected that there will be presentations relating to statistical methodology, image processing software, and applications in medicine, remote sensing, astronomy and industry. However, the organising committee (which consists of Mark Berman (Chairman), (CSIRO DMS, PO Box 218, Lindfield NSW 2070, telephone (02) 413 7568), Tim Brown, Peter Hall and Malcolm Hudson) is interested in hearing from potential contributors and participants about other possible application areas.

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### **Third International Congress on the Teaching of Statistics, ICOTS III, 19-24 August, 1990**

ICOTS III, the Third International Congress on the Teaching of Statistics, will take place at the University of Otago, Dunedin, New Zealand between 19th and 24th August 1990. The language of the Congress will be English.

The organizers of Congress Section B5 which focuses on the theme 'Teaching Statistics and Econometrics to University Students of Economics and Business' are ar-

ranging a program of invited papers and contributed papers. They are now soliciting contributed papers on the above theme, to be presented at the Congress either orally or by way of a poster session.

Papers may be on any topic related to the theme of the Section, and may relate to the teaching of statistics or of econometrics as individual disciplines. Any aspect of econometrics teaching may be addressed, though it is desirable that at least some reference be made to statistical issues.

Intending contributors are asked to indicate their interest *before 31st December 1989* by sending a preliminary title and abstract (in English) to either of the Section organisers, whose names are given below.

A contributor whose work is accepted for oral presentation must prepare a written version of the full paper for distribution at the Congress. A contributor whose work is accepted for poster presentation must attend the poster session in person or delegate someone else familiar with the work to attend.

Send preliminary abstracts and any requests for further information to either of the organisers for Section B5:

Dr Lucette Carter, UFR de Sciences Economiques, Université de Paris X, 200 Avenue de la République, 92001 Nanterre, France. Fax +33 (1) 40977571; E-mail Carter@frmeu51.bitnet

or

Dr Eric Sowe, Dept of Econometrics, University of NSW, PO Box 1, Kensington, NSW 2033, Australia. Fax +61 (2) 662 8845; E-mail 64B1100@cspdvs3.accu.csd.unsw.oz

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**OVERSEAS CONFERENCES**


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5th International Conference on Pharmacoepidemiology, 5-6 September 1989, Minneapolis, MN, USA.

Information: Stan Edlavitch, Pharmacoepidemiology Conference, Univ. of Minnesota, Div. of Epidem., School of Public Health, Stadium Gate 27, 611 Beacon St., S.E., Minneapolis, MN 55455, USA.

10th Annual Meeting of the International Society of Clinical Biostatistics, 11-14 September 1989, Maastricht, Netherlands.

Information: Dr R. Does, Dept. of Medical Informatics & Statistics, Univ. of Limburg, P.O. Box 616, 6200 MD Maastricht, Netherlands.

33rd Annual Fall Technical Conference, 26-27 October 1989, Houston, TX, USA.

Information: Rick Lewis, Bldg. 770, Rm. 201C, Union Carbide Corp., 3200 Kanawha Turnpike, South Charleston, WV 25303, USA.

African Statistical Assn. (AFSA) First Scientific Conference, 29 October-3 November 1989, Nigeria.

Information: Exec. Secy. F.A. Ofole, AFSA Hqs., c/o Federal Office of Statistics, P.M.B. No.12528, Lagos, Nigeria.

Supercomputing '89, 13-17 November 1989, Reno, NV, USA.

Information: F. Ron Bailey, M/S 258-5, NASA Ames Research Ctr., Moffett Field, CA 94035, USA.

Winter Simulation Conference, 4-6 December 1989, Washington, DC, USA.

Information: Kenneth J. Musselman, Pritsker & Assoc., Inc., 1305 Cumberland Ave., P.O. Box 2413, West Lafayette, IN 47906, USA.

Sixth Annual Conference on Criminal Justice Statistics, 7-8 December 1989, New York, NY, USA.

Information: Lily E. Christ, Math. Dept., John Jay Coll. of Criminal Justice, CUNY, 445 W.59th St., New York, NY 10019, USA.

Boston Celebration of the ASA150 Sesquicentennial, 9 December 1989, Boston, MA, USA.

Information: Jimmy Efrid, Dept. of Health Policy & Mgmt., Harvard Univ., 677 Huntington Ave., Boston, MA 02115, USA.

ASA Winter Conference, 4-6 January 1990, Orlando, FL, USA.  
Information: ASA, 1429 Duke St., Alexandria, VA 22314-3402, USA.

International Conference on Law, Statistics, and Probability, 2-4 April 1990, Edinburgh, Scotland, UK.

Information: C.G.G. Aitken, Dept. of Statistics, The King's Bldgs., Univ. of Edinburgh, Mayfield Rd., Edinburgh, EH9 3JZ, UK.

44th Annual Quality Congress, 14-16 May 1990, San Francisco, CA, USA.

Information: Shirley A. Halladay, American Society for Quality Control, 230 W. Wells St., Milwaukee, WI 53203, USA.

World Organization of Systems and Cybernetics 8th International Congress, 11-14 June 1990, New York, NY, USA.

Information: Constantin V. Negoita, Congress Chairman, Dept. of Computer Science, Hunter College, CUNY, 695 Park Ave., New York, NY 10021, USA.

7th Annual Quality and Productivity Research Conference, 13-15 June 1990, Madison, WI, USA.

Information: Thomas J. Snodgrass, Dept. of Engineering Professional Development, 801 Extension Bldg., Univ. of Wisconsin, Madison, WI 53706, USA.

1990 Joint Statistical Meetings, 6-9 August 1990, Anaheim, CA, USA.

Information: ASA, 1429 Duke St., Alexandria, VA 22314-3402, USA.

Institute of Mathematical Statistics 53rd Annual Meeting & 2nd World Congress of the Bernoulli Society, 13-18 August 1990, Uppsala, Sweden.

Information: Uppsala Turist & Kongress AB, "Bernoulli Society", Box 216, S-751 04 Uppsala, Sweden.

International Congress of Mathematicians, 21-29 August 1990, Kyoto, Japan.

Information: ICM-90 Secretariat, Research Inst. for Math Sciences, Kyoto Univ., Kitashirakawa, Sakyo-ku, Kyoto 606, Japan.



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**Moving?**

Members are requested to notify their local branch secretaries (see this page of the *Newsletter*) of change of address, in order that *Newsletters* and *Journals* can continue to be despatched to them.