

statistical
society of
australia

newsletter

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REPORT BY THE PRESIDENT

Dennis Trewin

President, SSA

My term as president is coming to an end and I thought it appropriate to review the progress the Society has made over the last two years. Work and other commitments have prevented me from spending as much time on Society activities as I would have liked. Nevertheless, I think we have made some substantial progress although there is still much that can be done.

To help structure this report, I have used the same headings as in my article on the Future of the Statistical Society of Australia in the February 1987 issue of the SSA Newsletter (Number 38).

Scientific

I believe we have continued to provide an interesting and varied program of scientific activities for our members. The Mathematics Congress was extremely well attended, particularly by the statisticians. The scientific program for the statistics sessions was excellent with a large number of high quality international speakers. All the comments I have received on the scientific program have been very complimentary.

The Sections and Branches have continued to have interesting and well attended meetings. Others are planned for 1989 and activity is remaining at a high level.

The Second Pacific Statistics Congress will be held in conjunction with the 10th Australian Statistical Con-

ference in Sydney during July 1990. Planning for both these meetings is well under way.

Publishing

Most of our publishing activities revolve around the Australian Journal of Statistics and the Newsletter. Two special volumes of the Journal were produced during 1988 and provided at no extra cost to members. I am referring to the Festschrift in honour of Joe Gani and the Bicentennial History Volume. Both were excellent publications and all involved should be congratulated.

There is another special volume, planned for release early 1989. This is the special volume on the Bicentennial project on Youth and Unemployment.

The Journal has maintained a high standard and it is pleasing to see the increase in the size of the Applications Section and the Australian content.

Education

The SSA involvement in Continuing Education has been very small compared with our counterparts in other countries. We have made a small, but important start. The Medical Statistics Section has held two successful workshops in conjunction with last two ASC's. Other Sections might like to follow this lead.

We experimented with our first Continuing Education session at ASC 9. The course was on log-linear models and it was well attended. The feedback was good and continuing education sessions are planned for future

Editors: D.E. Shaw, SIROMATH Pty Ltd, 156 Pacific Highway, St. Leonards, NSW 2065.

E. Brinkley, Australian Bureau of Statistics, PO Box 10, Belconnen, ACT 2616.

R.I. Forrester, CSIRO, Biometrics Unit, INRE, GPO Box 1666, Canberra, ACT 2601.

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

Conferences.

Student Activities

Some progress was made, although there is still much work to be done. The Careers in Statistics booklet was well received, as was the subsequent brochure which has been distributed to tertiary institutions, schools and libraries. I hope this will result in an increasing awareness among teachers and students of statistics as a career. Jim Douglas' efforts in producing both publications should be highly commended.

We need to follow-up these activities and continue to press the benefits of a statistical career. We have held a number of discussions with the Australian Mathematics Teachers Association and the Mathematical Society and plan to have a closer relationship. Career activities is one of the areas where there appear to be benefits from a closer relationship.

I have also been in communication with the Department of Employment, Education and Training to ensure that the information about statistics in their Careers booklets is accurate and encouraging.

We initiated an important activity at ASC 9 by providing heavily subsidised travel to selected university students to attend the Conference. We plan to continue this scheme for ASC 10, and to allow them to more readily meet their student colleagues and other statisticians by holding a "social mixer" at the beginning of the Conference.

Public Profile of Statisticians

Over the last two years there has not been a great deal of activity. The SSA continues to be represented on the Australian Statistics Advisory Council. Richard Tweedie is the current member. Representations have also been made to increase the involvement of statisticians in the National Health and Medical Research Council. The Council was receptive, although the subsequent interest by statisticians was disappointing. I have also made representations to Mr Dawkins to have a mathematical/statistical interest on the Research Council.

Statistics and Industry

A new Section has been established and has held two successful symposia. Certainly, there is an increasing awareness among members of the importance of hav-

ing a closer relationship with industry. The number of talks at Conferences and Branch meetings on Statistics and Industry has certainly increased. Nevertheless, we have fewer statisticians employed by industry than other developed countries and that is something we should aim to correct. One "industry" that does have a lot of statisticians is government services. I know from my work at the ABS that there is growing relationship with university departments. The ABS has commenced a scheme of research fellowships for 6-12 months to allow for greater integration between it and universities. It was disappointing that there were no applicants from the SSA.

Discouraging Misuse of Statistics

I have not been required to make any representations over the last two years. Perhaps there have been no misuses over the last two years, or maybe we have not been as vigilant as we should have been.

Encouraging Advancement of Statistics

We have retained membership of FASTS which has been very active and seems to have had some successes in the mathematical sciences, particularly in reviewing the teaching of mathematics in schools. We have also joined the Federation of Australian Social Science Organisations (FASSO) for a trial period at a low cost. It has not been as active as FASTS to date.

Finance and Management

Our books are still very healthy, despite the fact that our fees are very low compared with other Societies. We also have been able to provide members with additional publications at no extra cost to them. A major reason is that our Conferences have been run with a healthy profit and this has been the case over the last two years.

We have transferred our publishing operations to Australia. This is not only good from the 'nationalistic' point of view, but has resulted in reduced costs.

We are also taking steps to incorporate the Society to ensure appropriate legal protection to the Society and its members. ASPAI, of course, has been incorporated for many years.

This is only a brief resume of some of our activities over the last few years. There is still much to be done to assist the long-term health of the statistical profession. I wish my successor well.

BRANCH REPORTS

New South Wales

Statistical Packages on Microcomputers

The Statistical Computing Section of the NSW Branch

organised an afternoon session for August 5 on statistical packages for microcomputers. The meeting, which attracted a large audience, heard six speakers comment on, and compare packages they had been using on IBM PC's or Macintosh computers. The speakers

and the packages to which they referred were:

- Dr Jenny Baker & Mr Philip Mock — SAS, BMDP, SPSS
- Mr Val Gebski — SYSTAT, STATGRAPHICS, SPIDA
- Assoc. Prof. Bob Gibberd — SYSTAT (MYSTAT), STATVIEW, GLIM
- Mr John Quiggan — MACSPIN, RATS, SHAZAM
- Dr Simon Sheather — MINITAB (Release 6).

The speakers were provided with a set of three data sets which they could use as one means of comparing the various packages. One data set was a contingency table with structural zeroes. Differences in the performances of packages that can handle such data were noted, with SPSS being one of the few packages to adjust the degrees of freedom appropriately.

The speakers highlighted the strengths and weaknesses of the various packages, restricting attention to the microcomputer versions in the case of packages where mainframe versions exist. Comments related to the scope and purpose of the package, its size, speed and efficiency, cost, ease of use and graphics. The presentations were varied, some providing live demonstrations of the packages, others preferring prepared, detailed comparisons. The final talk in the session demonstrated the new rank procedures on MINITAB (Release 6). It provided a very different approach to the analysis of the unbalanced two way design data set, and emphasised that new techniques are now rapidly incorporated into software packages.

Bootstrap in Practice

The September meeting of the Branch heard Dr N.I. Fisher (DMS, CSIRO) speak on *The Bootstrap in Practice— Bewtstrap or G-String?* In his talk Nick described ways of making bootstrap methods more computationally efficient, and stressed the value of using methods based on pivotal statistics. He then described some joint work with Peter Hall (ANU) on bootstrap estimation of the mean direction from a sample of directional data, and on the general problem of using the bootstrap approach in hypothesis testing.

Statistics in the School Curriculum

The Statistical Education Section of the Branch conducted a one-day workshop on *Statistics in the School Curriculum*. Keynote speakers were Dr Andy Begg, Curriculum Advisor, New Zealand Department of Education, and Dr Graham Jones, Principal of Gold Coast CAE.

Graham spoke on children's concepts of probability. Andy's talk outlined recent efforts in New Zealand to introduce statistical ideas to students. He provided details of syllabi, and examples typical of those given to students.

Statistician's Role in Business & Industry

Robert McEntyre, Quality and Productivity Consultant at IBM Australia Ltd, spoke at the Branch's October meeting on *Statisticians – 1990's Role in Business and Industry*. This was a joint meeting with the Branch's Business Modelling & Forecasting Group.

The role of statisticians in business and industry is open to a new positioning. W. Edwards Deming has "positioned" statisticians beside the Chief Executive Officer of organisations in a strong advisory role. Brian Joiner has merged the statistician with behavioural scientists to bring about a transformation. Statisticians have an excellent opportunity to diversify their quantitative knowledge and skills into analytical consulting and training. This expertise can be widely marketed to manufacturing and service organisations in the private and public sectors. The profession can link arms with such groups as Organisation & Methods, Human Resources, Engineering, Information Systems and Finance and Accounting to offer services previously associated with the "back room" syndrome.

Key issues covered by Robert included;

- Working in a large corporation
- Attitudes towards professional statisticians
- Interaction with management and employees
- Services offered — quantitative and non-quantitative
- Diversification — new skills required
- Marketing the talents — the missing links in training statisticians in the 1980's.

Victoria

Epidemic Modelling and AIDS

We were privileged to have Professor Joe Gani, now at the University of California, Santa Barbara, address our meeting on **August 23**. His talk, delivered in Joe's typical fluent manner and peppered with anecdotes, gave a brief history of the mathematical modelling of epidemics which dates back to Graunt's (1662) numerical study on causes of mortality during a 20 year period in London in which it was observed that the spectacular diseases were not the principal killers.

We then moved on to what is rapidly becoming one of today's principal killers, AIDS. It was interesting to hear of the likely origin of AIDS (the green monkey in tropical Africa who doesn't actually suffer from it) and how it spread to the USA via Zaire, Haiti and Europe. Recent estimates of the prevalence of AIDS carriers in the USA run as high as 1% of the population, with homosexual males being the group most likely at risk; as an ancillary statistic, a San Francisco study reported one homosexual male as having 61 different partners in a month! (Ref: Randy Shilts "And the band played on", St Martins Press, New York (1987)). Our problems in Australia are not as bad as in the USA, but are apparently worse than in the UK. Joe considers AIDS

modelling to be quite rudimentary because of the many aspects of the disease that remain unknown at this stage. He regards the exercise as a useful one nevertheless, since it better defines how data on AIDS should be collected and provides an overview.

In the discussion which followed, we learnt that Australians wanting Life Assurance are now required to have a blood test in the case of substantial policies or, for cover below \$450,000, to at least fill in a "lifestyle questionnaire"!

Statistics and the Law

On 27th September, Dr Stuart Crosbie (Manager, Biometrics, Dept. of Agriculture) shared his experiences and adventures as one of 8 statisticians called as an "expert witness" in what became the longest non-criminal court case in the history of the Commonwealth. The case was a \$13 million litigation brought in the New Zealand High Court by a manufacturer of a "growth stimulant" against two Government Departments. The case arose from a TV programme in which it was claimed that the product had no effect. The plaintiff sued for defamation, thereby putting the onus on the defence to prove that the product didn't work.

After showing a video of the TV programme in question, Stuart described his experiences in court, and offered suggestions on how statisticians can be effective as "expert witnesses". It's important to be well-prepared, to establish a positive rapport with all Counsels, and to understand the adversarial nature of cross-examination procedures. Statisticians, however, should not adopt an adversarial role but "... should remain unbiased and true to our profession".

Stuart noted that one way to discredit experiments is to pursue in minute detail "why, where and how the work was done". To guard against such an attack, researchers should ensure that their experiments are well-planned and, most importantly, well-documented. Statistical appraisal and collaboration should be an intrinsic feature of nearly all phases of the research process.

South Australia

The Branch has formed a Media Monitoring Group to peruse the media for items relevant to the statistical profession. Oliver Mayo and Debbie Street responded to a survey and subsequent series of articles in the Adelaide newspaper *The Advertiser*. They pointed out in a letter to the editor that the 'S.A. Woman Survey on the lives, loves and thoughts of women' was an analysis of 2,353 self-selected responses to a questionnaire, and so could not be assumed to be representative of the adult female population of South Australia. Unfortunately, the editor declined to publish their letter, and in a reply stated "that this survey was in no way intended to be scientific". Subsequently a comment has appeared in *The Australian Financial Review* (18 October, 1988, p.12) on the achievements of the Australian women's movement, in which the results of the S.A. Woman Sur-

vey were quoted as if they were scientifically based!! Oliver Mayo and Debbie Street have written to the editor of *The Australian Financial Review* in response; we hope that this time professional statisticians will be given an opportunity to point out how misleading an inappropriately conducted survey may be.

The Branch met in late July and was addressed by Suzanne Evans, currently of the Teletraffic Research Centre in the University of Adelaide. Suzanne has had varied and extensive experience in statistical consulting, and she presented two case studies on which she had worked. The first problem involved a large set of data on fossil molluscs from Lake Turkana in Kenya. Evolutionary trends in the number of fossil series were examined using multivariate techniques such as canonical variate analysis and principal component analysis to reduce dimensionality. The second problem concerned a detailed model of the life cycle of the sheep blowfly and the considerable difficulties encountered when trying to estimate the model parameters by maximum likelihood.

Ray Correll from the Biometrics Unit of CSIRO in Adelaide addressed the Branch in early September; we were joined by some people from the S.A. Department of Fisheries. Ray spoke on some statistical studies he had carried out on the Western King Prawn from the Gulf waters of South Australia. Neil Carrick of the S.A. Department of Fisheries has collected the data and was on hand to answer technical questions related to fishing. There was plenty of lively discussion which was enjoyed by all.

The Branch scheduled a meeting on October 18th to take advantage of a meeting in Adelaide of the Management Committee of the CSIRO Division of Mathematics and Statistics. We were fortunate in being addressed by Ron Sandland, the Acting Chief of the Division. A number of people, including some of the Management Committee, attended an inspiring talk on Statistics in Australian Industry. Ron gave an account of the problems of getting statistical thinking into Australian industry, and compared this with the experience in the United States and Japan. He indicated why he believes it is important that we overcome these problems, and suggested how statisticians could lift their game. The ideas were illustrated by means of a case study taken from the minerals industry which showed that applying statistics in industry can be challenging, intellectually stimulating and lead to economically important conclusions.

Western Australia

Mathematical Models for the Transmission of Bilharzia

On Tuesday, August 30th, Professor Andrew Barbour, of the University of Zurich, spoke about approaches used in modelling the transmission of parasites responsible for causing the disease bilharzia. Professor Barbour gave a history of research work which has led to various mathematical models, pointing out certain

incompatibilities between these and what is actually observed. He went on to discuss the implications of these perceived problems with regard to knowledge about the biological mechanisms which might limit transmission.

A Smoothed EM Approach to Obtaining Positron Emission Tomography Images.

On Tuesday, September 27th, Dr Chris Jones, formerly of the University of Bath, spoke about the recovery of positron emission tomography (PET) images using an EM algorithm. Dr Jones discussed the restoration of images using maximum likelihood estimation, which is conveniently implemented via the EM algorithm. He pointed out, however, that this method would not give satisfactory results in the case of PET images. Dr Jones went on to discuss a smoothed EM (EMS) algorithm, obtained by modifying the EM algorithm to include a smoothing step at each iteration, which improved the results. Various points made in the talk were illustrated using a simulated example, and other technical improvements to existing methodology were also suggested.

The Claims Reserving Problem in Non-Life Insurance: Some Structural Ideas

On Tuesday, October 25th, Professor Elja Arjas of the University of Oulu, Finland, spoke on modelling aspects of the claims reserving, or run-off, problem in the insurance industry. Professor Arjas discussed some of the benefits and problems associated with popular approaches which rely on notationally complex structurally descriptive probabilistic models, and proposed a more simple approach, based on theory of stochastic processes. He discussed a modelling approach which begins when the complexity of the situation being modelled demands it.

Canberra

Statistics in Some Continental Countries

At the September meeting Professor Jörg Husler of the University of Bern described the systems of education in some Western European countries. The discussion concentrated on the training of statistics students at university and comparisons with the American system. Professor Husler also gave a brief review of the statistical research done in some countries and of the applications of statistics in engineering, econometrics, biometrics and official statistics.

Off-Line Quality Control and the Taguchi Method

On Tuesday, 25th October, Dr John Eccleston gave a presentation on the Taguchi method.

Off-line quality control methods are performed at the product design stage with the aim of improving product manufacture and reliability and reducing costs. Taguchi has outlined a three step approach to product design. The steps are:

- system design
- parameter design
- tolerance design

When the goal is to design a product with high stability and reliability, parameter design is the most important step. The major usefulness of experimental design is for parameter design which finds the optimum combination of parameter levels. Experimental designs are used in tolerance design also.

Dr Eccleston outlined the Taguchi approach to off-line quality control. Several examples were investigated in detail as a means not only of illustrating the technicalities of the method, but also of expressing the philosophy of the approach.

Queensland

Mathematical Models for the Transmission of Bilharzia

On 25th July, Professor Andrew Barbour of the Institut für Angewandte Mathematik der Universität Zürich presented an interesting seminar on modelling the parasitic disease of bilharzia which is widespread among people (and animals) throughout the tropics. Associated with campaigns to eradicate the disease, or at least to alleviate its effects, many attempts have been made to build mathematical models of the transmission cycle, beginning with the pioneering work of Hairston (1961) and Macdonald (1965). Various models were presented and shown to lead to predictions which are incompatible with observed data. Those which do not have this drawback throw interesting light on the biological mechanisms responsible for limiting transmission.

The rigorous mathematical modelling of a real situation provided an exciting illustration of the applicability of statistical theory. This resulted in a very lively discussion afterwards.

Variograms, Stagger Designs and Wild Strawberries

Dr Tony Pettit, leader of the Biometric Unit at CSIRO in Brisbane, spoke on this intriguing topic on 10th October. It was based on some of the work which he had been doing in CSIRO during the past year. In particular, it concerned the design and analysis of reconnaissance surveys for the spatial variability of soil, but applications to other areas such as exploration geology and crop research are obvious. A wide perspective was taken and Tony considered the use and estimation of variograms, the design and analysis of field experiments, and the case for randomized or systematic designs, amongst other things. He argued that today's technology should explicitly allow for spatial and temporal effects in the analysis of experiments.

Tony felt that all field trials should be routinely analysed using covariance structure with the response being equal to a treatment effect plus a spatial error. He quoted some recent literature where the use of REML to model the variogram gave standard errors of contrasts smaller than both the randomized block and nearest neighbour designs. The fruit got into the title because of an experiment where the sampling points just happened to coincide with the occurrence of wild strawberries within the field.

GENERAL NEWS AND MISCELLANEA

Mrs Jean Salisbury

In October Mrs Jean Salisbury retired after thirteen years as the part-time Secretarial Assistant to the Society. Her main work was associated with maintaining contact with the subscribers to the Society's publications.

Ken Brewer recruited her assistance, and it was largely through her efforts and her detailed book-keeping that the financial state of the Society's publishing activities was speedily made secure. By 1988 it reached a state in which the Society has been able to publish an exceptional amount of material during this Bicentennial year without creating any burden for the future.

Jean Salisbury's contributions are well marked by these achievements, which are probably unknown to other than the Society's office-bearers.

As Treasurer, I owe a special debt of gratitude to Jean whom all of us wish well in her retirement.

Mrs Barbara Hartley, who retired earlier this year from CSIRO DMS Canberra, has succeeded Jean Salisbury.

Daryl J. Daley

New Appointments

Dr Ron Sandland, President of the Society's New South Wales Branch, has been appointed Chief of the Division of Mathematics and Statistics, CSIRO.

Associate Professor Geoffrey Berry has been appointed as Professor in Epidemiology and Biostatistics in the Department of Public Health, University of Sydney.

Monograph on Statistics and Privacy

There has recently been increased concern in some sections of the community about the issue of privacy in relation to the collection of personal information for statistical purposes. The Australian Bureau of Statistics has prepared a 13 page monograph which discusses this sensitive and complex issue in detail. If you wish to obtain a copy of the monograph, please contact Dennis Trewin on (062) 526051 or write to him c/- Australian Bureau of Statistics, P.O. Box 10, Belconnen, ACT 2616.

Moran Medal

The Australian Academy of Science has approved, in principle, the introduction of an award, to be known as the Moran Medal, in recognition of the scientific achievements of the late P.A.P. Moran, Professor Emeritus of Statistics of The Australian National University. Professor Moran passed away in Canberra on 19th September 1988.

The medal would be awarded for outstanding scientific research conducted mainly in Australia by young statis-

ticians working in one or more of the fields to which Professor Moran made particular contributions. These comprise Applied Probability, Biometrics, Mathematical Genetics, Psychometrics and Statistics. Copies of the draft details and regulations for the award are obtainable from Professor P. Hall, Department of Statistics, Australian National University, G.P.O. Box 4, Canberra, ACT 2601, Australia.

One condition of approval for the award is that an endowment of \$5,000 be raised. Colleagues and friends of the late Professor Moran are invited to contribute to this endowment. Cheques should be sent to the Executive Secretary, Australian Academy of Science, G.P.O. Box 783, Canberra, ACT 2601, Australia, and should be made payable to "Australian Academy of Science — Moran Memorial Fund". The Academy will acknowledge receipt. Donations of \$2 and over are tax deductible.

WATER BOARD Sydney-Illawarra-Blue Mountains

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Enquiries: Dr Keith Mullette, telephone (02) 808 0940.

Applications (on WB Form 77-549) should be addressed to the Manager Personnel and Health Services, Water Board, P.O. Box A53, Sydney South 2000.

CLOSING DATE: 20th January, 1989.

N.B. FROM 1ST JANUARY, 1989, THE BOARD WILL BE PROCEEDING TOWARDS IMPLEMENTING A SMOKE-FREE WORKPLACE.

STATISTICAL EDUCATION SECTION

The Annual Conference of the New Zealand Statistical Association was held at Massey University, Palmerston North in mid-August. The Conference itself lasted for two days, and there was an additional half-day devoted to demonstrations of statistical packages.

As well as the usual sessions for presentation of papers, two special forums were held, on "Statistics under 'User Pays'" and "The Statistician as Expert Witness". These were prompted by two important issues in the NZ statistical community at present. The first comes from the requirement of the NZ Government that government instrumentalities (including the Department of Statistics and the Ministry of Agriculture and Fisheries) must raise nominated proportions of their budgets from charges levied on their clients. The second issue arose from a long-running court case in which both sides called biometricians as witnesses. (This case was described by Stuart Crosbie at the September meeting of the Victorian Branch).

The Conference was also addressed by the Minister of Statistics. The Kiwis have, as Minister, someone who once worked in the research section of the Department

of Statistics, so presumably she has some idea of what Statistics is really about. (Can this latter comment be made about the Australian Minister? I don't know.)

The Annual Meeting of the NZSA was well-attended. Peter Thomson stepped down after two energetic years as President, and has been succeeded by Alastair Scott of Auckland University.

The highlight of the Conference was, to my mind, undoubtedly the Conference Dinner. A Chinese restaurant was taken over for the evening. A band was present, and its leader forced someone from every table to get up and sing a song, or play a musical instrument, or tell a joke, or This was followed by dancing. (Dancing at a Statistics Conference !?!)

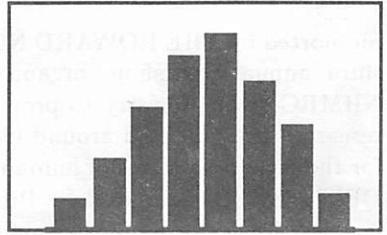
One cautionary comment: the NZ Mathematical Society is holding its Annual Conference at Massey University next May. Anyone proposing to attend is advised to take an extra blanket (or three) with them; the rooms in the student College are c-o-l-d !

Ken Russell

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CONFERENCES

Workshop on 'Generalized Additive Models', 16-17 February, 1989

A workshop on generalized additive models (see Hastie and Tibshirani, *Statistical Science* 1986, Vol.1, No.3, 297-318) will be held at the Australian National University, 16-17 February 1989. Trevor Hastie of AT&T Bell Laboratories will conduct the workshop which will be a "hands-on" course held in the computing laboratory using the interactive program GAIM. For people not familiar with GLMs, a preliminary day will be held on 15 February. A PC version of GAIM will be available for people enrolled in the workshop, at no additional cost.

For further information, write to:

GAIM CONFERENCE, Dept. of Statistics, The Faculties, ANU, GPO Box 4, Canberra, ACT, 2601.
Phone: (062) 494508.

It Runs in the Family

III. Statistical Methods for Linkage, Pedigree & Twin Analysis, 29-31 March 1989, The University of Melbourne

SPECIAL GUEST & KEYNOTE SPEAKER — PROFESSOR KENNETH LANGE, Chairman, Dept. of Biomathematics, U.C.L.A.

Supported by THE HOWARD NORMAN TRUST, this third annual workshop, organised by the Australian NHMRC Twin Registry to promote and advance twin research, will be based around two computer programs for the genetic analysis of human pedigree data (MENDEL, FISHER) produced by Professor Lange and colleagues. Professor Lange has made important contributions to mathematical methods in genetics and genetic epidemiology.

Wednesday and Thursday sessions will demonstrate and teach use of the packages. Application of the programs to participants' data sets will be possible, given suitable prior arrangements. Contributed papers from participants are invited for Friday's session.

If you are interested in attending, and wish further information as details are finalised, please contact the Australian NHMRC Twin Registry, 151 Barry Street, Carlton 3053. Phone (03) 347 2983 (Bobbie Renard), or (03) 344 6990 (John Hopper).

CONSORTIUM FOR RESEARCH IN COMPUTER INTENSIVE STATISTICAL METHODS

Workshop on Empirical Likelihood and the Bootstrap, 28th-31st March 1989

A Workshop on Empirical Likelihood and the Bootstrap will be held at Bond University under the auspices of the Consortium for Research in Computer Intensive Statistical Methods, during the week starting Monday, 27th March 1989 (Easter Monday). Invited speakers will include Tom DiCiccio and Art Owen of Stanford University. The Workshop will address both theoretical and practical aspects of empirical likelihood and the bootstrap.

Attendance at the Workshop will be limited, in order to provide a real chance for constructive output. Some limited financial support may be available. Persons interested in attending should write to:

Professor Peter Hall
Consortium for Research in Computer
Intensive Statistical Methods
Department of Statistics
Australian National University
GPO Box 4
CANBERRA ACT 2601.

Vere-Jones and Daley for Sydney Conference, 3-7 July, 1989

Professor David Vere-Jones from the Victoria University, Wellington, N.Z. is to speak at the conference of the Australian Mathematical Society to be held at Macquarie University, July 3 to 7, 1989. The Statistics and Probability sections will be held on Monday and Tuesday, July 3 and 4. Professor Vere-Jones has agreed to speak on some statistical aspects of point processes, particularly in their applications to earthquake data. Dr Daryl Daley from the Institute of Advanced Studies, ANU will speak on some probabilistic aspects of point processes.

Maths Education

As well, Professor Vere-Jones has agreed to speak in the Mathematics Education section. New Zealand has an exciting senior school curriculum, Mathematics with Statistics, to which members of the New Zealand Statistical Society have made a major contribution.

Papers Sought

Papers are invited in applied probability or in statistics. We would like to develop, over the two days, the theme of stochastic processes and associated questions of collection and analysis of data from such processes.

If you are interested in further information please write to:

Dr Ann Eyland
School of Economic and Financial Studies
Macquarie University, NSW 2109.

STATCOMP 89, 6-7 July, 1989

The Statistical Computing and Survey Management Sections of the SSA will be holding STATCOMP 89, the 4th biennial conference focusing on statistical computing, in Adelaide 6-7 July 1989.

Themes for STATCOMP 89 are:

- Expert systems
- Methodology for simulation studies
- Computer applications in survey operations and analysis.

Invited speakers include Dr D. Pregibon, of AT&T Bell Laboratories and Professor P. Diggle, University of Lancaster.

Opportunities exist for sponsorship and the hire of display facilities.

Enquiries and expressions of interest should be directed to Chris Brien at

School of Mathematics and Computer Studies
South Australian Institute of Technology
The Levels, SA 5095.

Telephone: (08) 236 2211 Fax: (08) 349 6939 Email: MACBOLEVELS.SAIT.OZ

Combinatorial Mathematics, 10-14 July, 1989

The Fifteenth Australasian Conference on Combinatorial Mathematics and Computing will be held at the University of Queensland, Brisbane, Queensland, from 10th to 14th July 1989. All interested persons are cordially invited to attend. Contributed papers are welcome in areas of combinatorics and combinatorial computing, pure and applied. Invited speakers are being arranged. Accommodation on campus at the University of Queensland will be available.

Those who are not members of C.M.S.A. but are interested in attending the conference, please write to:

Professor Anne Penfold Street
Director, C.M.S.A.
Dept. of Mathematics
University of Queensland
St. Lucia, Queensland 4067.

The Combinatorial Mathematics Society of Australasia was formed in 1978 to promote combinatorial mathematics. It disseminates information about combinatorics and combinatoricists through its newsletter *Combinatorics*, and it conducts an annual conference with refereed published proceedings. There are currently about 120 members from all over the world.

Any interested person is invited to join the C.M.S.A. Annual subscription for 1988 is Australian \$5, payable to C.M.S.A. Members receive the newsletter and a reduction in the conference registration fee. Please address all enquiries, giving your full name and address, to Professor Street at the above address.

CONSORTIUM FOR RESEARCH IN COMPUTER INTENSIVE STATISTICAL METHODS

Data Analysis Workshop, September, 1989

A Workshop Series designed for those who are interested in the analysis of complex data sets of fundamental practical importance is being organised under the auspices of the Consortium for Research in Computer Intensive Statistical Methods. Each Workshop will concentrate on a single theme chosen for its relevance and broad applicability, and will establish the current "state of the art" in its respective field.

The first Workshop will be held in September 1989 at the ANU, and its theme will be the formulation, fitting and statistical analysis of **linear simultaneous equation models**. These models are used in Econometrics, Marketing, Quality Control, Education, Psychometrics, Physical and Chemical Sciences, Biological and Medical Sciences, Statistical Science, Behavioural Science, Social Science and Political Science. It is hoped to attract data analysts from all these disciplines. Linear simultaneous equation models have many alternative names, including covariance structure models, latent variable models and LISREL models. Many users may not be aware of the literature under these different titles. It is hoped to rectify this situation.

Professor Brian Everitt, author of the monograph *An Introduction to Latent Variable Models* (Chapman and Hall, 1984), will be the Workshop's keynote speaker. The Workshop will confront the methodological and practical problems of linear simultaneous equation models with a novel format designed to have maximum impact. Two complementary data sets (either real or simulated) that highlight the fundamental methodological problems will be distributed to potential par-

ticipants in January. Eligibility for Workshop participation will be determined by researchers presenting either an analysis of (part of) the data, or a theoretical contribution relevant to the Workshop's theme, one month prior to the Workshop. These contributions will be circulated to participants before the Workshop. Those who have contributed data are also invited to attend. The greatest value of the Workshop will be the Discussion Sessions. Publication of the final proceedings is being planned.

The Workshop co-ordinator, Sue Wilson, is currently organising data sets. If you have any suggestions or ideas please contact Sue on (062) 49 4460, or at the address below.

Are you interested in participating in the Workshop? If so, contact Sue Wilson for information on data distribution and Workshop contributions.

Dr Sue Wilson
DAW Co-ordinator
Department of Statistics, IAS
ANU, GPO Box 4, Canberra, ACT 2601.

10th Australian Statistical Conference, 2-6 July, 1990

The 10th Australian Statistical Conference will be held in Sydney, at the University of New South Wales, from July 2 to July 6, 1990. This conference will also constitute the 2nd Pacific Statistical Congress, and will occur in the year of the centenary of the birth of Sir Ronald Fisher.

The Programme Committee for the conference has already commenced the setting-up of the conference programme, having solicited suggestions from Branch Councils and from the Chairs of the Society's sections. At this stage, three topics have been selected as being major areas of emphasis:

- Quality
- Computer intensive methods in statistics
- Analysis of dependent data.

Other subject areas will be selected as special topics for the conference. The Programme Committee seeks suggestions from the members of the Society about subject areas that should receive special attention; suggestions with a bearing on the Fisher centenary or on aspects that should be addressed in a Pacific Statistical Congress would be particularly welcome. Suggestions of suitable invited speakers would also be welcomed.

This is your chance to make a positive contribution to the conference programme.

Please direct your suggestions, before January 16, 1989, to the Chairman of the Programme Committee, Dr Doug Shaw, SIROMATH Pty Ltd, Level 5, 156 Pacific Highway, St Leonards, NSW 2065.

ICOTS 3, August 1990

The Third International Conference on the Teaching of Statistics (ICOTS3) will be held in Dunedin, New Zealand, 27-31 August 1990.

Further information can be obtained from: The Secretary, ICOTS3, Dept. of Mathematics and Statistics, University of Otago, PO Box 56, Dunedin, New Zealand.

THE UNIVERSITY OF SYDNEY

Co-ordinating Data Manager
(Senior Research Assistant)

Reference No.47/06
NHMRC Clinical Trials Centre

Applications are invited for the position of Co-ordinating Data Manager with the newly established NHMRC Clinical Trials Centre. The Centre shall play a major role in the co-ordination of multicentre clinical trials in Australia in a variety of medical areas. The successful applicant will be responsible for training and supervision of data managers at the Centre, establishing procedures and quality controls for data management and liaising with participating centres including organising some training and support for institutional data managers. There will also be the opportunity for evaluation and implementation of database software, analysis of individual clinical trials and collaborative research depending on the successful applicant's experience and qualifications.

Applicants should have a suitable undergraduate or postgraduate degree and practical experience in data management. Experience with computing and/or statistics is preferred.

The appointment is for up to 5 years. Further information from Dr J. Simes, (02) 660 6840 or (02) 692 4562.

Salary: Senior Research Assistant \$30,178-\$34,538 per annum.

Applications, quoting reference no., including *curriculum vitae* and the names and addresses of two referees, to the Registrar, Staff Office, University of Sydney, NSW 2006 by 20th January, 1989.

The University reserves the right not to proceed with any appointment for financial or other reasons.

Equal employment opportunity is University policy.

OVERSEAS CONFERENCES

National Conference on Clustering of Health Events, 16-17 February 1989, Atlanta, GA, USA.

Information: Karen Steinberg, Center for Environmental Health and Injury Control, CDC (MS-F18), 1600 Clifton Rd., N.E., Atlanta, GA 30333, USA.

ENAR Spring Meeting, 19-22 March 1989, Lexington, KY, USA.

Information: David Allen, Dept. of Statistics, Univ. of Kentucky, Lexington, KY 40506, USA.

Fifth Annual Research Conference, March 1989, Washington, D.C., USA.

Information: Maxine Anderson-Brown, Conference Co-ordinator, Office of the Director, Bur. of the Census, Washington, DC 20233, USA.

Fifth Conference on the Scientific Use of Statistical Software (SoftStat '89), 2-6 April 1989, Heidelberg, West Germany.

Information: Hans-Martin Uehlinger, Conference Director, Soft-Stat '89, ZUMA, Postfach 5969, D-6800 Mannheim 1, West Germany.

International Topical Meeting on Probability Reliability and Safety Assessment, 2-7 April 1989, Pittsburgh, PA, USA.

Information: PSA '89, c/- David Squarer, Westinghouse R&D Center, 1310 Beulah Rd., Pittsburgh, PA 15235, USA.

43rd Annual Quality Congress, 8-10 May 1989, Toronto, Canada.

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

Singapore Probability Conference, 8-16 June 1989, Singapore.

Information: J.H. Lou, The Organising Secretary, Singapore Probability Conference, Dept. of Mathematics, National University of Singapore, Lower Kent Ridge Road, Singapore 0511, Republic of Singapore.

International Conference on Computational Techniques and Applications, 10-12 July 1989, Griffith University, Brisbane.

Information: School of Australian Environmental Studies, Griffith University, Nathan, Queensland 4111.

39th Gordon Research Conference on Statistics in Chemistry and Chemical Engineering, 31 July-4 August 1989, New Hampton, NH, USA

Information: Lewis Sheiner, Univ. of California, C255, San Francisco, CA 94143, USA.

18th International Congress of the History of Science, 1-9 August 1989, Hamburg and Munich, Federal Republic of Germany.

Information: Professor C.J. Scriba, Institut für Geschichte der Naturwissenschaften, Bundesstr. 55, D-2000 Hamburg 13, Federal Republic of Germany.

1989 Joint Statistical Meetings, 6-10 August 1989, Washington DC, USA.

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

Eleventh International Joint Conference on Artificial Intelligence, 20-26 August 1989, Detroit, MI, USA.

Information: Claudia Mazzetti, AAAI Office, 445 Burgess Dr., #100, Menlo Park, CA 94025, USA.

47th Biennial Session of the International Statistical Institute, 29 August-6 September 1989, Paris, France.

Information: ISI Permanent Office, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands.

THE UNIVERSITY OF SYDNEY

Deputy Director
(Senior Research Fellow)

Reference No.47/05
NHMRC Clinical Trials Centre

Applications are invited for the position of Deputy Director of the newly established NHMRC Clinical Trials Centre. The Centre shall play a major role in the coordination of multicentre clinical trials in Australia in a variety of medical areas, especially cancer and cardiovascular trials in the initial stages. The Centre will also undertake an active research program and a teaching role in clinical trials areas.

The successful applicant will be responsible for 1) taking a leadership role in coordinating multicentre clinical trials in cardiovascular and other areas, 2) initiating a research program in clinical trials methodology or related area and 3) managing, with the Director, the Trials Centre of 10-20 employees.

Applicants should have a doctoral degree or equivalent experience in biostatistics/epidemiology or related field. Experience in biomedical research, multicentre clinical trials and administration is desirable.

The appointment would be until December 1993 initially. Further information from Dr J. Simes, (02) 660 6840 or (02) 692 4562.

Salary: \$40,937-\$47,564 per annum plus a loading of up to \$7,460 per annum where applicable.

METHOD OF APPLICATION: Applications, quoting reference no., including *curriculum vitae*, list of publications and the names, addresses and FAX numbers of three referees, to the Registrar, Staff Office, University of Sydney, NSW 2006 by 20th January, 1989.

The University reserves the right not to proceed with any appointment for financial or other reasons.

Equal employment opportunity is University policy.

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 University of Queensland
 St. Lucia, Qld 4067.

SECTION CHAIRS

Statistics in the Medical Sciences

Dr J. Hopper
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 Faculty of Medicine Epidemiology Unit
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 Carlton, Vic 3053.

Statistics in the Earth Sciences

Dr N.I. Fisher
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 P.O. Box 218
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Statistics in the Biological Sciences

Mr R.B. Cunningham
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 G.P.O. Box 4, Canberra, ACT 2601.

Survey and Management

Mr D.J. Trewin

c/- Australian Bureau of Statistics
 P.O. Box 10
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Statistical Education

Dr K. Russell
 Biometrics, Department of Agriculture
 P.O. Box 500
 East Melbourne, Vic 3002.

Statistical Computing

Dr N. Weber
 Dept. of Mathematical Statistics
 University of Sydney
 NSW 2006.

Industrial Statistics

Dr W. Dunsmuir
 Aust. Grad. School of Management
 University of NSW
 P.O. Box 1, Kensington NSW 2033.

SUBSCRIPTIONS AND ADVERTISING

The *Newsletter* of the Statistical Society of Australia is supplied free to all members of the society. Any others wishing to subscribe to the *Newsletter* may do so at an annual cost of A\$8.00 (A\$6.00 if also a subscriber to the *AJS*), for an issue of four numbers.

Enquiries and subscriptions should be sent to:
 Dr D.J. Daley,
 Treasurer, Statistical Society of Australia,
 Department of Statistics (IAS),
 ANU, GPO Box 4,
 CANBERRA, ACT 2601.

Advertising will be carried in the *Newsletter* on any

matters which the Editors feel are of interest to the members of the Society. In particular, advertisements of statistical vacancies, statistical literature and calculators will be welcome. For details of advertising rates etc. contact either the Editors or Dr D.J. Daley at the address above.

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.