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statistical society of australia

newsletter

31 may 1988 number 43

BICENTENNIAL PROJECT ON YOUTH & UNEMPLOYMENT

The lead article in the May 1987 Newsletter outlined in detail the aims of this Bicentennial Project.

Nine Papers to be Presented at Canberra Conference in May.

The SSA's Bicentennial Project on Youth and Unemployment in Australia is well on target. Many of the Society's members who made a commitment to contributing to the project are about to deliver their findings during the May conference in Canberra. Nine papers representing work by fifteen researchers will cover a range of aspects associated with a statistically based understanding of the labour market experiences of young Australians.

D. Trewin, G. Bode and P. Boal *An Aid Analysis of Unemployed Youth.*

M. Baxter *Modelling Time for Youth Unemployed to Get a Job.*

I. James *Unemployment Duration: Modelling and Estimation.*

B. Bradbury and I. McRae *Families and Early Labour Market Experience: An Analysis of Siblings.*

W. Dunsmuir, R. Tweedie and K. Mengerson *Modelling of Transition Between Employment Rates for Young Australians.*

W. Dunsmuir, R. Tweedie, L. Flack and K. Mengerson *Modified Weibull Distributions for the Sojourn Rates in Employment States for Young Australians.*

A. Eyland *The Application of Ordered Probit Models in an Investigation of Factors Affecting the School to Work Transition Process.*

B. O'Toole and J. Tjugiarto *Response Bias in Wave 2 of the ALS: Comparison of Respondents and Non Respondents of the Area Probability Sample of Young Australians Aged 15-24.*

K. Weekley *A Comparative Study of the Australian Longitudinal Survey and Alternative Sources of Youth Unemployment Statistics.*

Special Issue of the 1988 Australian Journal of Statistics.

In addition to the papers to be presented at the conference other papers have been or will be received for inclusion in a proposed additional volume in the 1988 series of the Australian Journal of Statistics. An editorial panel consisting of William Dunsmuir (Australian Graduate School of Management, P.O. Box 1, Kensington, NSW 2033.), Chris Heyde, Ian McRae and Paul Miller has been formed to review the papers to be included in this special volume. All papers should be submitted to William Dunsmuir by mid June so that they can be reviewed, revised, published and mailed by the end of 1988.

If you are planning to submit a paper for inclusion in the volume please let us know as soon as possible. If you are planning to prepare your submission on a text or word processor, please advise us so that we can look into the feasibility of receiving the text on floppy disks as well as in hard copy form.

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AUSTRALIA

MATHEMATICS AND STATISTICS

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Minimum salary $73,000 pa plus benefits.

We are seeking a mathematician or statistician with a commitment to research management and a distinguished record of research achievement and interaction with industry.

The Chief is responsible for the leadership and direction of the Division's research and commercialisation programs and the effective management of the Division's operations. The transfer of research results to industry and other users has high priority.

The role of the Division is to carry out mathematical and statistical R & D to fulfil the existing and anticipated needs of Australian industry. As well as working directly with industry, members of the Division also participate in collaborative project teams with staff from other CSIRO Divisions.

The Division has some 60 staff located in offices at Adelaide, Canberra, Melbourne, Perth and Sydney. The Divisional headquarters will be in either Melbourne or Sydney.

Dr R.H. Frater, Director, Institute of Information and Communications Technologies, can be contacted for further information [telephone (02) 887 8220, acsnet: frater @rp.oz; fax: (02) 887 2736].

Applications should be forwarded to:

Director
CSIRO Institute of Information and Communications Technologies
PO Box 93
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Closing date for applications is 30 June 1988.

CSIRO is an equal opportunity employer.

AB1-IICT 88/2

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School of Mathematics
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THE PRINCIPLES OF RISK ANALYSIS

18th and 19th August, 1988

A Seminar for enterprising statisticians, engineers, health officials, consulting firms

Risk analysis is the technical component of risk management and will be presented in a newly established format in this Seminar. Topics will include treatment and evaluation of data, assignment of distributions including the Bayesian methods, pooling of expert opinion and entropy methods.

The Seminar will assume no prior knowledge and, as well as providing an introduction to Risk Analysis, will indicate the wider horizons of the subject. Carrying out of a fault tree analysis using the "Treemaster" program with microcomputer hands-on will be a feature of the Seminar.

The Seminar will be led by Professor Niels C. Lind, Director of the Institute of Risk Research & Professor of Civil Engineering, University of Waterloo, Canada.

The Seminar is administered by UNISEARCH, the research and development company of the University of New South Wales.

TAKE A RISK!
and phone Chris Cordingley, Educational Services Unit, Unisearch on phone (02) 662 2711 or fax (02) 663 2949 for the detailed brochure.

UNISEARCH

CENTRAL COUNCIL AND ASPAI

The Annual Meetings of the Central Council of the Statistical Society of Australia and of the Australian Statistical Publishing Association Incorporated (ASPAI) were held at the University of Melbourne on the 19th of February, 1988. Points to arise from the meetings included the following.

1. Dennis Trewin, John Field and Daryl Daley were re-elected to the offices of President, Secretary and Treasurer respectively. Central Council thanked Dr Jeff Wood for acting as Treasurer during the year.
2. All Section chairmen were re-elected to their positions. Professor Heyde was re-elected as the Society's representative to the National Committee for Mathematics, and Dr Nick Fisher was re-elected as the Society's representative to the Australian Geosciences Council.
3. Central Council heard a progress report from the Director of the National Congress of Mathematical Sciences, to be held in Canberra in May.
4. The NSW Branch reported that accommodation had been booked at the University of New South Wales for the 10th Australian Statistical Conference, to be held from 2nd to 6th July, 1990. Central Council appointed a Programme Committee under the chairmanship of Doug Shaw. The 10th Australian Statistical Conference is also to be the 2nd Pacific Statistical Congress.
5. Ken Russell reported that the Third International Conference on Teaching Statistics was being held in Dunedin at the end of August, 1990. Ken Russell is to circulate Branches about the conference, and liaise with the Mathematics Teachers Association.
6. Graham Wilkinson reported on preliminary arrangements for Statcomp'89.
7. Central Council agreed to provide funds from the surplus of the 8th Australian Statistical Conference to support the attendance of students at the 9th Australian Statistical Conference.
8. Professor Jim Douglas was thanked for his excellent work in producing the brochure "Want to be a statistician?".
9. The Annual Meeting of ASPAI thanked the Editor of the Journal and his Editorial Committee. It was noted that Dr H. Cohn was to be acting editor during the editor's absence on study leave for the first six months of 1988.
10. The Annual Meeting of ASPAI re-appointed and thanked the editors of the Newsletter, and recorded it appreciation of the secretarial assistance received from Mrs Salisbury.

NEW SOUTH WALES BRANCH

Annual General Meeting

The 40th Annual General Meeting of the NSW Branch was held on 15 March 1988. Office bearers and Council members for 1988 are:

President:	Dr R.L. Sandland
Past President:	Professor A.J. Dobson
Treasurer:	Dr N.C. Weber
Secretary:	Dr S.H. Huxham
Assistant Sec:	Mr D.D. Reid
Council:	Assoc. Prof. W. Dunsmuir, Dr G.K. Eagleson, Dr E.A. Eyland, Mr V.J. Gebski, Mr R.J. McEntyre, Mr P.J. Nicholls, Dr D E Shaw.

By the Skin of Our Teeth

At the Annual General Meeting, the incoming Branch President, Dr Ron Sandland delivered his Presidential Address, *By The Skin of Our Teeth.* The reorganisation of CSIRO has resulted in a professionally debilitating time for the staff of the Division of Mathematics and Statistics.

Ron sketched the history of the effects of the reorganisation on the Division. Initially it was announced that the Division was to be disbanded as it did not appear to sit comfortably with the "business-systems" orientation of the new, accountable McKinseyised CSIRO. The Institute Directors at that time (they have since been replaced) had no clear vision of the Division ethos nor its role in CSIRO. Many of the decisions made were made in the absence of adequate information (which was not sought) in the race to reorganise.

A bewildering sequence of policy reversals followed in which the Division's proposed role underwent many vicissitudes. Unworkable proposal after unworkable proposal was put up, shot down and overturned, after being announced as the definitive pronouncement. The first proposal had created a furore and DMS with the help of its many friends in industry, government, universities and overseas, had mounted an impressive case in its defence.

The current policy (at of the date of the AGM) outlined by Ron was that the Division should continue as a smaller unit, no longer offering a statistical consultation service to the remainder of CSIRO, but concentrating on statistical and mathematical research for Australian industry in such areas as quality control, mathematical and statistical modelling of industrial processes, signal and image analysis, statistical computing and software. The Division would maintain its links with some other CSIRO Divisions where these links serve to further the aims of the Institute of Information and Communications Technologies led by Dr Bob Frater. Although this Institute placement now gives the Division a rational basis on which to continue its operations and further develop its mission to Australian Industry, a tremendous amount of damage has been done to the Division in terms of staff morale and mass resignations, usually of first-rate statisticians. Further losses are expected to occur as a number of staff will be transferred to other Institutes to continue the excellent statistical consulting there. Early resignation schemes, resignations and transfers have halved the size of the Division over the last two years!

Ron went on to assert that Division's problems were a reflection of the future difficulties which the profession as a whole might face. The value of the Division's disciplinary-based research was publicly questioned, although it has had, through its links with CSIRO's research programs, a greater focus on real scientific problems than is the case in much of modern statistical research.

The profession will face many problems in the coming years. We must sell ourselves if we are to survive as an autonomous discipline (and not be replaced by a poorly understood and badly used software package on a microcomputer).

The work of statisticians must be palpably effective. Australia's achievement of excellence in the agricultural industries has been underpinned by excellent biometric practice in CSIRO and state government departments. Australian medical science has benefited greatly from the active involvement of statisticians (eg Lancaster's work on rubella). When the principles of experimental design and careful data analysis are put aside, medical science degenerates into voodoo!

Australian statisticians must play a leading role in the regeneration of Australian industry. The nexus between quality and variability has been exploited by the Japanese, following the techniques of W. Edwards Deming, to the enormous benefit of their manufacturing industries. Australian industry's profound ignorance about the role statistics can play in quality improvement programs must be overcome and statisticians are the only ones who can do it. If the statistical profession does not show industry the way, our rightful place will be taken by charlatan surrogates. Each inappropriate application of statistics is a disaster for the company and a disaster for statistics. The profession continues to regard such immensely important work as of secondary importance because of its perceived lower intellectual content. Research problems will arise in industry but not until we have solved their (often statistically simple) real problems. Simplicity should not be regarded as the domain of the mediocre. Simplicity of technique can often disguise profound thinking about the nature of the industrial processes under study.

Statistics is about data and the extraction of meaning from it. We must solve the real problems of our clients and not distant abstractions of greater mathematical interest. Restriction of our research to narrow, esoteric areas will mean disaster. We owe it to the future

generations of students to maintain a healthy applied statistical career path rather than substitution by software packages.

The vitality of any profession is measured by the calibre of its new recruits. How good are the students of today? Anecdotal evidence suggests that there are fewer able students entering science courses and even fewer embarking on a serious study of statistics. Yet statistics has real challenges for the best and brightest of our under-graduates. It is the meeting ground of personal relationships, science, high technology and mathematics. Ron concluded by stating that unless we can convey the wonder and excitement of our craft to potential students, it will wither and die.

Statistical Problems from Biological Sciences

The April meeting of the Branch heard Professor Duane Meeter (Florida State University; visiting University of Newcastle) speak on Statistical Problems from Biological Sciences. Duane presented three questions that arose from consulting.

What can be done with matrices of zeros and ones? Examples of incidence matrices concerning species of sea-grass and concerning ground finches on the 23 Galapagos Islands were discussed. These data led to problems concerning the properties of matrices subject to different row and column constraints.

How can I avoid counting 2,000 nematodes? Duane described highly balanced designs for subsampling specimens of marine sediment.

Is bulimia a nutritional or psychological disease? The protocol was described for an experiment comparing two diets - one, a diet hoped to eliminate bulimia from eligible chosen subjects, the other, a sham diet.

VICTORIAN BRANCH

At the AGM, held on March 22, the 1988 Branch Council was elected. It consists of

President:	Dr Malcolm Clark
Secretary:	Mr Nick Garnham
Treasurer:	Mr David Attwood
Councillors:	Mr Geoff Alford, Mr Bill Armstrong, Dr Stuart Crosbie, Mr Charles Nelson, Dr Geoff Robinson.

Following the AGM, Mr Neil Diamond and Dr Geoff Robinson presented an informative and entertaining talk entitled *Examples, examples and examples.* In their talk the speakers illustrated their contention that in the teaching of experimental design (as in all statistics?) the use of practical examples greatly enhances understanding of the topic. Four such examples were presented, two involving audience participation. In Bubbles, volunteer producers and inspectors were faced with the problem of why different bubble blowers produced different numbers of acceptable bubbles per shift. Was it due to the difference between blowers, or between bubble rings, or the inspectors applying different standards? The need for data from designed experiments rather than haphazard observation is well made here. Dr Scratchplan is based on a game developed by Peter Goldsmith at ICI and used at Footscray Institute of Technology. Groups of students were given a set of artificial data and enter a competition for the best response-surface model which will reproduce the data. Gyrocopters illustrates a factor screening experiment. The design of the paper gyrocopter is based on several factors such as wing length, wing width, various ratios, etc. In order to try to quickly identify the major factors for further study, paper gyrocopters are made varying six factors. In order to run a small cheap experiment the analysis treats the data like a 2^3 design with six 'pseudo' factors with no second-order interactions. Eggtimers illustrated a simple two-factor experiment using bottle-type (e.g. Coke, Schweppes) and contents (brown rice, white rice). The use of simple materials means that experiments such as these can readily be performed by students in practical classes or at home and so see for themselves the variability, both controlled and uncontrolled, that arises in actual experiments.

SOUTH AUSTRALIAN BRANCH

Road Accident Statistics

The year commenced with local member Paul Hutchinson from the Civil Engineering Department of the University of Adelaide reviewing the current status of routine collection and processing practices for road accident statistics. The many differing numbers counted for similar events by different agencies in different countries clearly suggest that the statistics as they exist raise many questions worthy of study.

This topic raised quite a deal of community interest and the question time proved quite lively. Inevitably the puzzle of the pedestrian the cyclist, the motorist and the equestrian was mentioned. Luckily Graham Wilkinson had the answer.

Annual General Meeting

The following executive was elected for 1988:

President:	John Darroch
Vice President:	John Field
Secretary:	Alan Branford
Treasurer:	Jill Smith
Past President:	Bill Venables
Council Members:	Glenys Bishop, Chris Brien, Philip McCloud, Margaret Morris.

Bill Venables presented his presidential address in two parts. In the first part he addressed the problems facing the profession and made suggestions as to the way the Statistical Society might evolve. A full transcript of this is available. In the second part Bill discussed aspects of the use of empirical models, in particular the dramatic effect that a few assumptions can have on any ensuing analysis and the conclusions which might be drawn.

Professional Status

In April the Branch held an open discussion on where the profession was headed. Bill Venables reiterated and expanded the remarks he made concerning the Society adopting the role of a professional Society. Debbie Street spoke briefly about professional standards and what might be considered the necessary qualifications of a statistician. Bob Hall outlined a number of ideas for raising the public profile and standing of the profession. He suggested that a standing committee of the Society be formed to monitor and criticise bad statistical practice and to produce media items concerning good statistical practice. A column might be started in the *Newsletter* for contributed examples of misused statistics. Where statistics are used, statisticians should strive to see statisticians employed and the employment of statistical amateurs discouraged.

With regard to how a professional society might be organised, discussion ranged over the possibilities of the Statistical Society moving to fill that role, and affiliating with the Institute of Statisticians. Within organisations such as CSIRO and universities the inherent vulnerability of statistics due to the collaborative and cross disciplinary nature of the discipline was raised. If 'line management' structures are put in place, Statistics needs to find a place near top management so that it might be better placed for servicing across the other disciplines. It was resolved that the matter be discussed further.

WESTERN AUSTRALIAN BRANCH

New Methods for Longitudinal Data Analysis: Smoothing

On Tuesday March 8 Dr Mark Segal, from Harvard University, spoke on non-parametric smoothing. He addressed the problem of smoothing the type of correlated responses which arise in longitudinal data, and demonstrated how recently developed methods can be used to smooth data under such conditions. He illustrated the problem with an example involving the measurement of lung function growth and decline.

Statistical Methodology in Building Research

On Tuesday April 12 Associate Professor Bill Perriman, from Curtin University of Technology, spoke on the statistical aspects of the problem of "concrete cancer" in buildings. The talk centred on his involvement in various stages of a study of this problem in a certain Perth building and, in particular, with the estimation of various parameters which describe the process and progress of concrete degradation through corrosion of steel reinforcing.

CANBERRA BRANCH

Industrial Statistics and the Quality Revolution

At the February meeting, Professor Paul Feigin from Technion, Israel, discussed the role of the statistician in industry and in quality assurance. In particular, Professor Feigin discussed the evolution of quality assurance and explained the distinction between total quality control and the traditional quality control techniques. The differences between industrial and scientific experiments and the Taguchi method for experimental design, were also described. Professor Feigin illustrated the major issues with examples of how total quality control principles had been successfully applied to manufacturing problems.

Annual General Meeting

The AGM of the Canberra Branch was held on 22nd March 1988 in the Mathematical Sciences Building at the Australian National University. The office bearers elected at the meeting were:

President:	Dr R. Chambers
Secretary:	Dr D. Steel
Treasurer:	Dr J. Wood
Councillors:	Mr D. Trewin, Dr D. Nicholls, Dr C. Heyde, Dr S. Wilson, Mr G. Pollard, Mr W. Muller

Small Sample Variance Estimators for U-Statistics

Following the AGM, Professor William Schucany of the Southern Methodist University, Dallas, presented some new unbiased estimators for the dominant and lower order terms of the variance expansion for U-statistics. With the aid of an interesting problem presented to him by theologians at his university, which aimed to test the independence of the gospels of Matthew and Luke, Professor Schucany showed that the new estimators for the dominant term could not be recommended. A Monte Carlo study of the new and established estimators revealed the ordinary jackknife estimator to be more effective for hypothesis testing, despite the jackknife estimator having a slightly larger mean square error.

QUEENSLAND BRANCH

Cross-over Designs in Applied Research

On March 28, Ms Janet Bodero of the School of Australian Environmental Studies at Griffith University presented an interesting application of the cross-over design in dairy cattle research. The theory underlying cross-over designs which enable residual (or carry-over) effects to be estimated was initially discussed. Then the techniques were demonstrated with an example involving an incomplete block cross-over design developed to allow controlled experimentation to be carried out on commercial dairy farms with minimum disruption to the daily routine. Comparative error estimates resulting from the different designs were also given to display the resulting efficiencies.

One particularly promising aspect of this applied research was that the statistician was intimately involved in the design and execution of the project from the start. Therefore any extraneous effects which were observed to be influencing the trials could be eliminated or incorporated into the models.

Stereology (Escape from Flatland)

Dr Adrian Baddeley, Division of Mathematics and Statistics, CSIRO, Sydney, gave this intriguing title to the talk which he gave to our meeting on April 19. It was a general introduction to stereology, the science of drawing inferences from plane sections, projections and other probes.

In many sciences the "real" world is three-dimensional. Medical researchers cut thin plane sections of biological material. Mineralogists look at polished plane surfaces of rock. Many scientists do not realise that plane sectioning causes experimental bias. For example, larger objects are more likely to be represented on a random plane section. Therefore, this is an area where statisticians can make a large and useful contribution.

FASTS News

FASTS Responds to the Green Paper & Australian Research Council Proposals

In March *FASTS* released "The Response of the Federation of Australian Scientific and Technological Societies to the Government's proposals for Tertiary Education, Training and Research".

The points listed in the Executive Summary are:

* The Government's Information Industry Strategy be publicized widely and similar plans be established for other industries and also widely publicized.
* There be an overhaul of rewards for honours and higher degrees and improved conditions of

employment to attract and retain people in the education sector in mathematics, science and technology.

* The overall requirements of the higher education institutions for equipment and resources be surveyed by the Government and mechanisms found to meet those requirements.
* Research opportunities be protected with adequate allocations of both time and material resources.
* The Prime Minister convene a Standing Committee of Ministers whose portfolios have a strong research component to determine an overall industrial strategy and identify the related research and education needs for Australia.
* A levy of 1% of turnover be placed on non-farm business enterprises to assist in funding tertiary education and research with the business community having a substantial say in how that levy is spent.
* Return of Government funding levels in terms of the proportion of GDP going to higher education of at least 1978 levels.

The full response can be obtained from *FASTS* for $2 for copying, handling and postage. There will be a major distribution of the Executive Summary to Members of Parliament and senior Departmental Officers.

The views of *FASTS* on the ARC had already been made known to the Caucus Committee on Employment, Education and Training when one of *FASTS* Vice-Presidents Dr Laurie Hammond and Executive Director Dr David Widdup met with the Committee in late February.

The Problems of Publicity

The last thing *FASTS* wants is a headline "Education failing us - scientists". It is grossly inaccurate as the response from *FASTS* indicated clearly that it was governments that were failing education.

The issue of schools not changing with mathematics had been raised in the context of an extensive reduction of in-service courses and a dearth of mathematics education diplomas for retraining. Whilst *FASTS* is building up good contacts with responsible journalists, we have yet to crack the sub-editor problem.

National Science & Technology Analysis Group

This is the name given to the co-operative of the Australian Academy of Science, Australian Academy of Technological Sciences and Engineering, and *FASTS*. It produces a report and holds a Forum each year. This year's forum will be on 3-4 November at the Academy "dome" in Canberra and registration will be $280.

SCIENCE SHOPS

The Science Shop is essentially an agency for socially relevant research. It brings together those community groups which would not normally receive direct benefit from research with researchers who are willing to orient some of their efforts to the community.

The groups which receive assistance from Science Shops generally meet three criteria:

1. They are unable to pay for the research;
2. Their aims are not primarily commercial; and
3. They, and/or other groups in the community, are able to benefit from the research they are requesting.

Science Shops are an established feature of Universities in the Netherlands and some other European countries. They try to make the fruits of science and other specialist knowledge more widely available to the community at large. Their functioning as been described in various articles including a report in *Nature* (T. Ades, 1979 "Holland's Science Shops for 'made-to-measure' research" *Nature* **281** 519-520.

The principal clients tend to be environmental, health and trade union groups, but work has also been done for women's groups, migrants and prisoners. The consultants are drawn from fields such as chemistry, biology, sociology, economics, law, physics, epidemiology and community health.

The Science Shop will be the agency to match the community groups seeking assistance with researchers and professionals who are prepared to spend some of their time working in the public interest, without payment from community groups. If necessary the Science Shop will help the community group formulate its problem to highlight the research which needs to be carried out and it will also help the community group interpret the specialist findings. The Science Shop will compile two kinds of registers: one of the community groups and the problems they wish to solve; the other of researchers and professionals and the type of assistance they are prepared to direct to serve community interests. The significance of a Science Shop is enormous both in the practical assistance which can be given to community groups and also for science itself. Greater access to science will increase awareness of its potential uses and benefits.

WISENET (the Women in Science Enquiry Network Inc.) is developing a Science Shop in the ACT. We have received a grant from the Consumers' Health Forum to establish a directory of public health researchers, which is a first step towards setting up a national register of Science Shop resource people covering a wide range of disciplines. The Science Shop will act in conjunction with existing bodies which are already liaising with the community and will make appropriate referrals.

The Science Faculty at the ANU, along with the CSIRO and the Commission for the Future strongly support the project. We hope that you will too. For further information please contact WISENET, PO Box 452, Canberra, ACT 2601 or the Science Shop (Mondays & Fridays) on (062) 49 6006.

BOND UNIVERSITY - M.A.S.S. CENTRE

Bond University announced this week the first set of appointments to its Centre for Management Analysis and Statistical Systems (the MASS Centre). The MASS Centre will serve as a focus for quantitative research and consultancy for the University's School of Information and Computing Sciences and the School of Business and Law when Bond University opens its doors in May 1989.

Professor William Dunsmuir, currently at the Australian Graduate School of Management, has been appointed Director of the Centre. Dr David Scott, Head of the Statistics Department at La Trobe University, has been named as Deputy Director. Associate Professors Ian Saunders and John Eccleston have also been appointed to the School of Information and Computing Sciences and will serve as Affiliates to the Centre. Ms Suzanne Miles has already joined the Centre as Senior Research Fellow.

The appointments give the Centre "arguably the strongest group in Australia in this field," according to Professor Richard Tweedie, Dean of the School of Information and Computing Sciences, who conceived the Centre to help bridge an information gap he feels in growing wider in Australia. "My experience is that Industry, Business and Government need access to quantitative management skills now more than ever before," Professor Tweedie said. "The Centre will form a focus through which Bond University can provide 21st Century management tools to the full spectrum of Australian managers." The MASS Centre embodies the Bond University philosophy of ensuring that the school's academic staff are outward looking, and that the community benefits from the University's multidisciplinary expertise.

The Centre's first set of appointees bring with them impressive credentials and broad experience from such prestigious institutions as the Australian Graduate School of Management, the CSIRO, and top universities in Sydney and Melbourne. One talent shared by all of them is the teaching and implementation of Total Quality Management. Between them they have advised Ford, Kodak, IBM, Telecom and many other in this area, which Professor Tweedie feels will be an area in which the Centre will be particularly valuable. "Senator Button, the Minister for Industry, Technology and Commerce, has called for education in Quality Management as an urgent national priority, and we expect to be in the forefront in providing both education and implementation in this field," said Professor Tweedie. "This outstanding team will also generate world-class teaching, consulting and research at Bond University."

Professor Dunsmuir will take over as Director of the Centre in September. His background includes teaching and research positions at the Massachusetts Institute of Technology and the Australian National University, and over 40 management and scientific consulting projects with SIROMATH Pty Ltd.

Dr Scott leaves his current position as Head of Statistics at La Trobe University to become the Centre's Deputy Director, where he will also have the responsibility for coordinating the setting up of the undergraduate computing laboratories within the School of Information and Computing Sciences.

Dr Saunders joins the University in June. He is currently Senior Regional Officer of the CSIRO Division of Mathematics and Statistics in Melbourne. He has taught in Australia and the United States, and has a strong interest in mining, biotechnology and computing software. More recently he has been providing high level management consulting on Total Quality Control to a number of Australian organisations.

Dr Eccleston, former Senior Lecturer at the University of New South Wales, has wide experience in conducting diploma and Master's degree courses with a substantial Asian student content. His research and consulting have been in clinical trials and quality improvement methods, and as a major consultant to the electricity industry.

Ms Miles holds a master's degree from Iowa State University and brings with her several years' experience in computer management, modelling and, more particularly, market research and analysis.

MISCELLANEA

Australia-UK Exchange Programme

The Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering operate an exchange programme with the Royal Society. Scientists and technologists who are Australian residents and who are of at least post-doctoral or comparable status may apply now to participate in the 1989 programme.

Applicants should propose a collaborative research project, or a specific activity, which has been developed

in consultation with an appropriate host scientist in the United Kingdom. Proposals will be assessed on their scientific and/or technological merit. The expected outcome of the research project should be of value to Australian science or technology. Further information and application forms are available from:

International Exchanges Officer
Australian Academy of Science
GPO Box 783
Canberra, ACT 2601.
Telephone enquiries: (062) 473966, Mrs Bonnie Bauld.

Deadline for applications: 1 July 1988.

Australia-China Exchange Programme

The Australian Academy of Science supports scientific exchanges with the People's Republic of China through an exchange programme with Academia Sinica. Scientists resident in Australia are invited to apply to participate in the programme during the 1989/90 financial year. Proposals in any field of natural science will be considered. Support will not be given when the primary purpose of the visit is to attend a conference.

Proposals must focus on visits to Academia Sinica institutes. A list of institutes is available from the Academy. Visits to non-Academia Sinica institutes are subject to approval by Academia Sinica.

Applicants should propose a scientific programme or project, which has been developed in consultation with scientists in the institutes they wish to visit. The proposal should describe the nature of activities to be carried out and the objectives of the visit. Further information and application forms are available from:

International Exchanges Officer
Australian Academy of Science
GPO Box 783
Canberra, ACT 2601.
Telephone enquiries: (062) 473966, Mrs Bonnie Bauld.

Deadline for applications: 1 December 1988.

Australia-Japan Exchange Programme

The Australian Academy of Science invites applications from scientists resident in Australia who wish to participate in an exchange programme with the Japan Society for the Promotion of Science during the 1989/90 financial year. Proposals in any field of natural science will be considered. Support will not be given when the primary purpose of the visit is to attend a conference.

Short-term Visits. Senior scientists may apply for short-term (3-6 weeks) lecture tours and/or fact finding visits. A specific itinerary should be developed in consultation with the institutions to be visited.

Post-Doctoral Fellowships. Long-term (6-12 months) visits to carry out collaborative research projects are also funded. Applicants must have submitted their Ph.D. theses or have their degrees. Preference will be given to scientists who have less than five years of post-doctoral experience. Further information and application forms are available from:

International Exchanges Officer
Australian Academy of Science
GPO Box 783
Canberra, ACT 2601.
Telephone enquiries: (062) 473966, Mrs Bonnie Bauld.

Deadline for applications: 1 October 1988.

The Harkness Fellowships - 1989

The Fellowship programme was established in 1925 by an American philanthropic foundation, The Commonwealth Fund of New York. **Four Fellowships,** tenable for between 12 and 21 months are offered. The award includes return fares to the United States, living and family allowances, travel in America, tuition and research expenses, a book and equipment allowance and health insurance.

Candidacy is open to men and women in any profession or field of study who are over the age of 21 years. Strong preference will be given to applicants who will be under 36 years of age on 1 September 1989. Candidates must by that date have a degree, or an equivalent qualification conferred by a professional body, or an outstanding record of achievement in the creative arts, journalism or other career. In addition, candidates for an M.B.A. must have had substantial full-time post-graduate administrative experience.

Candidates must be citizens of Australia or have taken positive steps to achieve citizenship. They must not, between their 19th birthday and 1 September 1989, have spent more than six months in the United States.

Selection of Fellows for nomination to The Commonwealth Fund, which is made by the Australian Selection Committee, is based on personal qualities as well as on a proven level of academic or professional excellence and only those with outstanding records and potential to make a significant contribution to Australia will have a chance of success.

The closing date for applications is 31 August 1988, or in the case of public service candidates, such earlier time as may be notified in the relevant Gazette by the candidate's Public Service Board. Applications forms will not be made available after 15 August 1988.

Application Forms may be obtained by individual candidates on request to the Honorary Australian Representative: Mr J.T. Larkin, Bureau of Agricultural & Resource Economics, GPO Box 1563, Canberra, ACT 2601.

NEWS ABOUT MEMBERS

US science honour for retired professor

Emeritus Professor H.O. Lancaster, who retired from the Chair of Mathematical Statistics in 1978, has been elected a Fellow of the American Association for the Advancement of Science.

The citation for his nomination read: 'For research in medical statistics and mathematical statistics, particularly the development and synthesis of theory for the chi-squared distribution, and for major contributions to international bibliography in statistics.'

Professor Lancaster is currently working on a history of medical statistics with ARGS funding.

Dr Peter Diggle will leave CSIRO DMS on 30 June to take up an appointment as Professor in the Department of Mathematics at the University of Lancaster, U.K. Peter has for the past 12 months been the Chief of CSIRO's Division of Mathematics and Statistics.

CONFERENCES

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, Department of Mathematics and Statistics, University of Otago, PO Box 56, Dunedin, New Zealand.

Combinatorial Mathematics

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.
Department 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.

Australian Population Association National Conference

The Fourth National Conference of the Australian Population Association will be held in Brisbane at the University of Queensland from 31 August to 2 September 1988.

Plenary Session topics will include:

* Implications for Australia of Demographic Change in a Technologically Changing Society
* Census 1986 - Major Findings
* Historical Population Trends in Australia
* Applications of Demography in Business

A large number of concurrent sessions are planned on a wide range of topics. In addition, there will be displays of the latest computer software developed to analyse Census and other population data. The conference will be of interest to demographers, other social scientists with an interest in population matters, Government analysts and policy advisers in human services fields, urban planners and market and business researchers.

The registration fee (excluding the Conference Dinner) will be approximately $100 for APA members and $135 for non-members. A brochure is available on request by phoning (07) 222 6845 or (07) 224 4713 or writing to The Secretary, Fourth National Population Conference, GPO Box 9817, Brisbane Qld. 4001.

STATCOMP 89 - July 1989

The Statistical Computing and Survey Management Sections of the SSA will be holding STATCOMP 89 in Adelaide 6-7 July 1989. Possible themes for the conference include:

* Expert systems (including applications and surveys)
* Methodology for simulation studies.

It is anticipated that there will be two overseas and two Australian invited speakers. Suggestions of other topics/speakers welcome. Further information will be published in future issues of the *Newsletter.*

For further information contact Chris Brien, School of Mathematics and Computer Studies, South Australian Institute of Technology, PO Box 1, Ingle Farm, SA 5098.

Taking risks?

Professor N.C. Lind, director of the Institute for Risk Research and Professor of Civil Engineering, University of Waterloo, Canada, will be visiting the University of New South Wales from 23 June to 20 August 1988. He will be involved in research on probabilistic modelling in Civil Engineering with Professor A.M. Hasofer (School of Mathematics, University of New South Wales) and Professor R.E. Melchers (Department of Civil Engineering and Surveying, University of Newcastle). He will conduct a workshop on Principles of Risk Analysis on 18-19 August at the University of New South Wales (see advertisement in this issue).

Professor Lind has wide research interests as well as consulting experience in all areas of Risk Analysis.

Anyone interested in talking to him during his visit should contact Professor A.M. Hasofer on (02) 697 2968.

SUGA '88

The SAS Users Group of Australia (SUGA) will hold its fourth annual conference 12-14 October 1988 at the Sydney Convention and Exhibition Centre in Darling Harbour, and is open to all current and prospective SAS software users. This conference provides you with the opportunity to discuss software applications, learn new techniques, and share information and ideas with other users. Also, new products and developments will be announced and demonstrated.

For more information on SUGA '88, contact the SUGA '88 Coordinator at SAS Software on (02) 908-2244.

VISITORS

The details. in this section are laid out in the order: visitor's name; visitor's home institution; whether accompanied or not; areas of interest; date of visit; host institution; principal contact.

Dr W. Schucany; Southern Methodist University, Dallas; ; September 1987 - June 1988; ; ANU; Professor C.C. Heyde.

Dr Paul Feigin; Technion, Israel; ; August 1987 - August 1988; stochastic processes, industrial statistics; CSIRO DMS; Ms A. Johnstone.

Professor David Matthews; University of Waterloo; wife and child; 10 January - 31 July 1988; University of Newcastle; Associate Professor R. Gibberd.

OVERSEAS CONFERENCES

Annual Meeting, Statistical Society of Canada, 5-8 June, 1988, Victoria, British Columbia.
Information: A.J. Petkau, Dept. of Stat., Univ. of British Columbia, Vancouver, B.C., Canada V6T 1Ya; or R.R. Davidson, Dept. of Math., Univ. of Victoria, Victoria, B.C., Canada V8W 2Y2.

Twelfth Nordic Conference on Mathematical Statistics, 6-10 June 1988, Turku, Finland.
Information: L. Nordberg, ABO Akademi, SF-20500 Turku, Finland.

8th International Symposium on Forecasting, 12-15 June 1988, Amsterdam, Netherlands.
Information: Jan G. de Gooijer, General Chairperson, Faculty of Econ., Univ. of Amsterdam, Jodengreestraat 23, 1011 NH Amsterdam, Netherlands.

International Conference on Biomathematics, 25-30 June 1988, Xi'an, China.
Information: Professor Lansun Chen, Mathematical Institute, Chinese Academy of Sciences, Beijing, The People's Republic of China.

International Biometric Conference, 18-23 July 1988, Namur, Belgium.
Information: E. Feytmans, International Biometric Conference, Centre de Rencontres, Rue de Bruxelles, 53, B-5000 Namur, Belgium.

First International Conference/Workshop on Optimal Design and Analysis of Experiments, 25-28 July 1988, Neuchatel, Switzerland.
Information: Prof. Yadolah Dodge, Univ. of Neuchatel, Groupe d'Informatique et de Statistique, Pierre-a-Mazel 7, CH-2000, Neuchatel, Switzerland.

Third International Congress on Computational and Applied Mathematics, 25-30 July 1988, University of Leuven, Belgium.
Information: F. Broeckx, R.U.C.A., Middelheimlaan 1, B-2020 Antwerpen, Belgium.

38th Gordon Research Conference on Statistics in Chemistry and Chemical Engineering, 1-5 August 1988, New Hampton, NH, USA.
Information: Gerald J. Hahn, GE-CRD, PO Box 8, Schenectady, NY 12301, USA.

Institute of Mathematical Statistics Annual Meeting, 14-18 August 1988, Fort Collins, Colorado, USA.
Information: Lynne Billard, Program Secretary, Dept. of Stat. and Computer Science, Univ. of Georgia, Athens, GA 30602, USA.

IMS Symposium on Probability and its Applications, 16-19 August 1988, Fort Collins, Colorado, USA.
Information: R.L. Taylor, Program Chairman, Dept. of Statistics, Univ. of Georgia, Athens, GA 30602, USA.

1988 Joint Statistical Meetings, 22-25 August 1988, New Orleans, Louisiana, USA. Co-sponsored by American Statistical Association, Biometric Society (ENAR, WNAR).
Information: ASA, 1429 Duke Street, Alexandria, Virginia 22314-3402, USA.

5th International Conference on the New Quality Philosophy in Statistical Research and Statistical Education, 22-25 August 1988, New Orleans, LA, USA.

COMPSTAT '88 8th Symposium on Computational Statistics, 29 August - 2 September 1988, Copenhagen, Denmark.
Information: Niels E. Raun, Secretary, UNI-C, Vermundsgade 5, DK 2100 Copenhagen, Denmark. Computermail: COMPSTAT@DKCCRE01.BITNET.

International Conference on Mathematical Statistics, 29 August - 2 September 1988, Olsztyn, Poland.
Information: J. Koronacki, Institute of Mathematics, Polish Academy of Science, PO Box 137, PL00-950 Warsaw, Poland.

9th Scientific Meeting of the International Society for Clinical Biostatistics, ICSB-9, 30 August - 2 September 1988, Innsbruck, Austria.
Information: Honorary Secretary Dr J. Seldrup, Ciba-Geigy Pharmaceuticals, Wimblehurst Road, Horsham, West Sussex, RH124AB, UK.

4th International Conference on Pharmacoepidemiology, 7-9 September 1988, Minneapolis, MN, USA.
Information: Stanley E. Edlavitch or Carrie S. Kurtz, Div. of Epidemiology, 1-167 Moos Tower, Unit A, or 611 Beacon St., S.E. Minneapolis, MN 55455, USA.

Sixth International Summer School on Probability Theory and Mathematical Statistics, 28 September - 9 October 1988, Varna, Golden Sands, Bulgaria.
Information: Department of Probability and Statistics, PO Box 373, 1090 Sofia, Bulgaria.

32nd Annual Fall Technical Conference, "Statistics and Quality: It's Just the Beginning", October 1988, East Rutherford, NJ, USA.
Information: Prof. John Lawson, Dept. of Statistics, Brigham Young Univ*, Provo, UT, 84602 USA.

Eighth Annual Conference - Towards a World Decade for Scientific and Technological Co-operation for International Development, 20-25 November 1988, Jamaica, West Indies.
Information: Mekki Mtewa, Exec. Director, Association for the Advancement of Policy, Research and Development in the Third World, PO Box 70257, Washington, DC 20024-1534, 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.

1989 Joint Statistical Meetings, 6-10 August 1989, Washington DC, USA.
Information: ASA, 1429 Duke St., Alexandria, VA 22314-3402, USA.

42nd Session of the International Statistical Institute, 29 August - 6 September 1989, Paris France.
Information: International Statistical Institute, 428 Prinses Beatrixlaan, Voorburg, Netherlands.

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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.