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WHAT IS THE FUTURE FOR STATISTICIANS?

Dennis Trewin

(Summary of Presidential Address at the National Mathematical Sciences Congress, May 1988)

Introduction

The future for statisticians is GOOD if we work at it and are not too complacent. We are living in an age of a rapidly growing information industry and statistics should play an important part in that industry. However, we must market our wares and prove to potential users of our services that the employment of statistical skills is a worthwhile investment.

I find it is interesting to look at the growth rate of numbers of statisticians between the last two censuses compared with some other occupations in the information industry. Unfortunately, statisticians are lumped together with mathematicians and actuaries so analysis is a little difficult. But, statisticians are the most numerous of these 3 occupation groups and I believe their numbers have increased the fastest. So the following table slightly understates the true growth rate.

Occupation	1981 Census	1986 Census	Growth Rate
Computer profess'ls	19,200	40,000	108%
Accountants	40,100	64,900	62%
STATISTICIANS,	1,300	2,000	55%
Math't'ns & Act'ries			
Librarians	10,000	9,100	- 9%

Clearly the growth rate has been good—much better than I expected—but the absolute number of statisticians is small, probably about 1300 (which is higher than the SSA membership!) Is it smaller than for other developed countries? I believe the number per head of population is smaller than in many other developed countries. The only comparison I was able to get was through the 1980 Census in United States and 1981 Censuses in Canada and Australia.

	Nos.	Per Capita ($\times 10^{-5}$)
USA	20,000	9
Canada	2,400	9
Australia	800	6

Although the number of statisticians in Australia has grown since that time, the same is true in the United States and Canada and we are unlikely to have "caught up".

It is also interesting to note the major employers of statisticians and mathematicians and the growth rate of their numbers between the 1981 and 1986 Census. I was surprised that the Commonwealth government was by far the biggest employer as well as having the strongest growth rate. There is also a strong growth in statistical consultants. We should ask ourselves whether our statistical and other academic training is appropriate for professional statistical staff working in government or as consultants or could it be improved. The answer to the latter must be yes. More courses should be made

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available which provide the skills required by these employers including communication skills.

Employer group	Nos.	Growth Rate
Commonwealth Gov't	400	110%
Tertiary education	150	70%
Research & scientific institutions	140	45%
State Gov't	120	25%
Manufacturing	110	15%
Consultancies	100	55%

Comparisons with the United States show that we have relatively few statisticians in industry (including consultancy and business services). 60% of US statisticians are employed in industry (40% in Australia). The proportions in government are similar (35% in United States, 40% Australia) but Australia has considerably more statisticians in tertiary, research and scientific institutions (5% United States, 20% Australia). I think there is a message here. We should be working towards increasing the number of industry statisticians in Australia.

Some Thoughts from Kendall

In doing some research for this talk, I came across an article by Sir Maurice Kendall (1) written 20 years ago. He was making his projections for the future of statisticians. Interestingly, the article reviewed similar predictions he had made 20 years earlier. Things had not changed as fast as he predicted. I think the same is true of the most recent 20 year period.

I have attempted to summarise his situation analysis of 20 years ago. Much of this is still true, although I believe much positive progress has been made.

- "The natural and perfectly legitimate desire of the pure mathematician to generalise and to abstract is in some danger of turning our subject into statistical mathematics ..."
- "There has always been a tendency for so-called applied mathematics, at least as taught in universities, to degenerate to pure mathematics conducted in a specialised language." "It would be a great pity if theoretical statistics went the same way."
- "But, most of it, I fear, is due to human frailty; the compulsion towards mystique, the pretentiousness to which some people are inclined, and others are driven, in the struggle for scientific recognition, the natural desire to dress up a piece of scientific scavenging to look like a major advance in theory, and a general indifference to being understood except by a small elite."
- "What is worse is the gulf which is developing between theoretical statistics and what used to be called descriptive statistics."
- "On all sides nowadays we find statisticians ... bewailing the difficulties of keeping abreast of their subjects."

- "We have allowed a situation to arise in which a man's reputation depends to a large extent on the volume of his publications, and hence there are strong incentives ... to get as much in print as possible."

Kendall went on to predict future developments as he saw them. His forecasts on the whole were quite good although change has not been as rapid as he would have hoped or thought. A brief summary is outlined below with the statements in brackets being my assessment of what has actually happened.

- Computers will solve many problems in distributional theory by use of simulation. (Clearly correct.)
- Difficulties in drawing random samples will be solved although the amount of machine time required will be substantial. (The problems were solved—with hindsight, it is surprising this was thought to be a problem—but the amount of machine time is not an issue.)
- Computers will rapidly increase the amount of descriptive information, particularly official statistics, that will be available. (Clearly correct, we live in the information age.)
- Increased emphasis on numeracy. Statistics will become a compulsory subject in many other disciplines. (Most sciences have some basic statistics as a compulsory subject.)
- More training in real-life situations as well as theory. (Probably has not happened to the extent expected by Kendall. Most graduates have little practical or consulting experience.)
- Increased training of statisticians by special institutions and large businesses. (Not true.)
- There may be a similar trend in research. (Generally only true for government sponsored research institutes.)
- Growth areas of statistics
 1. Bridging the gap between theory and practice in multivariate analysis
 - multiple contingency tables
 - eliminating redundant variables
 - multivariate distributions
 - simulation of multivariate systems using models.

(This has been a growth area particularly in the use of log-linear models to analyse multiple contingency tables.)
 2. Model building with more emphasis on causal relationships. (This has also been an important growth area. Econometrics has developed into a discipline of its own.)
- Use of television, and modern visual and auditory equipment for "reproducing" training. (Statisticians have been relatively backwards in the application of such teaching aids.)

- Statisticians will often be included on Boards of Directors. (This has not happened in most countries although statisticians have a significant influence in Japanese industry.)
- Research will become more expensive because of the costs of collecting data and analysing by computer. (This is not true.)

Kendall is one of the world's greatest and most knowledgeable statisticians. Yet his forecasting record was mixed. Often when he was not completely accurate, it was because statisticians have not taken the opportunities that were open to them. Nevertheless, it is with some trepidation that I make my predictions of the future for statisticians.

What Can Statisticians Do to Improve Their Image?

Statistics is not regarded as an exciting occupation. There is also evidence that statisticians are not regarded highly by some of those who could benefit from our services.

- The Occupational Outlook published by the Department of Employment, Education and Training regards the current annual supply of statisticians as adequate. I have written to the Department advising them that is a simplification.
- We are all aware of the difficulties experienced by the CSIRO Division of Mathematics and Statistics over the last 1-2 years.
- Statistics departments in universities are having difficulties justifying increased funding particularly in light of the increased need for computer equipment.
- Student numbers are not growing.

There are many things we can do to improve our image but we must be more aggressive and entrepreneurial. We can't wait for the rest of the world to recognise the great contribution that statisticians can make. I have made a few suggestions below.

- The government is trying to make significant changes to the administration of education and training. We should not be using our energy to defend the status quo. We should be looking for and exploiting opportunities that arise as government policies change.
- We must learn to communicate better. This includes oral discussions and presentations. It also includes written reports. We must explain technical issues in understandable terms and not talk in a language that is only understood by statisticians. Graphics is one means of presenting a lot of information in a small space that is easily digestible. A knowledge of good graphics should be a pre-requisite of all statisticians. We must present as much data as possible in graphical form.
- We need to help users more to analyse and interpret data; explain what it means and develop models where appropriate. We should be more involved in translating statistical analysis into actions. It is

part of the ABS's corporate strategy to increase the analysis of its data as part of the process of ensuring that its data is better utilised.

- We should be trying to develop closer relations with industry. The number of industry statisticians in Australia is low compared with North America and Japan. The SSA has made a start by establishing an Industry Statistics Section. We should develop a conference program that is relevant to the needs of industry. This may be a means of encouraging employers to hire more statisticians. CSIRO DMS's new charter involves a closer relationship with industry.
- Statisticians should place an increased emphasis on consulting work. In fact, the revenue from consulting may be necessary for survival or growth of many groups. Also, consulting is necessary if we are to apply our skills to solve important practical problems. It should also provide direction for research. Theoretical developments are more likely to assist in solving practical problems.
- We should make greater efforts to link theory and applied statistics, not only so we can use theoretical developments to solve practical problems but to increase the relevance of theory. The SSA has an important role to play with its program of scientific activities particularly conferences. It is pleasing to note that the Applications Section of the AJS seems to be increasing in popularity. The ABS is trying to develop closer ties with tertiary institutions by commencing a scheme of research fellowships, although it was disappointing to find that in the first year there have been no applications from mathematical statisticians.
- We should increase our public profile by getting more involved in comment on public policy. We should look for opportunities and be proactive in stating our view. Most of all, we should ensure that we are not always anti-government. It is often more common for groups to express criticism of a policy initiative than support.
- We must be active in student and career activities. The careers booklets and brochures have been a good start. We should participate in careers nights. We should maintain an association with teachers' groups and have an influence on schools curricula. This is an activity where there are advantages in working together with other mathematical societies.

What About the Future?

I will hazard a guess at some of the main influences that will affect the work of Australian statisticians in the future. If we can develop methods that are more appropriate to the future, then we are likely to increase our effectiveness.

- The capability of microcomputers will continue to grow and there will be significant developments in new data storage technologies. Large data sets will be able to be processed quickly on microcomputers.

- There will be a large increase in graphical presentation of statistical material.
- Industry sponsored research will become more important and essential to the survival of many university departments.
- The gap between theory and practice will continue to narrow and the amount of applied statistics work in journals and discussed at conferences will increase significantly.
- The number of para-statisticians will increase. This will pose both a threat and a challenge.
- In this information age, there will be an increase in the amount of statistics taught at schools.
- There will be an increase in the use of statistics in policy analysis both within government and busi-

ness. There will be increasing recognition of the importance of statistical skills.

- Teaching methods will become more efficient with increasing use of videotapes, television and computer assisted teaching. There will be a greater sharing of resources between universities.

The above paints a very optimistic picture. I hope it is more than wishful thinking. I do honestly believe that statisticians have a great future but we have to work at it or we could be replaced by parastatisticians aided by computer systems and become the watch repairers of the 1990s.

Reference

1. Kendall, M.G. (1968). On the future of statistics—a second look. *J. Roy. Statist. Soc. Ser. A* 131, 182–204.

CENTRAL COUNCIL AND ASPAI

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

1. The President reported that the initial steps had been taken towards the incorporation of the Society.
2. A favourable response was reported to the funding of selected students to attend the 9th Australian Statistical Conference. A similar scheme has been proposed for the next Conference.
3. Arrangements for the 10th Australian Statistical Conference in Sydney in July, 1990 are well in hand. This is also to be a Pacific Statistical Conference, and arrangements for management of funds are being finalised.
4. A working party was set up to report to the next Central Council meeting on the desirability, practicability and legal aspects of establishing an accreditation procedure for professional statisticians.
5. Dr Sandland will seek information from Branch Secretaries on student quality and number. Dr Sandland is also gathering information on the statistical content of the new Business Information Technology degree courses.
6. It was agreed that an article by Dr G. Berry about his efforts in getting statistical refereeing established for the Medical Journal of Australia be reprinted in the Newsletter. (See elsewhere in this issue.)
7. The President reported that he and the Secretary had met with representatives of the Australian Mathematical Society and the Australian Association of Mathematics Teachers with a view to co-operation in various areas.
8. Dr Dunsmuir reported that at least ten papers would result from the Youth Unemployment Project, and that publication should be possible by November, 1988. The mode of publication, and the nature of the publicity, are to be considered when final drafts of the papers are available.

NEW SOUTH WALES BRANCH

Interval Estimation

The June meeting of the Branch heard Professor David Matthews (University of Waterloo, visiting University of Newcastle) speak on "Lagrange Multipliers, Interval Estimation and the Profile Likelihood". David first presented the notion of the profile likelihood, and its use in obtaining interval estimates. He then provided several biostatistical problems to illustrate the procedure in different contexts.

For the estimation of a single odds ratio, the interval estimate was compared with that based on Woolfe's logit statistic. Data from an Australian case control study involving HIV was used as a numerical example. A second example treated in detail involved estimation of a common odds ratio.

Further examples were estimating the ratio of two binomial proportions, estimating the cumulative incidence

VICTORIA UNIVERSITY OF WELLINGTON NEW ZEALAND

Senior Lectureship in Financial Mathematics

Applications are invited for a senior lectureship in Financial Mathematics in the Department of Mathematics. This position is funded for an initial 5-year period, with possibility of renewal, through the New Zealand Society of Actuaries. The successful applicant will be expected to play a leading role in the development of a new graduate Diploma in Financial Mathematics, centred round material in the first part of the actuarial professional qualifications. It is the intention that this programme, developed in collaboration with the Money and Finance group of the Faculty of Commerce and Administration, will generate further cross-Faculty developments in this area.

Preference will be given to applicants with an established record of teaching and research in financial mathematics. However, applicants with an established record of teaching and research in Statistics and/or Operations Research and a demonstrated interest in some aspects of financial mathematics such as stochastic risk theory, financial statistics, or applications of OR techniques in financial contexts, are also encouraged to apply. The successful applicant will be expected to play a full part in the Department's teaching, research and consulting activities in the general area of Statistics and Operations Research.

Enquiries concerning academic aspects of this position may be made to Professor V.A. Vignaux or Professor D. Vere-Jones, Department of Mathematics.

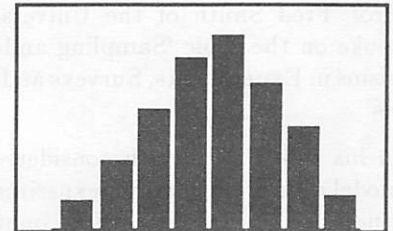
Commencing salary will be within the (interim) range \$NZ44,600– \$NZ56,600 per annum with a possible starting date of February 1, 1989. The closing date for applications is *30 September 1988*.

For conditions of appointment and method of application, prospective applicants should write to the Administrative Assistant (Appointments), Victoria University, PO Box 600, Wellington, New Zealand.

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function in the presence of competing risks, and a modified Kaplan-Meier estimate in survival analysis. David concluded by discussing advantages of the likelihood-based interval estimates.

Statistics and the Law

At the July meeting of the Branch, Professor David Newell (Managing Director of SIROMATH) gave an entertaining and thought-provoking talk on "Statistics and the Law". David recounted his experiences as an expert witness at the longest case in Scottish legal history.

The case itself concerned fluoridation of water supplies. The data related to cancer rates for fluoridated cities and unfluoridated cities over thirty years.

In his twelve days in the witness box, explanations were required for many statistical terms and techniques. Among the statistical ideas covered were one- versus two-sided tests; significance tests; *t*-tests; regression to the mean; corrections for age/sex/race; combining heterogeneous data sets; combining significance probabilities.

VICTORIAN BRANCH

April 26th Meeting

Geoff Alford spoke on the topic 'Exploratory Data Analysis in Market and Social Research'. Geoff presented several interesting examples of survey data from which useful information could be obtained using simple methods. These included a two-way model for rating data (such as for a product) where median-polish is used to obtain residuals that indicate any real differences; a modified type of factor analysis of satisfaction data (such as for one's employer) where hierarchical factors are obtained by sorting the correlations of the items with the response, and the use of box plots to indicate whether a difference is strategically useful.

May 24th Meeting

Prof. Fred Smith of the University of Southampton spoke on the topic 'Sampling and Assignment Mechanisms in Experiments, Surveys and Observational Studies'.

In his talk Prof. Smith considered how in general to model data from surveys, experiments or observational studies so as to take into account both the sampling scheme and the assignment of treatments (if any). In his general scheme the importance of randomisation emerges as being essential for control over the sampling method and the assignment of treatments. For observational studies, the possibility of drawing causal conclusions depends on whether or not there is a possible assignment in nature that could change the sign of the observed treatment effects. As this is not likely in general, relative causality may be the strongest possible conclusion from such studies.

June 28th Meeting — The Australian Longitudinal Survey

Firstly, Mary Baxter (RMIT) spoke about her paper, 'Modelling Time for Young Unemployed to Get a Job'. Using data obtained from a survey of 15 to 24 year olds that commenced in 1984, a proportional hazards model was fitted to a variable 'time to get a job' for individuals who had been registered as unemployed for at least twelve weeks. Using GLIM, various combinations of the concomitant variables 'week first out of work', 'age in 1983', 'years schooling', 'level of English spoken', 'sex', and 'marital status' were considered. The variables with most effect were found to be 'years schooling', 'week first out of work' and 'sex'.

Garth Bode (ABS, Canberra) followed up with a description of some work done by the ABS on youth unemployment data from the ABS Income and Housing Conditions Survey of 1986, using a technique known as Automatic Interaction Detection (AID). This is an exploratory multivariate data analysis technique that successively splits the data on significant variables leading to a tree of subgroups. Using the employment status of youth as the dependent variable Garth showed how the AID algorithm split the data first on 'living at home', then highest qualification of youth, and so on with later variables being 'occupation of parent', 'country of birth' and 'parent in labour force'. Interactions show up when two branches from the same point split into quite different proportions at the next stage. The results of this analysis can be used to formulate explicit models, but such follow-up work has yet to be done.

SOUTH AUSTRALIAN BRANCH

Off-Line Quality Control and the Taguchi Method

The June meeting of the Branch was addressed by John Eccleston of the Department of Statistics, School of Mathematics, The University of New South Wales. John spoke on Off-Line Quality Control and the Taguchi Method.

Until recently the work of Venichi Taguchi and his co-workers was not well-known or understood outside of Japan. However in 1984 a conference on Taguchi's methods was sponsored by A.T. and A. Bell Laboratories at Mohonk, New York. Some of the aims of this conference were to discover what was new, what was familiar, but in a new guise, what was questionable

and so on about Taguchi's methods; the debate continues at this time. Some undeniable consequences of the Taguchi method are that it has stimulated a great interest in the application of experimental design to industrial product design and because of its success and promotion there has been a more favourable attitude on the part of management to statistical procedures in general, at least in Japan.

Off-line quality control methods are performed at the product design stage with the aims 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* and *tolerance design*.

- (i) System design is the process of applying pertinent technology to produce a basic functional prototype design.
- (ii) Parameter design is a study conducted to determine the optimal parameter settings. This is a means of reducing costs and improving quality.
- (iii) Tolerance design is a method by which the tolerances of the process and sources of variation are

set. This is a means of suppressing quality variation by removing its causes.

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 in finding the optimum combination of parameter levels. Experimental designs are used in tolerance design also.

In his paper John provided an outline of Taguchi's 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.

About twenty members attended the meeting, and, as "conventional statisticians" found the talk very challenging. A lively discussion followed the address, which continued afterwards over dinner at a restaurant.

The Branch meets again on Tuesday 26 July and will be addressed by Suzanne Evans of the Teletraffic Research Centre at Adelaide University on some consultancy problems she has encountered in her work as a consultant statistician.

WESTERN AUSTRALIAN BRANCH

Statistics in the South Pacific

On Tuesday, June 21st, Dr Peter Wild, of the South Pacific Commission, Noumea, spoke about his experiences as a statistician with the Commission. He presented an overview of the statistical work in the countries served by the Commission, and spoke about issues which face the individual Island National Statistical Offices in the development of statistical systems.

Estimation of the Variance of a Test Statistic

On Tuesday, July 12th, Dr Ray Watson from the University of Melbourne spoke about the estimation of the variance of test statistics. He discussed whether or not the variance should be estimated under the null or alternative hypothesis, and presented examples which supported both cases, showing how some of the more commonly held views were fallacious. He also extended his arguments to the estimation of intervals, and concluded by presenting results from a simulation study which suggest how some of the standard test and estimation procedures might be modified to accommodate

the alternative estimation methods.

Industrial Statistics and the Quality Revolution

On Tuesday, August 2nd, Professor Paul Feigin, from Technion — Israel Institute of Technology, gave an overview of the technical and philosophical aspects of quality assurance and quality improvement. In his talk, he touched on a wide range of issues, including:

- the role of the statistician in industry generally, and in quality assurance in particular,
- the development of the field of quality assurance, and of relevant statistical methods,
- the differences between industrial and scientific experiments.

Professor Feigin also presented an example to illustrate the Taguchi method for designing and analysing industrial experiments, pointing out some of the sources of current debate. He concluded by discussing his involvement with industrial statistics, and giving his interpretation of how this field related to academic statisticians.

CANBERRA BRANCH

Mathematics Competitions

At the June meeting Dr Peter O'Halloran of the Canberra College of Advanced Education described the outstanding success of the Australian Mathematics Competition in presenting mathematics in Australian

schools. He described the spectacular growth in the number of participants and the logistics of developing the questions used and conduction such a large scale undertaking annually. Dr O'Halloran provided some statistics from the competition which he felt could be usefully analysed.

Statistics and Education on the Gold Coast

At the July meeting, Professor Richard Tweedie of Bond University discussed both the ways in which statistics have been used to decide on where and how to

set up Bond University and the ways in which statistics will be taught at the Bond University. In particular, the teaching of official and market research statistics, the use of adjunct staff and the integration of industry and university were discussed.

QUEENSLAND BRANCH

Down to Earth Data Analysis

On Monday 30 May, the Queensland Branches of the Statistical Society of Australia and the Australian Institute of Agricultural Science ran a joint symposium entitled "Down to Earth Data Analysis". This proved to be very successful with about 130 registrants. Rather than give an abstract of each individual contribution, the speakers and their topics will be listed. It is anticipated that a short summary of each talk will become available, so if anyone is interested in obtaining this information please write to the Secretary.

Professor David Griffiths:

Graphical Analysis and Data — An Overview.

Dr Kaye Basford:

Statistical Consulting — Difficult Clients or Difficult Problems?

Professor Richard Tweedie:

Modelling and Estimating Growth Parameters

Dr Peter Diggle:

An Approach to Analysing Repeated Measurements

Dr Steve Harrison:

Agricultural Econometrics and Operations Research

Mr Ian DeLacy:

Analysing Multi-Site Data.

The last item on the agenda was a Panel session entitled "A Practical Dilemma" in which two rather difficult problems were presented. These were discussed by the panel and then thrown open to audience participation. Professor Richard Tweedie moderated this session with panel members Dr David Chant, Ms Janet Bodero and Dr Geoff Gordon.

The Queensland Branch feels very strongly that such ventures with other professional societies are very important and will greatly enhance the statistician's role in scientific research.

STATISTICAL REVIEW FOR THE MEDICAL JOURNAL OF AUSTRALIA

Action on Statistical Review

At the Policy Forum held at the National Mathematical Sciences Congress last May, the ACT Branch of the Society raised the issue of the SSA taking a higher profile in encouraging non-statistical journals to seek statistical referees for papers, especially those with significant statistical content. This was taken up again at the Central Council meeting later the same day. In the ensuing discussion it was pointed out that the Biometrics Society had already taken the initiative here. In particular, Geoffrey Berry had set up a scheme with the Medical Journal of Australia to ensure that papers submitted to the MJA were reviewed for the quality of their statistical analysis by a volunteer panel of statisticians interested in medical statistics. Geoffrey subsequently wrote an article for the Biometrics Bulletin describing the operation of the scheme. This article is reproduced below. It shows that the statistical profession can only gain by becoming actively involved in the review of the use of statistics in papers published in non-statistical journals. In a separate, but related development, the American Statistical Association's Biometrics and Biopharmaceutical Sections have also taken up this issue. Last May the ASA sent out a questionnaire to all Section members asking whether they would be interested in serving as statistical referees for biomedical journals in the United States.

I believe that there are a number of non-statistical professional journals published in Australia whose editorial boards would welcome a similar arrangement to that which Geoffrey Berry and the Biometrics Society have set up with the MJA. Furthermore, the SSA has to take the initiative on this issue. After all, we are supposed to be the professionals in this area! However, before the Society can move on this issue, we need to find out whether there is sufficient support for setting up a volunteer panel of members willing to act as statistical reviewers. If there is sufficient interest, the Society can then approach these journals to come to some suitable arrangement on statistical reviewing of papers.

I strongly encourage any interested readers to approach their respective Branch Secretaries to first of all indicate their interest, and secondly to suggest any non-statistical professional journals that could be considered for such a scheme. To quote Geoffrey Berry, "We should not be involved merely as spectators on the sidelines, or responding only when asked, but should seek an active role. Unless we are prepared to do this, we have no right to criticise."

Ray Chambers

Bureau of Agricultural Economics



The University
of Sydney

NHMRC Clinical Trials Centre

Equal employment opportunity is University policy

The National Health and Medical Research Council has recently established a Centre Grant to fund a National Clinical Trials Centre at the University of Sydney under the direction of Dr R.J. Simes. The Centre shall play a major role in the coordination of multicentre clinical trials in Australia and provide expertise to assist clinical investigators throughout Australia in the design, implementation, analysis and reporting of clinical trials. Pharmacological and non-pharmacological trials in a variety of medical disciplines (cancer, cardiovascular, etc) will be supported.

Initial funding for the Centre is for five years.

The following positions should provide successful applicants with an opportunity for a challenging and exciting career in clinical trials research. Applicants seeking both full-time or part-time appointments will be considered.

SENIOR RESEARCH FELLOW/ RESEARCH FELLOW

Ref. No. 30/05 (Biostatistician)

The appointee will be responsible for statistical advice on the design and analysis of clinical trials, statistical consulting for clinical investigators and undertaking research in clinical trials methodology or a related area. There will also be the opportunity for some teaching. Applicants with suitable PhD or equivalent required.

SENIOR RESEARCH FELLOW/ RESEARCH FELLOW/SENIOR RESEARCH OFFICER

Ref. No. 30/06 (Statistician/Computer Scientist)

The appointee will be responsible for developing the Centre's computing system and evaluating and upgrading statistical and data base management software. Work will also include design and analysis of clinical trials with some opportunity for research and teaching. Applicants with suitable PhD preferred.

RESEARCH ASSISTANTS – GRADE I/II

Ref. No. 30/07 (Data Managers)

Appointees will be responsible for data management of specific clinical trials, including quality checks of clinical trial data, maintaining computerised records and undertaking some analysis. The work will involve collaboration with institutional data managers with some opportunity for a training/educational role. Some previous experience with clinical data and/or programming skills preferred. Applicants should have a suitable undergraduate or postgraduate degree.

PROGRAMMER GRADE I/II

Ref. No. 30/08

The appointee will be responsible for maintaining the operation of the Centre's computing system, organising back-up and security, maintaining software and developing data base management applications. Applicants should preferably have experience MS-DOS and either VMS or UNIX operating systems. Applicants with a suitable undergraduate or postgraduate degree desired.

GENERAL: Appointments (full or part-time) will be made for up to five years. Category/Grade of appointment and level of responsibility to be accepted will be according to the qualifications and experience of the appointees.

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

Further enquiries to: Dr R.J. Simes, telephone: (02) 516 7693 or Fax (02) 692 4317.

Salary: (part-time appointments are pro rata)

Senior Research Fellow II \$39,745-\$46,179 per annum.

Research Fellow/Senior Research Officer \$29,842-\$38,932 per annum.

Research Assistant Grade II \$24,864-\$27,194 per annum.

Research Assistant Grade I \$21,420-\$24,028 per annum.

Programmer Grade II \$29,399-\$32,400 per annum.

Programmer Grade I \$23,399-\$27,194 per annum.

METHOD OF APPLICATION: 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, or Fax (02) 692 4316.

Applications Close: 9 September, 1988. Late applications will be considered.

THE UNIVERSITY OF MELBOURNE

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DEPT OF COMMUNITY MEDICINE

Applications are invited for the position of Lecturer (Limited Tenure) in the Department of Community Medicine.

Applicants would be expected to teach the principles basic to the understanding of medical statistics and the integration of statistics with other subjects in the undergraduate medical course, thus developing a consultative and liaison role across subjects. A key role in the Master of Science degree in Epidemiology would also be required.

An appropriate postgraduate qualification is essential. Proven research ability and experience in teaching Statistics as a service subject is desirable.

The appointment will be for three years in the first instance. The appointee will be expected to take up the appointment on 1 February, 1989.

Detailed information may be obtained from the Chairman of the Department, Professor Ross Webster, on (03) 344 7195.

Salary is in the range: \$29,842 to \$38,932 per annum (Lecturer).

Closing Date: 23 September 1988.

Position Number: L5850100

Further printed information regarding details of application procedure and conditions of appointment is available from Ms N. Davies on (03) 344 7547.

Written applications should reach The Director, Personnel Services as stated below.

Applications in duplicate, including names and addresses of at least three referees and quoting the relevant position number should be addressed to The Director, Personnel Services, The University of Melbourne, Parkville, Victoria, 3052.

An equal opportunity employer.

Geoffrey Berry

Geoffrey Berry is currently an Associate Professor of Biostatistics in the School of Public Health and Tropical Medicine, University of Sydney, Acting Head of the Epidemiology/Biostatistics Section.

Berry has been a member of the Editorial Advisory Board of the Medical Journal of Australia since 1983.

The *Medical Journal of Australia* is published every two weeks and includes about 150 research papers a year. The majority of these, as well as some of those rejected, require a review by a statistician prior to acceptance or rejection. It would be impossible for the editor to organise this amount of reviewing without active collaboration from the statistical profession.

The editor has to make two decisions before a paper is sent to a statistician for review. First, is a statistical review needed and secondly, who would be a suitable referee? The first decision often requires statistical judgement that an editor of a medical journal would not necessarily have, whilst the second requires a knowledge of the statistical personnel with the interest to carry out refereeing.

Active Statistician Involvement

A powerful stimulus to setting up a scheme to provide help to the editor was provided by Roger Mead when he visited Sydney in March 1983 and gave a talk to the New South Wales Branch of the Statistical Society of Australia on "Statistical presentation of information in biological journals". He asserted that it was useless for statisticians to complain about the low standard of statistics in some papers in biological journals. Instead it was their responsibility to be involved actively in the assessment process. A way of achieving this was for a statistician to screen all papers and advise the editor on whether statistical review was necessary and to recommend a reviewer from a group of statisticians known to be willing to do a moderate amount of refereeing.

This idea was discussed soon afterwards during the coffee breaks of a conference organized jointly by the Australasian Region of the Biometric Society and ANZSERCH-APHA (Australian and New Zealand Society for Epidemiology and Research in Community Health and Australian Public Health Association) in Brisbane. Support was so strong that I was encouraged to approach the editor of the Journal and suggest that such a scheme be tried. I should add that I was in an ideal position to make this approach as the Journal's editorial office is less than a ten minute walk from mine and, perhaps because of this proximity, I had been involved in reviewing and answering statistical queries on an ad hoc basis for several months.

Partnership Concept

The editor readily accepted the suggestion and gave it formal approval by electing me to the editorial advisory board. Although this was not essential to the operation of the scheme, it underlined the concept of a partnership rather than statisticians being over-meddlesome

in the journal of another discipline or a journal using statisticians without giving any responsibility.

Accepting the proverb that a volunteer is worth ten pressed men, I sought reviewers through the newsletters of the Australasian Region of the Biometrics Society and the Statistical Society of Australia. By this means a group of about 15 statisticians was built up. Reviews are sent to authors without identification of the reviewer, unless the reviewer asks the editor to tell the author who the reviewer is so that any problems can be sorted out directly between the author and the reviewer.

Statistician Support

The scheme has now been in operation for two years, during which time I have seen about 300 articles and attended monthly lunchtime meetings with the editor and deputy editor to discuss any problems. The statisticians doing reviews have continued to support the concept by thorough review usually within an acceptable time (the Journal's policy is to request review within three weeks). With at most 6 articles to review each year, none have been overloaded. Not all submitted papers are reviewed by a statistician. Some are rejected on medical criteria so that a statistical review would be superfluous. I understand that a similar pattern of statistical review occurs with other general medical journals, for example, the *British Medical Journal* and the *New England Journal of Medicine*, although I am unfamiliar with the details of how these journals organise statistical reviewing.

A statistician reviewing for a medical journal must apply different skills to those required when reviewing for a statistical journal. A paper will not be accepted simply because the statistical analysis and presentation are perfect, nor will it be rejected because they are poor. However, it will be rejected if the author refuses to follow advice to correct any deficiencies. The editor must decide to include or exclude an article on its medical importance and relevance to the journal's readership. A statistical reviewer will not usually be able to judge these issues. Hence, it is the statistician's responsibility to offer any criticisms in a constructive manner such that a revised paper will be acceptable statistically if the paper is considered suitable on medical grounds.

On the whole authors respond favourably to the comments by following the advice on improving the statistical analysis and presentation. Remarks of appreciation outnumber complaints. In one case the authors responded by consulting a statistician who improved the analysis and presentation to the extent that he became one of the authors. Of course, it would have been better if a statistician had been consulted at the beginning rather than at the end. Inevitably a few argue against the criticisms and part of my screening duty is to assess the validity of such arguments. Another duty is to determine if a revised paper has met the initial criticisms. Certainly the scheme is successful insofar as a higher proportion of articles is seen by a statistician than was achieved before. Many papers are

improved, and so is the reputation of the journal as a result. The extent of success, as judged by the quality of the published papers, can only be assessed by an objective evaluation of the statistical quality of published articles. This assessment would not uncover any articles that should have been published, but were excluded by over-zealous or insensitive refereeing.

The high quality of *Biometrics* and other statistical journals would count for little if not reflected by a

proper application of appropriate methods in those disciplines where statistics is or should be applied. For this reason I remain convinced that it is the responsibility of the profession to become involved in the editorial process of non-statistical journals. We should not be involved merely as spectators on the sidelines, or responding only when asked, but should seek an active role. Unless we are prepared to do this we have no right to criticise.

LETTERS TO THE EDITORS

Dear Editors,

By pure chance, I was at the last Central Council meeting of the SSA in Canberra at a time when the Newsletter was being discussed, and I took the opportunity to say what I had said to you in a letter a while ago. This was that the Newsletter needs to carry a lot more in the way of news about people, and what they're doing.

My feeling is that the Newsletter presently reads the way I imagine PRAVDA or TASS read (although I must confess that I haven't read either of them): boring. Very little of it is news; it's just reports of what has happened, or official notices. Some of it needs to be recorded, but how much of it is of interest to the "average member"?

The contrast with the New Zealand Statistical Association's Newsletter is stark — that is chatty and interesting, and I'm sure that it gets read from cover to cover by a much greater proportion of its recipients than does the SSA Newsletter. New Zealand is a much smaller country, without the State boundaries which artificially separate many of us in Australia. Their statisticians have an annual conference, and many of them have another opportunity to meet at the annual Colloquia of the NZ Mathematical Society. So it is much easier for statisticians in New Zealand to keep track of what their colleagues are doing than it is in Australia. And yet it is their Newsletter which tells them what is going on, while we in Australia remain in complete ignorance of what our confreres are doing. For example are there statisticians in Darwin? I suppose there must be, but all I know is that SIROMATH has an office there — and I didn't find that out from the Newsletter.

In saying this, please don't think that I am criticising the Editors, individually or collectively. You can only print what you're sent, and obviously official policy also has a lot to do with what appears in the Newsletter. And I'd far rather have a Newsletter as at present, despite my criticisms, than go back to the days when we didn't have one at all. But can't we make it more interesting?

I'd like to see news about individuals, or groups, in each Newsletter. There are too many groupings in Australia for you to have something from them all in each Newsletter, but over a year you ought to be able to fit in news from each. And it shouldn't just be well known people who rate a mention; most of us in the Society will never be famous statisticians or receive awards, but that doesn't alter the fact that the Society should be for all its members.

How about a few statistical cartoons, or jokes, or quotable quotes, to add a touch of humour? What about seeking Letters to the Editor? A guest editorial, or contributed article, on something of interest to most members, and preferably mildly controversial?

I feel also that the Newsletter needs a facelift. A font that is less bold, and slightly smaller, is my suggestion, along with fewer heavy lines.

More work, you say. Who is going to do it? Well, I'm happy to send in interesting news from the place where I work, and to get other groupings to do the same. If there are other things needing assistance, I don't mind being asked — although I won't promise always to agree. And unless you seek out offers of assistance from others, you won't know who is prepared to help.

I hope you don't feel that my criticisms are intended to be destructive. I admire the work you are doing, but feel that a few changes would make the Newsletter more of interest to all its members.

I'm sending a copy of this letter to Dennis Trewin, to keep him informed, and because he was chairing the meeting where I made my comments in Canberra.

With best wishes,

Ken Russell

The Editors welcome this letter from Ken Russell, and hope it will elicit a response from Society members about what they want in their

Newsletter. We have recently instituted sections for letters to the editors and for news about members, and we are always ready to consider articles submitted for publication in the Newsletter. However, we can only use the material that we receive, and that is sometimes limited. The format of the Newsletter has been constrained in the past by the preparation facilities available to us. The method of production is being changed, so you will see some format alterations in forthcoming issues, and suggestions for other improvements could be accommodated.

It is your Newsletter, so let's hear what you want it to be. As Ken observes, meeting the members' requirements will probably mean more work, so give some thought also to what you, or your group, can contribute.

The Editors

Dear Editor,

We would like to bring to the attention of your readers, information about WISENET (Women in Science Enquiry Network, Inc.), a non-hierarchical organisation formed after ANZAAS 1984. Our aims are basically to promote increased participation by women in science and to explore programs for change in science which will make it more appropriate for world needs.

Among our activities is the establishment of the WISENET Science Shop which will match community

groups with research problems with researchers prepared to spend some of their time working in the public interest. WISENET is also currently completing a Directory of Women in Science and Technology in Australia.

Membership is open to both women and men who have a commitment to the WISENET objectives. For further information and an application form, please contact WISENET, GPO Box 452, Canberra, ACT 2601.

WISENET Membership Committee

Dear Sir/Madam,

I would like to draw your readers' attention to a new linking agency, the WISENET Science Shop. The aim is to promote socially relevant research by bringing together community groups with problems and researchers in the natural and social sciences prepared to help them. It is not an information exchange, but more like a marriage bureau, in that it gives community groups direct access to researchers who can tailor any information or research requested to the group's needs.

We would like to hear from researchers in the natural and social sciences who are interested in being involved, and from community groups who would like help with an issue or problem. Please contact the WISENET Science Shop, F Block, Kingsley St, Acton, ACT 2601 or telephone 062 - 49 6006.

Yours sincerely,

Jennifer Rainforth (Development Officer)

STATISTICAL EDUCATION SECTION

Continuing Education Course

One course, on Log-Linear Models, was conducted in conjunction with the NMSC. The lecturer was Dr Michael Adena, from Intstat Australia Pty Ltd. Two sessions were run, and a total of 30 people attended.

The course was intended to cover the basic theory underlying the topic, and to give applications to data from various disciplines, worked examples using a number of statistical packages, and a list of references to theoretical and practical aspects of Log-Linear Models. A substantial set of hand-outs was provided.

The success of this course makes it very likely that Continuing Education courses will be run at future Conferences. Suggestions for course topics are most welcome.

Thanks are extended to Chris Heyde and Dennis Trewin for their active support, to Michael Adena for his lectures, and to the participants — whose presence assured the course's success.

The Congress Itself

I'll let other people comment on the contents of the papers, the organisation of the Congress, the weather I want to discuss the presentation of the talks. What has this to do with Statistical Education? Well, we go to these Conferences to learn something, and we have a much better chance of doing so in a talk that is well-presented.

The invited speakers were generally good. Of the contributed talks, a few were excellent, most were adequate, and some were appalling. Amongst the dreadful ones, there were speakers who clearly had no idea how much time their talks required. Some speakers apologised for their transparencies; others didn't even realise that their transparencies couldn't be read. Several speakers ignored their audiences and spoke to the screen at the front. Numerous talks contained far too much technical detail. Some were just plain boring!

Can I be the only person who resents my time being wasted by a speaker who didn't prepare a talk properly?

I hope not. None of the mistakes in these talks was new. They've happened before, and they'll go on happening — unless something is done about it.

What am I doing about it? I've made a list of points which I think every person proposing to give a talk should consider (yes, it contains several that I have forgotten in the past). It also includes points for Programme Organisers' and session chairmen to consider. I have sent a copy of that list to the organisers of the 1990 Conference. Secondly, I've written this article — to try to get *you* involved. Thirdly, I'm trying to follow

all the points on that list when I give a paper.

What can you do? Ask me for a copy of my list, follow it, and tell me of additions to it. Secondly, make sure that, when you give a talk, it's the best that you can possibly give.

What can we all do? Get off our collective statistical backsides and ensure that we, and our colleagues, give talks that are audible, legible, informative and interesting.

Ken Russell

NATIONAL MATHEMATICAL SCIENCES CONGRESS

The (Bicentennial) National Mathematical Sciences Congress — May 1988

The 9th Australian Statistical Conference and the 32nd Annual Meeting of the Australian Mathematical Society were subsumed by the (Bicentennial) National Mathematical Sciences Congress which was held at the Australian National University in Canberra over the period 16–20 May, 1988. Some 460 registrants participated including 30 from New Zealand and 30 from elsewhere outside Australia.

The framework of the Congress was based on programmes organized in parallel by the Statistical Society and the Mathematical Society, but with a common set of plenary lectures. The Plenary lectures were given by J.C. Butcher (Univ. of Auckland), W.S. Cleveland (Bell Laboratories), J.H. Coates (Cambridge Univ.), J.H. Friedman (Stanford Univ.), J. Gani (Univ. of California, Santa Barbara), R. Melrose (M.I.T.) and J.A. Nelder (Imperial College). Other joint activities included an invited paper session on Mathematics in Industry.

In the Statistical Component of the Congress invited lectures were given by R.J. Alder (Technion), W. Armstrong (Armstrong, Armstrong and Associates), T.C. Brown (Univ. Western Australia), G.K. Eagleson (Univ. New South Wales and CSIRO), J.H. Friedman (Stanford Univ.), J. Hajnal (London School of Economics), J.A. Hartigan (Yale Univ.), G.C. Morgan (Roy Morgan Res. Centre Pty Ltd) and T.M.F. Smith (Univ. Southampton). The SSA Presidential Address was delivered by D.J. Trewin (Austral. Bureau Statist.).

One hundred and nine contributed papers were also delivered, sessions being held on Youth Unemployment, Mixture Models, Probability/Stochastic Processes, Inference, Sample Surveys, Survival Analysis,

Modelling, Branching Processes/Population Models, Non-parametric Statistics, Time Series, Spatial Processes/Density Estimation, Medical Statistics, Computing, Information Systems and Operations Research, Genetics, Experimental Design, Distribution Theory, Applications.

The Mathematics Component of the Congress comprised 25 invited papers, mostly given by local speakers and highlighting the achievements of Australian mathematics, together with 70 contributed papers. Sessions included Applied Mathematics, Number Theory, Group Theory, Category Theory/Computer Science, Combinatorics, Complex Analysis, Geometry, Education, Geometric Measure Theory, Optimization, Analysis, Algebra/Set Theory, History as well as a Policy Forum.

This was the first occasion on which the Statistical and Mathematical Societies had held a combined conference and relationships between the Societies and between individual members were certainly strengthened. It was very noticeable that attendance at sessions often reflected a substantial mix of society representation.

Another precedent for the Congress was the use of a commercial conference bureau to deal with registration, accommodation and other infrastructural matters. This did not necessitate an increase in registration fees, however, and the benefits to the host institution in terms of staff time were very considerable. For a large conference the arrangement can certainly be commended to future organizers.

C.C. Heyde

Congress Director
Australian National University

Note. Some surplus copies of the book of collected congress abstracts are available and can be obtained (gratis) from Professor Heyde.

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POLICY FORUM—NATIONAL MATHEMATICAL SCIENCES CONGRESS

Record of Policy Forum held at National Mathematical Sciences Congress, 17 May 1988 at 12 noon

The President, Mr Dennis Trewin, was in the chair.

1. Accreditation of Statisticians

Dr Debbie Street presented the paper "Statisticians — where are we headed?" which had been prepared by the SA Branch. She outlined the characteristics of a professional, and gave a suggested list of subject matter areas with which professional statisticians should be familiar. She suggested that the SSA consider ways of accreditation of both members and training courses and outlined possible lobbying areas that the Society could pursue.

Dr Street proposed the motion "That the SSA convene a working party, to report to the next Central Council meeting, with the following term of reference: the working party shall investigate the desirability, the practicability and the legal aspects of establishing an accreditation procedure for professional statisticians".

In discussion, the following points were raised:

- employers may prefer their own criteria, rather than the SSA's accreditation;
- no real solution to the problem of a professional v. learned society had been found elsewhere;
- the Society can presently do all the political lobbying suggested, depending only on the energy and enthusiasm of its members;
- the ISI code of ethics should be circulated to all members, with a view to its adoption by the SSA;
- the SSA should involve itself more in continuing education and workshops, given the success of the Medical Statistics workshop and the log-linear model workshops at the Conference;
- more review articles could be solicited for *AJS*.

A show of hands by members present indicated substantial support for Dr Street's motion.

2. Student Quality and Numbers, and Statistical Content of Business Information Technology Courses

Dr Ron Sandland spoke on behalf of the NSW Branch.

He had anecdotal evidence of a decline over the last 20 years of the percentage of top secondary school students entering science courses at tertiary level. There was an increase in the numbers of students entering business courses, and a drift in the numbers of honours students from Statistics to Computing. Dr Sandland suggested the Society should try to find hard evidence about these suspicions.

The NSW Branch was also concerned at the apparent lack of statistical input in four new courses in Business, Information Technology.

The following points were raised in discussion.

- statistical teaching in other departments by non-statisticians was often of poor quality;
- statistics departments needed to collaborate more with business courses;
- the Green Paper could present opportunities for efficiency in teaching statistics in tertiary institutions by concentrating teaching in statistics departments;
- academic merit was not the only requirement for consulting statisticians;
- little change was noticed in the numbers or quality of honours students at UQ over the last 20 years;
- high school statistics courses were not good, and needed professional statistics input;
- teaching of statistical service courses by statistics departments needed "aggression and diplomacy";
- joint courses with other organisations were useful;
- there was a statistics component in the Monash B.I.S course.

Dr Sandland asked for any data on quality drift of statistics students be sent to him.

3. Statistical Standard in Journals of Other Disciplines

Mr Warren Muller raised on behalf of the ACT Branch their concern that these standards should be raised. He suggested that the SSA encourage other journals to publish a statement on acceptable statistical levels of papers, and encourage other journals to seek statistical referees for papers. There was general support for this proposal.

CONFERENCES

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. It 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.

National Science and Technology Analysis Group, 3–4 November 1988

How should we determine research priorities? Is government achieving its innovation objectives? How well are we spending our research dollars? What are the future prospects for industry R&D? Do we want a multifunction 'polis' here?

These are among the issues to be addressed in the 1988 Forum on Science and Technology in the Budget. The Prime Minister has been invited to open the Forum to be held at the Academy of Science in Canberra on November 3 and 4.

The Forum is part of an annual review of government support for science, technology and engineering conducted by the National Science and Technology Analysis Group. NSTAG comprises the Australian Academies of Science and of Technological Sciences and Engineering, The Federation of Australian Scientific and Technological Societies, and The Institution of Engineers, Australia. It represents over 100,000 scientists, technologists and engineers.

The review this year will take the form of open discussion. It is expected to be particularly interesting. The past 12 months have seen some major shifts in government policy, with a restructuring of CSIRO, proposals to establish a new Research Council, and quite dramatic changes expected in the funding of tertiary education.

Theme for the Forum is 'The Nature and Role of Innovation in the Economy'.

If you would like to register for the two day forum, contact Margaret Lanigan or Lee Rydstrand at the Institution of Engineers, phone (062) 706555.

For further information: Patricia Donovan, phone (062) 804784, (958531 ah).

Workshop on 'Generalized Additive Models'

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

The third annual workshop on Statistical Methods for Linkage, Pedigree & Twin Analysis to be held 29–31 March 1989, The University of Melbourne.

The Special Guest and Keynote Speaker will be Professor Kenneth Lange, who is 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. MENDEL can be used for linkage analysis, segregation analysis, gene mapping, genetic counselling, paternity testing, and other user defined problems. FISHER performs a genetic analysis of covariation in continuous traits. It allows very flexible modelling and can be used on data from twins, twin families and multigenerational pedigrees. Professor Lange will also talk about a new affected-pedigree-member method of linkage analysis.

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 write to the Australian NHMRC Twin Registry, 151 Barry Street, Carlton 3053. Phone (03) 347 2983 (Bobbie Renard), or (03) 344 6990 (John Hopper).

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,

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.

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:

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.

MISCELLANEA

What has FASSO achieved in its first six months?

FASSO was formally constituted in November, 1987. Hence, it has a short history; but its achievements to date are notable.

- It consists of 25 social science organisations, including SSA.
- It has responded quickly and comprehensively to the Green Paper on Higher Education issued by the Minister for Employment, Education and Training.
- The Executive of FASSO has consulted with gov-

ernment on matters relating to social science teaching and research.

- The Federation is exploring ways for developing communications networks among its member organisations and among other people interested in the social sciences.
- The Federation is seeking incorporation in the ACT.
- Responses to the Report of the 'Wran Committee' on alternative funding in higher education, and to the White Paper on Higher Education will be prepared in the coming months.

GENSTAT CONFERENCE

21–23 November, 1988 — UNIVERSITY OF MELBOURNE

With the release of the new version of **GENSTAT**, the distributors (NAG and Siromath Pty. Ltd.) in conjunction with the Victorian Department of Agriculture and Rural Affairs and the Statistical Consulting Centre, University of Melbourne are presenting a 3-day conference on **GENSTAT, VERSION 5** on 21–23 November 1988, at the University of Melbourne.

Our overseas speakers will be: Peter Lane (Rothamsted Exptal. Station, U.K.), Roger Payne (Rothamsted Exptal. Station, U.K.), David Baird (Ministry of Agriculture and Fisheries, New Zealand). There is also a number of invited local speakers.

Topics to be covered will include: An overview of Genstat 5; Analysis of Variance; Regression, including Generalized Linear Models; The Procedure Library (previously the Macro library), including extensions to non-parametric methods and repeated measurements; Graphics; Extending Genstat 5 using Fortran (a new feature); The use of Genstat 5 on micro computers; Comparisons with other packages; A "sympathetic" front-end to Genstat; Teaching Genstat to non-statisticians. Demonstrations will be given on IBM-PC micros and SUN workstations. There will also be the opportunity to use **GENSTAT** on the University of Melbourne's VAX system. There will be displays of other statistical software. Most sessions will be at an intermediate level, with more advanced features highlighted. Previous experience with Genstat Version 4 would be an advantage.

Registration: The cost of the conference will be \$300.00 for the 3 days. This will include morning and afternoon teas and a light lunch. It also includes a conference dinner at the University of Melbourne on Tuesday 22 November, which will coincide with the annual Belz dinner of the Victorian Branch of the Statistical Society of Australia.

Accommodation: Reservations have been made for 30 places at Ormond College, University of Melbourne at a cost of \$32.00 per night (bed and breakfast). Nearby motel accommodation at Travel Inn is \$58 (single, room only) or \$63 (double) is also available. Register early to reserve a place.

Further information: For further information, program and registration forms, please phone the Director (Richard Jarrett) or the Secretary (Gill Fletcher), Statistical Consulting Centre, University of Melbourne on (03)344-6995. The Centre will be handling all the bookings and administrative arrangements:

Tel: (03) 344-6995

Email: richardj@mugga

Fax: (03) 348-1184

NZ STATISTICAL ASSOC. (INC.) 1988 PUBLICATIONS CATALOGUE

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

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

StatLab (1987; by W. Douglas Stirling) \$108.90

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

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

This booklet provides a non-technical introduction to sample surveys and the many ways in which surveys are

used. The focus is on the design of a survey and on the collection of survey data. It has been adapted for New Zealand needs from a document prepared by the American Statistical Association and contains many examples of New Zealand surveys. It includes exercises and can be used in statistics, social science and other courses to give students a brief introduction to sample surveys.

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

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

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

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

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 Michael J. Campbell; University of Southampton, UK; wife and children; medical statistics, general linear models, time series; August 1988–February 1989; University of Sydney; Professor G. Berry.

Professor Shanti Gupta; Purdue University; ; 5 September–17 October 1988; multiple decision procedures, decision theory, order statistics, reliability theory and multivariate distributions; University of Canterbury, NZ;

Professor John Daly; Professor Gupta is an Erskine Fellow. Professor K. Heinrich; Simon Frazer University, Canada; ; 1 September–16 December 1988; combinatorial mathematics; Curtin University of Technology; Dr Louis Caccetta.

OVERSEAS CONFERENCES

The Third Congress on Probability and Statistics, 19–28 September 1988, Montevideo, Uruguay.

Information: Professor Enrique Cabana, Instituto de Matematica e Estatistica, Facultad de Ingenieria y Agrimensura, Av. J. Herrera y Reissig 565, Casilla nr. 30, Montevideo, Uruguay.

Colloque en l'Honneur de René Thom, 25–30 September 1988, Paris, France.

Information: Colloque René Thom, IHES, 35 Route de Chartres, 91440 Bures-sur-Yvette, France.

Symposium on Data Analysis Procedures for Trace Constituents and Toxic Compounds, 25–30 September 1988, Los Angeles, CA, USA.

Information: Dennis R. Helsel, U.S. Geological Survey, 410 National Center, Reston, VA 22092, USA.

Mathematics; The Interface Between Industry and Commerce with Academia, 26–27 September 1988, London, UK.

Information: Miss Shirley Wardle, Conference Officer, The Institute of Mathematics and its Applications, Maitland House, Warrior Square, Southend-on-Sea, Essex SS1 2JY, England.

Sixth International Summer School on Probability Theory and Mathematical Statistics, 28 September–9 October 1988, Varna, Golden Sands, Bulgaria.

Information: Dept. of Probability and Statistics, PO Box 373, 1090 Sofia, Bulgaria.

Sixteenth Annual Mathematics and Statistics Conference, 30 September–1 October 1988, Oxford, OH, USA.

Information: Joe Kennedy, Dept. of Math. and Stat., Miami Univ., Oxford, OH 45056, USA.

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,, Toronto, Canada.

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

ASA Winter Conference; Statistics in Society, 4–6 January 1989, San Diego, CA, USA.

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

Second International Workshop on Artificial Intelligence and Statistics, 4–7 January 1989, Ft. Lauderdale, FL, USA.

Information: W. Gale, AT&T Bell Labs, 2C278, 600 Mountain Ave., Murray Hill, NJ 07974, 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.

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.

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.

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:

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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?

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