New Zealand Statistical Association (Inc.)

newsletter

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SCIENCE AND TECHNOLOGY PLANNING
by G.E. Dickinson

The National Research Advisory Council (NRAC) is involved in a large scale exercise in strategic planning. For what is called the medium term, 10 to 15 years, it is proposed to formulate a strategy to provide guidance to the Government on what overall role it should take in stimulating science and technology. The S & T Plan is designed to set "longer term and national perspectives within which public and private sector science managers can develop their R & D activities".

A comprehensive machinery of consultation and review of various drafts of the emerging plan is being implemented. These processes are envisaged as on-going with the plan being updated on a yearly cycle.

Many members of the Association will be affected in their work by a successful and widely implemented plan of the dimensions projected. Some will already have had input through their employing organisations. The Association has not been asked directly to contribute though a general invitation to the public has been made.

This note started out as a critique of the concept and process of formulating a S & T plan in relation to statistics as a discipline. The author soon realised that he was ill-equipped to do so. The Association, I feel should make a concerted response to the plan in its current form and I ask members who have comments on the content of that response to write to me c/o NZSA. After collation the submission to NRAC will be discussed by the Executive Committee and published in either the Newsletter or *The New Zealand Statistician.* The two most relevant NRAC documents are "Science and Technology Plan: 1984, The First Steps" and the 1984 NRAC report to Parliament.

ELECTION PREDICTIONS

Alert readers of the Newsletter may have caught a fleeting glimpse of Massey University statistician Hugh Morton on the Decision '84 television show on election night. Hugh had been contracted to TVNZ to produce a computer prediction system for analysing early returns on election night. Due to the announcement of the snap election the software prepared by Burroughs had not quite been fully completed and tested in time. Consequently a degree of conservatism was called for in announcing the predictions over the air.

The system is a 3-tier procedure. Five to seven indicator booths are used to predict detailed outcomes in each of thirty critical electorates. These are not all marginal seats, but are in fact a carefully chosen 3-way stratified sample of the 95 electorates in the whole country. The second tier uses swings calculated from the predictions within each stratum to forecast the winners in the remaining 65 seats. The top tier is the national predictor, which simply sums the number of winning seats for each party and thus obtains the composition of the House and the majority.

On the night, the predictor system proved to be remarkably accurate, though it took a little while for us to be confident of its accuracy. For example, a prediction for one of the critical seats at 7.27 p.m. which didn't go to air, was that the Speaker, Sir Richard Harrison, with only 37.8% of the vote, would lose his seat of Hawkes Bay to Labour's Dr Sutton with 42.4%, a predicted swing of 8.9% to Labour. The final result at 8.49 p.m. gave Harrison 37.8% and Sutton 43.2%, a swing of 9.3% to Labour. Another unexpected prediction in the early part of the evening was that Social Credit would win Pakuranga.

There is still work to be done on the system, starting with a full action replay (in slow motion) of the election night. This should prove most interesting, for in the one-hour period 7.45–8.45 p.m., data is flowing in so fast that the human mind is easily overloaded and only the very interesting results are remembered. Hugh hopes to write an article for *The New Zealand Statistician* at a later date.

BOOK REVIEW
by David Rhoades

"The Visual Display of Quantitative Information"
by Edward R. Tufte (Graphics Press, Box 430, Cheshire, Connecticut 06410, USA). Price $US34.

Anyone who ever has to draw a graph will benefit from spending an hour or so browsing through this instructive and entertaining volume. The author develops the theory of graphics as a set of principles, "not to be applied rigidly or in a peevish spirit, ... it is better to violate any principle than to place graceless or inelegant marks on paper." Among the principles: avoid redundant lines, maximise the data-ink to non data-ink ratio, maximise the data density and forego chartjunk. "Chartjunk" is a coined word referring to shading, grids or other embellishments which dazzle the eye but contain no information. It applies particularly in computer graphics, where these extras come without cost or effort. Applying the principles to standard types of graphs such as scatter plots, histograms and Tukey's box plots, a case is made for simple changes to each of these. Some of the suggested changes are distinct improvements; others ... you judge for yourself.

It is the illustrations however which really make this book. A complete chapter is devoted at the beginning to examples of excellence drawn from three centuries of statistical graphics dating from the work of Playfair. The second chapter, equally delightful, contains a rogues gallery of graphical lies – the deceptive scale, the use of extra dimensions to visually enhance a trend, the plotting of non-standardised money units in time series displays and so on. Incidentally, the book includes worthy candidates for the best and worst graphics ever printed. The former, drawn by Charles Joseph Minard in 1861, is a six variable plot cum map which illustrates the devastating losses suffered by Napoleon's army in the Russian campaign of 1812. The latter, which appeared in the magazine American Education, presents just five pieces of data on college enrolments in a confusing, gaudy, five colour, three dimensional plot!

By showing us the good and bad of graphics side by side,

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the author hopes we will learn to distinguish better between the two. Moreover Tufte's principles provide a framework for thinking about how a not-so-bad or even a quite good graph might be improved. They do not all apply in every case. But if a principle is not to be applied, then it is better done consciously than through ignorance. If you are like me you will become more critical of, if not slightly embarrassed by, some of the graphics you have been responsible for.

Faced with a price tag of about seventy devalued dollars, most of us will baulk at buying this book for ourselves, although its uniqueness and the high quality of its production make it an ideal collector's item.

SABBATICAL VISITOR

Dr George P.H. Styan, Department of Mathematics and Statistics, McGill University, Montreal, Canada, will be on sabbatical leave at the Department of Mathematics and Statistics, University of Auckland, from September 1984 to mid-1985.

Dr Styan is Managing Editor of *The Canadian Journal of Statistics* and a member of the International Editorial Board of *Communications in Statistics.* His research interests lie in linear models, multivariate statistical analysis and statistical computing.

DEMING INSTITUTE

The Deming Institute will be formally inaugurated this month and will commence full-time operation in 1985. The institute, a non-profit making body, will help fee-paying member organizations (private companies and government departments) implement quality assurance programmes of the type proposed by Dr W.E. Deming.

President of the institute will be Professor I.S. Francis (University of Otago). He will be assisted by Mr K. Fink-Jensen and Mr M.E. (Tim) Ball. Mr Ball will be Programmes Director of the institute. The institute will be based in Auckland and its team of statisticians will offer seminars, training sessions and consultations to member organizations.

25th SUMMER RESEARCH INSTITUTE OF THE AUSTRALIAN MATHEMATICAL SOCIETY

The 25th Summer Research Institute of the Australian Mathematical Society will be held at the University of Auckland during the three week period from January 14, 1985 to February 1, 1985. The basic structure of the research institute is a series of lectures given by invited speakers in the following principal areas: Analysis, Fluid Dynamics, Numerical Analysis, Stochastic Processes and Universal Algebras. Each week two subjects will be emphasised with daily lectures in both subjects. The rest of the time will be available for formal or informal "splinter groups" which will not necessarily be confined to the principal subject areas.

The first week (January 14-18) is likely to be of most interest to readers of this newsletter. A session on *Statistical Inference for Stochastic Processes* (point processes, time series and spatial processes) has been organised by Professor Alastair Scott. Invited speakers are:

Dr D.R. Brillinger (University of California, Berkeley)
Dr P.A.W. Lewis (Naval Postgraduate School, Monterey)
Professor D. Vere-Jones (Victoria University of Wellington)

For further information and a copy of the registration form write to –

Dr D.J. Smith
New Zealand Secretary
25th Summer Research Institute
Department of Mathematics and Statistics
University of Auckland
Private Bag
Auckland, New Zealand

DEADLINE FOR NEXT ISSUE

The deadline for submitted material for the February 1985 issue of this newsletter is January 31. Please send all notices of seminars, news items, letters-to-the editor, etc to ...

John Reynolds
Newsletter Editor
AMD/DSIR
P.O. Box 1335
Wellington

The deadline for "News and Announcements" for the November, 1984 issue of *The New Zealand Statistician* is October 15.

OVERSEAS CONFERENCES

American Statistical Association/Biometric Society/IMS Joint Meeting

The 1985 joint meeting of the American Statistical Association, Biometric Society and the Institute of Mathematical Statistics is to be held from August 5-8 in Las Vegas, Nevada. For further information write to ASA, 806 15th Street, N.W., Washington DC, 20005, USA.

International Statistical Institute – 45th Biennial Session
This conference, which marks the centenary of ISI, is to be held in Amsterdam, Netherlands, August 12-22, 1985. The conference will also include meetings of the Bernoulli Society and the International Associations of Statistical Computing and Survey Statisticians. For further information write to ISI, 428 Prinses Beatrixlaan, P.O. Box 950, 2270 AZ Voorburg, Netherlands.

International Society for Clinical Biostatistics – ISCB6
The sixth international meeting on Clinical Biostatistics will be held in Dusseldorf, FDR-Germany, September 16-20, 1985. The main objective of this annual meeting is to create an opportunity for exchange of knowledge, experience and ideas among clinicians, statisticians and members of other disciplines, like epidemiologists, clinical chemists and clinical pharmacologists, working in or interested in the field of clinical biostatistics.

Themes for the conference include: Clinical biostatistics as an aid to medical decision making, Quality control in clinical medicine, Clinical oncology, Cancer morbidity and mortality, Methodology of clinical trials, and, The role of biostatistics in long term clinical studies.

For further information contact:

Dr R.A. Dixon
Department of Community Medicine
University of Sheffield Medical School
Beech Hill Road
Sheffield S10 2RX
United Kingdom

XIIIth International Biometric Conference
To be held in Seattle, Washington, USA, July 27 to August 1, 1986. For further information write to Dr Gerald van Belle, Department of Biostatistics, University of Washington, Seattle, Washington 98135, USA.

The Second International Conference on Teaching Statistics (ICOTS II)
This conference will be held in Victoria, British Columbia, Canada, August 11-16, 1986. The conference aims to improve the quality of statistics teaching on a world-wide basis. Sessions will take place on teaching statistics at all levels, from school to university and in government, business and industry. Opportunities will be provided to see and experiment with the latest in computer hardware and software for statistical work.

The New Zealand coordinator for ICOTS II is ...

John C. Turner
Department of Mathematics
University of Waikato
Private Bag
Hamilton, New Zealand

American Statistical Association/Biometric Society
The 1986 joint meeting is to be held from August 18-21 in Chicago, Illinois. For further information write to ASA, 806 15th Street, N.W., Washington DC, 20005, USA.

A FOOTNOTE (on the bootstrap)

In the July 13, 1984 issue of *Science* (Vol. 225, 156-158) there appeared an interview of Bradley Efron by G. Kolata. Entitled "The Art of Learning from Experience" the article makes for some fun reading. We include a few excerpts below and hope to publish an "exegetic" commentary on the article, and resampling/recycling methods in general, in a future issue.

"Statistics," says Bradley Efron of Stanford University, "is quite underappreciated." Most people who think of statistics at all consider it as simply a tool – a way to tell if data are significant or to estimate confidence intervals. But statistics is a deeply philosophical subject that tries to get at how we learn from experience. It is a dynamic field, full of arguments and beginning to change its very nature as its practitioners exploit the power of large-scale computing.

Efron ... has invented an extremely promising new statistical tool, called "the bootstrap" which, he says, "substitutes computing for thinking."

... Statistics, Efron says, is "a slow entry field." It takes time to develop a feel for it. "There has never been a great 19-year-old statistical genius," Efron remarks. "It took me a good part of 15 years to get straight in my mind what I should work on."

... Efron's method seems like magic, like a sleight of hand trick. And many statisticians instinctively distrusted it.

... Frederick Mosteller of Harvard University, who says he thinks the bootstrap "is a very good idea," nontheless sympathizes with those who tend to doubt it works. "The bootstrap is a little hard to believe," he says. "It seems incestuous. You are trying to learn about the sample error by sampling the sample." Statisticians, Mosteller remarks, "are not ordinarily involved with something as anti-intuitive as this."

... Efron would very much like to win the entire statistics community over to his view of large-scale computing as the wave of the future. Still, he says, "I've taken a tremendous amount of guff. Statisticians are hard to convince. They tend to be very conservative in practice. And they should be. This stuff is serious. People use it."

PACIFIC STATISTICAL CONGRESS
AUCKLAND, NEW ZEALAND
May 20-24, 1985

This issue of the newsletter contains a registration form for the PSC-85. If the form is missing from the copy you are now reading you may obtain a copy of the second announcement, the call for papers and a copy of the registration form by writing to —

The Congress Committee Secretary
Department of Mathematics
University of Otago
P.O. Box 56
Dunedin, New Zealand

NEW ZEALAND STATISTICAL ASSOCIATION (INC).
P.O. BOX 1731, WELLINGTON, N.Z.

PACIFIC STATISTICAL CONGRESS – 1985

An international statistical congress will be held in Auckland, at the University of Auckland, during the week of May 20-24, 1985. The conference will include sessions on Biological and Medical Statistics, Survey Sampling, Statistical Computing, Experimental Design, Quality Assurance, Social and Economic Statistics, The Role of the Statistical Sciences in National Development, and, Statistics for Developing Areas. To date, invited speakers include: Professor Peter Armitage (University of Oxford, U.K.), Professor J.N.K. Rao (Carleton University, Canada), Professor Alastair J. Scott (University of Auckland, NZ), Dr Terry P. Speed (CSIRO, Australia) and Dr G.B. Wetherill (University of Kent, U.K.).

Societies sponsoring the congress include:

The Biometric Society
The Institute of Mathematical Statistics
The New Zealand Statistical Association
The Statistical Society of Australia
The New Zealand Organization for Quality Assurance
The Bernoulli Society
The Operational Research Society of New Zealand
The New Zealand Computer Society
The International Association for Statistical Computing
The International Assocation of Survey Statisticians

Registration

Members of the New Zealand Statistical Association, the New Zealand Computer Society or the Biometric Society (Australasian Region) are able to pay a reduced registration fee ($NZ100) before October 15, 1984. Bona fide students are able to pay a substantially reduced registration fee ($NZ15). Those who elect to pay the full registration fee must pay a non-refundable deposit ($NZ20) and the balance by March 1, 1985. For further details see the registration form on the verso of this page.

Submission of Papers

The deadline for contributed paper abstracts is January 15, 1985. A selection of papers will be published in the conference proceedings. A one-page abstract, including key references, should be submitted to:

The Congress Committee Secretary
Pacific Statistical Congress
Department of Mathematics
University of Otago
P.O. Box 56
Dunedin, New Zealand

As abstracts will be directly reproduced as submitted they should be carefully and clearly typed and double spaced.

Other Presentations

Poster sessions and workshops may be organized. Facilities will be available for participants to display their own statistical software. Commercial displays are also to be organized. For further details contact:

The Secretary
Local Organizing Committee
Pacific Statistical Congress
Department of Mathematics and Statistics
University of Auckland
Private Bag
Auckland, New Zealand

Accommodation

Accommodation has been reserved at two student hostels. Rooms are also available at nearby hotels. For further details see the registration form. Please book early to ensure the availability of your preferred accommodation.

Congress Committee

Ivor S. Francis (University of Otago), Chairman
Brian Niven (University of Otago), Treasurer
Bryan Manly (University of Otago), Secretary
Robert B. Davies (DSIR), Finance Subcommittee Chairman
George A.F. Seber (University of Auckland), Local Organizing Subcommittee Chairman

REGISTRATION FORM

PACIFIC STATISTICAL CONGRESS

Auckland, New Zealand **20th-24th May 1985**

REGISTRATION

PLEASE TYPE OR PRINT

Last Name _____ Initials _____

Title (Mr/Mrs etc.) _____ First Name (for Lapel Badge) _____

Organization _____

Postal Address _____

Telephone _____ Telex _____

Tick as appropriate

- ☐ I wish to register
- ☐ I intend to submit an abstract (by January 15, 1985)
- ☐ I am a member of the N.Z. Statistical Assoc.
- ☐ I am a member of the N.Z. Computer Society
- ☐ I am a member of the Australasian Region of the Biometric Society
- ☐ I am a full-time student (certifying letter enclosed)
- ☐ I wish to attend the Congress Dinner
  (Number of persons) _____
- ☐ I wish to receive the Congress Proceedings

FEES

Registration Fee

(1) NZ$150 general $_____

(2) NZ$125 for members of NZSA, NZCS or the Biometric Society $_____

These fees will be reduced by NZ$25 for registrations sent before 15 October 1984.

(3) Student Fee NZ$15 (enclose a supporting letter from a teacher) $_____

Accommodation deposit

One night's accommodation $_____

TOTAL (A) remittance required before the Congress $_____

DEPOSIT accompanying registration

(Part registration fee $20, one night's accommodation $_____) $_____

BALANCE, due March 1, 1985 $_____

Make cheques or bank drafts payable to PACIFIC STATISTICAL CONGRESS

ACCOMMODATION

	Per diem rate ($NZ per room)	Preferred Accom. (Please tick)
Hotels		
Hyatt Kingsgate (opposite University)	$72 single	☐
	$72 double	☐
	$72 twin	☐
	$72 triple	☐
Grafton Oaks Courtesy Inn (10 mins walk)	$48 single	☐
	$52 double	☐
	$52 twin	☐
	$56 triple	☐
Student Hostels (Prices include breakfast; add $5 per person per day for dinner)		
International House (5 mins walk)	$20 single	☐
	$40 double	☐
Grafton Hall (15 mins walk)	$22 single	☐
	$44 double	☐
Family Accommodation (Motel units, with cooking facilities)		
Whitaker Lodge Motel (5 mins walk)	$46 per unit for 2 people	☐
	$ 8 per addn. adult	
	$ 6 per addn. child	
	No. of people ...( )	

For arrival on .....

Departure on .....

A DEPOSIT of 1 night's accommodation is required to book accommodation.

Hostels: Non-refundable
Hyatt-Kingsgate: refundable until 1 March 1985
Grafton Oaks: " " 1 April 1985
Whitaker Lodge " " 1 May 1985

Please book early to ensure your preferred accommodation is available.

EXCURSION

Three excursions are tentatively offered for Wednesday, 22 May. Please tick your preference, or give a ranking if you are interested in more than one (1 = 1st, etc.)

1. Rangitoto Excursion ☐
2. Local bus tour ☐
3. Tramp in the Waitakeres ☐

No. of persons .....

Please return this form, with a deposit (see FEES), to:

The Congress Committee Secretary
Department of Mathematics
University of Otago
P.O. Box 56, Dunedin
NEW ZEALAND