New Zealand Statistical Association (Inc.)

newsletter

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STATISTICS IN THE UNIVERSITIES

TABLE Enrolments in statistics courses in Mathematics/ Statistics/Biometrics Departments in New Zealand, 1987.

Year	Otago	Lincoln[a]	Canterbury	Victoria	Massey Internal	Massey Extramural	Waikato	Auckland
1 Service	1100	200	734	627+157	850+150	650	170+100	535+600[d]
Mainstream	90	-	54	189	200		-	110
2 Service	35	80+46	-	72+41+32	26	34	200	100[c]
Mainstream	15	-	15 + 17	65	36+24	43+18	30+25	20
3 Service	-	20+38+40	-	-	10		-	30[e]
Mainstream	10		8+7	30+16	13+8+11	8+10	12+11+7	6+10[f]
Honours	3	12	2	0[b]				2
Diploma				6		5		4
M Sc	1			5	5		1	5
Ph D	1			3			2	1

NOTES

a Lincoln's student numbers are hard to classify as there are no degrees in Statistics.
b Usually around 3 or 4.
c Course based on STATCALC.
d Course for commerce taught by Econometricians.
e Course based on SAS.
f Six in statistics, 10 in probability.

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HISTORICAL BIAS OR 17 + 1 = ?

In the April Newsletter and in Volume 22 N0. 1 of the New Zealand Statistician reference is made to the 38th Annual Conference of our worthy Association. From the history of NZSA (published in Vol 1 No.1 of the NZ Statistician - copies available from the Secretary at $3 including postage) the count of 38 is at variance with the recorded first conference of prepared papers held on 10 and 11 May 1949. Volume 1 no. 2 of the NZ Statistician headed the 1966 programme as THE NEW ZEALAND STATISTICAL ASSOCIATION SEVENTEENTH ANNUAL CONFERENCE and subsequent conference issues have faithfully incremented the count by 1. As the author of the history in Vol.1 No.1 and the de facto editor of Vol.1 No.2 I cannot recall 21 years ago whether the count of 17 was a continuation from 'proceedings' (previously published after Annual Conferences) or an inability to count from 1949=1 to 1966=18! It would be an artificial justification to claim that Conferences should only be counted from the date of incorporation in 1950 (Incorporation simply gives legal status to, and protection to the officers of, the Association). The Association had existed at least from adoption of a Constitution at the May 1949 Conference and in spirit since the two day meeting in 1948 called with the specific purpose of exploring "the desirability of arranging annually such gatherings whereby experience may be pooled and both problems of theory and interest discussed". One of the motivations for calling this meeting in 1948 was a letter from E A Cornish (Australian CSIR) to I D Dick (NZ DSIR) enclosing literature "being circulated to persons in Australia likely to be interested in the formation of a local region of the International Biometric Society". Affiliation to the IBS was apparently rejected in favour of an autonomous association a draft constitution of which was sent to likely members prior to the May 1949 Conference.

In brief, the New Zealand Statistical Association was founded at a meeting held at Victoria University College, Wellington, on 31 August and 1 September 1948. The first Annual Conference was held on 10 and 11 May 1949 when officers of the Association were elected. Incorporation under the Incorporated Societies Act (1908) followed on 26 April 1950. Corporate members were adopted in 1966, the New Zealand Statistican was first published in 1966, and the newsletter was first published in 1984. Annual Conferences were held at:

Carter Observatory Lecture Room	1949-52
Victoria University College	1953
Public Library Lecture Hall, Wgtn	1954-65
Shell Theatrette, The Terrace, Wgtn	1966-79
Victoria University	1980-84
Auckland University (with Pacific Statistics Congress)	1985
Victoria University	1986
Canterbury University	1987

The Association has a collection of old calculators which is temporarily stored in the Kirk Building, Victoria University, with plans for a more permanent display when the new Mathematical Sciences block is built (contact the Secretary if you have or know whereabouts of any rare 'specimens' to add to the collection). Minute Book's of NZSA Committee and Annual General Meetings are kept in the DSIR Applied Mathematics Division Library.

K J A Revfeim, N Z Met Service

GETTING THE MESSAGE OUT....

Are you involved in an interesting APPLIED project? Do you have a tough CONSULTING PROBLEM at the moment? As a TEACHER of statistics, do you have some questions you want answered? Then how about sharing them with your fellow statisticians in our journal, THE NEW ZEALAND STATISTICIAN?! Succinct articles on New Zealand topics, or letters to the Editor on matters YOU are interested in are especially welcome. Send your submission to Dr J R Dale.

The Editor
The New Zealand Statistician
P O Box 77-087
Auckland 3

FROM THE EDITOR

Maxicrop; an unfortunate experiment?

Some years ago, I noted that a TV ad in the United States for Colgate's ***Double Ring of Confidence*** was downplayed in New Zealand to a ***Ring of Confidence.*** More recently, ***That's Incredible*** was neatly twisted to ***That's Fairly Interesting.*** If only ***Maxicrop*** had been Kiwi-ized to ***Not-A-Bad-Crop*** one wonders if litigation would ever have arisen. On the other hand, what would the US media have made of ***An Unfortunate Experiment?***

The academic year draws to a close. How is it that, despite brilliant teaching, some students can sit in a statistics class for a complete academic year and remain confused about the basics? I take some small solace from those intrepid statisticians who acted as expert witnesses in the Maxicrop debacle. They took two academic years (53 weeks) to educate the legal fraternity (and each other) on the correct statistical conclusions to draw from evidence.

In the new year when the dust has settled, I hope to be able to persuade people to share some wise thoughts about both of these important legal cases.

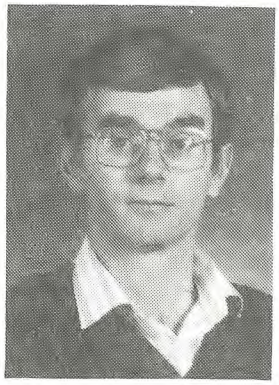
I must apologise for the poor proof reading of the last Newsletter. My colleague Doug Stirling had barely left the country for a year's leave when he was referred to as Dave; John Reynolds had difficulty explaining to Felicity that maidens do not frequent his desktop, which resembles a midden, and even if they did he would not tell tales about them!

Thanks to all of you who have contributed to this newsletter.

See you all next year!

Dick Brook

President's Column



As expected,and as many were lead to comment, the 1987 NZSA Conference was both stimulating and enjoyable. The Wellington contingent, in particular, seemed to enjoy the somewhat novel experience of a conference away from Wellington. We must thank Richard Penny for organising a very successful conference and Graham Wood for organising the teachers 'Maths with Stats' day which was an integral part of the Conference and also highly successful. Judging from the letters and comments received, the latter was certainly appreciated by the teachers. The assistance of Murray Smith, John Deely and Carmel Penny in the day-to-day running of the Conference is also gratefully acknowledged.

Despite a lengthy agenda, the AGM proceeded reasonably smoothly with most of the time taken up with discussion of the proposed constitutional amendments. These were accepted in a suitably amended form and the revised constitution will appear in the next issue of the New Zealand Statistician. Previously circulated Objects and Rules for the SAPQC detailing working procedures etc were also discussed and adopted. Details of the officers elected to serve on the Association's committees are given elsewhere in this newsletter. Paul Maxwell was re-elected as the Association's auditor subject to his consent, and has since kindly agreed to continue in this role. The recently formed Otago Local Group was officially welcomed into the fold by being affiliated to the Association. This brings the number of affiliated groups to three; the Manawatu Statistics Group, the Waikato Statistics Group and the Otago Local Group. Hopefully we can look forward to yet more local groups in the not too distant future.

The Executive Committee met on Thursday, 8th October. The two new members, Alistair Gray and Richard Penny, were welcomed and Judith Archibald, who had expressed an interest in the SAPQC in a moment of weakness at the Conference dinner, was duly co-opted onto the SAPQC. John Maindonald's very useful report on the ISI meeting in Tokyo was tabled and discussed. An edited version appears elsewhere in this Newsletter and it makes many useful comments and suggestions which we should seriously consider. The Executive reviewed the various projects currently under way, and discussed, in general terms, the various issues raised at the 1987 annual conference. A number of projects such as the surveys booklet are near to completion; some such as the history project are ongoing and long term. New projects contemplated are the production of both a careers booklet and a membership brochure describing the activities of the NZSA.

The impact of ICOTS 3 to be held in Dunedin in 1990 was also discussed. It was suggested that the Association should more positively and constructively focus on ICOTS 3 and make as much as we can of this statistical education milestone in the country's history. As has been pointed out in the media, 1990 is a year of many celebrations. It is the 150th anniversary of the signing of the treaty of Waitangi, the year of the next Commonwealth Games, the 150th anniversaries of the founding of Auckland and Wellington etc etc. In particular, I would like to see the Association initiate a number of projects that took advantage of either or both of ICOTS 3 and the anniversary of the signing of the treaty of Waitangi. The aim would be to complete these by 1990 with reports presented at ICOTS 3.

The nature of such projects is open to suggestion. One obvious candidate would be the history project which, incidentally, needs an enthusiastic volunteer to act as overall coordinator. Another should involve statistical education of one form or another. Can we create a project that ties in the ethos of the treaty of Waitangi celebration in some way, perhaps involving multi-culturalism and statistics in some meaningful and useful way? Grant applications for such projects may well be favourably looked upon. The Statistical Society of Australia (whose book we have taken a leaf out of) have initiated projects on Australian Youth Employment and the history of Australian Statistics as their contribution to the Australian bicentenary next year. These ideas have merit and 1990, ICOTS and the treaty of Waitangi celebrations certainly provide a worthy occasion and focus for such activities. Any suggestions for projects?

Peter Thomson

CAPTION CONTEST

I discovered this photo in my bottom drawer. It is not news so that it must be history! Any suggestions for a caption?

Possibilities:- If the Statisticians of New Zealand are placed end to end ...
Mature students outnumber youngsters in first year statistics course.
Some non-random Statisticians.

STATISTICS AND SCHOOLS

In 1986 statistics teaching in NZ took a great leap forward with practical work, usually projects, being assessed for 20% in the university bursary examination. During this time teachers were under a great amount of stress finding project topics and adjusting their teaching to accommodate them into their programmes. Many teachers were grateful for the help given by statisticians and mathematicians round the country in suggesting project topics.

This year some teachers have included a statistics project in their sixth form statistics teaching and a few have discussed the desirability of teaching all statistics through a project-based approach.

To help in this development it would be good if project ideas were collected together and sent to schools. An idea for a project would only need to be five or six lines long with some suggestions for development. If every subscriber to this newsletter had one idea based on their work we could produce a useful list for teachers. Please remember that these projects are for young people who do not yet know much statistics and who are trying to develop a feel for the subject. They should be practical, cheap, not too time consuming, and not require too much prior knowledge.

If you have any ideas please send them directly to the mathematics curriculum officer who has agreed to distribute them to all schools. The address is:

Education Officer (Mathematics)
Department of Education
Private Bag
Wellington

KIWI ANSWER TO TUKEY-ISMS ?

Some of the statistics prescriptions for New Zealand Certificates have been rewritten recently. The wordprocessor's interpretation of the writer's scrawl produced some fresh statistical terms which rival the finer neologisms of the Tukey-ites. Here are a few:

somple, computery, hypothesis feats (both one-failed and two-failed), beverages (for assessing effect of rogues in regression); and finally, acceptable quality land.

These were emended with regret.

Copied (accurately?) from the scrawl of

Mike Camden, Wellington Polytech

EXPERT WITNESSES ON LEGAL CASES

Often two groups of statisticians acting as expert witnesses will come to very different conclusions by choosing to focus on different aspects of the same data base or by choosing different techniques.

Persis Diaconis , in Exploring Data Tables, Trends and Shapes.

(Will the next Newsletter echo similar sentiments from (yes) the Maxicrop trial? ...Ed.)

STATISTICS IN POLYTECHNIC INSTITUTES

For the past three years I have represented the NZSA on the Statistics Prescription Committee for the Authority for Advanced Vocational Awards (AAVA). The task of this committee was to rewrite the major statistics courses taught in NZ Polytechnics towards various New Zealand certificates. This task is now complete.

The main course in the set is a third year course (3150 Statistics) which can be taken by candidates for NZ Certificates Science (NZCS) specializing in Biology, Chemistry, Geology, Medical Science, Metallurgy, Statistics and Water Technology and also by candidates for the NZ Certificate Forestry and the Technicians Certificates Waste-Water Treatment and Water Treatment. This course has been up and running for almost two years now. A fourth year course (4200 Statistics), mainly taken by candidates for NZCS:Statistics was introduced in 1987. The new fifth year course (5257 Statistics) has been completed, but due to low interest is now being run by individual Institutes where required with no external examination.

Throughout these courses we have taken a completely new approach to the teaching of statistics. We stress understanding through application and a practical, common-sense approach to data rather than the more academic approach used in the past. We are expecting students to achieve a level of statistical literacy which will enable them to solve real problems using modern computing tools where appropriate. Over the past six or seven years there has been a marked drop in interest in the AAVA statistics courses. We hope our updated approach, which is certainly more tuned to today's market, will appeal to students and tutors alike.

There remains the on-going question of whether or not the NZCS:Statistics should survive. I have argued for its survival to this stage on the grounds that if it were scrapped it would be likely that the statistics courses would go out with it. However, I would like to see these statistics courses being much more widely available as options in other NZ Certificates so that the survival of the NZCS:Statistics becomes irrelevant.

There are moves afoot within the AAVA to free up the structures of the various Certificates. We, as statisticians, need to convince people in other scientific disciplines that a practical and sensible statistics course will be a valuable asset in any certificate qualification. We need to spread the message that the days of statistics being "dull and boring" are over and urge as many as possible to give "the new look" a try.

Jean Thompson, D S I R, A M D.

FLORENCE NIGHTINGALE - PASSIONATE STATISTICIAN

Statistics were to her a religious exercise. The true function of theology is to ascertain the character of God. Law is the thought of God. It is by the aid of statistics that law in the social sphere may be ascertained and certain aspects of the character of God thereby revealed. THE STUDY OF STATISTICS IS THUS A RELIGIOUS SERVICE.

F N David in lecture notes on Florence Nightingale.

STATISTICS IN THE UNIVERSITIES

Statisticians at the Mathematics Colloquium at the University of Waikato took advantage of unexpected gaps in their program to discuss collectively a number of matters. It was decided that a review of the state of statistics at each New Zealand University would be helpful.

From the verbal comments and later written comments, the following material was collated. (Fay Sharples of Waikato helped the editor in this exercise in Messy Data as problems arose in that categories do not transport very well across Universities).

OTAGO

A Post-Graduate Diploma in Applied Statistics is currently being considered for approval by the UGC. We hope that it will begin next year. It involves four papers, a project, and four weeks training working with a practising statistician. The prerequisites are as flexible as possible whilst still allowing some work at final year honours level.

We are intending to work more closely with the Commerce Faculty in future and to introduce some courses that can be taken both by our students and commerce students.

There are separate degree regulations for statistics and mathematics.

CANTERBURY

We in the Statistics group here in the Mathematics Department have started a review of the whole Statistics program. Significant changes are anticipated. for example, as from 1988 there will be only one Stage 1 Statistics paper and thus will be along lines developed by Graham Wood during 1987. Both service and advancing students will be in the one paper which will offer tutorials in groups of 15 to 20 once a fortnight. One immediate consequence is that we have just appointed a new statistician, Frank Lad, the first appointment in 14 years, and we look forward to the new life he will feed into our Statistics development.

LINCOLN

Lincoln does not have a degree in Statistics as such although some masters students may opt to take a considerable amount of statistical methods as "special types".

VICTORIA

Peter Thomson spoke of the dramatic increase in outside consulting work by members of the Institute of Statistics and Operations Research (ISOR). This work has been done for a variety of clients from government business and industry, and is mainly in ISOR's areas of strength.

The Institute was set up to link the quantitative groups on campus and to facilitate joint teaching programmes. It has two full-time consultant statisticians and work for more. Apart from the two consultant statisticians, the Institute's activities are currently dominated by the Statistics and OR group in the Mathematics Department. This has, in part, lead to talk of forming a separate faculty of mathematical sciences which might contain such a grouping. The "umbrella" aspect of ISOR remains to be dealt with separately.

A new Post-graduate Diploma in Social Science Research has been set up. It contains a statistical component, and Sharleen Forbes taught a block course for the Diploma during the May vacation. In response to a need for 'financially aware' mathematics and statistics graduates, the Institute has put forward a proposal for a Diploma in Financial Mathematics to be funded, in part, by the finance industry. This financial support, if forthcoming, will provide for an additional 1.5 lecturing staff, one in ISOR and the remaining .5 equivalent in the Money and Finance group of the VUW Commerce Faculty. Science and finance are now competing hard for the same mathematics and statistics students.

MASSEY

Brian Hayman mentioned that the Diploma in Applied Statistics starts next year for extramural students.

It is a pity that the Manawatu Statistics Group is in recess at the moment.

There are two administrative proposals. One is to create separate departments of Mathematics and Statistics. The other is to bring these two subjects together with Computer Science, into a grouping such as a School or a Faculty.

Doug Stirling's MacIntosh package STATLAB was demonstrated at the Colloquium. He would like to use it in the first year methods course but that would require quite a few more micros.

WAIKATO

Murray Jorgensen spoke of the new School of Computing and Mathematical Sciences which is to be regulated by "streams". We are involved in the Statistics stream. The programs for the eight streams are drawn from the courses taught in the Mathematics, Computer Science and other departments. Although there are five people in the Statistics and Operations research Section this includes one part-time appointment, a Junior Lecturer and the Dean Designate of the new School, who is involved with first year Basic Mathematics teaching. We are currently advertising a Lectureship in Statistics.

The Waikato Centre for Applied Statistics, established in February as a joint venture between the University and Ruakura, is up and running. So is its director, Ray Littler, who spends mornings at Ruakura and afternoons at Waikato.

AUCKLAND

Jeff Hunter reported that as part of the submissions to the University Review of the Department it is proposed that a consulting office should be established.

A faculty or school of Mathematical Sciences to include Mathematics, Statistics, Theoretical and Applied Mechanics and Computer Science, is being considered by the Review Committee. The Statistics Unit of 56 is within the Department of Mathematics and Statistics and is autonomous for course structures but not vacancies.

We intend to make our first-year service and mainstream courses more similar so that students are not penalised if they make a wrong choice in their first year. The degree exams of the two courses already have a substantial part in common.

The Operations Research Committee from commerce, engineering and statistics adminsters two course at stage 3.

COMPETITION FOR YOUNG STATISTICIANS FROM DEVELOPING COUNTRIES 1989

The International Statistical Institute (ISI) announces the Fourth Competition among young statisticians from developing countries who are invited to submit a paper on any topic within the broad field of statistics, for possible presentation at the 47th Session of ISI to be held in Paris, France, in 1989.

Participation in the competition is open to nationals of developing countries who are living in a developing country, who will not be older than 32 years of age in the year during which the Session is to be held.

Papers submitted must be unpublished, original works which may include university theses.

The papers submitted will be examined by an international Jury of distinguished statisticians who are to select the three best papers presented in the competition. Their decision will be final.

The authors of the winning papers will be invited to present personally their papers at the Session of ISI concerned with all expenses paid (i.e. round trip airline ticket from his/her place of residence to Paris plus a lump sum to cover living expenses).

Manuscripts for the Competition should be submitted in time to reach the ISI not later than November 1, 1988.

The rules governing the preparation of papers, application forms and full details are available on request from the ISI Permanent Office to which interested individuals should write for further information. The address is as follows:

The Director
Permanent Office
International Statistical Institute
428 Prinses Beatrixlaan
2270 AZ Voorburg
The Netherlands

LOGO FOR ICOTS 3

Most interested people should by now know that the Third International Conference on the Teaching of Statistics (ICTOS 3) is to be held at the University of Otago in August 1990. This is some time away, but work has begun already on the organisation of this major event.

One important matter that needs to be decided soon is the logo. The one below has been provided by artists at the University of Otago, but before this is accepted by the ICOTS Local Organisation Committee, I would like anyone interested to have the opportunity to propose alternatives. Therefore, if you consider yourself a good designer, will you please send me your suggestion as soon as possible.

Bryan Manly
Department of Mathematics and Statistics
University of Otago
P O Box 56
Dunedin

Victoria University of Wellington
New Zealand

LECTURESHIP IN STATISTICS

Applications are invited for a lectureship in statistics in the Department of Mathematics from men and women with a proven ability in statistics or applied probability. 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.

The Department offers undergraduate and postgraduate courses in pure, applied and numerical mathematics as well as probability, statistics and operations research. The group in statistics and operations research works closely with the research/consulting staff of the VUW Institute of Statistics and Operations Research and contributes to the Institute's postgraduate teaching programme.

Professor D Vere-Jones is responsible for probability and statistics in the Department of Mathematics. The current research interests of the Department's statisticians include stochastic point processes, applications of stochastic processes in geophysics, time series analysis, multivariate analysis, statistical computing and data analysis, population models, biometrics, decision theory and statistical inference. The University's main computers comprise an IBM 4381, a VAX 11/750 and a local area VAX cluster of MicroVAX II's. A wide spectrum of statistical packages is available on these machines. In addition the Department and the Institute have a number of microcomputers and an AT&T 3B2/400 + minicomputer.

Through the Institute, the group in statistics and operations research has good contacts with their colleagues in other University departments. Close links also exist with the groups in statistics and operations research in Applied Mathematics Division of the Department of Scientific and Industrial Research, which is located on the University Campus, and other Government departments.

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

Commencing salary will be within the range NZ$32,000-38,500 per annum. The closing date for applications is 31 January 1988.

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

infos

Did you know that INFOS can give you direct access to a wide range of up to date and historical statistics?

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Chrissie Francis
INFOS Marketing Officer
Department of Statistics
WELLINGTON.

1987 REGIONAL SCIENCE FAIRS - STATISTICS PRIZES

During 1987 the Association judged at seventeen of the N.Z. Regional Sciences Fairs. The prize is jointly sponsored by the NZ Statistical Association, the Department of Statistics, the Applied Mathematics Division of the DSIR, and the Ministry of Agriculture and Fisheries. The basic objective of the statistics prizes is to improve and enhance the level of statistical awareness within the secondary school systems.

The names of the various members of the Association who acted as judges are listed below. The Association and the organisers wish to take this opportunity to record their appreciation of the excellent job done by the judges.

Below I have attempted to collate the observations made by various judges. I would like to thank them for the time spent writing them up.

Comments of a General Nature

Exhibitors from certain schools seem to have a greater statistical understanding - presumably a teacher influence. The number of senior entries are relatively small, and often of not much better quality than those from the junior level.

The motivation from the teacher, I suspect, provides the greatest impetus for a student to enter the fair. For example, some schools are very well represented and others are almost non-existent. Also there are often many exhibits on the same subject. For example, last year Wind Tunnels, Solar Systems and Volcanoes were popular subjects at one fair. These may have originated from class projects.

The "Notes for Exhibitors" and "Guide to Judges" may be clear to the statistical Association judges, but not so useful to the exhibitors, teachers and parents.

Poor Use of Statistics

The fairs are often disappointing from a statistical point of view. Often no awards are a distinct possibility, and if a prize is given it may be grudgingly. Many of these exhibits have a statistical potential without the exhibitor realising. Nevertheless, many go no further than plotting means in the form of a bar or pie chart. Many exhibits are of a biological nature, and I would suspect they do not see any relevance of applied mathematics to their subject matter and/or they may have a poor background in mathematics. Many of the better mathematics students, I suspect, take more the physics type of options in which statistics may well be perceived to have even less relevance than in the biological sciences. The message is not getting across to the teachers that the sensible collection of data and their analyses is an essential part of science. In fact one judge, upon explaining that he was judging for the statistics prize, was asked "What is Statistics?".

Common failures are:

a) Little thought given to measurement, possibly a tendency to shy away from objective measurement.
b) Quality of the data is not checked.
c) Consequences of sampling variation is not explored.
d) Lack of replication in experiments.
e) Wild claims - the idolatory of numbers.
f) Few go beyond histograms, pie charts and means. Generally averages are plotted instead of scatter plots. Information on variablity tends to be lost.

Nevertheless, all is not gloom. Some judges noted an improvement in the statistical content of the exhibits. Some replication in experiments was noted, though references were not made to the variation found.

Difficulty in Judging

It is often difficult to weigh up the relative merits between competing exhibitors. For example, one may have excellent graphical displays though a poor understanding of sampling variability, and another may have poor graphical displays though a reasonable understanding of the sampling variablity.

It also is difficult to know what is reasonable standard to expect. The statistical aspect should be essential to the project and included in the conclusions. Jocelyn Dale suggested the following criteria for judging:

a) Aim of the exhibit (10%): relevant scientifically, originality.
b) Planning (30%): experiment or survey, how they will measure the responses.
c) Analysis (20%): limitations, bias, variability, appropriate, simple, graphical, etc.
d) Presentation (20%): clear, good summary, sensible graphs.
e) Understanding of the Techniques (10%): limitations of the study,
questions to address in further studies.
f) Relevance of the statistical dimension to the conclusion (10%).

Judges were:

Wes Baillie, Dick Brook, Jocelyn Dale, Chris Dyson, David Harte, Hanno Fairburn, Fred Lam, Terry Moore, Ron Munford, Wayne Oulaghan, John Rayner, T C Reid, David Saville, Martin Upsdell, Andrew Wallace, John Waller, Max Wigbout.

David Harte, MAF

Statistics and the Science Fair - A Judge's Viewpoint

As the judge for the New Zealand Statistical Association prize at the 1987 Manawatu Science Fair, I was made aware of the status of statistics in the school syllabus. This has prompted me to write down my experiences in the hope of encouraging teachers to teach some statistical awareness. But first let me describe my experiences as a judge.

At the fair there were teams of judges for the overall prizes and these judges were assigned to groups of exhibits. This was not true of the special prizes. Here the judges had the entire fair to look at. I was faced with two A4 pages (reduced from A3) consisting of a list of exhibit numbers, titles of exhibits and names of exhibitors. There were about 300 items on this list which I had to judge in 3 hours and I was grateful to have the exhibits set out in such an organised way. I believe this is not always the case at such events and this makes it much more difficult to judge. Judging involves comparing different exhibits and this makes it essential to find exhibits on the short list later. If many of the students had used some statistics the judging would have been well-nigh impossible. I realised that I was not going to have time to more than glance at

some of the exhibits and summarise the statistical procedures used, if any. I would then have to go back and look in more detail at those which might be eligible for the statistics prize.

One of the first exhibits I saw used a range of statistical techniques at about 7th form level. As I went on I came to realise that this was the exception rather than the rule. Most of the exhibits used no statistics at all. This is no criticism as statistical methods may not have been appropriate for a particular exhibit. However, in many cases data was collected and some statistics could well have been used. Those which did use any statistics generally limited themselves to bar charts or pie charts to display the data. In the end there was only one exhibit to which I could return for a closer examination. At first glance I thought that this exhibit did nothing out of the ordinary, but on closer examination I saw that what it did, it did extraordinarily well and I had no hesitation in giving it the statistics prize. This exhibit, by Nathalie Morris of Palmerston North Girls' High School, was called "Hear and There" and also won the overall prize as well as going on to win at the National Science Fair.

Briefly, "Hear and There" tried to discover how accurately a person could locate the position of a sound source at various frequencies and with white noise. Although Nathalie is a 4th form student and has not formally met very much statistics, she used confidence intervals to express the estimates of the accuracy. Even though I was not judging the exhibit as a scientific experiment, I could see that the experiment was well set up with the emphasis on trying to reduce experimental error as much as possible as well as analysing the remaining errors statistically.

Apart from statistical aspects of the exhibits, I was able to get a general impression of what students (and probably teachers) view as being science. To me science is the discovery of how nature behaves, if possible by experimentation, but failing that (and here I will probably be regarded as a heretic), by observation. However the exhibits seemed to be predominantly of a descriptive or technological nature. This is not to suggest that the technological exhibits are not worthwhile, but if it is intended that they should be included then perhaps the title of the science fair should be changed. At the moment such exhibits would stand little chance of a prize when competing with actual experiments. Some exhibits seemed to be more in the nature of mysticism than science. One example was about spontaneous combustion of humans. While it is unscientific to dismiss such ideas out of hand, it is equally unscientific to accept them uncritically as the exhibit seemed to do. The main trouble is that examples of this kind are usually supported only by anecdotal evidence. Certainly the highest standard of evidence is that derived from a well designed experiment but in some situations observational studies may be all that can be obtained. I shall say more about this later.

What statistics should we expect to be used in Intermediate and High Schools? I certainly would not expect anything of the standard of "Hear and There" as a general rule. However, it is clear that bar charts and histograms are being taught at or below intermediate school level. What is missing is some appreciation that all data has inherent variation. In fact the aim of "Hear and There" was to examine that variation. Of those students who did opinion polls, most either tabulated or graphically displayed the data, some quoted a proportion as a point estimate but none gave any estimate of the likely error in the results. I would like some appreciation of variability taught even in Intermediate Schools. One way in which "Hear and There" fell short of the ideal is that, on advice from an experimental psychologist, only one experimental subject was used. Considering the work involved, this was the right decision for the Science Fair. However, the results can, at best, only be regarded as a preliminary experiment because we have no way of knowing, without testing a number of people, whether there is little variation or a great deal of variation between people in the accuracy of locating sounds and the frequency ranges at which they can do this best. It is this sort of appreciation which is important.

Results from opinion polls, crime statistics and other statistical data are constantly in the news. It is important that the public should learn to view such data critically - and the best place to start educating the public is early in the schools curricula. In particular, a small rise, for example, in accident rates might be due to random variation. An appreciation of variability helps avoid the mistake of thinking that the standard of driving *must* have deteriorated.

Instead of the standard approach I suggest the following:

Along with the average of a sample, which even primary school children know about, a measure of the spread of a sample should be taught. Unfortunately the standard deviation is too difficult for the younger students, but all students are used to the concept of their positions in class. Therefore it is easy to explain about the median (the mark which half the students exceed and which can be used as another kind of average) and the quartiles (the marks cutting off the top and bottom quarters of the class). One and a half times the difference between the quartiles (that is one and a half times the interquartile range) is a good measure of variation. For the technically minded, the proportion of a normal population further from the mean than this is about 5%.

The next step is harder. We want, not the variation in the sample, but the error in our estimate of the average. Obviously a large sample gives more accurate estimates than a small sample. Dividing the spread (one and a half times the interquartile range) by the square root of the sample size gives a good estimate of a bound on the error. For estimating a proportion this does not work. In an opinion poll, for example, it is usual to quote the "margin of error". This is found in the following manner. Multiply the proportion of people for the proposal (or supporting the candidate etc) by the proportion against. Then divide by the number of people and take the square root of the result. Twice the resulting number gives an error in the proportion which would be exceeded in about one sample in twenty.

One of the most difficult things to learn in statistics is how to interpret results. Even at university level, students, who are able to do statistical calculations very well, have difficulty interpreting the results. Clearly, though, it is important to be able to think critically about published figures. In the fluoride debate, for example, it is very difficult to refute the evidence that fluoride helps prevent tooth decay. Instead the debate hinged mainly on safety. When an observational study in the United States showed increased cancer rates in areas with fluoridated water supplies compared with other areas the debate intensified. Since then it has been discovered that the fluoridated areas differred in other ways from the unfluoridated areas and the other factors are believed to be related to cancer. If the public are made aware that observational studies do not control for other factors then we will have more informed debate. When we have to rely on observational studies we should always try to see whether any observed effects could be due to other factors. If we fail to detect other factors then we can accept the evidence tentatively but we cannot draw any firm conclusions. If we taught this sort of awareness in schools then we would be serving the community by promoting informed discussion.

Terry Moore, Massey University

On the Speed and Accuracy of Election Night Prediction

As many of the readers of this newsletter will know, I have devised the computer prediction and analysis system that is used by Television New Zealand as a major part of their election night coverage. I have fully described the scientific basis and hinted at the performance of the stystem in the 1984 election in the pages of the New Zealand Statistician (1985). My system has been called into question (New Zealand Listener, August 15, 1987) on three grounds.

(i) Indicator booths do not work in New Zealand.
(ii) Radio is always faster than television, and
(iii) Radio's prediction is more accurate

In reply I simply point out firstly (as does Nigel Roberts, New Zealand Listener, August 7, 1987) that the scientific basis of the Radio New Zealand system unlike mine, is hidden from public scrutiny; and secondly note that the level of technology involved in radio broadcasting is vastly more simple than that of television. Thirdly, I will present some evidence from the1987 election, and readers can form their own judgement.

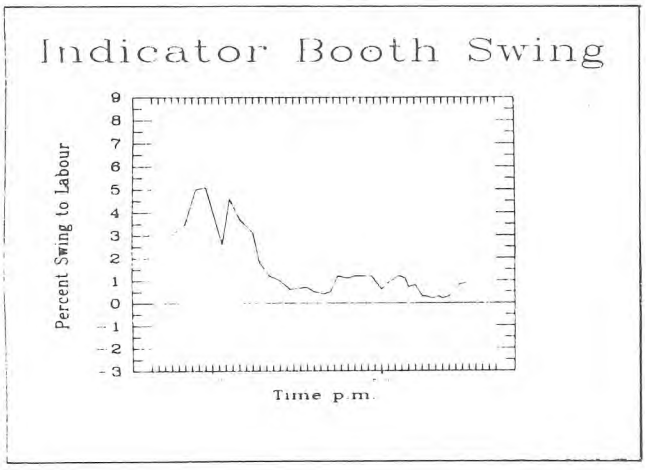
Figure 1 tracks the swing shown by our indicator booths during the early part of the election night. It is this swing which is used to "call" the election winner. You will see that it stablised at around 7.40 pm (when 12 booths had reported) and varied in a narrow band thereafter. We were in a position therefore to make the (correct) "no change" Labour win prediction quite safely by about 7.50 pm (on 20 booths). The fact that only a tentative prediction was offered at this time, and that a definite prediction was not made until some time later cannot be blamed on the system. In the 1990 election I expect very much the same sort of stabilising pattern to re-occur. Perhaps we may actually enter the "race" that time!

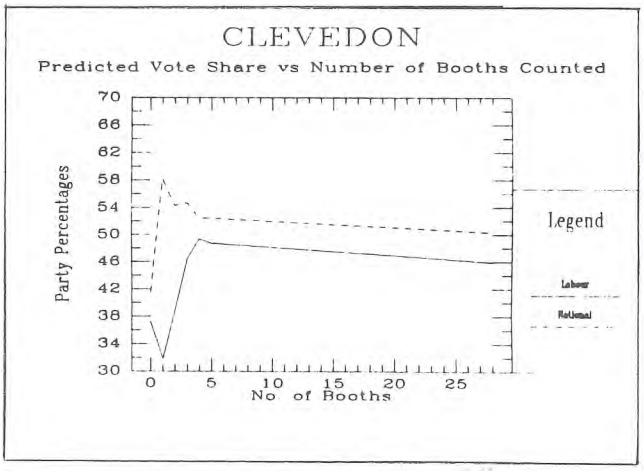
As far as individual seat predictions go, I note that we put 5 "too close to call" to air, and 57 definitive predictions. Of these fifty seven, 48 were correct first time, one was changed to 'too close', four were subsequently corrected, leaving four uncorrected. I regard this success rate as statistically quite acceptable. It was Confucius I believe who said "Prediction is a tricky business, especially when it is into the future". Let us examine some of the worst of these individual cases.

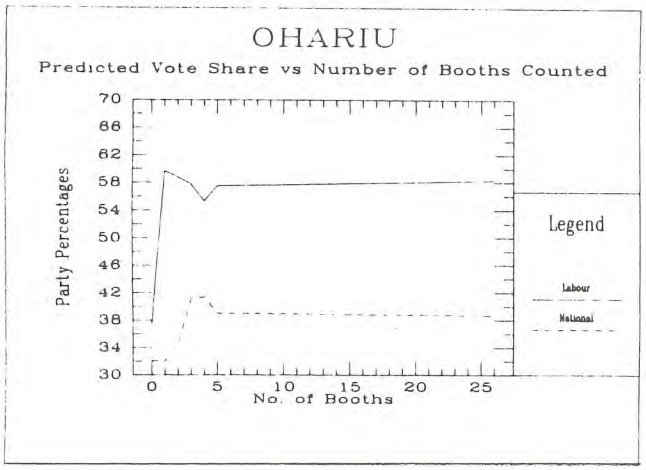
Figure 2 shows our predictions for Clevedon based on one, two, three, four and five booths. Clevedon is a totally new electorate in a region where boundary changes had been extensive, and where population growth in the last three years had been quite substantial. Figures 3 and 4 show similar information on Ohariu and East Coast Bays. Ohariu was difficult, because of the unknown destination of a very large New Zealand Party vote share of the 1984 election. East Coast Bays was the only electorate where the Democrats were given any real chance of a win (though with hindsight we should obviously have considered Wanganui also). I regard the predictive performance in these cases to be very satisfactory, but then I'm biased! I might just add that I can find plenty of better predictions than these, my own Palmerston North is a good example.

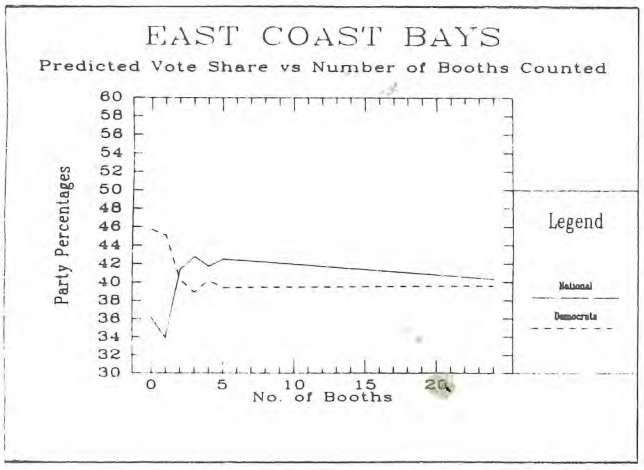
Finally, thanks are due to TVNZ for inviting me, and Massey University for allowing me, to undertake this work.

Hugh Morton, Massey University









News from Members

DEPARTMENT OF STATISTICS (*on the one hand*)

Steve Kuzmicich left yesterday for five weeks overseas. He is attending an ILO conference in Geneva, a session of the UN Statistical Commission and a meeting of the European Community on Statistical Standards.

Paul Maxwell attended the ISI conference in Tokyo, and has travelled on to statistical agencies in Europe.

Len Cook has been elevated to the position of Commissioner on the Royal Commission on Social Policy.

Of people in Mathematical Statistics:

Beverly Braybrook has gone to the Department of Justice.
Vic Duoba and Helen Zarifeh have moved to EDP division.
Ron Blackwell has gone to MAF.
Barbara Clendon is on maternity leave.

One of the highlights of the last few weeks was the visit by Larry Cox from the US Bureau of the Census. After talking at the NZSA conference he gave several seminars at the Department in Christchurch.

Planning has commenced in earnest for the 1991 Census of Population and Dwellings. We are investigating putting data from the 1986 Census, at least as far down as area units, on to CD-ROM.

Garry Dickinson

Mathematical Statistics, Christchurch (*on the other*)

A lot of changes have occurred recently. Barbara Clendon is on a year's maternity leave, Alex Fox has been seconded to EDP and Soh Loi Randall is back full-time after her maternity leave. In August we were happy to have Larry Cox, from the U.S. Bureau of the Census visiting us. Those of you at the conference will have heard Larry give a talk on statistical graphics. We discussed that area but also those topics that concern us in statistics - gathering organisations, confidentiality, editing, imputation, recruitment and retention of staff, time series adjustments, mapping, etc. A fruitful visit and in a way depressing in that the Bureau of the Census has the same problems we do in many of these areas, particularly in staffing.

Richard Penny

FROM FOREIGN LANDS AFAR!

After a long day spell of 15 years Stanford Statistics Department now has two New Zealand students in consecutive years. These are Tony Cooper of Massey University now starting my third year and Clive Loader of Canterbury University starting his second year of a four-year PhD programme. I am working on efficiency of calculations of bootstrap estimates while Clive is too young to be thinking of a thesis just yet. We are both doing very well - we both finished top of our respective classes in the qualifying exams. Of interest to other students considering Statistics at Stanford is the comment the Chairman of the Department Herbert Solomon made to John Maindonald when talking about the New Zealand students, "Send us some more".

Tony Cooper, Stanford University

Victoria University

This has been a year of considerable stress for the Victoria crew. Bernhard Flury and family arrived in early April. Bernhard quickly settled in and proved a very stimulating and agreeable addition to the department. Unfortunately, after a short time, he decided that the cost of servicing a loan to purchase adequate accomodation wasn't feasible on a lecturer's salary, and so he resigned in August to go to Indiana. We were very sorry to see him go, since he had the right mix of skills and personality to fit in very well.

So we are again in the market for a replacement!

Meanwhile in the jungles of academe, others were beavering(jungles? *beavers???)* away. Some like Megan Clark and David Vere-Jones had the temerity to produce a report on the state of science teaching in the seventh form. This seems to have caused quite a stir nationally. Megan's other baby is due to appear sometime October/November we believe. In the meantime, she's been touring the country speechifying.

David Vere-Jones managed to ease himself into a teaching slot at a Chinese University, giving a Summer course on multivariate statistics, leaving his colleagues in tenuous command. He is currently (early October) in Italy doing contract work for a Governmental agency on earthquakes and is expected back in November. He has been replaced for the period of his absence by John Bibby, who is normally doing private consulting in Edinburgh. John has been very successful in trying circumstances and we were grateful for his ready forgiveness of some 'administrative oversights' concerning his appointment.

Tony Vignaux and Tapas Sarkar both returned from leave during the year, having been as far abroad as China, India, the UK and sundry places in between. Tony returned sporting a sweat shirt bearing the inscription "Bayesians have more fun". Doesn't he know that people who have to tell themselves they're having fun, aren't?

Those of us involved in the S project again acknowledge gratefully the support, both moral and physical, from Robert Davies and AMD, in particular Barney Campbell and Ray Brownrigg. We are currently facing a maintenance crisis, with no funds forthcoming from the university to cover maintenance costs of the 3B2 which continues to perform valiantly under the onslaught of delighted S - users. There is increasing interest being shown by outside organisations, and we have demonstrated the system on several occasions to interested parties. We were extremely disappointed that the UGC were not prepared to grant us any assistance to extend the system to a fully viable research instrument from its current experimental configuration. Somehow we have to get the message through that current needs in our discipline are extremely computer intensive, and if support is not forthcoming, we run the risk of being left far to the rear in modern developments.

Finally, Graham Wood from the University of Canterbury, gave us a 'Taste of Speed' at a joint meeting with the Wellington Mathematics Association in mid-October. There we glimpsed the shape of the future when all beginning statistics courses will be taught along the lines advocated by Terry Speed.

Brian Dawkins

Auckland University

We have two visiting statisticians in residence at present: - Jock Mackay, from the University of Waterloo, who is here until August and Richard Alldredge, from Washington State University, who is visiting until the end of January.

Cathy Macken and Jeff Hunter both set out for a year's sabbatical leave in August and Brian McArdle departs for a similar period in November. In his absence, Brian's duties as biometrician in Zoology will be handled by Lindsay Plank who has recently joined the university from the Department of Statistics.

Alastair Scott

Applied Mathematics Division - Mt Albert Substation

Roderick Ball has been at AMD Auckland since the end of May. He is a graduate of Canterbury (N.Z.) and Princeton Universities. Since completing his Ph.D, in 1981 he has held positions at Princeton University, Purdue University, and New Maxico State University. His interests are in topology, linear optimisation, and parallel computing. Currently he is trying his hand at statistics.

Jocelyn Dale took six months leave from the substation starting early July. She has continued with part-time lecturing at Auckland University.

John Maindonald

VARIOUS AND SUNDRY STATISTICAL MEETINGS

INTERNATIONAL STATISTICAL INSTITUTE meeting in Tokyo (August 8-16, 1987)
Meeting of Officers and Representatives of National Stational Societies.

I represented NZSA. Participants commented on what they saw as the important activities or initiatives of their societies over the past year or two.
There was then a discussion on what could be done to strengthen co-operation between societies. There was strong support for the establishment, under the auspices of the ISI, of a 'Union' of national statistical societies.

A committee was established [Fred Leone from the American Statistical Association plus two others] who will proceed with all haste in putting together proposals for the new body.

Comments from Fred Leone and others at the National Societies meeting drew attention to the need to improve the public image and presence of statistics.

Japan has a national statistics day and a statistical investigation/graphical presentation contest for schoolchildren. A booklet that gives the best entries for 1986 was distributed at the ISI meeting.

ICOTS 1990 (INTERNATIONAL CONFERENCE ON THE TEACHING OF STATISTICS)

I was surprised at the number of unsolicited enquiries that I received. An excuse to visit New Zealand may be a good drawcard.

Planning is well in hand for the August 1990 ICOTS meeting, to be held in Dunedin. Maybe the 'preliminary announcement' brochure should have a map that places Dunedin at the centre of the world, with air routes to other places radiating out.

PAPERS AT THE ISI MEETING

It is a boon to have the invited papers pre-printed. One can skim through quickly and decide whether it will be useful to hear the paper presented. Some of the papers that caught my attention were:

Some Principles of Data Analysis - Mallows and Pregibon
Data Analysis and Self-similar processes - F. Hampel
Graphical Methods in Statistics - N.I. Fisher
Statistical... Quality ... (Taguchi etc.) - G. Box
The Use of Brushing and Rotation for Data Analysis - Becker, Cleveland and Weil
An Object Oriented Approach - Oldford, Peters, and Welsch [Use of LISP-like language environments]
On the Statistician's Contribution to Quality - Deming

IASC SATELLITE MEETING (AUGUST 17-19, 1987, IN SHIZUOKA)

The International Association for Statistical Computing meeting was held in a quiet country place on the lower slopes of Mount Fuji. Numbers were restricted - there were 35 Japanese and 36 foreign participants. There was a single stream of papers - I found something of interest in most of them. The setting was ideally designed to encourage informal disucssion. The next satellite meeting, this time an open meeting, will follow the ISI meeting in Paris in1979.

JOIN IASC NOW!

IASC has just 5 N.Z. members. This does not do justice to activity in statistical computing in N.Z. It costs US$15 to join, for which members receive the Statistical Software Newsletter, the ISI Information newsletter, and ISI Short Book Reviews. Send me a note if you would like a brochure and IASC membership application form.

ELECTRONIC MAIL

IASC hopes to co-ordinate putting together electronic mail addresses of IASC members [and others?], using the Statistical Software Newsletter. NZSA would be glad to hear from anyone keen to assist in putting together a list of mail addresses of NZSA members - or send me a note.

John Maindonald, D S I R, A M D

Report on the 39th Conference

Despite what you may have thought I have it on good authority that those of you at the University of Canterbury on August 24-26 were at the 39th Annual conference of the NZSA, not the 38th. It pays to go to NZSA days, even the history ones. As the organizer I am probably not the best person to comment on the conference as organizers tend to see a different side to conferences. A bit like asking the engineer on a ship to comment on a cruise.

The conference started inauspiciously on the Sunday with Wellington airport being closed most of the day. I stayed until midnight waiting for people to arrive. At that point I went home, little realizing that ANZ had laid on two LATE flights at midnight. Fortunately Peter Thomson was still awake after attending John Deely's welcoming *soiree.* Peter had a master key and managed to give the late-comers a room to sleep in. I caused problems the next morning before I discovered this when I assigned their rooms to other people. We sorted out the problem and no-one had to share a bed, well not that anyone complained to me.

Also that evening the people from Dunedin ran out of petrol on the way home from John Deely's. That must have been a great evening. Next time someone else can organize the conference and I can get to the social events!.

As to the papers themselves I believe that they were on the whole good. Not that I heard many of them. The ones I got to were excellent. There was Brian Dawkins showing us what we could do with an interactive statistical package and ready access to a computer. Larry Cox from the U.S. presented a talk direct from the ASA meeting in San Francisco on where statistical graphics could be heading to.

A special mention should be made of the "Statistics With Education" day on Tuesday. An excellent programme with lots of teachers (we were expecting 60 and got 87) to talk to. I don't think Graeme Wood's method to promote mixing was necessary. People wanted to talk to someone from the 'other side'. The feedback from the teachers has been tremendous. The main comment is "how interesting and enlightening it was to meet real statisticians". I wonder what unreal statisticians do? It was a good day for all and many grateful thanks to Graeme for his work. A lot of work was involved. If you don't believe me you try it. Graeme will just sit back and smile.

A major highlight for me was the public lecture and conference dinner. Len Cook gave an excellent talk which I hope will be the first of many. The talk gave a good lead-up to the dinner and both were enjoyed by all. Try it in 1988, you might enjoy yourself.

I want to say that it is the people who lived in the hostels who seemed to have the best time. I believe they even discussed statistics amongst other things in the evenings and at breakfast. That is what a conference is all about, exchanging ideas and having a little fun (and I nearly added 'on the side'.)

But finally a big thank you to my band of hard-working helpers. Most I have mentioned already. But I must not forget Murray Smith who arranged the morning and afternoon teas and that delicious conference dinner. It takes a lot to get a conference going, but I hope that those of you who attended it feel that our effort was worth it.

Richard Penny, Department of Statistics.

Joint Statistical Meetings in San Francisco

Never before have so many Statisticians converged on one place - San Francisco. The occasion was the Joint Statistical Meetings held August 17-20. I was fortunate to be among the 4000 or so, mainly North Americans, attending. John Maindonald and I made up the (unofficial) New Zealand contingent. We met up at the opening session on Statistical Computing and held our caucus meeting at an Ethiopian restaurant that evening, which will long be remembered for its hot food.

I found the meetings very stimulating and a great opportunity to meet and talk with people. With at times 25 parallel sessions there was nearly always something of interest to attend. It was great to meet up again with people who had been contemporaries of mine at Cornell and others whose work I had followed.

On my first day, I had lunch with Paul and Agelia Velleman, who I had known well at Cornell. They are developing a Macintosh program Data Desk for data management, analysis and display. It includes impressive features like brushing and rotating data in 3D which are also available in S and MacSpin. They were displaying it at the meetings along with many other Statistics Package developers. I found it very useful to be able to talk with developers and to pass on my wish lists! Minitab at long last has plans for a serious attempt at ANOVA. NAG have opened an office in Chicago and were promoting Genstat and Glim along with their other products. Genstat is not widely used in the US although Glim is. Peter Lane from Rothamsted had been in Chicago for 3 months to get the office going technically. Glim is now available on the Macintosh and John Nelder is apparently writing a front end to Glim in Prolog to produce an expert system.

Publishers displaying their wares were there in force. I took advantage of the convention discounts being offered.

Highlights for me in the program included George Box speaking on Taguchi methods with brilliant discussion by Daryl Pregibon, Frederick Mosteller talking on 'Coincidences', Sanford Weisberg discussing 'Regression Diagnostics', and Brian Joiner on 'Statisticians and Quality'. I was impressed with a session on 'New Methodology in Statistical Graphics' with contributions from Ronald Thisted saying that integrated environments should change the way we think about data analysis, Richard Becker a developer of S, Paul Tukey giving new meaning to the word 'Cognostics' for Computer guided diagnostics and Wesley Nicholson, who handed out 3D glasses needed to see his graphs. Another interesting session was on 'Improving the quality of statistical consultants: a live demonstration.'

I joined Tony Cooper, who is on an NRAC fellowship from DSIR Mt Albert, with some of his Stanford colleagues, for lunch. It turned out the lunch was on Persi Diaconis who had

just finished his series of 4 invited lectures on 'Probability and Statistics on the Permutation Group'. I had been to his last one on Spectral Analysis where he discussed Time Series and ANOVA in the same framework. This material is of particular interest to me. Terry Speed and I chatted as we walked through some back streets. His article 'What is an analysis of variance?' is out in the latest Annals - which we won't see for a month or so yet! - along with discussion by others including Diaconis.

I also met Daan Nel, from South Africa, with whom I share interests in matrix algebra applications in statistics. We have corresponded for some time so to be able to sit down and discuss work was an unexpected bonus.

After the conference I spent six very profitable and enjoyable weeks back at Cornell working with Shayle Searle but that is another story.

Thanks go to MAFTech for granting me leave, to the Mathematical Sciences Institute at Cornell for partial support and to my Ruakura colleagues for taking on extra load during my absence.

Harold Henderson, MAF RUAKURA

STATISTICIANS, DAMN STATISTICIANS AND APPLIED STATISTICIANS

"I admire the inquiring mind and the pragmatic mind, but I also admire someone who can hit."

READERS DIGEST APPROACH TO EDUCATION

On the business scene there is a rash of one, two or three day seminars or workshops. For example, I saw a glossy brochure which contained the following:

9 am Quantitative Forecasting Techniques
* Forecasting models
* Productivity ratios
* Regression analysis
* Time Series analysis

10.30 am Morning Tea

I just hope that the workshop leader gives a thorough treatment of these topics and does not call an early break for tea!!

Editor

NZSA EDUCATION COMMITTEE

We now have 2 new regional co-ordinators:

Peter Alspach in Motueka
David Ryan in Nelson.

Apart from these we only have co-ordinators in the 4 main centres so if there is any one in the smaller cities (Rotorua, Palmerston North, etc) who is prepared to act as a liaison between local statistician and secondary school teachers please contact Sharleen Forbes.

Thanks to Graham Wood for organising a splendid education day at the annual conference.

Call for books! The education committee is prepared to review any school statistics textbook(s) on request.

At recent meetings concern has been expressed at some of the findings of the 1981 IEA study and we are currently investigating further sources of relevant information.

Sharleen Forbes, M A F, Wallaceville

DEAR EDITOR

Would you please include an announcement in your next newsletter concerning a regional meeting of the Biometric Society? I am president of the Western North American Region (WNAR) of the Biometric Society next year. I would like to extend a special invitation for members of the New Zealand Statistical Association to attend the joint meeting of WNAR and the Institute of Mathematical Statistics (IMS) to be held 15-17 June 1988 in Honolulu, Hawaii. Maxwell Layard, Failure Analysis Associates, Palo Alto is program chair for WNAR and George Roussas Statistics Department, University of California, Davis is program chair for IMS.

Further information may be obtained from me at the Department of Mathematics and Statistics at Auckland University, where I am visiting until 1 February, 1988.

J Richard Alldredge

THE DEADLINE FOR THE NEXT ISSUE IS MARCH 11, 1988

Post to: R J Brook
Newsletter Editor
Department of Mathematics and Statistics
Massey University
Private Bag
PALMERSTON NORTH

(It would be convenient if you could send articles on a Macintosh disk)

ANNOUNCEMENT AND FIRST CALL FOR PAPERS

Fourth International Meeting on Statistical Climatology, March 27-31, 1989, Rotorua, New Zealand

4IMSC organised and hosted by the New Zealand Meteorological Service will be held in March (in the week following Easter) at the Quality Inn, Rotorua. The meeting is cosponsored by the American Meteorological Society, the World Meteorological Organization and the New Zealand Statistical Association.

Papers are invited on innovative applications of statistical methods to, or derivations of statistical models for, climate data. The usual mix of empirical, univariate or multivariate, local or spatial models are expected to be in the final programme which will develop iteratively with submitted abstracts. Particular emphasis should be given to characteristics of climate processes that are useful for predicting biological and human social or economic response.

4IMSC is under the guidance of an International Statistical Climatology Steering Committee chaired by Professor Allan Murphy, Dept of Atmospheric Science, University of Oregon, USA.

Abstracts in English of not more than one A4 page of double spaced lines should be submitted to Convenor Programme Committee 4IMSC, c/o Meteorological Service, P O Box 722, Wellington, New Zealand (where possible computer output in the form of IBM PC compatible LaTeX or standard ASCII text file on 3.5" or 5.25" floppy disk would be appreciated to streamline printing).

Other enquiries should be addressed to Dr John Revfeim, Convenor Organising Committee 4IMSC at the same address.

INTERNATIONAL CONFERENCES

Ninth Australian Statistical Conference

To be held, in conjunction with the National Mathematical Science Congress, in Canberra, May 16-20 1988. For further information contact Professor Chris Heyde, Department of Statistics, Institute of Advanced Studies, GPO Box 4, Canberra 2601.

International Conference on Biomathematics

To be held in Xi'an, China, 25-30 June 1988. For information contact:

Professor Lansun Chen
Mathematical Institute
Chinese Academy of Sciences
Beijing
The People's Republic of China

Joint meeting of the Western North American Region (WNAR) of the Biometrics Society and the Institute of Mathematical Statistics (IMS)

To be held 15-17 June 1988 in Honolulu, Hawai. (See invitation elsewhere in the Newsletter from Richard Alldredge).

XIVth International Biometric Conference

To be held in Namur, Belgium, 18-23 July 1988. For information contact, Biometric Society, Suite 621, 806 15th Street NW, Washington DC 20005-1188, USA. Tenth Australian Statistical Conference. To be held in Sydney during July 1990.

ICOTS III

To be held in Dunedin, New Zealand during August 1990.

The NZSA conference would be best described for me as a refreshing break. After 15 months of working in an environment totally devoid of statisticians it was delightful to spend a few days in the company of people who didn't think that a "variance" was a simple difference between two numbers or, even worse, that a "distribution" was a method of getting your product to the customer. While I enjoy the challenges of working as the statistician in an insurance company, the isolation is sometimes very difficult. Because of this it was probably the informal times more than the formal sessions that were a highlight of the conference for me.

The Education Session was very interesting because I finally understood why we have been getting letters from students requesting "statistical" information about insurance problems, like the student who wanted some stats so that she could prove the women were better drivers than men! (I could show her that women cost the insurance companies less, but had to admit to her that this didn't prove they are better drivers.) This session was also one of the most relevant to my work because part of my commission is to "raise the overall level of numeracy skills" or "get some statistical thinking into the management of our business" and usually this requires the simple techniques not the sophisticated ones. "Stability" of an average and graphing the data are the hot favourites at the moment.

As much as I enjoyed the conference and the contact with other statisticians I still look forward to the day when there will be more statisticians in general insurance because there is certainly a need and plenty of interesting problems to work on!

Linda Nichols
NZI Insurance