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# Editorial: How Well do the New NZ Science Management Structures Function?

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Arising from the Science Task Force recommendations, ten Crown Research Institutes were set up on 1 July 1992 to replace the main science departments: DSIR, MAF Technology, Forest Research Institute and the Meteorological Service. A great deal of publicity has since been put out by MoRST and by FRST concerning the effectiveness of the restructuring. However, the focus has been that of management's views rather than those of the scientists at the coal face. The purpose of the Conference at the AGM was to redress this imbalance by an in depth consideration of the recent surveys described in this issue

In our contemporary world with the development of human rights, organisations need to have regard to the interests of their staff if only at the extreme level of the possibility of infringement of the laws affecting human rights. If they are wise they will also consider the fact that progress depends on the organisation understanding what the staff needs and thinks to maximise the efficiency of its operations. One can think back on the galley slaves and on the feudal system wherein the serfs served the Barons or again on the use of cheap juvenile labour during the last century to serve the interests of unscrupulous entrepreneurs. These systems have operated entirely from the perspective of the managers without regard to the wishes of the staff. Staff welfare was of no concern. Staff had no say and management did not communicate other than to give orders. At the other extreme one finds that Deming (1982) in *Quality, Productivity, and Competitive Position*, Massachusetts Institute of Technology advocates a system in which staff become the most cared for asset of the organisation. In fact the organisation becomes staff oriented. One can conveniently classify these organisational extremes into Baron-like and Deming-like.

Deming maintained that one of the first principles of getting work done was to eliminate fear so that staff could contribute their ideas and criticism without endangering their future. Management along with staff developed plans which are shared. Together they produced long term objectives to secure a viable future. In the event of a downturn, the management was to take the shock as the workers were central to the success of the organisation. Under these circumstances one gets a symbiotic arrangement as in the case of the ruminant. Here the rumen microorganisms digest the cellulose from the pasture in the rumen so that ruminants can be nourished and are thereby catered for as are the microorganisms. The editor does not claim that Deming-like organisations are necessarily the answer to all situations but really believes that they apply very well to Nobel Prize winners and highly competent scientists. In any case anyone with half a brain could see that such competent persons are unlikely to inhabit a Baron-like organisation.

I recall at Michigan State University at the time of the US Bicentenary Celebrations that Professor Williams was undertaking a study of the American Civil War. Hitherto it had been described from the point of view of the managers

(generals). He was now reconstructing that war as seen from the letters of privates which revealed a very different story. In fact, as I recall, they almost invariably hated the war which could mean killing off relations. In a few rare instances a private — mentally damaged perhaps — would proclaim that "when the cannons roared and the blood flowed his finest hour had come".

At the NZAS Annual Conference, it was considered that the new science structures involving the establishment of CRIs had so far been dealt with favourably from the point of view of the managers and policy makers who seem to have gained considerably from the reforms. There was therefore an urgent need to examine how the new structures affected the scientists operating at the coal face. The papers given at the Annual Conference of the Association were based on the NZAS 1994 Survey. This involved 2569 questionnaires with 837 returned in time for major analysis of scientists in the Association and in the Primary Production Group of the Royal Society. It would be difficult in an editorial to do justice to the findings other than to mention the overall effects as follows: resources allocation is tarnished by the fact that the business/private sector knows best; career structures have been largely destroyed, management is archaic and morale is bad. Key questions concern whether less good and more bad science has been generated.

Readers could well be fascinated, as the editor is by Dr Tony Robinson's paper. He is an important scientist who has recently transferred across the Tasman to Australia and is able to describe the much more complex science organisations in Australia. The changes, albeit they are less severe, have taken place in the directions we now follow. There is the plea for innovation which is not forthcoming. Still more important is the Senate enquiry report entitled *CSIRO: the case for revitalisation*. Regarding the work force, they believe that claims made by scientists are genuine; that they are spending too much time on administrative matters and too little on research. It is recommended that the CSIRO Board addresses employment security, poor conditions of employment, low career status, excessive accountability, ineffective industrial participation and low morale amongst its rural research staff. The editor feels that these concerns apply also to New Zealand science.

A great deal is made of the increased science budget by MoRST and FRST. It is indeed a welcome achievement, especially in the difficult climate of the accountability required by Treasury. However, scientists favour accountability and in my experience they practise it by producing the maximum amount of good science from the least possible number of dollars. At present, however, over accountability serves the negative purpose of impeding good science and requires supervisory staff. It raises the status of the managers

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and supervisors to the detriment of scientists. It may even have sinister Baronial like effects in limiting freedom of speech, stifling of ambition and inhibiting distribution of information characteristic of a dictator state. In this situation, the population has to have complete accountability and the Dictator none.

We now have glossy CRI Annual Reports which are indistinguishable from those of major companies like Fletcher Challenge or Brierleys. Their contents concern the input of money and its expenditure with no reference other than superb photos of what appears to be scientific activity. Ostensibly, the purpose is to make a profit regardless of whether or not good science has been produced. Accounts of the work done and references to papers published are missing. These made up the essence of DSIR Reports. The reports from MoRST and FRST likewise highlight managerial officials and financial matters without regard to the need for quality science or the nature of that science. This may be an inevitable follow up of the Treasury need for accountability. MoRST and FRST are similarly orientated. Recent MoRST reports show how they have along with the Hon. Minister of Science increased the available funds for science. That is all great stuff. However, if high level accountability, which is deemed good for the scientists, were the subject matter of the report, the graphs illustrating increased funding need to be measured against the output of good science. The only worth while result would be to show that the output and quality per dollar

spent has risen. If managers cannot do that then they fail the government in the tasks that they are there to perform. It must be obvious that very little of the publicity put out by the organisers concerns science. It is mainly to do with management, managers and their achievements. The serious question of how to get superior scientists has not been addressed, yet that is the only way for responsible managers to go if they are to help Treasury in their quest for accountability. One good scientist according to Rutherford is equal to 1000 mediocre.

The editor recognises that DSIR in its final years of existence was hampered by staff reductions and by lowered morale. Earlier, DSIR did some good science and gave opportunities for talented persons to reach the level of their scientific competence. It would be absurd however, to suppose that we had even reached the level of good science achieved by a small European country, like Denmark, where a number of scientists had been awarded Nobel Prizes. The most important question concerning accountability is whether or not the new structures will produce good science by attracting the best scientists with established research records for all positions involving responsibility as their first priority. This in turn will depend whether they function according to Deming-like ideals or move towards the Baron-like organisations.

F.B. Shorland, Hon. Editor

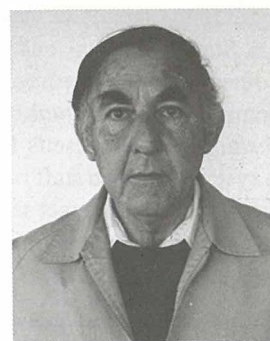
## Biographies of the Organising Committee

Mike Berridge undertook undergraduate and postgraduate degrees at the University of Auckland obtaining his PhD in Cell Biology in 1971. He then carried out postdoctoral research at Purdue University and the National Institute for Medical Research, Mill Hill, London. In 1976, he joined the Wellington Cancer and Medical Research Foundation attached to the Wellington School of Medicine (now the Malaghan Institute of Medical Research) where he is currently a Health Research Council Senior Research Fellow. His current research interests include regulation of the haemopoietic system and of cancer cells especially the mechanisms involved in energy supply. He is the immediate past President of the New Zealand Society of Oncology and since 1991 has been the Secretary of the New Zealand Association of Scientists.



Robert Davies completed his undergraduate degree at the University of Auckland before proceeding to the University of California at Berkeley where he completed his PhD in statistics under the guidance of Jerzy Neyman. He was employed by the Applied Mathematics Division of the Department of Scientific and Industrial Research from 1969-1992 and was director from 1982 to 1990. His research interests are novel methods of statistical analysis, time-series analysis and statistical computing. Since 1992, he has been a private consultant based in Wellington.

H. (John) Offenberger has a BSc from Canterbury University College (1942) and an MSc in mathematics from Auckland University College (1948). Since then he has been engaged in tertiary education, teaching engineering mathematics and applied mechanics to professional engineering and architectural students and, later to, technicians. From 1962 until his retirement in 1983, he was Head of the School of Mathematics and Science at Wellington Polytechnic. He has published numerous papers and two books on aspects of technical education. His interest in philosophical problems is reflected in many of his papers. He is a former President of the New Zealand Association of Scientists.



David Penny is a Professor in the School of Biological Sciences at Massey University. His undergraduate background was in botany and chemistry at the University of Canterbury, followed by postgraduate work at Yale University in biology (biochemistry and plant physiology). Currently, his primary research interests are in reconstructing and testing evolutionary trees from DNA sequences. More general interests are evolutionary theory and science policy, on which he has published in *New Zealand Science Review* and the *National Business Review*. He has recently served two years as President of the New Zealand Association of Scientists.

Chris Sissons is the President of the New Zealand Association of Scientists. After gaining an MSc in biochemistry at Victoria University and a PhD in cell biology from the University of Auckland, he did postdoctoral research in the University of Edinburgh's Zoology Department. He returned to New Zealand as an NRAC Facial Eczema Fellow at Ruakura, and then worked on one-year term contracts in biotechnology in the Thermophile Group at Waikato University. He is currently research microbiologist in the Health Research Council Dental Research Unit.

