

Tackling issues and initiating public debate: New Zealand Association of Scientists 1974–91*

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... the Association's Council will be continuing its stated policies of tackling issues and initiating public debate in matters relating to science, scientists, and the social/environmental impacts of science.

These introductory remarks [1] by NZAS 1978/79 President Dr Wren Green for delegates to the 49th Congress of the Australian and New Zealand Association for the Advancement of Science (ANZAAS), held in Auckland in February 1979, denote a watershed in the emphasis placed on the activities of NZAS. After the NZAS salary review using data from returns for the 5th *Directory of New Zealand Science* [2], there had been a 'pause in the pursuit of salary matters' [3], and in their place had emerged a growing concern with the social responsibility of scientists working in fields as diverse as nuclear power and armaments, genetic engineering, pesticides, sociobiology, and human reproduction. Such issues were already contentious in the USA and Europe [4]. In particular, the unprecedented call by scientists in 1974 for a moratorium on their research – on recombinant DNA – in view of its potential risks 'startled the worldwide scientific community' [5] and had an enormous public impact. In New Zealand, the need for scientists to be more accountable to the public was raised with public concerns over nuclear bomb tests in the Pacific [6], a growing activated and scientifically knowledgeable public as a result of the Save Manapouri Campaign in the late 1960s [7], and State Services Commission (SSC) prohibition of public service scientists to speak out on environmental and other issues [8]. In a discussion in NZAS Council on future policy, it was concluded that the 'fence-sitter has no friends, but a definite stand must be

well-considered'; *NZ Science Review* should be a forum for debate and 'Council should stimulate such debate' [§30/11/74].¹

The Association had responded positively to a 1974 request from the National Commission for UNESCO for comments on the UNESCO Draft Document on the Status of Scientific Researchers, which was designed to: balance recognition of the contribution science made to prosperity and wellbeing with 'concern with the adverse consequences of the use of at least some technologies, particularly in relation to the environment'; and 'match the status of the scientist against his responsibility toward society' [9].

In the 1977 salary survey, respondents expressed concerns about alienation of scientists from the public, who were losing their belief in science; it was considered 'important for the Association to continue to lead and initiate in issues of wide concern [§4/3/1978].

Secrecy and professional ethics

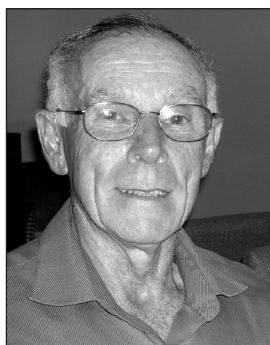
Many of the issues of the 70s and 80s, especially environmental and social ones, involved scientists, most of whom in New Zealand worked in the public service.

The ruling by the Deputy Chairman of the SSC, Gordon Orr, that a 'public servant owes a duty first to the state and the government of the day; secondly, to the public ...' [10] and NZ Electricity Department's secrecy about its nuclear energy plans [11] prompted the Association to organise a forum on professional ethics and secrecy in Wellington in March 1975 [12]. Attended by about 90 scientists, it prompted 'frank and lively discussion', and subsequently brought some personal cases to the attention of the Association [13]. In his 1975 Presidential address, John Offenberger had spoken of the possibility of establishing an independent tribunal or a 'Scientific Ombudsman' to impartially adjudicate on instances of suppression of criticism

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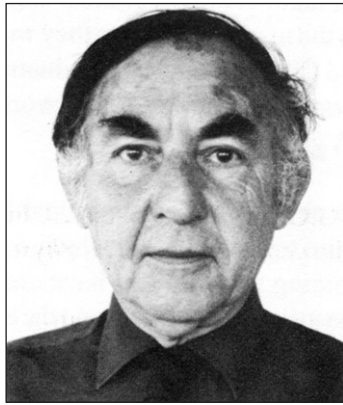
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¹ § with a date refers to an unpublished minute or file note of that date.



Geoff Gregory worked as a science editor in the Department of Scientific and Industrial Research (DSIR) during the period of this review, firstly in what became the Science Information Division, of which he was Superintendent from 1978 to 1984. As well as editing numerous publications, he produced promotional materials for DSIR, and, for the Department's 50th Jubilee, wrote the script for a film describing the Department's activities, *DSIR 50*. After moving to New Zealand Geological Survey of DSIR in 1984, he scripted the video *Ruamoko's Heritage: Volcanoes in New Zealand*. His research interests included effectiveness of communication of science information, especially about natural hazards, and scientific 'revolutions'.

H (John) Offenberger, President in 1974/75 and 1975/76, carried on the Association's involvement with science technicians by representing NZAS on the Technicians Certification Authority and its successor, the Authority for Advanced Vocational Awards (AAVA), from the 60s until AAVA was dissolved in 1990 [176].



and 'whistle-blowing' [14]. Further meetings organised in Hamilton and Palmerston North led to considerable media attention, including support in *NZ Listener* for the call by the Council for Civil Liberties for re-examination of the Official Secrets Act. The Minister of Science and Technology [Hon Les Gandar] in a radio interview repeated the policy that only an officially designated scientist should be the one to speak on any particular issue, such as beech forests or nuclear energy, but any scientist could offer an opinion as an individual, as long as it was outside his area of expertise [15]. Perhaps realising the flawed logic of this policy, the Minister, when he spoke on science policy at the 1976 AGM of the Association, affirmed his receptiveness to 'any suggestion you have to make as to how the freedom of scientists and science can be safeguarded and protected' [16]. John Offenberger elaborated on the proposal of an independent science tribunal at a forum on professional ethics and secrecy at Dunedin in April 1977 [17], and he, with NZAS Patron, Dr Bob Falla, and 1976/77 President Dr Ken Aldous presented a proposal to the Minister, who was receptive and asked for a more detailed report [18]. NZAS Vice-President Dr Wren Green spoke at 'Environment 77', a major conference held in Christchurch, on a panel (including Mike Minogue MP, and Mick O'Neill, the Director-General of the NZ Forest Service) that was focused on secrecy and the campaign to get rid of the Official Secrets Act.

In 1978, the Government set up the Committee on Official Information, chaired by Alan Danks, Professor of Economics at Canterbury University. NZAS put considerable effort into making a submission, recommending that the electorate should have access to as much of the information used by government agencies as possible, and that scientists be able to speak freely on issues of public concern where they have a particular expertise in the area [19]. Dr Wren Green, 1979/80 President, and Vice-President Dr Ann Bell, represented NZAS in joining with the newly formed Coalition for Open Government and other groups to organise a conference on 'Freedom of information and the State' in December 1980. Ann Bell undertook the huge task of transcribing and editing the proceedings, which were published by NZAS just before the Danks Committee reported to Government in 1981 [20]. The Danks Committee recommended a sea change in favour of openness: information should be able to be released unless there was a good reason to withhold it, and that any such reason should be specified and open to review by the Ombudsman. In 1982, Ann Bell and John Offenberger presented the NZAS submission on the Official Information Bill, which was enacted with suitable amendments later that year, repealing the Official Secrets Act 1951. NZAS had played a major role on behalf of scientists on this issue

in what turned out to be a positive outcome – creation of the Official Information Act 1982.

Women in science

As the international feminist movement began to gain momentum during the 1970s, the UN General Assembly declared 1975 as the International Women's Year and organised the first World Conference on Women (in Mexico City), at which it declared the years 1976–1985 as the UN Decade for Women. This was mentioned as a Talking Point in *NZ Science Review* [21] citing a study suggesting that 'intellectual and scientific achievements are among the goals in which success is associated with masculinity' [22].

In the previous year, the Association had recognised eminent botanist, Dr Lucy Moore [23], as the recipient of the Marsden Medal for Service to Science – the only woman, still, to have been accorded this honour.

In 1975, NZAS had responded with 'sympathy and interest' to a request from the Society for Research on Women about 'opportunities for women in science – for work and for retraining.' [§ 10/04/1975] A little later that year, Doris Macdonald published in *NZ Science Review* a commentary on statistics about 'Women scientists: the occupational non-group', concluding that: role-conditioning was occurring from primary school readers; girls were choosing school subjects that inhibited their entry into science; significantly fewer girls than boys entered the 7th form where significantly fewer studied mathematics, chemistry, and physics; and that science was still considered to be men's work in New Zealand [24].

A letter from Oliver Sutherland [25] took NZAS Council to task for 'passing the buck' in its response to the UNESCO Recommendation on the Status of Scientific Researchers, mentioned above, in which redressing the under-representation of women in science was considered to 'form part of a wider set of social reforms' [26]. Council responded that it was 'of great concern to the Association' and it would welcome female representation on Council to help promote action on this [27]. From then on, the number of women scientists on Council increased gradually, reaching eight in 1984/85 [28], and there was a succession of women Presidents between 1981/82 and 1988/89 (Dr Ann Bell, Dr Gail Irwin, Dr Karin Knedler, Dr Joan Mattingley) [see Appendix 1]. NZAS later publicised the inaugural award in 1990 of the Zonta Medal for Women in Science to Dr Jean Fleming, a member of its Council at that time [29].

In the 49th ANZAAS Congress held in Auckland in 1979, the 'Social responsibility in science' section organised by NZAS contained a hard-hitting review by Penny Fenwick, 'The irresponsibility of women or the irresponsibility of science?' [30]. She concluded that 'all science reinforces in a multitude of ways (from the attitudes of the scientists themselves, to their theories and activities) not only women's traditional role as the supporter of the male but also the ideology of women's inferiority and irresponsibility' and that change requires not just the awareness of sympathetic male scientists but also 'a challenge from both within and without science to its sexist assumptions and activities' [31]. Later that year, NZAS Councillor Marie Keir in an article on 'Women in science', pointed out that 'as science is so demanding of time and energy, professional women as well as men need access to help with household affairs, child care, and peripheral social responsibilities' [32]. In contrast, the need

Dr Ann Bell, first woman to be President of NZAS (1981/82, 1982/83), did considerable work on freedom of information, editing the NZAS book on the subject, and also did much to promote secondary/tertiary teaching of science and technology in society (STS). Her political cartoons embellished the NZAS book *Focus on Social Responsibility in Science* and several covers of *New Zealand Science Review*. [Photo from ref. 177.]



for women to ‘unlearn technology anxiety’ and break into the ‘power dynamics of technological decision-making was emphasised in an address by Dr Charmian O’Connor published in an issue of *NZ Science Review* [33] which also contained a miscellany of quotations about the need for women to lead the way in rescuing Planet Earth [34]. The problems for women in science were echoed in a Canadian survey published in *NZ Science Review* [35], which nevertheless said that they felt the rewards were many; younger women science graduates encountered less discrimination.

The next initiative by NZAS was to combine with the Council for the Advancement of Women in Science and Engineering to organise a symposium in June 1985 on ‘Women and employment in science and technology’ [36]. A background paper prepared for this symposium by Janet Bradford, Penny Fenwick and Dora Suuring concluded that the issue of low participation of women in science and technology was not recognised as a priority, although some innovative interventions were being implemented, and it was ‘a matter of some urgency that intervention programmes be evaluated and improved if the full harnessing of the “missing half” of the country’s brainpower and talent is to occur’ [37]. Another background paper for this symposium, by Janet Weatherburn, stated that, ‘If the approach to science teaching were to recognise the interdependence of science, technology and society, particularly New Zealand society, science might appeal more widely to girls and women, whose preoccupation ... is more with people and harmony with nature than with things and dominance over nature’ [38].

As part of its efforts to encourage open, informed public debate of research [§20/11/1986], the Association invited Phillida Bunkle, founder of the Women’s Affairs Department at Victoria University of Wellington, to be guest speaker at its 1986 AGM. Dr Bunkle was investigating with Sandra Coney ‘An unfortunate experiment at National Women’s Hospital’ [39], which led to the Government setting up the Cartwright Inquiry into Cervical Cancer Treatment [40], which in turn led to sweeping changes in health consumers’ rights.

At an NZAS seminar on ‘Science and technology – key to New Zealand’s prosperity’ in 1987, a workshop on ‘Women in science and technology’, led by 1987/88 NZAS President Dr Joan Mattingley, remarked that ‘Girls who want a career in science have to be very stubborn to cope with disapproval, discouragement and hindrances.’ It also spoke of the need to show more women scientists at work as role models [41]. A subsequent paper on ‘Equity in research for women’ outlined the major issues around equal opportunity to both do research and influence research topics in relation to women’s concerns

[42]. Its author, Cathy Wylie, suggested that the increasingly competitive funding system held ‘little promise for women concerned with improving social equity’. She concluded that she was not optimistic that efforts by women research workers to convince male colleagues of the barriers they faced and of the gaps in knowledge because women’s issues were often marginalised had not fallen on deaf ears.

One of the changes to the Association’s Rules approved at the 48th AGM was to include an extension of up to five years in the age eligibility criterion for the Research Medal to enable young scientists who had had a break in their careers, i.e. women for child rearing, to still be eligible [§6/11/1989]. However, no woman received the Research Medal until 2005.

It seems that, despite the good intentions, little progress towards equality for women in science had been made by the time of the Association’s 50th Jubilee in 1991.

Nuclear power and nuclear arms

Although planning by NZ Electricity Department (NZED) had begun in 1967 for the introduction of nuclear power [43], it was not until the first New Zealand Energy Conference, held at Auckland University in 1974, that it came to public attention; a cautionary note by an overseas keynote speaker, Prof Henry Kendall, prompted the Environmental Defence Society to call for a public enquiry into these plans [44]. NZED decided to bring its own pro-nuclear experts from overseas, which provoked controversy and led on the one hand to the above-mentioned restrictions on public service scientists expressing views and on the other to the rise of a public protest campaign, which brought its own experts here [45]. NZAS had earlier published extracts from a Department of Scientific and Industrial Research report on the role of research and development in New Zealand’s energy economy, in which nuclear power was considered inevitable, but its contemplation premature at that time [46].

Public agitation as the 1975 election loomed led to the Labour Government setting up an expert fact-finding committee chaired by Sir Malcolm Burns, while the National Party promised a Royal Commission of Inquiry if they were elected. They were and they did, in 1976, under the Chairmanship of Sir Thaddeus McCarthy. NZAS Council (but not some of its members) ‘sat on the fence’ on this issue, refraining from expressing an official view and concentrating on the need for openness and fully informed scientific debate; NZED and the Environmental Defence Society were invited to present their opposing scientific views in *NZ Science Review*, which they did, the former through an unnamed spokesman and the latter through Dr Bob Mann [47, 48]. Dr Mann was elected to NZAS Council in late 1977, at which time the Royal Commission had reported that: electricity demand had fallen off; the extent of opposition to nuclear power showed a ‘widespread concern and a lack of confidence in the technology’; and there was no need to consider it for the foreseeable future [49]. NZED in fact had a surplus generating capacity, which it proposed to further supplement by the Clyde Dam project to produce power for a third pot line for the Tiwai Point aluminium smelter, all part of the Government’s ‘Think Big’ programme [unpublished speech to NZAS 1980 AGM by Alistair Graham, Coalition for Open Government].

The issue was reignited by the Government starting to allow visits by nuclear-powered warships, first the USS *Haddo* in 1979, which was met by a flotilla of protest boats. Protestors

were angered by the risk of our involvement in US nuclear war strategy [50] as well as radiation leaks [51] and the possibility of a nuclear accident, as was to happen later that year at Three Mile Island [52]. Nuclear power became inextricably part of the New Zealand anti-nuclear stance, which NZAS supported, having expressed 'sympathy for the aim of a nuclear-free South Pacific zone in a letter to the Campaign for Nuclear Disarmament as early as 1975 [§29/01/1975].

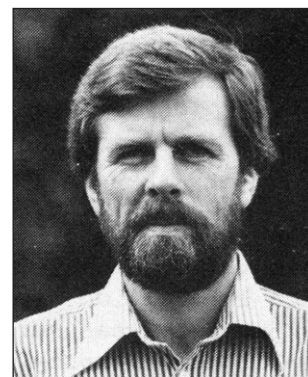
In 1981, NZAS published information about French nuclear activities in the Pacific, as well as a summary of Peace organisations in New Zealand, with an editorial drawing attention to the fact that, for both the USA and the USSR, 'the Pacific forms a convenient large area in which to deploy their nuclear submarines, with missiles pointed at each other's strategic targets', as well as being a missile testing ground [53]. The following year, the Commission for the Future published a report on 'Future Contingencies. 4. Nuclear disaster', detailing the consequences to New Zealand of a Northern Hemisphere nuclear war, the possibility of which 'cannot be ignored' [54]. It reflected growing unease among the public about heightened tensions between the superpowers, but turned out to be the Commission's final publication before the Government disbanded it [55]. A *NZ Science Review* editorial canvassing support for an organisation of scientists opposing nuclear war [56] received an unusually high response, and following the formation of the New Zealand branch of International Physicians for the Prevention of Nuclear War [57] and Scientists Against Nuclear Arms NZ (SANA) [58], the Association organised an inaugural meeting of a Wellington/Hutt branch of SANA and supported its initial activities by: including arms-race information articles in *NZ Science Review* [59, 60, 61]; making a submission to the Parliamentary Select Committee on Disarmament and Arms Control; and by 1982/83 NZAS President Dr Ann Bell and *NZ Science Review* editor Geoff Gregory giving radio interviews on the topic [62]. The latter was elected Chairman of the Wellington/Hutt branch of SANA, and the following year relinquished his editorship in order to concentrate on anti-nuclear activities, which NZAS wished to leave to SANA. In 1986/87, Past NZAS President Dr Wren Green led the NZ Planning Council project 'New Zealand after Nuclear War' and, in response to an invitation from the Ministry for the Environment to comment on the resulting report, NZAS convened a subcommittee under 1987/88 Vice-President Dr Frank March, which made a supportive submission on it [§10/12/1987]. The project led to Wren Green being made the lead author of the book with the same title, published by the NZ Planning Council [63] and to his being funded by the Ministry for the Environment for a national speaking tour about it.

In July 1984, Labour had become the Government and began a series of measures leading to ratification of the South Pacific Nuclear Free Zone Treaty in 1986 and passing of the New Zealand Nuclear Free Zone, Disarmament and Arms Control Act 1987 [63].

Science and technology in society (STS)

NZAS 1978/79 President Wren Green 'broke new ground for the Association' [§3/3/79] in organising both the General Symposium on Social Responsibility in Science at the ANZAAS 49th Congress, Auckland, January 1979, and publication by NZAS of the book recording the Proceedings, which he edited [64]. Opening with a paper by distinguished overseas professor, Georg

Dr Wren Green, President in 1978/79, 1979/80, and 1980/81, organised the symposium at the 49th Congress of the Australian and New Zealand Association for the Advancement of Science (1979) that was published in the NZAS book *Focus on Social Responsibility in Science*, which he edited. [Photo from ref. 177.]



Borgström, author of *The Hungry Planet* [65], who bewailed the 'failings of science to shoulder social responsibility' [66], it also contained papers by Australian and New Zealand scientists on different impacts of science and technology on society, as mentioned above. This attracted an audience of about 300 [67] and helped to boost NZAS membership to 473 in 1980 [68], which appears to have been its peak [see ref. 130].

Wren Green's 1980 Presidential Address, entitled 'On the relevance of scientific revolutions' and subtitled 'Science and technology studies – a missing link in New Zealand education' noted that five Australian universities ran courses in 'Science, technology and society' (STS), whereas New Zealand had none, and emphasised the need to examine science 'vis-a-vis the growing impact of technology, political and economic aspects of science, and the place of human values in science' [69]. At that AGM, Council was directed to 'seriously address itself' to STS studies [§23/10/80]. It arranged for Jack Shallcrass to address its next AGM on 'The responsibilities of scientists' [70], while Wren Green's 1981 Presidential address, 'A message from the forests' [71] made a plea for the aspect of ecological morality. Both were among speakers at a meeting organised by the Association in December 1981 to test interest in STS education in New Zealand [72], and the favourable response encouraged 1981/82 President Ann Bell to organise a full-day symposium, 'Education about science' jointly with Victoria University's Centre for Continuing Education (CCE) in September 1982 [73], with local and overseas speakers; this generated a lot of enthusiasm for introducing STS concepts into the New Zealand education scene, including starting an in-service course by CCE [74]. These NZAS initiatives led to Victoria University starting New Zealand's first-ever course in STS, which ran for many years before being discontinued despite high student numbers. In a session of the 1983 Pacific Science Congress in Dunedin organised by NZAS on 'Social responsibilities in tertiary education' the keynote speech took up the topic of 'Power and responsibility in science' [75]. Geoff Gregory had earlier addressed the Wellington Science Teachers' Association on 'Science, Technology and Society (STS) Education' [76] and the Tauranga Community College on 'Science and society' [77], while Ann Bell had given an interview about STS on 2ZB talkback [78] and addressed a Conference on 'Faith, science and technology, 1984 and beyond' in Melbourne [79]. Wren Green gave a keynote address at the 1984 Science Teachers' Conference on STS education, which was published in an education issue of *NZ Science Review* [80]. Council member Dora Suuring reported on a symposium on 'STS and the value of life', which she had attended in Kiel, Germany, in 1987 [81].

NZAS Council reported in 1984 that the 'need for STS education is becoming increasingly recognised in New Zealand,

and the activities of the Association over the last few years have played a major role in this field' [82]. However, the change in government attitudes towards science that started in 1984 (see below) seems to have diverted attention from STS education.

Genetically modified organisms

After the moratorium in the USA (see above) and development of guidelines there for gene research in 1975, the Medical Research Council in New Zealand and the DSIR requested guidelines for experiments that they were contemplating [83]. In March 1977, NZAS wrote to the Prime Minister, calling for an open enquiry to consider the implications of genetic engineering in New Zealand, which started a chain of correspondence with the Deputy Prime Minister [Hon Brian Talboys], the Minister of Science and Technology [Hon Les Gandar], and the Minister of Health [Hon Frank Gill] [84]. In July 1977, the Minister of Science and Technology set up a Working Party on Novel Genetic Techniques, after which Cabinet appointed an Advisory Committee on Novel Genetic Techniques chaired by Prof. Irvine, who told the Association that the Committee did not intend to have public hearings [85].

NZAS Council member, Dr David Straton, who had reviewed the topic [86], became spokesman for the Association [§5/8/78]. In 1978, he told members of the Irvine Committee that the Association sought a public inquiry into genetic engineering, but gained the impression that some members of the Committee considered that 'there was little evidence of public concern' [§9/2/1978]. NZAS 1977/78 President Ken Aldous subsequently wrote to the Minister requesting that the Irvine Committee's report be published, but received only an acknowledgement [§20/7/1978]. However, in 1978 the Government placed a moratorium on field releases, which remained in place for 10 years, over which period the Advisory Committee took on the role of overseeing contained laboratory and glasshouse genetic manipulation work [87].

When the moratorium was about to be lifted, NZAS convened a subcommittee to make a submission on 'Release of genetically-modified organisms to the environment' [§7/11/1986]. In it, the Association 'supported the concept of a Statutory Body serviced by expert committees to oversee the experiments' [88]. In 1988, the Ministry for the Environment formed an Interim Assessment Group for the field testing and release of genetically modified organisms preparatory to the Government moving towards legislation which ultimately became the Hazardous Substances and New Organisms Act 1996.

Plant patenting

The 1970s brought accelerating growth of 'agrichemicals' industries, and many of the major transnational corporations involved looked to extend their products to include seeds; moves were made in the USA and Europe to turn seeds into a commodity over which they had control and to guard the intellectual property involved in plant breeding by lobbying for plant patent legislation [89]. Increasingly government and university plant breeding programmes and emerging biotechnology and genetic modification programmes became linked with commercial interests. In 1981, New Zealand became a member of the International Union for the Protection of New Varieties of Plants (UPOV), and prepared legislation to extend the Plant Variety Rights Act 1973. In her 1982 Presidential address to NZAS, Dr Ann Bell spoke about the harm this type of legislation was doing

to the world gene pool and to small farmers overseas and here [90]. She followed this up in her 1983 Presidential address by explaining the scientific impossibility of ensuring the 'distinct, uniform, and stable' attributes required in the legal definition of a patentable variety, and affirmed that patenting inhibited the flow of scientific knowledge [91]. She and Geoff Gregory presented the Association's submission (which was endorsed by ECO) on the Plant Variety Rights Bill to the Select Committee on Lands and Agriculture in 1985 [92], but the Act was passed with little amendment in 1987. Internationally, the interests of the Third World countries that were centres of biological diversity and from which transnational seed corporations had freely obtained genetic material which they then locked away in patented varieties were slow to be safeguarded; the need for 'equitable sharing of benefits arising out of the utilization of genetic resources and the preservation of indigenous knowledge' did not become recognised until 1992 – under the UN Convention on Biological Diversity [93].

Conservation issues

The Association was a B class member of ECO (Environment and Conservation Organisations of New Zealand) [94], and was represented on its Council by, successively, Drs Ann Bell, Karin Knedler, and Louise Ryan.

In response to widespread public protests over big development projects such as the Save Manapouri and Save Aramoana campaigns, the Government introduced the National Development Bill in 1978 designed to 'streamline' the planning process by restricting public participation and access to information on 'works of national importance', in other words to stifle opposition to the Government's 'Think Big' projects, designed to counter the effects of the 1979 oil crisis [95]. Dr Wren Green devoted his 1979 Presidential address to this topic and the AGM resolved unanimously to oppose the Bill despite the very short timeframe allowed [96]. Nevertheless, the Bill was enacted and followed in 1981 by a National Development Amendment Bill, which further undermined 'the need for full participation and involvement of scientific expertise' [97], and the Association's submission to this was ignored. However, the Act was repealed by the Labour Government in 1986.

The Association had more success with its submission to the Lands and Agriculture Select Committee on the National Parks Bill [98], ensuring that the appointed members of the National Parks Authority and National Parks Boards included scientists or persons with special knowledge of wildlife rather than being political appointees, although NZAS admitted that it was the weight of opposition from over 450 organisations and individuals that brought about the amendments to the original Bill [99].

The Association made extensive comments on the Conservation Strategy Discussion Paper released by the Nature Conservation Council for public comment in 1981 [100]. These were wide-ranging, encompassing agriculture, native flora, state forests and privately owned lands, refuse disposal, mining, power generation, and water, on all of which NZAS argued against an over-riding preoccupation with economic returns.

The Association wrote to the Prime Minister expressing pleasure at the giving of Reserve Status to Pucora and Waihaha forests and urging establishment of a Paparoa National Park; it also supported formation of a Wildlife Research Liaison Group [101]. The latter became redundant with the establishment in

1987 of the Department of Conservation by merging the government organisations involved in this.

NZAS 1983/84 President Dr Gail Irwin and 1984/85 and 1985/86 President Dr Karin Knedler drew up and presented submissions on the 1984 Energy Plan, Environmental Administration in New Zealand, and the use of 2,4,5-T in New Zealand [102], and actively campaigned for lead removal from petrol [see below].

By 1988, the Ministry for the Environment was reviewing the laws relating to management of land, water and minerals preparatory to integrating them in what was to become the Resource Management Act 1991 and Council, busy with numerous other submissions, encouraged NZAS members to make their own submissions on this despite the short timeframe given [103].

Antarctica

In the early 1980s, the Antarctic Treaty Consultative Parties (ATCP) attempted to move towards a protocol to control exploitation of mineral resources, which international delegates to a Wellington meeting in 1982 appeared to consider 'not merely inevitable but desirable'; NZAS supported the activities of an international Antarctic and Southern Ocean Coalition promoting the need for Antarctica to be recognised as a World Park, protected against all resource exploitation, and it made constructive suggestions to this effect on a policy put to our Government by ECO [104]. The Association's nominee to attend the 1984 ATCP meeting in Tokyo, Dr Peter Barrett, was accepted by the Government, but NZAS expressed concern about the secrecy surrounding these meetings and the reluctance of the Government to fund non-governmental members of the official delegation [105]. Dr Barrett reported on this meeting, explaining the difficulties of gaining a politically acceptable regime for long-term protection of Antarctica, but expressing confidence in moves being made towards this goal [106]. Ultimately ATCP adopted the Protocol on Environmental Protection at its meeting in Madrid in 1991. Through this, the Contracting Parties 'commit themselves to the comprehensive protection of the Antarctic environment and dependent and associated ecosystems and ... designate Antarctica as a natural reserve, devoted to peace and science'. The Protocol prohibited all activities relating to Antarctic mineral resources, except for scientific research [107].

Lead in the environment

NZAS 1984/85 President Dr Karin Knedler attended a workshop on 'Lead in the environment', organised by the NZ Energy Research and Development Committee in November 1984, at which removal of lead from paints, regulation of removal of old paintwork on buildings by sandblasting, and welding of cans instead of soldering them were considered to have reduced the lead burden in the urban environment; however, the Department of Health was still maintaining that it was uncertain as to the effects of lead in petrol on health [108]. Dr Clair Patterson, a distinguished American geochemist noted for his determination of the age of the earth using lead isotopes as well as being an authority on lead pollution [109], wrote to NZAS about the 'unhealthy liaison between members of the lead alkyl industries and public health officials in New Zealand' that he had perceived on a lecture visit to Christchurch [110]. In a retrospective analysis of the 'case study' of New Zealand, lack of a precautionary attitude among both officials and politicians of

both main parties, divided responsibilities among departments, and a disinformation campaign by the industry were interpreted as having hampered any moves to remove lead from petrol [111]. This combination of events made it difficult for Karin Knedler and NZAS 1983/84 President Dr Gail Irwin to make headway in the numerous letters and submissions that they wrote over several years on behalf of NZAS to the Ministers of Health, Energy, and for the Environment and their departments [112]; these contained scientific evidence of the harmful effects of lead from petrol on health, particularly child health in New Zealand. The Government policy, which had been reaffirmed in the talk to the Association's 1985 AGM by Philip Woollaston MP, Under-Secretary for the Environment, was to give the about-to-be established Ministry for the Environment responsibility for 'a coherent approach to pollutants', including introducing lead-free petrol 'next year' [i.e. 1986] [113]. The Ministry for the Environment began a promotional campaign for lead-free petrol, but it was stated in NZAS Council that they were not sure that the Ministry of Energy could be 'counted on to cooperate' [§5/3/1987]. Gail Irwin pointed out that the Minister of Energy, Hon Bob Tizard, in casting doubt on the air pollution and health effects of leaded petrol in New Zealand, was going against the scientific results reviewed by the Royal Society of New Zealand in a report that he himself had commissioned [114]. Because of this hostile political environment, lead was not finally removed from petrol until 1996 [115].

Dr Karin Knedler, was elected President in 1984/85 and 1985/86, after having been Student Representative on Council in 1980-83 while completing her doctorate. She was active on energy and environmental concerns, as well as assisting the editor of *New Zealand Science Review*. [Photo from ref. 177.]



Town milk supply

The Association, through its spokesman Dr Brian Shorland, conducted a lengthy, and ultimately unsuccessful, campaign against the introduction of cartoned milk and the demise of the milk bottle delivery system [116, 117, 118].

New Zealand Science Review

At his first NZAS Council meeting, the new editor, Geoff Gregory, was able to distil from the discussion that six issues per year were favoured, and that preferably each issue should concentrate on a particular topic, but also contain topical 'Talking Points', encourage letters to the editor, and report on 'Association Activities' [§1/12/1973]. When it appeared, the first issue was approved, and Mr Gregory was able to present Council with plans for the issues for a whole year ahead for discussion and helpful suggestions [§16/3/1974], and this pattern of management for the journal continued for the next 11 years, until he resigned in late 1984. In a 1979 review of the Association's history, Dr Brian Shorland wrote that when Mr Gregory became editor 'SR became revitalised and the controversies he generated caught the changing mood of the Assn' [119].

A continuing problem was to keep production costs to a minimum. Drastic cuts were made to the numbers of copies

printed, and free provision to schools was discontinued after an unsuccessful approach to the Department of Education to pay for them [§31/7/1975]. One outcome of the twin oil shocks of 1973 and 1978 was a steep rise in the costs of printing, with those for the research journals published by the Department of Scientific and Industrial Research, for example, doubling between 1973 and 1979 [120]. A proposal to increase the dimensions to B5 size with a two-column format was accepted by Council, and they agreed that this format should be adopted for the special ANZAAS double issue to be published in early 1979 and for subsequent issues, while there would be combined final issues for 1978 in the existing format to save money and ease the workload associated with the ANZAAS Symposium [§7/9/1978]. Subsequent issues also carried a cover photograph, printed in only two colours, again to save costs.

The current logo was designed at this time, at the instigation of 1978/79 President Wren Green, and first used in volume 36, no. 4 (1979) and in the Proceedings volume for the ANZAAS Symposium, where its symbolism, denoting science used for human welfare, was explained [121].

Unfortunately, attempts to attract paid advertisements were unsuccessful, and printing costs continued to rise. As 40 percent went into typesetting and composition and only 20 percent into actual printing [§2/2/1980], the editor felt he could economise by producing camera-ready copy from typewritten columns, which was considered by NZAS Council to be 'not so attractive but ... acceptable'; in addition, occasionally issues would be combined [122]. This continued until the middle of 1984, by which time a single issue was still costing \$1,000 to \$1,250, compared with \$300 to \$400 a few years earlier, so the alternative means of saving costs by combining issues was adopted [123].

NZAS Patron, Sir Charles Fleming hoped that a proposed review by Council of the Association's activities would see it working more for 'excellence in science', and permit production of a *Science Review* that was less of a newsletter and more 'worthy of the New Zealand scientific community.' He welcomed a return to letterpress in volume 41(3) as a 'step in the right direction' [125]. That 1984/85 Council review reaffirmed that the Association should continue to provide forums for science issues to be appraised and analysed, and should use *NZ Science Review* as a medium for this activity while avoiding acting as a pressure group [126].

In 1984, Geoff Gregory resigned as honorary editor, but he remained on NZAS Council; he continued to assist the editorial committee that was subsequently formed until early 1986, when long-time Council member Dr Brian Shorland took over as honorary editor and Dr Karin Knedler, while still in her second Presidential year, became associate editor.

The new editor continued his predecessor's policy of writing provocative editorials, although mostly in a more concentrated assault on the incoming policy makers and Treasury officials, who, during the late 1980s, were promoting the dramatic changes to science management and funding that were to culminate in the total restructuring of New Zealand science in the early 1990s [see below]. Dr Shorland called it a process of science being 'Treasury-driven when ... Treasury should be science-driven' [127].

Feedback from a 1987 membership questionnaire showed that members wanted 'shorter, pithier articles' and 'more controversy, more discussion, more new technologies, more on science

Sir Charles Fleming, Patron of NZAS from the death of his predecessor, Sir Bob Falla, in 1979 until his own death in 1987. He had been the first recipient of both the Association's Research Medal (1951) and Service to Science Medal (later renamed Marsden Medal) in 1969 [see obituary, ref. 178].



policies, management, funding issues' but 'no conference issues, no membership chitchat, no lengthy Association reports nor full texts of submissions, no blurbs on eminent people, no CV potboiler articles' [128].

Although economies were effected by producing some double issues and, in 1987, two triple issues [129], costs had continued to rise after the return to letterpress [130]. The format remained the same until 1989, after which it became A4 size, again with triple issues to economise on costs; in the second of these that year, the onset of desktop publishing enabled camera-ready copy to be provided to the printers, which helped greatly [131].

Several of the combined issues would contain NZAS seminar proceedings, which increasingly focused on the future of science under the drastic funding cuts and policies for reform that were occurring, for example: Structures and funding [132], Science for the 1990s [133], Science for the 21st Century [134]. Some of these received sponsorship and one or two advertisements, and NZAS found itself in the unusual position of having sufficient funds to distribute 17,000 copies of a special 1990 election issue containing party policies for science [135].

The 1987 survey showed that most members wanted a separate newsletter, so such a newsletter, *Scinet*, was initiated from March 1988, compiled at first by Dr Chris Sissons and his subcommittee [§14/4/1988], and during 1990 and until Oct 1991 by Geoff Gregory [§15/2/1990]. It was generally four pages, desktop-published and photocopied. Intended to provide an improved information flow between Council and membership, and more immediate comment on science policy issues than could be done with *NZ Science Review* appearing only every six months [136], it contained news items, letters from members and official responses to them, and notices, and the September 1991 issue contained a member survey on contestable funding with commentary by 1990/91 NZAS President, Dr David Penny [137] (see below).

Directory of New Zealand Science

The 5th Directory of New Zealand Science was published in August 1975 [§34th Annual Report, 31/7/1975], and a year later was reported to have 'sold reasonably well' [§35th Annual Report, 31/7/1976].

Response forms for the 6th Directory were being distributed in mid-1976 [§35th Annual Report, 31/7/1976], and two years later the 3000 entries received were being edited [138]. Delays due to the printer moving premises and further work being required to ensure its comprehensiveness put back its expected publication date [139]; it was said to be ready for printing in

August 1980 [§2/8/1980] but still not printed nine months later [§23/5/1981]. By June 1981, the printer, Sigma Print, had gone into receivership. President Wren Green had written to John Wilson cancelling the contract, and a delegation from Council had visited to retrieve the original data, but obtained only one-third of it [§16/7/1981]; the rest was never retrieved. Ultimately the venture was cancelled – a ‘very unsatisfactory’ waste of many hours of members’ time [140] – and a \$2,000 grant was returned to the Royal Society [141].

Medals and awards

A list of recipients of NZAS awards is given in Appendix 2. The difficulty of choosing recipients of awards resulted in no awards being made in several years in the 80s, and this, together with a disinclination of some Council members to make such a selection on principle, led NZAS to question the wishes of members about whether to scrap the awards [142]. In a postal vote, the majority of respondents opposed the suggestion, thereby ensuring their retention [143].

Shortly before his death in 1978, long-time NZAS member Tony Collins suggested that the Association institute an award for science journalism [§9/2/1978], and draft conditions for the award were approved by Council at the end of the year [144], with the first award being made in 1980. However, the pool of potential science-journalist recipients was small and it gradually became realised that there was a need to recognise articulate scientists enthusing about their work.

In early 1990, NZAS President Dr David Penny had been involved in a meeting with the Royal Society of New Zealand to discuss ways of increasing public awareness of science [§15/3/1990]. A proposal to have an award for science writing by scientists rather than by journalists was approved by NZAS Council [§15/2/1990], and a Science Communicator award was established that year to ‘encourage working scientists to communicate with the public on their work or other scientific interests’ [145].

The over-riding issue of the 80s for science in New Zealand – restructuring

In one of the NZAS Golden Jubilee papers, Dr Ted Bollard, an early recipient of the NZAS Research Medal (1958) and former Director of Plant Diseases Division of DSIR, recounted the past success of the National Research Advisory Council (NRAC) in gaining a substantial growth in government expenditure on science, from 0.33% of GDP in 1965 to 0.59% in 1983 [146]. In 1984, the then Minister of Science, Hon Ian Shearer [a former Council member of NZAS] set up the Probine Committee, headed by Dr Merv Probine, Chairman of the State Services Commission [147] [and also a former NZAS Council member], to examine science and technology policy. The Committee’s report, recommending formation of an independent science advisory council, was never implemented, as there was a change of Government in July 1984, and within two years NRAC was ‘summarily terminated’ by the new Minister of Science, Rt Hon Bob Tizard [148], so many of the Association’s submissions were effectively wasted.

The new administration overturned the previous government’s tight economic controls with radical ‘free-market reforms’, including corporatisation and restructuring and downsizing of many government organisations, and a ‘user pays’ philosophy [149].

During the next few years, the Association became involved in making submissions on a wide array of policy changes. A major review of science policy was conducted by a Ministerial Working Party on Science and Technology, set up in 1986 and chaired by Sir David Beattie [150], and another was by the Science and Technology Advisory Committee (STAC), set up in 1987 under Ron Arbuckle [151]. Opposition to government funding of R&D by Treasury [152] apparently stalled government action on the Beattie report’s recommendations, so Dr Chris Sissons, on behalf of NZAS Council, wrote its own report on promotion and funding of R&D [153]. The Association also organised a seminar on ‘Science and Technology – Key to New Zealand’s Prosperity’, at which papers by politicians and economists as well as by scientists were able to be discussed [154], and there were related articles in the subsequent issue of *NZ Science Review* [155, 156].

At the AGM of NZAS in November 1989, the Minister outlined the Government’s progression via the Beattie report and the STAC report to reforms announced in April 1989 that he considered represented ‘the best of these two reviews’ [157]. These were the formation of: a new Ministry of Research, Science and Technology (MORST), responsible for science policy advice; an independent Foundation for Research, Science and Technology (FRST), responsible for funding for public good research (and, later, research in tertiary institutions); and an ad hoc Cabinet Committee for Research, Science and Technology. In addition, in 1989 the Minister of Health released a report it had commissioned on *Research for Health*, which recommended *inter alia* replacing the Medical Research Council with a Health Research Council. By mid-1990, the Association found itself embroiled in submissions on Bills on the establishment of FRST, Education Amendment, and the Health Research Council [158].

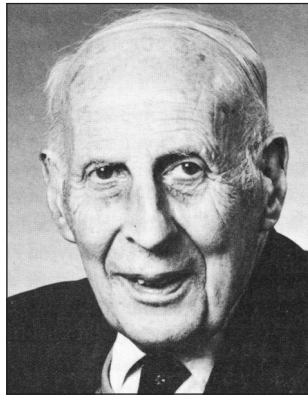
NZAS in association with the Public Service Association and the Association of University Teachers produced a special issue of *NZ Science Review* on all the reforms affecting science, expressing the views of a wide range of affected groups,

Dr Joan Mattingley, President in 1987/88 and 1988/89, was outspoken about the restructuring of science. In the 1980s she was also active in the Federation of Graduate Women. Under her married name, Joan Cameron, she has written the biography of Brian Shorland [ref. 179].



including the two main political parties, and this was distributed widely [159]. NZAS Council members Drs Chris Sissons, Frank March, and David Penny covered the issues that needed to be addressed [160], and David Penny and Chris Sissons dealt with the science of measuring research outputs [161]. The NZAS submission (prepared by Chris Sissons) to the Minister of Health on the proposed restructuring of medical research was also included [162]. NZAS President Dr Joan Mattingley protested the imposition of the new structure for science, with ‘all its defects of new, sharp edges and uncompromising facets’

Dr Brian Shorland, Patron of NZAS from 1987 until his death in 1999. He was President in 1954/55, Vice-President in 1965/66 and 1966/67, long-serving Council member, and Hon Editor of *New Zealand Science Review* from 1986 until shortly before his death. He received the Association's Service to Science Medal in 1970, and the NZAS Shorland Medal was named in his honour [ref. 179].



into which the 'trained, skilled scientists we have now' were expected to fit [163]. She spoke out about the 'devastation of New Zealand science' which had offered so much to the world as well as the New Zealand economy [164], and said that the 'extraordinary upheavals' were creating a 'generally confused, bewildered, insecure scientific community' [165]. Her successor, Dr David Penny, said at the NZAS Conference on 'Science for the 1990s' that scientists needed to be 'more assertive about their own worth, and more assertive about the value of research' [166]. Before the 1990 election, NZAS had published a science policy statement, among other things urging the Government to recognise the competitive advantage to be gained for the nation through the research and skills of its people and to increase spending on R&D to 1.5% of GDP by 1994 [167].

This was not to happen, and more upheaval was to come. At the 1990 election, the National Party formed the new Government after a landslide victory, and as might have been presaged from their pre-election science policy statement [168], not only supported the MORST and FRST arrangements, but also instituted moves to disestablish and restructure all of the Government research departments as Crown research institutes (CRIs). In late 1990, Dr Andy West became convenor of the Ministerial Science Task Group for CRIs and then of the CRI Implementation Steering Committee, and he spoke of the emphasis on science priorities and outputs that would be expected when the CRIs got under way in 1992 [169]. In the NZAS Golden Jubilee lecture mentioned at the start of this section, Dr Ted Bollard outlined the excessive influence of Treasury's hostile 'financial dogma' on government thinking, but hoped that, after the 'traumatic and barren' years 1986–1992, the new CRIs would bring some stability to the science scene in New Zealand [170]. However, a survey of NZAS members conducted in early 1991 and analysed by NZAS (because none of the four groups that expressed interest in the results – MORST, FRST, Office of the Minister of Research, Science and Technology, and the Science Funding Review Panel – had apparently set aside any funds for vetting the far-reaching and untested policies that they were administering), showed a 'very high level of response [that] indicated that the [funding] system as a whole was neither suitable, nor working effectively' and that there was 'concern that formation of the new CRIs and entry of universities into the 'public good' system 'would make the problems worse' [171]. It was not a good omen for the Association celebrating its 50th year of supporting science and its application to New Zealand's social and economic wellbeing.

The Association's Golden Jubilee

Plans to celebrate the Association's 50th anniversary were discussed at Council in late 1990 [§8/11/1990]. It was considered that a suitable theme would be 'Contributions of science to New Zealand society' and that it could be presented as a conference and a book. After a brainstorming session, a subcommittee of Council decided that the book would be aimed at '4th to 5th-formers (and the general market) and aim to get them excited about science. The format would have to reflect this and be richly illustrated' [§11/4/1991]. Sources of funding such as MORST and the Lotteries Commission were sought. However, in the turbulent times facing scientists in the early 1990s, the project appears to have foundered [§9/8/1993].

The conference idea morphed eventually into a seminar held jointly with the Wellington Branches of the Royal Society and the NZ Institute of Chemistry in May 1992 [172]. It consisted of the above-mentioned paper on: 'NZ government research: Past and present', by Dr Ted Bollard [173]; and 'New Zealand science lessons from the past for the future', by NZAS Patron and *NZ Science Review* editor, Dr Brian Shorland [174].

In the 50th Annual Report, outgoing President Dr David Penny described an active year and wondered how it would be possible to sustain such a high level of activity. He concluded that it was clear 'that the need for an Association with our interests is as relevant today as it was 50 years ago'. [175]

That need was to be highlighted in the next phase of the Association's history.

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Appendix 1. New Zealand Association of Scientists Officers 1974–1991.

Year	President	Vice-President	Secretary	Treasurer
1974/75	H Offenberger	FE Studt; KJ Aldous	MD Camden	PC Alve
1975/76	H Offenberger	KJ Aldous	MD Camden	PC Alve
1976/77	KJ Aldous	WQ Green; H Offenberger	MD Camden	PC Alve
1977/78	KJ Aldous	WQ Green; H Offenberger	D Hunt	PC Alve
1978/79	WQ Green	FC March; KJ Aldous	D Hunt	PC Alve
1979/80	WQ Green	AE Bell	L Ryan	PC Alve
1980/81	WQ Green	AE Bell	G Offenberger	L Ryan
1981/82	AE Bell	KJ Aldous	G Offenberger	L Ryan
1982/83	AE Bell	KJ Aldous	D Suuring	L Ryan
1983/84	G Irwin	KJ Aldous	D Suuring/M Pouwer	L Ryan
1984/85	K Knedler	J Weatherburn	M Pouwer	L Ryan
1985/86	K Knedler	KJ Aldous	D Suuring	L Ryan
1986/87	–	FC March	B Cornish	L Ryan
1987/88	J Mattingley	FC March	B Cornish	L Ryan
1988/89	J Mattingley	FC March	B Cornish	L Ryan
1989/90	D Penny	D Bibby	P Kelly	L Ryan
1990/91	D Penny	D Bibby	P Kelly	L Ryan

Appendix 2. New Zealand Association of Scientists Medals and Awards 1974–91.

Year	Research Medal	Marsden Medal (Service to Science)	Technicians Award	Science Journalism Award	Science Communicator Award
1974	B Halton	LB Moore			
1975	AFM Burton	no award			
1976	no award	KM Harrow			
1977	no award	no award			
1978	DB Calvert, A Wolfenden, CM Adon	no award	BR Mercer		
1979	CFL Powell	no award	J Benton		
1980	J Abrahamson	A Rae	ML Martin	B Ambler	
1981	AG Clark	no award	P Coman	V Wright	
1982	no award	no award	SL Manson	no award	
1983	no award	no award	C Kahukura	no award	
1984	TW Jordan	no award	J Matthews	no award	
1985	R Goldblat	G Knox	K Fraser	no award	
1986	AB Kaiser	no award	CC Nolan	no award	
1987	E Poulter, W Allan	RMS Taylor	L Baran	L Clark	
1988	B Hayward	no award	D Nairn	J McSweeney	
1989	R Haynes	J Watkinson	L Goodman	J McSweeney	
1990	RH Furneaux	no award	no award	J McSweeney, M Kopp	B Thomas
1991	J Kistler	AH Kirton	D Grenfeldt	K Westerkoff	T Brown