

Chapter 9. Director of the Centre for Resource and Environmental Studies, 1973 to 1979

Establishment of CRES

In August 1969, Vice-Chancellor Crawford asked me to chair a committee to prepare a submission to the Australian Universities Commission (AUC) for the 1973–75 triennium, advocating the establishment in the ANU of a Centre for Natural Resources (later and henceforth called the Centre for Resource and Environmental Studies (CRES)). The AUC approved the proposal, envisaging that the Centre would grow from 2 senior academic staff at the end of 1973, to 5 senior, 7 short term and 13 support staff by 1975, and when fully developed in 1977, a core of 8 senior academic staff with tenure appointments, 15 non-tenure appointments at levels from post-doctoral fellow to senior research fellow, and several short-term senior visiting fellowships, supported by a non-academic staff of 19 (Fenner, 1979a). As well as PhD students, there was to be an MSc program by course-work.

My Appointment as Director of CRES

I had been appointed Director of JCSMR in September 1967, with a term of seven years. This appointment would therefore terminate in September 1974, and well before that I had to decide whether I wanted a further term as Director of JCSMR, or to resume bench work in the Department of Microbiology, or do something else. CRES had received approval and funding as from January 1973, and the Directorship of the new institution was advertised late in 1972. Initially, because of my involvement in the planning, I was named as a member of the selection committee, but before it met, having decided that I would apply for that position, rather than remain in the JCSMR, I withdrew from the Committee. It is of some interest to insert here a copy of my letter to the Vice-Chancellor, dated 11 September, 1972, which sets out my reasons for this application.

Dear Vice-Chancellor,

I am writing to tell you that I am interested in the position of Director, Centre for Resource and Environmental Studies. I therefore wish to withdraw from the Electoral Committee for that post. It may be useful to you if I outline how a person whose scientific career has been in animal virology is now interested in such a post. In the first place, my family background gave me a broad interest in natural sciences, and the medical course itself provided a broad if superficial training in human biology. During my medical course I took Botany 1 and Geology 1 as additional

science subjects, and spent much of my spare time working with anthropologists and others in the South Australian Museum. After graduating I spent about half of my army career (which extended from June 1940 to February 1946) as a malariologist, a post which involved the supervision of units for malaria control and entomological research as well as the diagnosis of malaria and scrub typhus. Subsequently my first scientific contacts were with F. M. Burnet and R. J. Dubos, men with whom I have maintained close associations and who have become elder statesmen in the environment-resource area. Likewise, although I have been interested in the cellular and molecular biology of viruses as well as the pathogenesis of viral diseases, my principal experimental work for a number of years (1951–64) involved collaborative studies with animal ecologists and entomologists in CSIRO, on the ecology of myxomatosis.

My appointment in 1958 as Secretary, Biological Sciences, of the Australian Academy of Sciences further broadened my responsibilities and interests. In that position I was in part responsible for producing reports on the desirability of establishing the Research School of Biological Sciences in the ANU, and on setting up a Museum of Australian Biology and Biological Survey of Australia. In 1967–68 I resumed contact with the Biological Survey as Chairman of the Flora and Fauna Committee of the Academy, that produced a second report, published in 1969, that is now under active consideration by Government.

I moved into the more deliberate consideration of environmental problems during the preparation of a paper delivered at a symposium in September 1969, given in honour of Macfarlane Burnet's 70th birthday. In the same year I became Chairman of the ANU Committee on Natural Resources (now the Centre for Resource and Environmental Studies) that prepared the report that was subsequently accepted by Council and the AUC. Since then I have been Chairman of the Working Group of the Centre for Natural Resources and its representative on the Users Committee for the Life Sciences Library Building. During the last three years I have also become involved in several other committees concerned with environmental and resource problems. As I indicate, these vary in the intensity of their activities, but they have brought me into close contact with problems of resource management and with people involved with environmental questions.

The Australian Academy of Science

- Chairman, Flora and Fauna Committee since November 1967 (intermittently active)

- Chairman, Committee on National Parks and Conservation, since 1970 (relatively inactive)
- Chairman, National Committee for SCOPE, since 1971, (relatively inactive)
- Member, Standing Committee on the Environment, since 1970 (active)

National Activities

- Vice President, Australian Conservation Foundation, since October 1971 (active)
- Chairman, Study Group on International Aspects of the Human Environment (Australian Institute of International Affairs), since September 1972 (just being activated)
- Chairman, Three Academies Project Committee on Botany Bay, since August 1972 (active)
- Member, Advisory Council of CSIRO, since 1970 (intermittently active)
- Member, National Committee on Man and the Biosphere (UNESCO), since 1971 (relatively active)
- Member, Executive Committee of the Fact Finding Study on the Alligator Rivers Area, Northern Territory, since August 1972 (active)

International Activities

- Member, Scientific Committee on Problems of the Environment (SCOPE) since 1971 (intermittently active)

I have also given a few addresses on environmental topics that have been published.

- 1969 Brahma, Shiva and Vishnu, three faces of science. *Australasian Annals of Medicine*, vol. 18, 351–60.
- 1970 The effects of changing social organization on the infectious diseases of man. In *The Impact of Civilization on the Biology of Man* (S. V. Boyden, ed.), pp. 48–68, ANU Press.
- An overview of man and his environment in Australia. *Proceedings of the First International Congress on Domiciliary Nursing*, pp. 1–8.
- 1971 The environment. In *How Many Australians? Immigration and Growth*. Proceedings of the 37th Summer School of the Australian Institute of Political Science, pp. 37–60. Angus & Robertson, Sydney.

I attach a curriculum vitae and a list of publications.

Yours sincerely,
Frank Fenner

I was appointed and took office in May 1973, with a term that extended to my retirement on 31 December, 1979. Initially, I took up office in the old Nurses' Home just across the road from the JCSMR, my secretary from the JCSMR, Margaret Mahony, coming with me. In 1976, CRES moved to the two top floors of the recently completed Hancock Library building.

Activities as Director

My first priority was to attract a number of well-qualified senior staff members, and this was successful, Stuart Harris commencing work as Professor of Resource Economics in February 1975, and Peter Young as Professorial Fellow in Applied Systems Analysis in January 1975. David Ingle (Dingle) Smith was appointed as a Senior Fellow in January 1976, to be responsible for the course-work degree of Master of Environmental Studies as well as research in the Hydrology/Water Quality Program. However, in 1976, University funds had ceased to grow, for the first time in its history, and the prospect of appointing enough research fellows to support the work of these senior staff members looked bleak. Two events offered some relief. The first was an agreement with the Director of the JCSMR to transfer to CRES, with funds, the Urban Ecology Group of the Department of Human Biology in that School (leader, Professorial Fellow Stephen Boyden). The second was the recognition by the Heads of Schools Committee, on the initiative of the Director of the Research School of Biological Sciences, Professor R. N. Robertson, of the plight in which the freeze on funds had caught CRES. An additional continuing grant of \$50,000 per annum allowed three additional research fellows to be appointed.

In mid-1976 two distinguished Visiting Fellows, Dr H. C. Coombs, founding father of the ANU, and Dr A. B. Costin, pioneer of ecological studies in the Kosciusko National Park, joined CRES as long-term Visiting Fellows, supported by external funds.

Because of the need to use research assistant and research fellow positions in CRES to support the major research activities of other senior staff members, I worked without such support and thus spent a large part of my time on *ad hoc* problems rather than a major research project. On appointment to CRES, I resigned from membership of the Epidemiological (Standing) Committee, National Health and Medical Research Council, but during the next few years I continued or accepted membership of several other national and international committees concerned with environmental problems, as follows:

- Member, Advisory Council of CSIRO, 1970–75.
- Member National Committee on Man and Biosphere (UNESCO), 1971–78.
- Vice-President, Australian Conservation Foundation.
- Chairman of the Three Academies Project Committee on Botany Bay, 1972–74, and its replacement, the Botany Bay Project Management Committee, 1974–77.

- Member, Scientific Committee on Problems of the Environment (SCOPE), 1971–76 and Editor-in-Chief, SCOPE Publications, 1976–80.
- Member, Senior Scientific Advisory Board, UN Environment Program Project, 'The State of the Environment: Ten Years after Stockholm, 1978–82.

My lecturing and writing activities became increasingly diverse, often through committees set up by the Australian Academy of Science (see Chapter 8). However, I continued to take an interest in the work of the WHO Intensified Smallpox Eradication Program and attended many meetings of its expert committee on poxviruses (see Chapter 10). I also continued my book-writing, producing, with co-author David White, a second, completely revised, edition of *Medical Virology*, published in 1976; later that year the *Second Report of International Committee on the Taxonomy of Viruses*. In 1977, I teamed up with a former colleague, Adrian Gibbs, in producing a book of essays by 15 experts, *Portraits of Viruses: A History of Virology*. In 1978 Lloyd Rees and I co-edited *The First Twenty-five Years*, a history of the Australian Academy of Science.

The Scientific Committee on Problems of the Environment (SCOPE)

SCOPE was set up in 1970, as the International Council of Scientific Unions (ICSU) committee devoted to environmental problems, and I was elected a member of SCOPE at a meeting in Canberra in August 1971. I attended meetings of the Scientific Committee in Paris in January 1973 and March 1975, and of the General Assembly and Scientific Committee in Kiel, Germany in October 1973 and in Paris in May 1976.

One of the principal functions of SCOPE was to produce reports by small groups of internationally chosen natural and social scientists about important environmental problems of a scientific nature. Six of these had been produced between 1971 and 1975, but there were difficulties in distributing them. After the May 1976 meeting the Executive Committee decided to secure a commercial publisher, and in December 1976, concluded a contract with John Wiley and Sons Ltd. (UK), initially for four years. The contract was renewed in 1980. As part of the agreement SCOPE undertook to appoint an Editor-in-Chief to be responsible for the editorial content of the Reports. I was appointed to this post by the Executive Committee in October 1976.

Apart from attending all meetings of the Executive Committee and visiting the offices of John Wiley and Sons in Chichester, England, after these meetings, I developed an extensive correspondence with Gilbert White, the President of SCOPE, Ronald Keay, Executive Secretary of The Royal Society, who was Treasurer of SCOPE, Vassily Smirnyagin, the Executive Secretary of SCOPE and especially with Dr Howard Jones, John Wiley's Molecular and Earth Sciences Editor (the Jones' file is more than one centimetre thick in my Bassar Library

files, MS 143/12/1 to MS143/12/5). The changed arrangements led to much better production and sales (in addition to copies distributed by SCOPE), the figures rising from about 300, before the new arrangements, to between 750 and 1,400.

Because I had taken on the major task of writing an account of the global eradication of smallpox earlier that year, I handed over my responsibilities as Editor-in-Chief to Dr R. E. Munn on 31 December, 1980.

Overseas Travel 1973 to 1979

Between 1974 and 1979, I undertook many short trips related to meetings of either the Executive Committee of SCOPE or in connection with the WHO Smallpox Eradication Program. In the main, these were funded by the organizations concerned. Those involving CRES or SCOPE business are listed here; those solely or primarily concerned with smallpox are listed in Chapter 10.

27 September to 15 October 1973

The main purpose of this trip was a meeting of SCOPE in Paris. On the way, I stopped off in Kathmandu, Nepal, for three days (as a tourist, very interesting) and in London, to interview applicants for positions in CRES and the Botany Bay Project. Peter Young came to CRES as Professorial Fellow in Applied Systems Analysis as a result of this visit. Then I went to Kiel for the General Assembly and Scientific Committee of SCOPE, from 5–10 October. After the meeting Dr Otto Fenner (a second cousin) and his wife Elizabeth, who live in Hamburg, picked me up for dinner.

19 November 1973 to 15 May 1974

This was the second stage of my Fogarty Fellowship, this time with Bobbie, leaving my son-in-law Arthur Marshall and daughter Marilyn to look after the house at 8 Monaro Crescent. We made it a holiday trip over and back, stopping off at Fiji, Tahiti, Peru, with a trip to Cuzco, and Guatemala, for several days; a total of 45 days of most enjoyable and interesting sight-seeing. In Washington, we were met by Dr Haggerty, the man in charge of the Fogarty Scholarships, and driven to Stone House. Other scholars in residence at the time were Michael Sela, an immunologist from Israel, Dr and Mrs Darling, who were involved in investigations of the Hiroshima bombing, a Finnish histochemist and Margaret Mead.

We had a wonderful time there, travelling extensively around the States, to see sights like Williamsburg and visiting academics involved with environmental studies in universities in many of the eastern states. We also spent a lot of time visiting the many galleries and museums in Washington, an experience which led me to become a Foundation donor (of \$1,000) to the National Gallery of Australia when I returned home. We also saw a lot of Bob and Beth Chanock,

who became our best friends in the United States. I had stimulating talks with René Dubos when I went to New York. Bobbie and I drove up the Adirondacks to Saranac Lake to see George Mackaness (former Head of the the Department of Experimental Pathology in JCSMR) and Alan Logie (former Head Technician of the Department of Microbiology), now Director and Manager of the Trudeau Institute. I persuaded Bob Blanden, a South Australian who had worked with Mackaness in Adelaide and went with him to the Trudeau Institute, to come to Canberra as a PhD student.

On 6 January, I flew to England for 12 days, primarily to attend the Ditchley Conference, which dealt with social aspects of the environment, and interview further prospective staff for CRES and the Botany Bay project. I went to Victoria Harbor in Canada for a week in February for the SCOPE 5 Conference on Environmental Impact Assessment, which resulted in a report of some 240 pages (Munn, 1975), a second edition of which was published in 1979. Looking over the diary of the visit, I wrote many letters and saw a great many people interested in environmental problems.

We left Washington for London on 11 April, where we stayed with Cecil and Beattie Hackett, and then went to Amsterdam, where we spent a lot of time in the Van Gogh Museum. After spending couple of days in Vienna we went to Athens, where we had booked for a five-day trip around the Adriatic on *MS Aquarias*. Marvellous. Then we went to Cairo, where we were met by Harry Hoogstraal. He showed us around Cairo, then we flew up to Luxor and spent two days there before returning to Cairo and then back to Canberra, with a day in Hong Kong, mainly to see Stephen Boyden's students, Keith Newcombe and Sheila Millar, at work on the 'Metabolism of Hong Kong'.

14–20 October 1974

This was a brief trip to Pattaya, in Thailand, to participate in the Expert Group Meeting on Environmental Studies and Development, organized by the UN Asian Institute for Economic Development and Planning. In my diary I note that I 'felt that my contributions were useful and used'.

15–29 November 1974

SCOPE meeting in Moscow. I went there via Tokyo. As well as the five day meeting, I went to the Kremlin Theatre twice, to *Don Carlos* and *Rigoletto*. Another day I was collected by my virologist friend of 1964, Vladimir Agol, and taken to his flat in a newly developed part of Moscow for the evening. On 23 November, I returned via New Delhi, where by chance I met Jack Crawford and dined with him, the Australian High Commissioner and Hedley Bull, of ANU, who was on study leave. Spent time at the Jawaharal Nehru University, discussing among other things, the proposed Australia-India Science Agreement.

6–22 March 1975

This trip was made to attend a meeting at the International Institute of Applied Systems Analysis (IIASA) in Vienna and a SCOPE meeting in Paris. Again, opportunities to go the opera, *Karmen* and *The Barber of Seville*. I went home via London and interviewed D. I. (Dingle) Smith, who was then appointed a Senior Fellow in CRES, with responsibility for the MSc (Environmental Studies) program.

7 August to 11 October 1975

This was a long and complicated trip, which included five main items: a climate conference in Norwich, the 13th Pacific Science Congress in Vancouver, a virology conference in Madrid, a visit to the UN Environment Program Headquarters in Nairobi, a Climate Conference, and a visit to Kruger National Park in South Africa. I went via Bangkok to Kathmandu, mainly to replace a topaz earring that I had purchased there on an earlier trip. This took a few days, so I worked for most of the day on a climate change report and went to some Nepalese dance shows in the evenings. Then to Tehran via New Delhi. I went on tour to Isfahan, with its superb Blue Mosque. Then to Vienna, where I left my luggage at the airport and took a bus to Bratislava to see Zlata Wallnerova, who had worked in the Department of Microbiology for two years. She and her husband later came to Canberra as immigrants. Back to Vienna airport and on to London and by train to Norwich and the University of East Anglia, where I attended the week-long World Meteorological Organization–International Association of Meteorology and Atmospheric Physics, on Long-Term Climatic Fluctuation. There were several Australian experts there; I was very much a learner. On 23 August, I took a Great Circle flight to Vancouver, for the 13th Pacific Science Congress, where I gave a lecture in a Symposium on Mankind's Future in the Pacific (Fenner, 1976a). Looking at the text almost 30 years later, I am surprised how much in tune it was with present-day views.

Then to the Virology Congress in Madrid, where I spent most of my time with the International Committee on the Taxonomy of Viruses (ICTV), of which I was then President. Besides agreeing on the substance of the Second Report (Fenner, 1976b), I was successful in getting a plant virologist, New Zealander R. E. F. Matthews, elected President. This was important because at the time there was a serious possibility that the plant virologists would break away from the International Committee. After the Congress I travelled around Spain, visiting many wonderful places including Toledo and the Alhambra palace in Granada.

Then by plane to Nairobi, to visit the headquarters of the United Nations Environment Program (UNEP). This was useful visit; we discussed interactions between SCOPE, as the principal environmental non-governmental organization (NGO) and UNEP. Then a minibus trip to a National Park and then to 'Treetops'

for an overnight stay, to see all the African animals coming to drink or lick salt, under brilliant floodlights. Then to Pretoria and met by George Bornemissza (dung beetle expert); later met with South African members of SCOPE and visited the local Department of Planning and the Environment. Then to the Conference on Climate Change at the Transvaal Museum. After talking with staff of the University of Witswatersrand I went on a long drive through Kruger National Park. This was most interesting. Then three very interesting days in Capetown before embarking for the long flight back to Sydney.

27 November to 6 December 1975

Short trip to Tokyo via Manila to attend a meeting of the Council of the United Nations University in Tokyo, where I gave a talk on Resources and Reserves.

15–22 May 1976

This trip was to Paris to attend a meeting of the General Assembly of SCOPE, at the UNESCO Building in Paris. It had been called to ratify the new Constitution. I was made Chairman of the Resolutions Committee, which discussed future programs, so I was kept quite busy.

1–24 October 1976

The prime purpose of this trip was to attend a meeting of the Executive Committee of SCOPE in Washington. As usual, besides attending the meeting and seeing friends in Washington, especially Bob and Beth Chanock, I stopped off in Hawai'i and Phoenix, Arizona, on the way over and went to Toronto to see the arrangements for environmental studies at the University of Toronto and York University. On the way over I stopped in Hawai'i with my old friend Edgar Mercer, who lived on the Big Island. He drove me all around the island, and to the crater of the active volcano, Kilauea, a wonderful site for someone interested in geology. Then, on the way across America, I went to Flagstaff, Arizona, and from there got a bus to see the Grand Canyon. I spent three days there, walking around the rim and going on a plane flight. A marvellous sight. Then to Washington, where I stopped to attend a meeting of ICSU and the Executive Committee of SCOPE, both held at the National Academy of Sciences. I stayed at the Cosmos Club, in central Washington. It was there that I had dinner with Gilbert White, the new President of SCOPE and Ronald Keay, Treasurer of SCOPE, and Gilbert suggested that I should take on the job of Editor of SCOPE Publications; I agreed. I also visited the museums and National Gallery, went to a concert and then to a reception at the National Academy of Sciences, where I met several other SCOPE friends and also Michael Stoker, the new Foreign Secretary of The Royal Society, and Carleton Gajdusek.

From Washington I went to Trenton, New Jersey, where I was met by George Mackaness, then President of the Squibb Institute of Medical Research. He was

living in a converted barn, three storeys high, built in 1790. Then a brief stop in New York to see friends at the Rockefeller University and on to Toronto, where I met the President of the University of Toronto and gave a lecture on CRES. The next day, I met with eight Directors of Institutes in the University of Toronto (like our Centres) who saw themselves as the cutting edge of new interdisciplinary developments in the university. I spoke about the position in ANU. After a day at the Faculty of Environmental Studies at York University I returned to Australia.

1 April to 6 May 1977

The principal reason for this trip was to participate in the International Commission for the Certification of Smallpox in India (see Chapter 10). After spending three weeks there I had a week to fill in before attending a meeting of the SCOPE Executive Committee in Paris. So I flew to Dubrovnik, a wonderful old city on the Adriatic and spent two days there and on a bus trip along the shores of the Adriatic to the south of Dubrovnik. Then on to England, where I went down to Chichester to see Dr Howard Jones, of John Wiley and Sons, in my new job as Editor-in-Chief of SCOPE publications. After a day in London, during which Bobbie rang me while I was with Cecil and Beattie Hackett to say that I had been elected a Foreign Associate of the US National Academy of Sciences, I flew to Paris for a meeting of the Executive Committee of SCOPE.

26 September 1977 to 3 November 1977

The initial purpose of this trip was a meeting of the Executive Committee of SCOPE in London. It was a busy meeting that went on for four days, including a full day at Wileys in Chichester. Then I flew to Geneva for a major meeting on the Certification of the Eradication of Smallpox.

3–20 May 1978

After a few days in England, during which I went to Chichester for a day to see Dr Jones about SCOPE publications and interviewed Professor Maynard Smith as possible Director of the Research School of Biological Sciences (on behalf of Vice-Chancellor Low), I went to Warsaw for a week before going to a meeting of the SCOPE Executive Committee in Moscow. As well as seeing a good deal of the fascinating history of Warsaw and Cracow, I gave a lecture on smallpox eradication at the Institute of Medical Microbiology in Cracow, another on the activities of SCOPE at the Silesian Centre for Environmental Studies and a third on environmental studies in Australia at the Polish Academy of Science in Warsaw. Then flew to Moscow, where we had a four-day meeting of the SCOPE Executive Committee. Meals at the Moscow hotels were poor, but each evening members of the Committee were taken to dine at very good restaurants. One

evening Gilbert White, President of SCOPE, spoke of his days as a Quaker travelling around Europe during the World War II.

6 November to 14 December 1978

Once again, a trip encompassing smallpox and SCOPE. I went first to Geneva for meetings of the Global Commission and the Monkeypox Consultative Group. After three weeks in Geneva, I went to England and down to Chichester to see Wileys and then flew to Nairobi, where the SCOPE Executive Committee met with the officials of the United Nations Environment Program. After four days there I flew back to Geneva for the first meeting of the Global Commission for the Certification of Smallpox Eradication, of which I had been elected Chairman.

7 June to 1 August 1979

This rather long trip began with a meeting of the SCOPE Fourth General Assembly, followed by a meeting of the Executive Committee, in Stockholm, from 9–15 June. Then I went to London, where I stayed with Cecil and Beattie Hackett, who were celebrating their 40th wedding anniversary. I went to Cambridge to see Peter Young (just recruited to CRES as a systems analyst) and Joseph Needham, the great authority on Chinese science, to discuss early Chinese experience of smallpox. Then to Geneva for a few days to discuss my forthcoming trip to China concerning smallpox eradication there and to work on the agenda for a meeting of the poxvirus expert committee to be held in Atlanta. I visited Lloyd Thomson, who had worked with Bobbie in the blood bank at 2/2 Australian General Hospital in the Middle East and Queensland, he was then Australian Ambassador in Switzerland. Then to Atlanta, where I worked on the final report of the Commission for the Certification of the Global Eradication of Smallpox. I went with Walter Dowdle to his home in the woods and then to Stone Mountain, where gigantic carvings of the heads of some US presidents have been carved on the side. Then New York, where I stayed at the Rockefeller University and saw old friends, René Dubos, Merrill Chase and Jim Hirsch. Talked with Barsky (Academic Press) about *Medical Virology*, a possible *Veterinary Virology* and a possible third edition of *The Biology of Animal Viruses*; the latter two to be post-retirement options. Then to Washington, I went with Chanocks to the National Gallery and the next day to the National Institutes of Health to see scientists and enquire about a third and six-month spell of my Fogarty Fellowship, probably in 1982. On 11 July, Joel Breman and I flew to Japan, en route to China, to check their smallpox eradication program.

18 November to 14 December 1979

This trip was initially to Geneva, to work on smallpox final report and also, in another section of WHO, to discuss the United Nations Environmental Program 1982 Report. Then to Paris, for three days, for another meeting of the SCOPE

Executive Committee. Then Geneva again for the final meeting of the Commission for the Certification of the Global Eradication of Smallpox.

Lectures in Australia (excluding Lectures on Smallpox)

1973

'Environmental Problems: Approaches to Understanding and Solution at Local, National and International Levels'. Public lecture to the National Parks Association of the ACT, 22 March, 1973.

'Population, Pollution, Poverty and Prosperity', ANZAAS, Adelaide, 23 June, 1973.

'Comment on Treasury Economic Paper No. 2.' Lecture to the Economics Society of Australia (ACT Branch), 19 June 1973.

'The Importance of Port Phillip Bay.' Lecture to a symposium on the Environmental Study of Port Phillip Bay, 8 September, 1973.

1974

'A Lateral Arabesque: from Virology to Environmental Studies.' Address at A Tribute to Sir Macfarlane Burnet on the Occasion of his 75th Birthday, 3 September, 1974.

'Strategies for Energy Conversion: Resources and Constraints.' School Seminar on Growth, Research School of Social Sciences, October, 1974.

1975

'Environmental Impact Assessment: History, Rationale and Methodologies.' Zoology Section, ANZAAS, January 1975.

'Environmental Implications of Economic Development in the ESCAP Region.' Address to MADE, June 1975.

'The Last Five Years and the Future: Environmental Studies,' Octagon Lecture, University of Western Australia. July 1975.

1976

'Siglitis: the Activities of ICSU and SCOPE,' CRES Workshop 14 December, 1976.

1977

'The Role of Science in Environmental Policy,' Lecture to Australian Water and Waste Water Society, Canberra. July 1977.

Closing Lecture. International Symposium on Microbial Ecology, Dunedin, New Zealand, August 1977.

'The Australian Environment,' Lecture to National Environmental Education Conference, Lorne, Victoria. 14 November 1977.

1978

'Aggression and the Environment,' Lecture to Second Austral-Asian Pacific Forensic Sciences Conference, Sydney, July 1978.

Introductory address to Symposium: 'Fire and the Australian Biota' on 'The SCOPE Project: Ecological Effects of Fire'. 9 October, 1978.

1979

'Some Ecological Effects of Viral Infections', Lecture for Australian Society for Microbiology (ASM), Adelaide, 14 May 1979.

'Control of Infectious Diseases.' Lecture for Australian Society for Microbiology (ASM), Adelaide, 15 May 1979.

Honours and Awards

Both of the awards I received during my period with CRES recognized work done while I was in the JCSMR.

In 1976 I was appointed a Companion of the Order of St Michael and St George (CMG), for services to Medical Research.

In 1977 I was elected a Foreign Associate of the US National Academy of Sciences.

Overview, the Activities of CRES, 1973 to 1979

I was scheduled to present my annual Director's Report to Council at the meeting of the ANU Council on 9 November, 1979, and since I was to retire at the end of the year, I decided to give an overview of my six years as Director, as set out here (Fenner, 1979b):

CRES was established to undertake high quality policy-oriented applied research in the fields of natural resources and the environment, and to provide a master's degree program in these fields. After my appointment as Director on 14 May, 1973, I set out to recruit four senior colleagues to fill tenured positions: in resource economics, urban ecology, applied systems analysis and as a coordinator for the projected master's degree course. After the inevitable delays that occur in the early stages of a new activity, four excellent appointments were made: Professor Stuart Harris (February 1975), Dr Stephen Boyden (January 1976), Dr Peter Young (January 1975) and Mr D. Ingle Smith (January 1976). I delayed making appointments of research fellows until these men had settled in and defined their requirements; unfortunately by this time (mid-1975) the financial situation had deteriorated greatly and funds were available for only four such posts. Fortunately, action by the Heads of Schools

Committee enabled a further three research fellowships to be filled by early 1977. Since then the position has remained static, except for posts funded from outside grants. The latter source has been important in providing support for some senior long-term visiting fellows (Dr H. C. Coombs and Dr A. B. Costin) and similar appointments have been made at the research fellow level (Dr M. Brandl) and one is in the course of advertisement.

The academic staff is supported by a total of 16 research assistantships (seven on part time appointment), seven of which are supported on outside funds, an excellent secretarial staff, a programmer and a librarian. In my view the tenured staff of CRES is adequate, for the time being, but the support staff (both research fellows and research assistants) should be increased if the incoming Director is to be able to make the contribution to university, national and international affairs that CRES should make over the next decade.

Philosophy of Research.

The opinion was expressed by the Review Committee that most of the staff of CRES should be employed for most of their time in a succession of 'major projects', each lasting two or three (never more than five) years. I disagree with this view. I believe that the prime task of CRES is to carry out good research in the resources/environment field, directed mainly to matters of public policy. There are three components in this task; to do good multidisciplinary work on relevant topics, to develop new ideas and concepts, and to build up a strong base of knowledge and information in the fields in which CRES works. Nevertheless, I believe that most of the staff of CRES are now ready to devote part of their time to work on a common program, and the incoming Director should be provided with at least two research fellowships to assist him in launching such a program

The Performance of CRES

In the research schools one can judge performance, to a large extent, by the quality and volume of output of published articles and books as judged by the appropriate international peer group. CRES research has to satisfy this criterion, but has an additional need to devote a large part of its effort to problems of national importance, including advice to government on policy matters.

Considering that project work did not start seriously until 1976 and was not fully developed (with the available staff) until 1977, I believe that CRES has performed very creditably. Over the period of three and a half years during which CRES has been operating at anything like full strength, 163 article in journals or chapters in books have been produced,

99 internal CRES Reports and 19 books. A further nine books are in preparation.

	Articles and Books chapters	Books	CRES reports
Resources	49	7	37
Applied systems Hydrology	25	2	33
Land use	28	2	4
Environmental management	13	5	0
Human ecology	48	8	20

Teaching

Besides PhD students, CRES provides a Master's degree by coursework. Dingle Smith has done splendid work as the Coordinator of this course, which is now on its second run. CRES has provided a focus for Australian interest in such courses and initiated a meeting of Australian Course Coordinators in 1976, followed up by a UNESCO-sponsored course (jointly with the Centre for Environmental Studies of the University of Melbourne) in September 1979.

Accommodation

Present accommodation is adequate for the present staff and could accommodate a few more, but if an incoming Director is as successful in attracting visitors and students as I would expect, additional accommodation will be required before his term expires. From the point of view of providing more suitable accommodation than that presently available for the Hancock Library, and to accommodate CRES, a strong case can be made to extend the first two floors of the Library to the South, for the use of the Library, and allow CRES to occupy the whole of Floor Level Three.

Affiliation

It is highly desirable that CRES should be included in the information-exchange system of the university; the best method to achieve this would be to invite the Director to all meetings of the Heads of Schools Committee.

Outside Funding

If it were necessary to do so, an enterprising Director could raise large sums of money for consultant work by CRES. I have eschewed such action, nevertheless the funds that have been obtained for the support of work that is academically desirable and are within the research

programs of CRES have been very important in enabling project work to proceed.

References

- Fenner, F. 1976a, Options for man's future: a biologist's view. in *Mankind's Future in the Pacific*, 13th Pacific Science Congress (R.F. Scagel, ed.) pp. 140–60, University of British Columbia Press, Vancouver.
- Fenner, F. 1976b, Classification and nomenclature of viruses. Second Report of the International Committee on Taxonomy of Viruses, *Intervirology*, vol. 7, pp. 1–115.
- Fenner, F. 1979a, *The Centre for Resource and Environmental Studies: 1973–79*, The Australian National University, 76 pages.
- Fenner, F. 1979b, The activities of CRES: 1973 to 1979, Report to Council of ANU, 9 November, 1979, Basser Library 143/13/11/6A.