AUSTRALIAN SCIENCE AND TECHNOLOGY COUNCIL

Report for the period 1 July 1981 to 30 June 1982

Australian Government Publishing Service
Canberra 1982
My dear Prime Minister,

ASTEC has the honour to submit to you this report on its operations for the period 1 July 1981 to 30 June 1982.

Yours sincerely,

(G.M. Badger) (J.H. Carver)
Chairman Deputy Chairman

For and on behalf of:

Mr D.S. Adam
Sir Samuel Burston
Dr L.W. Davies
Mr J.N. Davenport
Professor D.H. Green
Mr K.H. McLeod
Sir Gustav Nossal
Mr L.G. Peres
Professor M.G. Pitman
Professor M.G. Porter
Professor R.I. Tanner
Sir John Wilson

The Right Honourable Malcolm Fraser, CH, MP,
Prime Minister,
Parliament House,
CANBERRA A.C.T. 2600
MEMBERS OF ASTEC

Professor Sir Geoffrey Badger, AO, FTS, FAA (Chairman)

Professor J.H. Carver (Deputy Chairman)
   Director, Research School of Physical Sciences,
   Australian National University

Mr D.S. Adam
   General Manager Corporate Affairs, The Broken Hill Proprietary
   Company Limited

Professor B.D.O. Anderson, FAA (until 27 February 1982)
   Professor of Electrical Engineering, The University of Newcastle

Sir Samuel Burston, OBE
   Grazier

Mr J.N. Davenport, AO, DSO, DFC & Bar, GM
   Company Director

Dr L.W. Davies, AO, FTS, FAA
   Chief Scientist, Amalgamated Wireless (Australasia) Ltd
   and Professor of Electrical Engineering,
   The University of New South Wales

Professor D.H. Green, FAA (since 28 February 1982)
   Professor of Geology, The University of Tasmania

Professor B.E. Hobbs, (until 27 February 1982)
   Professor of Geology, Monash University

Dr P.S. Lang, OBE (until 27 February 1982)
   Grazier

Mr K.H. McLeod
   Federal Secretary, Australian Insurance Employees Union

Professor Sir Gustav Nossal, CBE, FTS, FAA, FRS
   Director, The Walter and Eliza Hall Institute of Medical Research

Mr L.G. Peres
   Reader in Political Science, The University of Melbourne

Professor M.G. Pitman, OBE, FAA (since 28 February 1982)
   Professor of Biology, The University of Sydney
Professor M.G. Porter, FASSA  
   Director, Centre for Policy Studies, Faculty of Economics and Politics,  
   Monash University

Professor R.I. Tanner, FTS, FAA (since 28 February 1982)  
   P.N. Russell Professor of Mechanical Engineering,  
   The University of Sydney

Sir John Wilson, CBE  
   Chairman, Australian Paper Manufacturers Limited

PROFESSIONAL MEMBERS OF ASTEC SECRETARIAT

Dr R.M. Green (until 2.4.82; Secretary)  
Dr B.S. Middleton (Assistant Secretary; Secretary from 24.6.82)  
Mr A.E. James (Secretary to Technological Change Committee of ASTEC)  
Dr P.C. Price  
Mr P.St.J. Dawe  
Dr T.E. Heyde  
Mr M.J.M. Robertson (on secondment from CSIRO from 3.8.81)  
Mr I.R. Shortt (on secondment to CSIRO from 3.8.81)  
Dr M.M. Venning  
Dr M.J. Wardrop
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INTRODUCTION

The Australian Science and Technology Council (ASTEC) was established as a statutory authority on 28 February 1979 under the Australian Science and Technology Council Act 1978. It reports to the Prime Minister.

The Council is the Government's principal source of independent advice on science and technology matters and, as part of this role, maintains a broad overview of the science and technology activities of Commonwealth Government departments and agencies, universities and private enterprise.

In addition to providing advice to the Government on major new proposals involving science and technology, the Council prepares reports in response to specific requests by the Government, or the Prime Minister, and of its own volition. It also provides comments at the request of the Government on reports prepared by specialist groups.

FUNCTIONS

The functions of the Council, as defined in its Act, are to investigate and to furnish information and advice to the Commonwealth Government on issues relating to science and technology, including the following:

- the advancement of scientific knowledge;
- the development and application of science and technology in relation to the furtherance of the national well-being;
- the adequacy, effectiveness and overall balance of scientific and technological activities in Australia;
- the identification and support of new ideas in science and technology likely to be of national importance;
- the practical development and application of scientific discoveries;
- the fostering of scientific and technological innovation in industry; and
- the means of improving efficiency in the use of resources by the application of science and technology.
MEMBERSHIP

During the year, Professor J.H. Carver was appointed Deputy Chairman, a position left vacant at the end of the last financial year by the resignation of Sir Rutherford Robertson. Professor Carver, who is Director of the Research School of Physical Sciences at the Australian National University, was first appointed to ASTEC in February 1980.

Three members completed their terms of appointment: Professor B.D.O. Anderson, Dr P.S. Lang and Professor B.E. Hobbs. They were succeeded by Professor D.H. Green, Professor M.G. Pitman and Professor R.I. Tanner, each appointed for three years. Sir Samuel Burston and Mr L.G. Peres were appointed for further terms of three and two years respectively. Professor Green is Professor of Geology at the University of Tasmania, Professor Pitman is Professor of Biology (Plant Physiology) at the University of Sydney and Professor Tanner is P.N. Russell Professor of Mechanical Engineering at the University of Sydney. Both Professor Green and Professor Tanner spent a period during 1980-81 as acting members of ASTEC.

MEETINGS

During the year ASTEC met eleven times at monthly intervals (except in January), each meeting occupying one day. Working parties were established as necessary to conduct studies on particular issues and to draft reports for the Council; some working parties included non-Council members appointed for their particular expertise.

The practice of circulating to appropriate government departments and agencies papers for each meeting continued; this enabled observers from departments and agencies to attend and to participate in discussion on these papers as they wished. It also ensured that these bodies were aware of ASTEC's program and of the development of its ideas, with an opportunity to contribute when appropriate. ASTEC records its appreciation for the contribution made by invited representatives. During the year under review, the Department of Home Affairs and Environment was added to those departments invited to have a representative attend ASTEC meetings.

A part of each meeting continued to be restricted to ASTEC members only, to permit the formulation of the Council's independent advice after views had been heard in open session.

At three meetings, invited speakers presented special briefings. These were:

[2]
October 1981  Professor L.M. Birt and Dr B.S.L. Lennon, Chairman and Executive Secretary respectively of the New South Wales Science and Technology Council; Professor Birt spoke on the activities of that Council.

November 1981  Mr R.S. Lennon, General Manager Planning and Technical Services of the Australian Postal Commission, who spoke on the research and technological activities of the Commission.

April 1982  Dr D. Scrafton, Director-General of Transport, South Australia, who spoke about transport research and development in Australia. Dr Scrafton was accompanied by Mr G.K.R. Reid, Director of the Commonwealth Bureau of Transport Economics.

COMMENTS AND ADVICE ON ISSUES UNDER CONSIDERATION BY GOVERNMENT

ASTEC and its Secretariat were consulted informally on a number of occasions by departments and agencies preparing proposals relating to science and technology for consideration by the Government. Not only did this assist ASTEC to form its own considered view on each issue, but the sponsoring bodies were able to take into account ASTEC's comments when completing their proposals. Subsequently, the Council provided advice to the Government when the proposals were being considered. ASTEC appreciates the helpful co-operation of departments and agencies in this process. Among the issues on which consultation took place were the establishment of an Australian Centre for International Agricultural Research, and the level of Government support for industrial research provided through the Industrial Research and Development Incentives Scheme. ASTEC also provided the Government with advice on a number of other matters; these included the Inquiry into Commonwealth Laboratories. In addition, the Commonwealth Research Centres of Excellence Committee consulted with ASTEC on two occasions.

REFERRALS FROM GOVERNMENT

Water Resources Research

During 1981 the Australian Water Resources Council undertook a study on water research in Australia. This led to a number of recommendations being
made to the Government, including the proposal that a new National Water Research Council be established to advise on water research matters and to have a funding role in water resources research similar to that in energy research of the National Energy Research, Development and Demonstration Council. This proposal, together with requests for funds for additional research to be supported by the new Council and for enhanced programs carried out by CSIRO and the Bureau of Mineral Resources, was brought before the Government during March.

ASTEC supported the proposal that a new council be formed, and proposed that its initial task be to formulate national priorities for water research. The Council also endorsed the provision of modest additional finance for some new research assessed to be of high national priority and to support the coordination role of the council. ASTEC suggested that the new council assess the priority of water research proposals brought forward by organisations including CSIRO and the Bureau of Mineral Resources which require additional funds, and recommend appropriate amounts.

REPORTS UNDER CONSIDERATION BY THE GOVERNMENT

ASTEC has four reports whose recommendations are still under consideration by the Government. These reports are Microelectronics (submitted to the Government on 20 October 1981), Medical Research in Australia (submitted on 30 November 1981 and for which the Government’s response will be coordinated by the Minister for Health), New Telescopes for Australian Astronomy in the 1990s (submitted on 11 May 1982), and Earth Resources Satellites - Australian Facilities (submitted on 26 May 1982).

GOVERNMENT DECISIONS ON ASTEC REPORTS

In October 1980 ASTEC reported on 'Interaction between Industry, Higher Education and Government Laboratories'. The report recommended a three year pilot program of industrial fellowships, a pilot program of co-operative research grants, and that the activities of the Technology Transfer Council be upgraded and broadened in scope.

ASTEC was advised that a pilot program of co-operative research grants was under consideration by the Government to increase the interaction between industrial laboratories and government and academic laboratories. However, as a result of decisions following the Review of Commonwealth Functions, the Government decided to reduce substantially its activities in the field of technology transfer.
In May 1981, ASTEC forwarded to the Prime Minister its report 'Towards a Marine Sciences and Technologies Program for the 1980's'. The report, which was tabled on 25 August, had been prepared for ASTEC by the Australian Marine Sciences and Technologies Advisory Committee (AMSTAC), then a standing committee of ASTEC, but since transferred as an advisory committee to the Minister for Science and Technology. ASTEC was advised that the recommendations in the report relating to resource requirements were to be included in the new policy proposals for 1981-82 of the appropriate Ministers. ASTEC also forwarded its report 'Basic Research and National Objectives' during May 1981 and this was tabled on 25 August 1981. Although this report contained no specific recommendations, the Council was advised that the Government would be considering the report as part of its deliberations on basic research funding in the 1981-82 Budget.

ASTEC forwarded to the Government a report on the Office of the Supervising Scientist during March (see Studies, p.7). In June, the Government announced that it had agreed in principle to the construction of laboratory facilities for the Supervising Scientist in the Northern Territory. The Government also decided that the Office of the Supervising Scientist would be adequately staffed, administered and housed, taking into account ASTEC's estimate of requirements.

STUDIES

Identification of Priorities for Research and Development

During the year under review the Council carried out an assessment of the value of a method developed by the United Nations Educational, Scientific and Cultural Organisation for identifying priority areas of research and development. Following the experimental Priorities Workshop held in February 1981 (which was described in the Annual Report 1980-81), a draft working paper which reported the results was furnished to participants in that meeting. Their comments were taken into account in preparing a revised working paper after initial consideration by ASTEC. In October this document was circulated to the participants and a peer group of about 110 others. Early in 1982 ASTEC considered the comments made and prepared a report on the experiment: the Council concluded that the technique has a number of imperfections making it necessary to exercise great care in using the results, which represent one input to the complex problem of assessing priorities. The experiment itself was considered to have been valuable for the interactions it produced between the 'users' and 'providers' of research, as well as for progress made in identifying national objectives and research and development priorities.
Arising out of the Council's studies on priorities, it was proposed that the Committee for Scientific and Technological Policy of the Organisation for Economic Co-operation and Development, of which Australia is a member, undertake work on the subject. The Committee responded by holding a forum discussion on priorities in Paris on 29 October 1981, at which the introductory papers were presented by Dr Middleton and Professor J. Ronayne (University of New South Wales and a consultant to ASTEC). Subsequent to the forum the Committee agreed to undertake several studies on priorities.

Microelectronics

ASTEC's study of the development of microelectronics in Australian industry, in government establishments, and in tertiary education institutions resulted in a report to the Government in October 1981. The report recommended increased Government support for the Australian microelectronics industry through the introduction of a bounty and the application of preferences, offsets and taxation incentives. Suggestions were also made concerning the teaching of microelectronics and about collaboration in research and development.

Review of Medical Research

During the year ASTEC completed its review of arrangements and funding for medical research, and the Council's two-part report entitled 'Medical Research in Australia' was tabled in the Parliament in March. Part one of the report included a brief survey of university medical schools, independent and hospital research institutes and health laboratories of the Commonwealth Government, together with a synopsis of the structure and functions of the National Health and Medical Research Council (NH&MRC) and of recent changes in the level of medical research funds disbursed on its advice. Total expenditure on medical research and development was estimated to be approximately $80 million in 1981, of which the contribution provided by the Commonwealth Government was $47 million. ASTEC concluded that the present arrangements were not satisfactory for the continued development and co-ordination of a research effort of this size, and recommended the establishment of a Medical Research Council (Australia) to carry out the medical research advisory and funding functions currently undertaken by the NH&MRC. The Council also made recommendations on the concentration of research effort in the medical sciences, on the need for additional funds for medical research and on new arrangements for review of medical research and development in Commonwealth Government laboratories.

Part two of the report, the Appendices, provided a more detailed description of medical research in institutes and laboratories of the Commonwealth Department of Health, the Commonwealth Serum Laboratories, other Commonwealth Government organisations and independent and hospital research institutes.
Science and Technology Statement

The Science and Technology Statement is a detailed analysis of Commonwealth expenditures on science and technology, including research and development (R&D), which is prepared each year by the Department of Science and Technology following publication of the Commonwealth Budget. ASTEC made a detailed examination of the 1981-82 Statement for the twin purposes of assessing its contribution to the preparation of the Council's advice on various issues, and of identifying issues for further examination. As a result, the Council commenced preliminary studies of R&D in support of primary industry and the construction industry, with a view to deciding whether full investigations were warranted. In addition, ASTEC suggested that the Department of Science and Technology report expenditures in future Statements in a way which enables meaningful comparisons with previous years, and accompanied by descriptions of the objectives and policies to which the expenditures relate.

Science and Technology Manpower

In response to concern expressed in the scientific community that the manpower available in Australia for science and technology would be inadequate for the future, ASTEC commenced a study of science and technology manpower in November 1980. Preliminary information indicated that there was not a need for ASTEC to become involved in the broad issues of science and technology manpower, and the study was restricted to the supply of and demand for research scientists and engineers and appointment and mobility rates in universities. Although no report was presented to the Government on these studies, the Council invited the Prime Minister's attention to the sharp decline in the numbers of Australian research students in engineering.

Office of the Supervising Scientist

The construction of a permanent laboratory in the Alligator Rivers Region of the Northern Territory for the Office of the Supervising Scientist was proposed in 1981. The Council undertook to study the scientific and technological activities of the Supervising Scientist and to provide advice on the proposal in the context of the 1982-83 Budget. During January 1982 an ASTEC working party visited the Alligator Rivers Region to view at first hand the research activities of the Supervising Scientist, and consulted with mining companies, government departments and agencies and with representatives of the Aboriginal people. In the resulting ASTEC report, provided to the Government in March 1982, the Council recorded its view that the present laboratory facilities, staffing levels and residential accommodation were inadequate to fulfil the Government's policy objectives. ASTEC recommended that a permanent laboratory be constructed as soon as possible, and that resources for the research program be increased over the next two years.
Earth Resources Satellites

For several years Australia has made valuable use of information transmitted from the American Landsat series of earth resources satellites. The information is received and processed for sale by the Australian Landsat Station which has facilities at Alice Springs and Canberra. In the second half of 1982 the United States of America expects to launch Landsat-D, the first of a new generation of earth resources satellites. The greatly improved capability of Landsat-D promises new, improved and cost-effective methods of conducting mineral exploration; crop, forest and pasture monitoring; mapping; land use planning; and many other resource and land management activities. In May 1981 ASTEC appointed a working party to study the potential value to Australia of information from Landsat-D and other projected earth resources satellites, and to investigate the nature and cost of facilities which would be needed to guarantee ready availability of this information to Australians. ASTEC's report, entitled 'Earth Resources Satellites - Australian Facilities', recommended that the Australian Landsat Station data receiving and processing facilities be upgraded at an estimated cost of $6.5 million, to take advantage, as early as possible, of future earth resources satellites.

Facilities for Astronomy

In the early part of 1982 ASTEC examined in detail two proposals for major new facilities for Australian astronomy for which funds were likely to be sought in the 1982-83 Budget. In radioastronomy there was a proposal to construct a large, ground-based radio synthesis telescope, to be known as the Australia Telescope and operated as a national facility by CSIRO. In optical astronomy there was a proposal to collaborate with the United States of America and with Canada in the construction and launch in 1989 of a one-metre orbiting space telescope called Starlab. ASTEC's report on these proposals entitled 'New Telescopes for Australian Astronomy in the 1990s' was forwarded to the Prime Minister in May.

Science and Technology in International Co-operation and Development Assistance

ASTEC's 1980-81 Annual Report mentioned that the Council was undertaking a study of the science and technology components of Australia's aid program and had expanded its investigations to encompass all aspects of Australian participation in international science and technology co-operation. The study was completed and a background report forwarded to the Prime Minister during May. The report did not make recommendations to Government but described the broad range of international exchanges in which Australian scientists and technologists participate. In doing this, a number of matters were identified which would require further investigation and review by ASTEC.
Biotechnology

As reported in ASTEC’s Annual Report for 1980-81, the Council advised the Prime Minister that it saw no need at that time for the Government to provide extra incentives to encourage and promote industrial applications of recombinant DNA research. However, the Council recommended that the Minister for Science and Technology be asked to convene an open symposium on the possible applications of the results of such research to primary and secondary industry. A successful symposium on this topic was held in Sydney in November 1981. Subsequently, the Council gave some consideration to the question of whether industry was taking sufficient advantage of the considerable genetic engineering resources existing in Australia. A working party was appointed to look at the area again, to review recent developments in the Australian biotechnology industry and to determine whether incentives would be necessary to encourage further industrial interest. As part of this study ASTEC provided advice to the Government on a specific proposal from the Howard Florey Institute of Experimental Physiology and Medicine to develop the Institute as a national centre for gene synthesis.

Other Studies

During the year ASTEC considered a study on science and technology information services available in Australia, with a view to making recommendations to the Government on the efficiency of the services and the extent, if any, of overlap and duplication between services. However, after an initial examination which involved discussions with officers from CSIRO and the National Library of Australia, it was decided that a report was not warranted at this stage. More recently, ASTEC has initiated studies to consider the functions and activities of the Australian National Animal Health Laboratory, with particular reference to the proposed importation of live exotic animal disease agents. Another separate study has been initiated to develop policy guidelines on charging for use of national facilities.
The Technological Change Committee was established as a standing committee of ASTEC in May 1981, following a request by the Government. The formation of such a committee had been recommended by the Committee of Inquiry into Technological Change in Australia.

The following are the Terms of Reference for the Committee:

- to maintain a continuing review of the processes and trends in technological change in Australia and elsewhere, and evaluate and report on the direct and indirect effects at the national level including social, economic and technological effects;
- to identify and evaluate new and changing technologies of importance to Australia, and factors favouring, or restraints impeding, the introduction or diffusion within Australia of new or existing technologies;
- to consider community attitudes recognising the need to increase the national community awareness and understanding of issues arising as the result of technological change; and
- to carry out studies of technological change as required above and also in response to requests from ASTEC, noting that ASTEC may receive requests from the Commonwealth Government.

The membership of the Committee, which includes four members of ASTEC, is as follows:

- Professor Sir Geoffrey Badger, AO, FTS, FAA (Convenor), Chairman of ASTEC
- Professor J.H. Carver, Director, Research School of Physical Sciences, Australian National University (member of ASTEC)
- Mr E.F. Herbert, Assistant General Manager, CSR Limited
- Professor B.L. Johns, Director of the Bureau of Industry Economics
- Mr T. Johnson, Assistant National Secretary, Electrical Trades Union
- Mr J.D.S. Macleod, Chief Economist, CRA Limited
- Mr K.H. McLeod, Federal Secretary, Australian Insurance Employees' Union (member of ASTEC)
- Mrs E. Manley, Chairman of Directors, Birrell, Manley and Cawrse
The Committee met nine times during the year. The meetings followed the pattern established by ASTEC, and included open sessions attended by representatives from Commonwealth Government departments and agencies, and from State Governments. These open meetings were followed, if necessary, by closed sessions restricted to members. The contributions of the Commonwealth and State observers were particularly valuable and have assisted the Committee in defining its role and in developing a program of work.

At three meetings, papers were presented by invited speakers.

August 1981  Dr P.M. Kelly of the Australian Atomic Energy Commission Research Establishment, spoke on 'Materials for the Future'.

September 1981  Dr M.D. Fitzpatrick, Dr R.W. Phillips and Mr A.G. Wood, all of the Bureau of Industry Economics, made presentations on the Bureau's report 'The Long-run Impact of Technological Changes on the Structure of Australian Industry to 1990-91'.

October 1981  Professor D. Lamberton, Dr S. Macdonald and Dr T. Mandeville, all of the Department of Economics at the University of Queensland, presented a series of papers discussing the Bureau of Industry Economics' report.

Robots

The impact of robot technology in Australia over the next decade was selected by the Technological Change Committee to be the subject of its first report. The topic was chosen because of widespread community awareness of robots as a new technology, and recognition of the wide range of potential effects, both economic and social, resulting from use of the machines. A report for ASTEC was in the final stages of preparation at the end of June; it addressed a range of issues including the probable rate of introduction of robots, the question of government action to encourage their use and the procedures necessary to ensure that adverse effects on the workforce are minimised.
Information Technology

A working party was established to carry out a review of information technology. Because the early introduction is likely into Australia of videotex-type systems, and the social and economic consequences will be significant, the study concentrated initially on videotex. A draft report on this matter was being prepared at the end of the period under review.

Technological Change and Employment

This topic is being investigated because it constitutes an area of widespread social concern. A working party has been formed to undertake an overview of employment issues in the context of technological change and of general employment trends and influences. The study will include an assessment of recent and current work in the area, conducted in government bodies, tertiary institutions and industry both in Australia and abroad.

ACTIVITIES OF CHAIRMAN AND MEMBERS

Activities of the Chairman

During the year the Chairman presented several addresses on science and technology policy and on ASTEC's role. In August he visited New Zealand where, as one of six guest speakers, he addressed the Golden Jubilee Conference of the New Zealand Institute of Chemistry. In October he attended the Annual Symposium of the Australian Academy of Technological Sciences and presented a Summation at the conclusion of the Symposium, as well as the guest address entitled 'Innovation and Technological Change' at the official dinner. In March he presented a paper at a conference organised by the Bureau of Industry Economics. The conference was on the 'Environment for Industrial Investment in the 1980s' and the Chairman's paper, presented jointly with Dr R.M. Green, was 'Innovation - the Role of Government'. In May he presented a paper on 'Manufacturing Resources of Australia' at the ANZAAS Congress at Macquarie University in Sydney.

The Chairman also attended a meeting of representatives of the various scientific societies in Australia convened by the Academy of Science during February. He spoke about ASTEC and the relations of scientists with governments and made specific reference to the problems of funding expensive facilities.
The Chairman and the Secretary continued to visit government and industrial laboratories, State departments and agencies and universities and institutes of technology when the opportunity arose.

Activities of the Members

During the year, members were involved in a variety of professional and business meetings and visits, and reported to the Council on matters of interest which had come to their attention during these activities.

ASTEC Observers on other Bodies

The Council has a broad mandate to advise on all areas of science and technology. To assist with the task, and for co-ordination purposes, ASTEC has observer status on some other advisory bodies; a member of the Council is appointed to liaise with the respective committee or council, to receive its papers and reports, and attend meetings when necessary. In this way ASTEC is able to note information provided by, and the views of, the more specialised advisory bodies. ASTEC's own views can also be provided to these other bodies at an appropriate time in their deliberations on particular issues.

ASTEC has observer status on the Australian Marine Sciences and Technologies Advisory Committee, the CSIRO Advisory Council and the Antarctic Research Policy Advisory Committee. Professor Porter is a member of the National Energy Advisory Committee and provides liaison with that body, and Sir Samuel Burston provides a similar link with the interim Policy Advisory Council of the Australian Centre for International Agricultural Research, of which he is a member.

SECRETARIAT ACTIVITIES

During the year the Secretariat benefited from the contributions of three officers on temporary attachment: Mr M.J.M. Robertson was seconded from CSIRO for twelve months, Ms R. Ince for three months from the University of New South Wales, and Dr J. Truswell from the Bureau of Mineral Resources for two months. Mr Shortt was seconded from ASTEC to CSIRO for twelve months to coincide with Mr Robertson's assignment.
Mr A.E. James was appointed an assistant secretary responsible for the Technological Change Committee. Previously he had worked in the Productivity Development Division of the Department of Science and Technology.

Dr T.E. Heyde joined the Secretariat as a Senior Project Officer assigned to the Technological Change Committee. Her previous employment had been with the Toxicology Section, Public Health Division of the Commonwealth Department of Health.

In April Dr Green was appointed Deputy Secretary of the Department of Science and Technology. The Council records with special appreciation Dr Green's service since 1976 as Secretary to ASTEC. Following an extensive program of advertising and interviews Dr Middleton was selected to succeed Dr Green as Secretary.

A number of talks were given by officers of the Secretariat during the year. Dr Green addressed the Western Australian Institute of Technology's Science, Technology and Public Policy Group during August. The title of his Public Lecture was 'The Respective Roles of Government and Industry in Technological Innovation'. Dr Middleton addressed the 1982 ANZAAS Congress on the subject 'R&D Priorities for National Objectives: an Australian Experiment', in a paper prepared jointly with Professor J. Ronayne from the University of New South Wales, School of History and Philosophy of Science. Dr Middleton also presented a paper entitled 'ASTEC and Government Support for Australian Science' to the Research School of Chemistry at the Australian National University in May. Dr Wardrop attended the ANZAAS Congress and delivered a paper entitled 'A Technology Assessment of Robots in Australia'.

**Overseas Visits**

Dr Middleton travelled to Paris in October 1981 to present a paper to the forum discussion on priorities, organised at Australia's suggestion by the Committee for Scientific and Technological Policy of the Organisation for Economic Co-operation and Development. He held associated discussions on priorities in the USA, Canada, Ireland and Singapore, and discussed ASTEC and its activities with senior government officials in Malaysia.

Mr James visited the United Kingdom, Europe and the USA during March and April to obtain information that would assist the Technological Change Committee while at the same time to inform people of the role and functions of the Committee. The visit concentrated on those organisations engaged in technology assessment and in providing advice to government.
The following financial statement indicates estimates and actual expenditure for the period 1 July 1981 to 30 June 1982.

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<th>Estimates $</th>
<th>Expenditure $</th>
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<tr>
<td><strong>Council Members</strong></td>
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<tr>
<td>Fees*</td>
<td>170,000</td>
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<tr>
<td>Travel allowance†</td>
<td>27,000</td>
<td>22,998</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>197,000</td>
<td>180,224</td>
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| **Secretariat**    |             |               |
| Salaries          | 358,000     | 349,609       |
| Travel and subsistence | 116,000     | 112,117       |
| Office requisites | 23,000      | 20,917        |
| Postage and telephones | 3,000       | 14,744        |
| Consultants       | 28,000      | 22,355        |
| Incidentals       | 10,000      | 9,680         |
| **TOTAL**         | 538,000     | 529,422       |

* Includes fees paid to co-opted working party members.
† All transportation expenses are paid from the Secretariat appropriation.
APPENDIX A

ASTEC PUBLICATIONS 1981-82

The following ASTEC reports were presented to the Prime Minister during the period 1 July 1981 to 30 June 1982.

<table>
<thead>
<tr>
<th>Report</th>
<th>Tabled</th>
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<tbody>
<tr>
<td>Microelectronics</td>
<td>19 November 1981</td>
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<td>Medical Research in Australia</td>
<td>10 March 1982</td>
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<td>Office of the Supervising Scientist</td>
<td>20 May 1982</td>
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<tr>
<td>Earth Resources Satellites - Australian Facilities</td>
<td>20 May 1982</td>
</tr>
<tr>
<td>New Telescopes for Australian Astronomy in the 1990s</td>
<td>Not yet tabled</td>
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<td>Australian Science and Technology in International Co-operation and Development Assistance</td>
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