

expenditure by industry of over \$90 million. The number of projects funded during the year ended March 31, 1973 was 230, tenable in 157 companies. For the first time since the inception of the program in 1962 all provinces have benefited from the program since, as a result of continuing encouragement to companies, projects are being supported in Newfoundland and Prince Edward Island. The highest level of research activity continues to be in the chemical, electrical, pharmaceutical, and paper and allied products industries.

With the time interval between research discoveries and the appearance of an improved product in the marketplace measured in decades, it is too early to forecast the effect of the program on the Canadian economy. The rate of growth of the IRAP in the early stages was governed by a shortage of senior scientists and research engineers, time needed to build laboratories and the share of company funds available to match government assistance. Recent reports from participating companies reveal a considerable change with a substantial increase in staff, in the purchase of sophisticated research instruments and in capital expenditures which have more than doubled since the program started.

The number of small companies applying for IRAP assistance is growing rapidly and there are a number of case histories showing that small companies can do highly successful research and development with the appropriate incentives. A close working relationship has been effected between the industry group, some 90 university professors in a consulting capacity, and approximately 130 scientists as advisers or liaison officers from government laboratories. This new link between industry, university and government is improving communication and providing a feedback of industrial activities and requirements into the universities and government laboratories.

#### **9.2.1.5 Technical information**

The Technical Information Service (TIS) was established in 1945 to help small secondary manufacturing industries keep pace with advances in research and technology. TIS today maintains direct contact with industry through a system of field offices and provides, without cost, information and advice on technological matters.

The Industrial Engineering Section has nine industrial engineers in the field and three in Ottawa, helping small companies to resolve their operating problems on a do-it-yourself basis. This is done through information, guidance and assistance in the analysis of work situations, improvements in production processes and facilities, and implementation of systems by which management can operate and control production processes for optimum results.

The Technological Developments Section further facilitates the flow of technical information to Canadian industry. An experimental program is carried out with the co-operation of some 3,000 companies each of which has provided TIS with a listing of its areas of industrial interest; these are matched by computer with the information items held by the Technical Developments Section and selected lists are issued to each company.

Engineers in the TIS field offices visit or contact thousands of small companies in every part of Canada and answer well over 10,000 inquiries a year. Problems requiring information in greater depth are referred to the Ottawa staff who draw upon experience with previous inquiries, the National Science Library, experts in government departments and industry, and foreign information services for suitable information which is forwarded to the inquirer, sometimes accompanied by suggested solutions to their problems.

#### **9.2.1.6 The National Science Library**

Plans for developing a central scientific library were proposed as early as 1924 by the Honorary Advisory Council for Scientific and Industrial Research, established in 1916, now the National Research Council of Canada. The Library grew slowly until 1928 when temporary research laboratories were established near the present Sussex Drive building which was opened in 1932. Since then it has been developed to parallel the growth and expansion of the laboratories and the national interests and activities of the Council with the result that in 1953, under an agreement with the more recently established National Library, the National Research Council Library formally assumed responsibility for national library services in the fields of science and technology, a responsibility confirmed by Act of Parliament in 1966. In 1967, the President of the Association of Canadian Medical Colleges recommended to the government that responsibility for national services in the medical and health sciences be assigned to the National Science Library.

The National Science Library now serves as the focal point of a national scientific and technical information network. Through co-operative measures with both national and