

The Government, realizing the vital need for continuity in research, planned the Defence Research Board as a fully integrated and permanent part of the defences of the country. To assist co-ordination at the highest level, the Chairman of the Board has the status of a Chief of Staff and is a member of the Chiefs of Staff Committee and of the Defence Council. Thus the Defence Research Board has been described as a fourth Service. Its fundamental purpose is to correlate the special scientific requirements of the Armed Forces with the general research activities of the scientific community at large. The Board's policy is to select and concentrate its efforts upon defence problems of particular importance to Canada or for which Canada has unique resources or facilities. Existing research facilities such as the National Research Council are used wherever possible to meet the needs of the Armed Forces. The Board has built up new facilities only in those fields that have little or no civilian interest. From the policy of specialization it follows that close collaboration must be maintained with Canada's larger partners. Specialization is made possible only through the willingness of the United Kingdom and the United States to exchange the results of their broader programs for the less numerous but nevertheless valuable benefits of Canadian research.

The activities of the Defence Research Board are concerned primarily with maritime warfare, armament, telecommunications, Arctic, special weapons, operational, medical, aeronautical and materials research problems of specific interest to Canadian defence. To conduct this program of research, the Defence Research Board operates nine specialized research and development establishments and, in addition, organizes and supports research on problems of defence interest in universities and other agencies.

Research on maritime warfare problems is carried out at the Naval Research Establishment, Dartmouth, N.S., and at the Pacific Naval Laboratory, Esquimalt, B.C. The principal emphasis at each station is on problems related to submarine detection and tracking.

Research and development of weapons and armament is undertaken by the Defence Research Board in co-operation with the Armed Services at various establishments. The largest of these is the Canadian Armament Research and Development Establishment near Valcartier, Que. Its principal activities include research and development and testing of new and improved weapons.

Research on telecommunications is carried out at the Defence Research Telecommunications Establishment. This Establishment is concerned mainly with problems of communication and air navigation and supports these with considerable effort in basic research in the fields of radio propagation and electronics components.

Research dealing with problems in Arctic operations is conducted at the Defence Research Northern Laboratory, Fort Churchill, Man. This Laboratory has given valuable support in the instrumentation of rockets fired from the rocket range located at this station.

Special weapons is the generic term used to cover research on the defensive aspects of chemical, biological and atomic weapons. This work is carried out at three Defence Research Board establishments—the Defence Research Chemical Laboratories at Ottawa, Ont., the Suffield Experimental Station at Ralston, Alta., and the Defence Research Kingston Laboratory at Barriefield, Ont.

Medical, psychological, clothing and food research is carried out intramurally at the Defence Research Medical Laboratories near Toronto and extramurally in Canadian universities by means of a grant-in-aid program. An important field of activity is aviation medicine but investigations include naval and army problems as well as studies on blood substitutes, infection and immunity, burns and wounds, the effects of noise on hearing, and other factors likely to affect a military man's efficiency and health.

Most of the basic aeronautical research program is also carried out extramurally in Canadian universities and in Canadian industry. The principal fields covered are aerodynamics, aircraft propulsion, and engineering materials.