

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, nonetheless, valuable benefits of Canadian research.

During the past year, the Defence Research Board conducted research activities in naval, armament, telecommunications, arctic, medical, operational, materials, aeronautical and special weapons problems. Research on naval problems is carried out at the Naval Research Establishment, Dartmouth, N.S., and at the Pacific Naval Laboratory, Esquimalt, B.C. Both stations are engaged in the study of anti-submarine devices, since anti-submarine warfare will be the prime task of the RCN in time of war. Research and development of weapons for the Armed Services is carried out at the Canadian Armament Research and Development Establishment at Valcartier, Que. This is the largest establishment operated by the Board and has facilities for the study of all phases of armament development. The Board operates two laboratories whose prime interest is in the field of electronics. The Radio Physics Laboratory at Shirley's Bay, Ont., is interested mainly in fundamental research associated with radio communications, particularly in northern latitudes. The Electronics Laboratory, situated within the grounds of the National Research Council's Montreal Road Laboratories, is concerned primarily with the development of electronic devices as aids to navigation. The centre for research into arctic and sub-arctic conditions is the Defence Research Northern Laboratory at Fort Churchill, Man., which is mainly occupied with the application of the results of fundamental research into the effect of cold weather on men and materials.

Medical research is conducted in Canadian universities and medical schools, as practicable, and at the Defence Research Medical Laboratories at Downsview, Ont. (near Toronto). The major emphasis is in the field of aviation medicine, but investigations include such problems as blood substitutes, infection and immunity, burns and wounds, nutrition and other factors likely to hinder a military man's ability to perform his duties effectively. Operational research, which may be defined as the application of techniques of scientific research to problems which arise in the Armed Services in the execution of their operational roles, is conducted by the Operational Research Group consisting of a headquarters section and three research sections; in addition there are three operational research organizations in the Armed Forces, staffed largely by personnel from the Defence Scientific Service. The Board continued to support active programs of research into methods of estimating, recovering and fabricating such useful metals at titanium, etc. The titanium program is a series of integrated research projects conducted by the Mines Branch of the Department of Mines and Technical Surveys and the Universities of Toronto, Laval and Montreal, in co-operation with various industrial firms with long experience in this field. In addition to aeronautical research conducted by the National Aeronautical Establishment, the Defence Research Board supports an extensive program on aeronautical and gas dynamics problems at various Canadian universities. Special weapons research is conducted in the atomic, biological and chemical fields at the Defence Research Chemical Laboratories, Shirley's Bay, Ont., the Suffield Experimental Station, Ralston, Alta., the Defence Research Kingston Laboratories at Barriefield, Ont., and at a Department of Agriculture Isolation Station located on Grosse Ile, an island in the St. Lawrence, near Quebec City.