

The organization consists of a headquarters staff and field research stations known collectively as the Defence Scientific Service. Advisory committees composed of leading Canadian scientists, through consideration of a variety of problems, provide invaluable assistance to the Defence Scientific Service.

In planning this organization, the Government considered the vital need for continuity in research and 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.

An essential part of the defence of Canada, 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. This task is the main function of the headquarters staff and its work is strengthened by the expert counsel of comprehensive advisory committees.

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, nonetheless, valuable benefits of Canadian research.

An important and logical field of specialization for Canada is Arctic research. This interest in Arctic problems is reflected in nearly all the Board's activities. An outstanding example is a program of ionospheric research carried on jointly with the Department of Transport. The north magnetic pole is located on the northern edge of Canada's mainland and the auroral belt, in which ionospheric disturbances make radio communication difficult, is centred around the north magnetic pole and extends well down into the inhabited areas of Canada. This means that Canada has radio communications problems duplicated only in northern Siberia, and which are of vital importance not only to defence but to civil aviation and communications. It is, therefore, appropriate that Canada should put special effort into this field of research and that the latter should be supported by Government civil and military agencies.

The Board's Radio Physics Laboratory has designed and supplied the special equipment and operator training for a chain of Department of Transport ionospheric observatories scattered across the auroral belt. The results of the observations from these stations are analysed at the Radio Physics Laboratory and are used not only to issue current forecasts of the most effective radio transmission frequencies but also in more fundamental research aimed at improving northern communications. The results are passed to the Central Radio Propagation Laboratory at Washington, U.S.A., for use in the compilation of world-wide frequency prediction tables. The whole program is an example of logical specialization and of effective inter-departmental and international co-operation.