

develops longer range aircraft and as it progresses from possession of the atom bomb to the hydrogen bomb and after that to perhaps now undreamed of methods of destruction. Warning time grows less as the speed of any possible attack grows greater.

Alert to such developments, service and scientific advisers of both countries have been engaged in an extensive study as to what further steps might be desirable and practicable. In October last they completed their study and recommended that an early warning chain should be established north of the settled parts of Canada.

This project has been agreed to by both governments and the necessary surveys and set-ups of this early warning chain are now in progress and we hope that construction will commence later this year.

The proposed system is over 5,000 miles long and the surveys involve the examination of hundreds of possible sites.

One type of equipment which may be used was designed, produced and tested in Canada, largely at McGill University. Hence, this proposed line has come to be commonly known as "the McGill fence".

It is obviously just as important to have early warning of aircraft approaching target areas in North America from over the sea as from over northern Canada. For this reason, the United States government is extending the early warning barrier across the north-eastern and northwestern seaward approaches of North America.

The Alaska radar system is fully co-ordinated with the radar chains in Canada and the United States. In addition, Canada and the United States are working together continuously to improve the immediate defences of major target areas. Co-operation of air defence commanders in close, and unidentified aircraft are investigated by the nearest interceptor force, whether Canadian or American.

Much of Canada's research on military problems is carried out by the Defence Research Board, a division of the Department of National Defence, whose work is so important that it is regarded almost as a fourth service. This board is concerned with all phases of inquiry relating to defence and defence production, but in relation to continental defence it is obviously very active in the specialized field of Arctic research.

The vast Arctic and sub-Arctic expanses of northern Canada present special problems of transport, of equipment and of communication. Ionospheric disturbances in the auroral belt make radio communication difficult. Extreme cold during winter and insect nuisances in summer call for special protection. Likewise the winter cold poses problems of ignition and lubrication for mechanical equipment and alters the reactions of normal weapons. These problems are attacked at the Defence Research Board, working in conjunction with the National Research Council.