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DEFENCE RESEARCH IN CANADA - 1963

While space activities continued to play a role in the Defence Research Board's programme during 1963, other important projects with direct defence-scientific application continued to progress satisfactorily.

The sequel to 12 years of hydrofoil research carried out at the Board's Naval Research Establishment (NRE) in Dartmouth, Nova Scotia, is the Royal Canadian Navy development project for the design and construction of a 200-ton prototype hydrofoil craft by deHavilland Aircraft at Malton, Ontario. This experimental ship will be 150 feet long and capable of speeds of about 50 knots. The designers are aiming at producing an experimental ship suitable for evaluation tests in rough sea conditions. NRE is continuing to contribute to the project with fundamental research on hydrofoil systems.

HYPERSONIC TEST RANGE

A new and sophisticated research facility at the Canadian Armament Research and Development Establishment (CARDE), Valcartier, Quebec, began operations on June 13 with the official opening by Dr. A.H. Zimmerman, DRB's Chairman, of a new hypersonic range for aerodynamic tests and for examining the effects of bodies re-entering the earth's atmosphere.

Small projectiles, some instrumented with miniature transmitters, are fired at supersonic speeds down a range evacuated of air to simulate upper atmospheric conditions. Their behaviour and the radiations they generate are studied in detail. By scaling upwards the data obtained, CARDE scien-

tists are able to study the interactions that take place when a missile configuration enters the earth's atmosphere.

This research is being carried out as a contribution to the United States Intercontinental Ballistic Missile Development Programme, and the results are shared by both countries. A four-inch gas-gun launcher, with a muzzle velocity of 10,000 miles an hour, hurls the model missiles down the range. Next year, a seven-inch gun now under test will come into use and will permit the study of more realistic configurations at hypersonic velocities.

The new range facility is housed in a semi-circular building of reinforced concrete 630-foot long. The diameter of the range is 10 feet. Its atmospheric pressure can be reduced to simulate altitudes up to 250,000 feet. This facility can be operated by remote control.

DEFENCE INDUSTRY AID

The response to the Board's financial-assistance programme for encouraging the growth of research in Canadian defence industry continued to be highly satisfactory during the past twelvemonth. As of late November, 56 research proposals had been accepted, which will lead to a total expenditure of \$15,300,000 on new Canadian industrial research within the next two years.

At the beginning of the programme in 1961, DRB expected that actual research results would take some time to materialize. Specific economic gains, however, are already becoming apparent in the form of product sales and the continuing establishment of new industrial-research laboratories.