DEFENCE RESEARCH BOARD, 1953

WARNING DEVICE OUTSTANDING: The outstanding accomplishment of the Defence Research Board made public during 1953 was the development of an early warning device designed to supplement radar chains in the Canadian north, the Department of National Defence has announced.

The project was directed by DRB with the assistance of the Eaton Electronics Research Laboratory, of McGill University, and the National Research Council. The experimental equipment tested was manufactured by the RCA Victor Company of Montreal which has supplied similar Canadian-designed and produced installations to the U.S.A. for additional tests in the far north.

Summer trials confirmed the value of the device as a warning system that can be installed economically in terms of money, materials and manpower and all component parts can be manufactured in Canada. Development work and further trials are proceeding.

DRB's Arctic activities again proved dramatic during the past 12-month period with the discovery at the tip of Canada's Ellesmere Island, northernmost land mass of North America, of relics from past historical expeditions.

PEARY'S RECORDS

Glaciologist Geoffrey Hattersley-Smith, of Ottawa, accompanied by Geologist Robert Blackadar, also of Ottawa, recovered records left in 1906 by U.S. explorer Admiral R.E. Peary on Cape Columbia Mountain peak. From the Cape, Peary made a historical trek over Arctic Ocean ice floes the same year and claimed to have reached the North Pole.

In the same area, the young scientists found relics of two additional Arctic expeditions of yesteryear - the 1875-76 Royal Navy Expedition commanded by Capt. Sir George Nares and the 1920 explorations of Danish Godfred Hansen.

The purpose of the two-man 1953 expedition was to investigate the ice shelf bordering the northern coastline of Ellesmere Island, suspected source of Arctic Ocean ice islands. Blackadar, of the Geological Survey of Canada, was examining the geology of the rugged coastline at the rear of the ice shelf.

With the completion of permanent facilities for three DRB laboratories and a new wing for a fourth during the past year, the end of the Board's construction programme is in sight.

The two-storey wing opened in January at the Defence Research Northern Laboratory, Fort Churchill, completes construction at Canada's northernmost scientific establishment. Modern laboratories in the new wing are available also to visiting scientific teams from Canada, the U.K. and the U.S.A. to test military equipment in an Arctic environment.

Current activities include the designing and testing of special military equipment, physiological studies of loads that can be carried most efficiently by troops in the north, assessment of current methods of ground navigation, and equipment investigations relating to survival and operations.

The Radio Physics Laboratory activities include research into radio propagation problems and particularly, the investigation of radio communication in the Arctic which is affected by the presence of the auroral zone.

The laboratory serves also as the centre of a comprehensive system of nation-wide ionospheric recording stations. Besides providing facilities for basic research, RPL extends consulting services in specialized fields to the Armed Forces and other Government agencies as well as co-operation with scientific groups and universities in Canada and elsewhere.

PREVENTIVE MEDICINE

The defence Research Kingston Laboratory began operating in its new building research centre in bacteriology and the various aspects of preventive medicine, staff scientists are following promising leads in the field of antibiotics, substances developed in nature to maintain the balances of micro-organisms. Among current investigations, several seek to determine the effect of penicillin in the formation of immune substances.

Important fundamental studies on immunization and the resistance of the body to disease aim at increasing knowledge of health protection. An entirely different approach to disease studies is the use of radioactive isotope tracers to follow the life processes of microbes.

Led by Dr. Solandt, a group of Canadian military representatives and senior DRB scientists participated in the fourth meeting of the Commonwealth Advisory Committee on Defence Science at New Delhi, India, in March.

The Committee's main objective is to promote scientific research relative to defence in all fields by closer collaboration within the Commonwealth. The conference provided a valuable opportunity for participants to exchange views on important current defence matters.

In September, Canadian aviation research developments, radar installations and Canada's latest aerial navigation advances were demonstrated to a USAF military mission led by Lieut.-Gen. Donald L. Putt, Commander of the USAF Air Research and Development Command.

Detailed progress reports on DRB scientific investigations featured the December fifth annual Symposium held in Ottawa with about 400 scientists and military representatives participating from Canada, the U.K. and the U.S.A.