

of Terrestrial Magnetism relative to the position of the North Magnetic Pole is now possible as a result of the extension of the network of ground magnetic stations in the Arctic Islands. It is now definitely established that the North Magnetic Pole is no longer in Boothia Peninsula but has moved to a location near the northern part of Prince of Wales Island.

The magnetic data gathered by the Dominion Observatory is used in the mathematical analysis of the cause and effects of the earth's magnetism and in the construction of all magnetic charts of Canada for use of air and marine navigators, surveyors and prospectors. Base magnetic stations have been established in many of the important mining areas for which absolute values of the magnetic elements for any time can be supplied to geophysical prospectors. The magnetograms from the magnetic observatories afford measurements of disturbances which must be taken into account in the interpretation of magnetic surveys made in mining areas.

The necessity of more accurate and sensitive magnetic instruments required to undertake specific and highly specialized investigations has not been overlooked by the Division of Terrestrial Magnetism of the Dominion Observatory. An induction type universal magnetometer was designed and constructed in 1947. This instrument was severely tested in the environs of the North Magnetic Pole where it performed satisfactorily when the standard type magnetometer was useless.

It is expected that increasing use will be found in the future for instruments of this type and for certain purposes they may largely displace the older instruments

Airborne Magnetometers in Canada.—An important development in the field of Terrestrial Magnetism was made during the Second World War when instruments were devised for the measurement of total magnetic force from the air. While the original purpose of these devices was the detection of submarines they have since found useful application in magnetic surveying particularly in its application to geology.

The first use in Canada of an airborne magnetometer was initiated by the Geological Survey of Canada, when a trial demonstration in the vicinity of Ottawa, Ont., was made by officials of the United States Geological Survey in September, 1946. Partly as a result of this demonstration, development work in Canada carried out jointly by the National Research Council and the Geological Survey was brought to the point where a trial area of 3,000 square miles in the vicinity of Ottawa was surveyed during the latter part of 1947. Following the initial successful trials it is expected that the airborne magnetometer will be extensively used in the future as an adjunct to geological mapping and to assist in the discovery and interpretation of geological structures where more conventional methods have proved to be inadequate.

Similar types of airborne magnetometers were first used by commercial companies in 1947. During the year large areas have been surveyed in northern Ontario, northern Manitoba and along the north shore of the St. Lawrence River in Quebec. In addition, a large area was surveyed in Alberta and several thousand square miles in northern Ontario and Quebec.

A second type of airborne magnetometer was developed during 1947 by Hans Lundberg Geophysics Company of Toronto, Ont. This instrument is of the earth inductor type and is carried in a helicopter rather than the conventional type aircraft and is, therefore, more suitable for surveying small areas.