

OBSERVATORY FIELD RESEARCH

Over a dozen field parties from the Dominion Observatories of the Department of Mines and Technical Surveys are working in various areas of Canada this summer on a far-reaching programme of mapping the earth's gravity, magnetism, and seismic characteristics.

The programme, announced recently by Mines and Technical Surveys Minister Paul Comtois, complements the year-round geophysical work of the Observatories and is being carried out by five or six parties studying gravity, several parties engaged in seismographic studies, and others that are mapping terrestrial magnetism.

The top feature of the programme is an airborne geomagnetic survey of some 41,000 line miles ranging from the Rockies to central Quebec and from the United States border to the coast of the Arctic Ocean. Also on the programme are an investigation of gravity in areas as widely separated as the Arctic archipelago, the Maritimes, and the Prairie Provinces; and recordings of artificial earth tremors in Ontario and Quebec, as well as on the coast of British Columbia.

The results of these investigations are of great value to prospectors and industry in the search for oil and minerals, to pilots and navigators, map makers, architects, surveyors, defence planners, and many others, all of whom require such scientific data in their daily work.

RESEARCH ON GRAVITY

Of the gravity parties, the most northerly are working on the Continental Polar Shelf Project on and around the Queen Elizabeth Islands, as well as on the ice of the Arctic Ocean itself, moving about by helicopter. Another party is measuring gravity on the southern half of Baffin Island, using both helicopters and fixed-wing aircraft in a survey that will last all summer and that forms part of the continuing regional-gravity survey of Canada.

A party using fixed-wing aircraft is surveying gravity in an area stretching some 750 miles from Lake Mistassini in Quebec to the Labrador coast. This investigation is of particular significance because of the noted mineral-bearing potential of the region.

A gravity team is mapping the sedimentary basin of the Prairie Provinces, travelling by automobile through the Winnipeg, Regina, Edmonton, and other areas. This work, which takes in a rich oil-bearing region, is carried out in co-operation with the oil industry.

STUDY OF HUDSON BAY

Another party is carrying out investigations on Hudson Bay, which, scientists hope, will help to solve the question of this great inland sea. The party will take measurements by means of an underwater gravity meter, which will be lowered to the bottom and read by an electronic sensing device on board ship.

Perhaps the most curious investigation involving gravity, topography, and other characteristics centres on the New Quebec meteorite crater in the Ungava Peninsula. This crater, filled by a lake some two miles in diameter and 825 feet deep, was first seen by white men from the air in 1943, although it was visited by Eskimos before that. It is believed to have been caused by the impact of a meteorite in prehistoric times, and scientists hope to find out more about the origin, subsequent history, and present configuration of this interesting feature. The party investigating the crater is using two fixed-wing aircraft and is accompanied by two United States scientists who are interested in comparing impact and artificial explosion craters.

GEOMAGNETIC STUDIES

In their work on geomagnetism, Observatory scientists are using the three-component airborne magnetometer, developed at the Dominion Observatories, to chart, from an aircraft, the direction and intensity of the earth's magnetic field over that part of Canada lying between the Rocky Mountains and central Quebec, and between the international boundary and 64° northern latitude. These flights are made east to west in a gridiron pattern and provide the magnetic information for all air and marine navigation and topographic maps of Canada, as well as general scientific data about the magnetic field of the earth.

Three field parties are taking magnetic measurements on the ground in British Columbia, the Prairie Provinces, and the Maritimes. These observations during June, July, and August will serve as standard observation points for co-ordinating magnetic airborne surveys. They are necessary to take account of the slow, long-term changes in the earth's magnetic force known as secular change.

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CANADIAN FISHERIES, 1960-61

When the 1960-61 fishing year closed at the end of April, Canadian sea fishermen had landed a catch of 1,822 million pounds with a value of \$86 million. Unit prices were generally a little higher than in the previous season. The Atlantic catch was of about the same size but the gross income of Atlantic fishermen increased by about \$2 million. Stocks of frozen fish were at the same level on the east coast at the end of the year as at the beginning. Stocks of salted fish were heavier. On the Pacific coast the industry experienced the second of two poor years. The value of the catch declined from its record high level of \$51 million in 1958-59 to \$34 million in 1959-60 and \$29 million in 1960-61. The season ended on a note of hope, however. Average salmon runs are confidently expected this summer, including a large run of pinks to the Fraser. A measure of order having been introduced into fishmeal marketing, a summer herring fishery also is expected. Top-heavy stocks of frozen Pacific halibut were cut in two during the year. Optimism was also apparent in the number of boats under