

therefore the preparation of descriptions of the boundaries of the redistributed districts and other work required in connection with Sect. 7 of the Representation Act (RSC 1952, c. 334).

**National Air Photo Library.**—The Library keeps complete records of all survey photographing done by or for the Federal Government, including a copy of each photograph and information on the flight lines, the flying agency, the film and camera operations. Established in 1925 under the Topographical Survey to function as a central reference library of national air photography, it has on file some 3,000,000 oblique, vertical and trimetrogon photographs, which provide an aerial view of all Canada.

**Hydrographic and Oceanic Surveys.**—Hydrographic and oceanic surveys in Canada's navigable waters are conducted by the Department's Marine Sciences Branch. Operations are directed from Ottawa and carried out through three regional offices—the Bedford Institute of Oceanography on the Atlantic Coast, the Pacific Coast Regional Office at Victoria and the Central Regional Office at Ottawa. Planning is under way to construct a Victoria Institute, similar in size and complexity to the Bedford Institute, from which all Pacific Coast operations will be co-ordinated.

To carry out hydrographic and oceanic surveys and research, the Branch operates a fleet of ships and launches including some privately owned vessels chartered for the purpose. Five of the major vessels operate out of the Bedford Institute and four out of Victoria with one vessel based in the Great Lakes. Land-based parties, equipped with launches, operate on coastal and inland waters and teams of hydrographers and oceanographers travel to the Arctic with the Department of Transport supply vessels to chart and study waters and harbours en route.

The Branch estimates that, at the present rate of charting, it will take more than fifty years to complete initial surveys of Canadian waters; meanwhile, the demands from industry, defence and the pleasure-boat operator for accurate and up-to-date charts continue to increase. To speed up its hydrographic and oceanographic work, the Branch plans the construction of 12 survey and research ships at a cost of \$50,000,000 during the period 1964-70. In 1964 a \$7,000,000 oceanographic research vessel, CSS *Hudson*, was commissioned and attached to the fleet at the Bedford Institute. The *Hudson* is a floating laboratory, capable of hydrographic and oceanographic work anywhere in the world, but it will serve mainly in the Arctic and Atlantic Oceans. Its main tour of duty in 1964 was a full-scale geophysical investigation of Hudson Bay.

The work of the Marine Sciences Branch also includes the analysing of tides and tidal current phenomena and the investigation of water levels. To meet the needs of charting, navigation, engineering and defence for constant and detailed information on water levels, it operates 92 permanent water-level gauging stations in coastal and inland waters and uses the services of local temporary gauge attendants for transmission of the data to Ottawa. Temporary gauge stations are also operated in various areas where short-term data are required. A long-term study is being made of the circulation in the Gulf of St. Lawrence which will be of great value for ice forecasting and other studies to facilitate winter navigation. Current surveys on the West Coast are carried out by the Pacific Coast regional office.

In 1963, the Marine Sciences Branch published 58 new charts, bringing the total number of catalogued charts to 930. Distribution reached a new high of 170,000 standard charts and a total, including various special charts produced, of over 217,000.

**Geological Mapping.**—The Geological Survey of Canada maps and studies the geology of Canada and carries out specialized research to enable its geologists to map and explain the geology of the country more effectively. It is the major organization engaged in this field in Canada and its studies are nation-wide. The Survey works closely with provincial agencies and endeavours, after prior consultation with the provincial government concerned, to fill in the province's geological framework and provide a basis for more