

less intensive but very relevant studies of the biology of the Arctic lands and oceans. The result of all these activities is that a great deal of reliable scientific information in a wide range of subjects is now available for an area about which very little was known two decades ago.

#### 1.1.4 Islands

The largest islands of Canada are in the North and all experience an arctic climate. The northern group extends from the islands in James Bay to Ellesmere Island which reaches 83° 07'N. Those in the District of Franklin lie north of the mainland of Canada and are generally referred to as the Canadian Arctic archipelago; those in the extreme north — lying north of the M'Clure Strait—Viscount Melville Sound—Barrow Strait—Lancaster Sound water passage — are known as the Queen Elizabeth Islands.

On the west coast, Vancouver Island and the Queen Charlotte Islands are the largest and the most important but the coastal waters are studded with many small rocky islands.

The island of Newfoundland forming part of the province of Newfoundland, the province of Prince Edward Island, Cape Breton Island forming part of the province of Nova Scotia, Grand Manan and Campobello Islands forming part of the province of New Brunswick, and Anticosti Island and the Magdalen group included in the province of Quebec are the largest islands off the east coast.

Notable islands of the inland waters include Manitoulin Island (1,068 sq miles in area) lying in Lake Huron, the so-called Thirty Thousand Islands of Georgian Bay and the Thousand Islands in the outlet from Lake Ontario into the St. Lawrence River.

The areas of principal islands by region are given in Table 1.6.

#### 1.1.5 Surveying and mapping

The needs for maps and surveys of Canada are met mainly by the Department of Energy, Mines and Resources. They compile topographical, geological and aeromagnetic maps, aeronautical charts and specialized maps showing electoral district boundaries, land use and other features. Some types of maps and surveys are also produced by provincial and private agencies. In the field of geodesy, the Geodetic Survey maintains a network of horizontal and vertical control points across Canada to establish at least one horizontal and vertical control point within 10 miles of any point in established and economically important areas. The Topographical Survey has completed the mapping of Canada at the scale of four miles to one inch; mapping at a scale of one mile to one and a quarter inches is proceeding. There are 800 maps available on the relatively large scale of one mile to two and a half inches, covering all major cities and their suburbs. Photomaps, a new map-type made possible by advances in air photography and photogrammetry, are now available. The Legal Surveys Division is responsible for the technical management of legal surveys of land under federal jurisdiction, such as the northern Territories, national parks and Indian reserves. It also executes such surveys on behalf of administering departments, collaborates in the demarcation of provincial boundaries, prepares descriptions of electoral districts and generally provides land-surveying services to other departments.

The Surveys and Mapping Branch is the major agency in Canada for the preparation of aeronautical charts showing airports, airways and radio and other aids necessary for air navigation. As a service to map-makers, prospectors, engineers, foresters, town planners and others interested in that field, the Department maintains a National Air Photo Library in Ottawa containing a collection of all air photographs taken by or for the federal government. The Library is also responsible for the storage, documentation and handling of airborne remote-sensing photography and Earth Resources Technology Satellite imagery. Geological surveys provide an inventory of the potential resources of Canada, aid in the discovery of mineral deposits, and assist in other aspects of the national economy influenced by geological factors. Large reconnaissance projects are mounted in the northern regions of the country, and more detailed investigations in the better-known southern areas. Geological maps are published either separately or, more commonly, as part of scientific papers. Geophysical surveys result in maps showing such features as variations in terrestrial magnetism, gravity and seismology. The Geological Survey outlines local magnetic variations indicative of mineral deposits, while the Earth Physics Branch maps the earth's total magnetic field. Seismic observatories throughout Canada compile and update an earthquake zoning map of Canada. A gravity map of Canada is also available.