

redefined in 1969 (order-in-council PC 1969-1458). The order-in-council recognizes that the provinces have exclusive rights to make decisions on names in lands under their jurisdiction. The committee is administered by energy, mines and resources.

## 1.2 Geology

Canada is composed of 17 geological provinces that may be grouped under four main categories — continental shelf, platform, orogen and shield. The geologically youngest provinces, the Atlantic, Pacific and Arctic continental shelves, are made up of little-deformed sediments and volcanics, mainly of Mesozoic and Cenozoic age, which are still accumulating along the margins of the present continental mass. The St. Lawrence, Interior, Arctic and Hudson platforms are formed of thick flat-lying Phanerozoic strata covering large parts of the crystalline basement rocks of the continental interior, the extension of the Canadian Shield. The Appalachian, Cordilleran and Inuitian orogens are mountain belts of deformed and metamorphosed sedimentary and volcanic rocks mainly Phanerozoic and Proterozoic in age, intruded by granitic plutons. They were produced during the various Phanerozoic orogenies 50 to 500 million years ago. Of the seven provinces comprising the Precambrian Canadian Shield, the Grenville, Churchill, Southern and Bear embrace the orogenic belts produced during the Proterozoic orogenies, 900 to 1,800 million years ago. The remaining three, the Superior, Slave and Nutak provinces, were deformed during the Archean Eon, and include the oldest continental crust known in Canada, 2,500 to 3,000 million years old. The Precambrian orogenic belts have many features in common with those of Phanerozoic age but are so deeply eroded that the mountainous parts have been reduced to plains or lowlands and in many places the basement crystalline rocks upon which the sediments and volcanics initially accumulated are now exposed.

The land and freshwater area is 9 922 330 km<sup>2</sup>, but Canada also includes within this area some 2 222 210 km<sup>2</sup> of marine waters. The rocks beneath have geological features akin to adjacent regions on shore. The submarine area of the bordering continental shelves is about 1 354 564 km<sup>2</sup> and of the continental slopes, 1 458 163 km<sup>2</sup>. Altogether, this embraces 14 312 274 km<sup>2</sup>, about 3% of the surface of the globe. For an account of Canada's geology see the *Canada Year Book 1973* pp 8-14.

## 1.3 Climate

Climate depends primarily on radiative exchanges between the sun, the atmosphere and the surface of the earth. Regional climates of Canada are controlled by the geography of North America and by the general movement of air from west to east. The Pacific Coast is cool and fairly dry in summer but mild, cloudy and wet in winter. Interior British Columbia has climates varying more with altitude than latitude: wet windward mountain slopes with heavy snows in winter, dry rainshadow valleys, hot in summer, and high plateaus with marked day to night temperature contrasts. Interior Canada, from the Rocky Mountains to the Great Lakes, has a continental-type climate with long cold winters, short but warm summers and scanty precipitation. Southern portions of Ontario and Quebec have a humid climate with cold winters, hot summers and generally ample precipitation all year. The Atlantic provinces have a humid continental-type climate although in the immediate coastal areas there is a marked maritime effect. On the northern islands, along the Arctic Coast and around Hudson Bay, arctic conditions persist, with long frigid winters and only a few months with temperatures averaging above freezing. Precipitation is light in the tundra area north of the treeline. Between the arctic and southern climates boreal Canada has a transitional type climate with bitter long winters but appreciable summer periods. Precipitation is light in the west, but heavier in the Ungava Peninsula.

**Climatic data.** Temperature and precipitation data for various districts are shown in Table 1.7. Additional data from hundreds of stations and reports concerning the climates of Canada and the regions are available from the atmospheric environment service of the environment department. Definitions, methods of observation and the instrumentation used are included in the department's publications.