

the plains including those in the Arctic Archipelago. The Athabasca oil sands, extending for more than 100 miles along the Athabasca River in northern Alberta, are accumulations of heavy oil and sand of Early Cretaceous age. The total amount of oil in these sands is estimated at 100,000,000,000 to 300,000,000,000 barrels, more than all other known reserves of the world. Present and potential production of potash in southern Saskatchewan represents a major source in terms of world supply. These Middle Devonian evaporites are estimated to contain more than 100,000,000,000 tons of potash. Coal is being or has been produced from many places in the Great Plains, which also yield salt, gypsum, limestone and other non-metalliferous products. Important deposits of zinc and lead are being mined in Devonian limestone at Pine Point, Great Slave Lake.

St. Lawrence and Hudson Bay Lowlands.—The St. Lawrence Lowlands are underlain by marine beds deposited during much of Palæozoic time. Rather similar late Ordovician to Devonian beds are exposed in the Hudson Bay Lowlands. Small areas of Palæozoic beds are preserved at various localities on the Canadian Shield between these two Lowlands and suggest that arms or shallow straits of Palæozoic seas may have connected the present Hudson Bay and the St. Lawrence Lowland areas. The St. Lawrence Lowlands from Quebec City to Windsor are occupied by about one half the population of Canada, supported by much arable land and major industrial concentrations. These Lowlands are divided by an exposed southeasterly-trending prong of the Canadian Shield called the Frontenac Axis, which extends into the United States northeast of Lake Ontario. Southwest of the Frontenac Axis, marine sedimentary rocks of Cambrian to Mississippian age rest on buried Precambrian rocks. Known formations there have an aggregate thickness of almost 6,000 feet. Rocks are mainly limestones, shales and sandstones deposited in generally shallow seas. During Silurian time, evaporation exceeded saltwater inflow in some areas and the salt and gypsum beds within the Salina Formation were deposited. In part because of their position near industrial centres, roughly 80 p.c. of the salt produced in Canada is recovered by evaporation of brines and from two mines adjacent to the southeastern shore of Lake Huron. Gypsum is also mined from the Salina Formation. Petroleum has been produced continuously since 1859, mainly from Devonian beds, and natural gas has been produced since 1889, mainly from Silurian beds. Fluorite was at one time produced in moderate tonnages from veins in Ordovician limestone near Madoc in Ontario.

Northeast from the Frontenac Axis to Quebec City, only lower Palæozoic beds are present. Cambrian sandstone and thick beds of Ordovician limestone and shale attain thicknesses of up to 10,000 feet. Showings of petroleum and natural gas are known in some of the 185 exploratory wells drilled but no production has been attained. Sandstones of high silica content are quarried near Montreal, Quebec. Because of the population and industrial concentration in both the above sections of the St. Lawrence Lowlands, large amounts of limestone, shale and sandstone are quarried for structural materials, cement production and chemical needs. Such products have a low unit value and can be profitably extracted only within low-cost reach of their consumption points.

Anticosti Island is an isolated, northeastern division of the St. Lawrence Lowlands. Exploratory drilling for petroleum shows a thickness of up to 6,146 feet of Silurian and older Palæozoic sediments underlying the island, with Precambrian crystalline rocks at greater depths. Showings of oil and gas in one of five holes were not considered of commercial value.

The Hudson Bay Lowlands are underlain by flat-lying Ordovician to Devonian beds and Upper Cretaceous lignite, sand and fire clay. The beds attain a variable thickness of at least 1,536 feet in southern James Bay. Post-Precambrian beds near the centre of Hudson Bay are indicated by a seismic survey made by the Geological Survey of Canada to be up to 5,905 feet thick. Deposits of gypsum and lignite are known but not exploited.