

PART II.—GEOLOGY

As stated on p. 2 in the Subsection on Physiographic Regions, the geological structure of the country dominates its relief and therefore the geological divisions and the physiographic regions, shown on the map on p. 3, generally coincide.

Over half of Canada consists of the Precambrian Canadian Shield that forms the central rocky upland which contains most of Canada's mineral resources, except for fossil fuels. The Shield is flanked by younger sedimentary rocks that contain, or may contain, reserves of petroleum, natural gas or coal, or all three. These form the units known as the Great Lakes St. Lawrence Lowlands, the Hudson Bay Lowlands, the Interior Plains and the Arctic Lowlands and Plateaus. On the east, the St. Lawrence Lowlands are flanked by the Appalachians of the Maritimes, Gaspé and Newfoundland where fossil fuels are found in sedimentary strata and metallic minerals occur in the rocks associated with igneous intrusions. The Cordilleran region of the western mountains, adjacent to the Interior Plains, is younger than the Appalachians but is the source of similar mineral deposits. Finally, the Inuitian region of Arctic mountains, in the Arctic Archipelago, probably also contains mineral deposits of many kinds though relatively little is as yet known of the potential.

A detailed treatment of the geology of Canada is given in the 1951 Year Book, pp. 14-26, although this account is somewhat outmoded by information secured in the intervening years. A later account is available in *Geology and Economic Minerals of Canada*, 4th edition (517 pp.) published in 1957 by the Geological Survey of Canada.*

THE GEOLOGICAL SURVEY OF CANADA†

The Geological Survey of Canada is, so far as is known, the oldest scientific organization in the Government of Canada. When the first United Parliament of Upper and Lower Canada met in July 1841 it considered a petition to carry out a geological survey, and on Sept. 10 of that year resolved "that a sum of money not exceeding one thousand five hundred pounds sterling, be granted to Her Majesty to defray the probable expense in causing a Geological Survey of the Province of Canada" William Logan was appointed geologist in the spring of 1842 and since then the Geological Survey of Canada has been in continuous operation. It is one of the oldest Geological Surveys in the world, that of the United Kingdom having been established in 1835 and that of the United States in 1879. Geological investigations had been carried out in Lower Canada and on the Island of Newfoundland before 1842 but these were local and sporadic.

Logan remained Director of the Survey until 1869 and following his retirement a younger man took over the direction of the mapping of the enormous expanse that Canada had become in 1867. The Survey expanded considerably in the next twenty years, and its officers explored, mapped and made scientific studies over much of the new land. For example, until the early 1950's virtually the only information available on the District of Keewatin in the Northwest Territories was that collected and compiled by J. B. Tyrrell in the 1890's. During this period of exploration the geologists acted as geographers, topographers, biologists and ethnologists and collected data on water power, forestry and agricultural possibilities. Many of the officers of that time have become national figures and their reports provide some of the most interesting accounts of the early systematic exploration of Canada. Among the better known names, besides that of Tyrrell who joined the Survey in 1871 and died in his 99th year in 1957, are Dawson and McConnell who explored much of the western mountains; Low, famous for his explorations in the Labrador peninsula; Faribault, who mapped Nova Scotia; and the Bells, Robert and McIntosh, who between them explored much of the Canadian North.

* Obtainable from the Queen's Printer or from the Geological Survey of Canada, Ottawa.

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