

The Appalachian and Acadian Regions.—The rocks of the Appalachian and Acadian region include sediments, volcanics, and intrusives, chiefly of Palæozoic age. Considerable areas in Nova Scotia are, however, underlain by Precambrian rocks, and along the border of the bay of Fundy Mesozoic sediments and volcanics occur. The broad New Brunswick lowland is underlain by flat-lying Carboniferous measures. Elsewhere, however, throughout the region, except in a few places, the rocks are thrown into folds with axes trending in a northeast direction and are broken by faults giving rise to a complex structure typical of the Appalachian region in general. The chief period of mountain-building in Canada was, however, in the Devonian, whereas farther to the south, in the United States, the main period of deformation was the Permian at the close of the Palæozoic.

Precambrian rocks consisting of limestones, quartzite, and gneiss outcrop in New Brunswick along the bay of Fundy. In Cape Breton island are a number of areas underlain by altered volcanics and sediments cut by granitic rocks. Precambrian rocks have also been described as occurring in central New Brunswick and in southeastern Quebec. Some of the occurrences may, however, be of Palæozoic age.

In Nova Scotia an extensive series of altered sediments, known as the Gold-bearing series, is considered to be of late Precambrian age. This series, with its large intrusive areas of Palæozoic granite, occupies most of the mainland of the province. Its thickness is over 35,000 feet, of which the lower half consists dominantly of quartzites and the upper of slates. The series is folded along northeast lines and also broken by northwest faults, the horizontal displacement of some of which exceed a mile. The series is intruded by dykes and sills of diabase and batholiths of grey and red granite of Devonian age. Around the borders of the granite the series is altered to gneisses and schists commonly containing staurolite, garnet, hornblende, sillimanite, and pyrite.

Lower Cambrian strata occur in southeastern Quebec, and upper Cambrian measures are found in northeastern Cape Breton and in New Brunswick near Saint John city. In early Ordovician time, sedimentation was in progress in the St. Lawrence River region. The Silly formation, consisting of red and green shales with interbedded sandstone, has at Quebec a thickness of 2,000 feet. A younger series, named the Lévis, consisting of dark shales and thin-bedded limestones, has a thickness possibly as great as 5,000 feet. These rocks form a band 6 to 35 miles in width. They have been closely folded, in places overturned, and are broken by faults, some of considerable throw. Trenton, or mid-Ordovician beds outcrop in southwestern Quebec and at the east end of Gaspé peninsula. Late Ordovician strata are known along the northeast coast of Gaspé. During the Ordovician, volcanic activity took place on a great scale in Gaspé. The region was also deformed and intruded by masses of peridotite. Erosion followed the folding and then the region subsided beneath the sea in the succeeding Silurian period.

Silurian rocks are found in Gaspé, in New Brunswick, in southeastern Quebec, and in Nova Scotia in the northeast at Arisaig and also farther west and in the southwest of the province. Succeeding the Silurian, in Gaspé, in northwestern New Brunswick, and locally in Nova Scotia, are deposits of lower Devonian age, consisting of limestones and shales. In Gaspé, during middle Devonian time, a thick series of sandstones accumulated. These are accompanied by contemporaneous lava flows and dyke intrusives of basic composition. A group of conglomerates, sandstones, and shales of upper Devonian age occurs on the Gaspé coast in the vicinity of Maguasha. One member is noted for the fossil fish it has yielded. In late Devonian time the whole Appalachian and Acadian region was affected by