

Quebec. Between the volcanics and overlying sediments of northeastern Ontario and western Quebec there is an unconformity that is regarded by some geologists as of major importance. The early Precambrian formations occupy numerous areas of various sizes up to several hundred square miles in western Quebec, northern Ontario, eastern and central Manitoba and to a less degree in Saskatchewan and the Northwest territories.

The later Precambrian formations consist in a large measure of sedimentary rocks—conglomerates, quartzites and slates. In an area lying immediately north of lake Huron and stretching northeast to beyond lake Timiskaming lies a succession of sediments known as the Huronian. These consist of (a) the Bruce series, made up of conglomerates, quartzites and impure dolomitic limestone with an aggregate thickness of 2,700 to 12,000 feet, and (b) the Cobalt series, made up of boulder conglomerate and other materials probably of glacial origin, overlain by quartzite and calcareous quartzite, with an aggregate thickness of 12,000 feet. An erosion interval of considerable time intervened between these two series. These strata are undulating with gentle dips except on the north shore of lake Huron and eastward, where they stand at high angles and represent the core of an ancient mountain range that probably flanked the southern edge of the continent.

In the vicinity of Port Arthur there is a series of nearly horizontal strata, consisting of conglomerate, iron formation and slate. This is the Animikie series. It probably belongs to the Huronian system and may be equivalent in age with the Whitewater series north of Sudbury, consisting of conglomerate, volcanic tuff, slate and sandstone. East of Port Arthur the Animikie is overlain by the Keweenawan series of several hundred feet of red conglomerate, sandstone, shale, calcareous beds, tuffs and lavas.

Strata, presumably of late Precambrian age, are known to occur on lake Athabaska, Great Slave lake, east of Great Bear lake, on Belcher islands, on the east of Hudson bay and at other points in the Ungava peninsula. In the southern part of Ungava peninsula sediments are found that bear a resemblance to the Grenville-Hastings group of southern Quebec and southeastern Ontario.

The Grenville-Hastings group consists of closely folded, highly altered sediments intruded by and in places interleaved with granite. They are in general rusty-weathering banded gneisses, quartzose gneisses grading into quartzites, crystalline limestones, amphibolites, pyroxene-rich rocks and volcanic schists. Pegmatite dykes are common and anorthosite occupies large areas. The Grenville-Hastings group forms a belt in the southern part of the Canadian Shield, extending east from Georgian bay. The formations have not as yet been indubitably correlated with the Keewatin and Huronian rocks to the north.

The Precambrian sediments have suffered intrusion at various times by granites. These have been unroofed at different stages in the history of the Precambrian and pebbles of granite are found in the conglomerates as early as those of Keewatin age. So complete has been the unroofing of the granites that they are exposed over the greater portion of the Canadian Shield. Basic intrusives were common in later Precambrian times. Sills and dykes of diabase cut the late Precambrian sediments around lake Nipigon, west of lake Timiskaming and many other points. A thick laccolith is found in the Sudbury district.

The Canadian Shield was intensely glaciated during Pleistocene times, with the exception of the more elevated parts of the northern Labrador coast, and in general only a scant amount of soil was left, sufficient to partially conceal the