

geologists in 1863. Huronian strata are intruded in places by the Killarney granite, believed to have been formed during the orogeny that marked the end of Proterozoic time. In the Port Arthur area a succession of sedimentary rocks with some volcanic flows, called the Animikie, is regarded as having been deposited in the earlier part of late Proterozoic time, and to represent the 'Upper Huronian'. Overlying the Animikie strata at some localities and directly on Archæan rocks at others is a thick succession of shale, sandstone, lava and other rocks called the 'Keweenawan' and regarded as late Proterozoic in age. These are intruded by diabase and other igneous rocks. Thus the classical subdivisions of the Precambrian rocks in the part of the Shield north of the Great Lakes are two Archæan assemblages called Keewatin and Timiskaming, probably disturbed by at least one early orogeny; a pronounced orogeny and erosional interval at the end of Archæan time; an early and disturbed Proterozoic assemblage called the Huronian; and a late Proterozoic one called the Keweenawan. Although these are the names of groups of rocks, they are sometimes also applied as the names of periods. Such periods are much longer than the periods of the Palæozoic and later eras and they cannot be applied with certainty even in all parts of the Superior province, to say nothing of the remainder of the Shield.

Processes associated in various ways with orogenies formed numerous mineral deposits far below the surface then existing. Many of these have since been exposed by the long erosion to which the Shield has been subjected. The Superior province is Canada's leading producer of metals, but it is impossible to be certain whether this is mainly because more metals were actually deposited there or because the region was more accessible for geological studies, prospecting and mining. It includes orebodies of iron at Steep Rock and Michipicoten, uranium at the base of the Huronian succession near Blind River, nickel-copper-gold ores at Sudbury, the now largely exhausted silver veins at Cobalt, the great gold deposits at Timmins, Kirkland Lake and Larder Lake, and the gold, copper and zinc deposits of the Noranda and Chibougamau areas. It also includes Canada's main lithium and molybdenum mines and the only asbestos mine in the Shield. Many of the orebodies are in or close to belts of Keewatin or Timiskaming strata, and several of the largest, as at Sudbury, Cobalt, Noranda and Chibougamau, occur relatively close to the junction of such belts with the boundary between the Superior and Grenville provinces, which is marked in places by a zone of prominent faults. In the northern part of what is classed tentatively as the Superior province on the map, gently folded strata of Proterozoic type underlying the Belcher Islands contain iron deposits that have received considerable attention. A belt of somewhat similar type crossing Ungava Peninsula from Cape Smith to Wakeham Bay contains occurrences of iron, copper, nickel, gold, zinc and lead.

The western part of the 'Labrador' area contains strata of early Proterozoic type in a belt called the Labrador Trough; the name implies that the belt was a basin of sedimentation in Precambrian time, not that it is now trough-like. It is about 600 miles long and up to 60 miles wide, extending southeasterly from Ungava Bay. Its south end is transitional into the Grenville province where more metamorphosed equivalents of the strata in the Trough, including important iron deposits, have been found. The Trough contains abundant 'iron formation' resembling that of the iron ranges in the Lake Superior region of the United States; the iron formation has been enriched in places to form the large iron deposits now being mined. East of the Trough are more intensely metamorphosed equivalents of strata in the Trough, and other rocks. North of Goose Bay, strata of early Proterozoic type form the Seal Lake belt in which numerous occurrences of copper and uranium have been found.

The Churchill province contains many northeasterly-trending belts of strata of Archæan and early Proterozoic types, with large intervening areas of granites and gneisses and large patches of strata of late Proterozoic type. Prominent among the northeasterly-trending belts is one north of Lake Athabasca which contains both strata of Archæan type called the Tazin group and of Proterozoic type called the Athabasca series; both types contain many uranium occurrences, some of which provide the ores for the important mines of the Beaverlodge area. This belt continues in a general way to Rankin Inlet on Hudson Bay; the eastern part is not known to contain many uranium occurrences but several