

up to 12,000 feet. Folded rocks are also known to occur on Axel-Heiberg Island to the west with elevations up to 7,000 or 8,000 feet, and air photographs indicate similarly deformed measures on Bathurst and Melville Islands. This gives a length of some 800 miles in a southwest direction to the disturbed zone. The age of some of the strata involved is known to be Ordovician and that of others Silurian and it has been suggested that the folding may have taken place near the close of the latter period. At other places, however, the deformed beds include some as young as Jurassic. Although the amount of information at present available regarding the extent, age, and structural relations of these rocks, and also regarding the time or times at which the orogenic movements that deformed them took place is comparatively meagre, it is apparently sufficient to necessitate the differentiation of the disturbed belt as a fifth major geological region.

Salient Features of each Geological Region

Canadian Shield.—Precambrian time is divided into two Eras. At many places throughout the Shield an older complex of volcanic and sedimentary rocks, commonly highly metamorphosed and injected and intruded by granites and other rocks, is separated by a great structural unconformity from an overlying younger group or groups usually less highly altered but also intruded, locally at least, by deep-seated irruptives. Geological time prior to this erosional interval is referred to as Early Precambrian or Archæan, and the remaining Precambrian time is called Late Precambrian or Proterozoic. It is not thought that the time interval represented by a major unconformity of this type in one area was necessarily precisely contemporaneous with the interval represented by a similar unconformity in a widely separated area. To define, therefore, the exact boundary between the two Eras, the unconformity at the base of the Huronian strata in northern Ontario is selected. Similar breaks in other regions can be correlated only tentatively with this. Perhaps some day, when more numerous and more reliable determinations than at present exist are available on the age of intrusive rocks, Precambrian correlation will be on as secure a foundation as that of later time where life as revealed by fossils is the basis for subdividing geological time.

Over much of the Shield the common rocks are granites and gneisses: many of the latter are hybrid types—altered and granitized sedimentary and volcanic rocks injected by much granitic material—that afford but little information regarding Precambrian history. Elsewhere, however, are scattered areas, many of them small but others of considerable extent, in which successions of other more recognizable volcanic and sedimentary strata occur. These have provided significant geological information and are also important in that they offer favourable possibilities for prospecting.

The Archæan Era is divided into Keewatin and Timiskaming time. The term "Keewatin" was first applied to certain ancient lavas in northwestern Ontario, but was soon extended to early Precambrian volcanic assemblages elsewhere. Work in many parts of the Shield has shown that interbedded with such volcanic rocks are large volumes of sediments. These include bedded ash and agglomerate types, banded iron formation, and elastic varieties metamorphosed to mica schists and quartzites. The Keewatin volcanic rocks are largely basalts and andesites, commonly showing ellipsoidal and amygdaloidal structures, but also include more acidic lavas and related pyroclastic rocks.

Timiskaming time is represented in a number of areas by a group of sedimentary rocks, commonly conglomeratic. They overlie the Keewatin rocks commonly with a slight angular unconformity. With them, locally, are associated volcanic