The Huronian rocks are intruded by thick sills of quartz diabase. In Lake Timiskaming district there is usually only one sill exposed in any given area. The sills vary in thickness up to 1,000 feet. In Sudbury region the intrusive of corresponding age is a norite which was intruded between the base of the Huronian rocks and the complex of older rocks on which these rest. In the district around lake Timiskaming the Huronian strata lie nearly horizontally. From the latitude of Sudbury south to lake Huron the sediments and sills are folded and faulted and locally intruded by the Killarney granite of late Precambrian age.

Bordering the north shore of lake Superior is a series of nearly flat-lying sediments consisting of conglomerate, iron formation, and dark slates. These are known under the name of Animikie, and are thought to be of the same age as the upper Huronian rocks of other areas. East of Port Arthur these rocks are overlain by red conglomerate, sandstone and shale, calcareous beds, and tuffs with acid and basic lava flows on top. The whole are cut by dykes of diabase. These rocks, which are of Keweenawan or late Precambrian age, in places rest with a slight angular unconformity on the rocks of the Animikie series.

The Keweenawan was a period in which volcanic activity and intrusion took place on a vast scale. On the south shore of lake Superior lavas accumulated to a thickness of over 22,000 feet in the lower part of the series. Dykes of this age are common throughout most of the Shield. South of lake Superior the Duluth gabbro forms a laccolithic mass 100 miles in diameter.

Reference to the Sudbury nickel eruptive, which by most workers in the field has been considered Keweenawan, and to the Killarney granite, which belongs to this period of intrusion and mountain-building, has already been made.

These igneous rocks made the Keweenawan a very important period from the point of view of mineralization. The native copper ores of Keweenaw point in Michigan are in lava flows of this age and those of Coppermine River region of northern Canada are similar and probably of the same age. The silver ores of Cobalt are related to the diabase intrusions and the copper-nickel ores of Sudbury to the norite intrusion.

The period of intrusion and folding in the Keweenawan was followed by a long period during which erosion once again reduced the topography to one of low relief, over which successive invasions of the sea were to take place in the succeeding Palæozoic and Mesozoic eras. The sediments deposited in these seas were, in turn, largely swept away by erosion in the Tertiary period. The last great event in the geological history of the Shield was continental glaciation during the Pleistocene. Huge sheets of ice moved out in all directions from their central gathering grounds on the two sides of Hudson bay. They smoothed down the topography; removed the old residual soil; polished, striated, and grooved the rocks; and, by the irregular scattering of the debris over the surface, completely disorganized the old drainage system. The result was the damming of old river channels, with the formation of lakes and new drainage lines. Though the present low relief of the surface dates from Precambrian time, the present appearance of the country, with its lakes, rapids and waterfalls, and its smoothed and rounded hills, dates from Pleistocene.

The mineral resources of the Canadian Shield are varied. In 1935 it produced 86·7 p.c. of the gold of Canada, 44·3 p.c. of the silver, 90·6 p.c. of the copper, and all the nickel and cobalt. The various deposits may be grouped in four main classes: (1) Certain pyrite deposits and banded iron formations that have the appearance of sedimentary formations but were probably of volcanic derivation. (2) Gold,