

The subdivision of Archæan time into Azoic and Archæozoic, here used, is the same as that of the edition of 1874, except that Archæozoic is substituted for Eozoic. The limiting temperature of Archæozoic time is doubtful for several reasons, and especially because of the uncertainty as to the destructive excess of carbonic acid in the air and waters, and, therefore, as to the possibility of the existence of life.

There is reason to believe that during the progressing consolidation, and long afterward, when the heat was too great for the existence of limestones, the lime now in the limestones of the globe was, to a large extent, combined with silica, making silicates and especially the lime-soda feldspars, labradorite and oligoclase, the soda being that now in the ocean's waters — minerals that may be made artificially by fusing together the ingredients; and, consequently, that rocks of the basalt and diorite types, which contain these feldspars, were among the most common. Pyroxene was present through the whole era, but hornblende only in the later part; for pyroxene is easily made at the high temperature of fusion, but hornblende only under aqueo-igneous action at the lower temperature of 800° to 1000° F. The lime silicates would have used up a large part of what is now free silica or quartz, and hence the igneous rocks would have been, to a great extent, without quartz, and, in this respect, like the most of those that come up from the earth's depth through volcanic eruptions. In fact, most volcanic rocks are portions of the Archæan mass constituting the earth's interior. Such being the prevailing rocks of the crust, the sedimentary beds would have been largely of like constituents.

On the condition of the primeval globe, see further Ebelmen, 1855; Bischoff, 1863; T. S. Hunt, 1867, 1880. On subdivisions of Archæan time, D., 1892.

NORTH AMERICA.

DISTRIBUTION OF ARCHÆAN AREAS.

Archæan areas, or those whose surface rocks are of Archæan age, and which indicate, therefore, the probable position of the dry land at the close of Archæan time, have their widest distribution in the more northern portions of the continents of North America, South America, and Europe.

In North America they cover a very large area, situated mostly north of the Great Lakes and the St. Lawrence River, which is approximately V-shaped in its southern part, as shown in the accompanying map. The white areas on the map represent the probably emerged land over the great Archæan continental sea. The great northern area has been estimated to contain more than 2,000,000 square miles. From the region of the Great Lakes a broad arm stretches northeastward to Labrador and beyond, and another, 2000 miles long, northwestward to the Arctic shores. Hudson Bay, 800 miles from north to south and 600 in greatest breadth lies between the arms of the V. The eastern arm of this early dry land of North America has a course nearly parallel to the existing eastern coast-line of the continent, and the western as nearly to the mean direction of the western coast-line. The map is on Mercator's projection. The course of the Mississippi River and the outlines of lakes are inserted merely to mark positions. The Archæan area extends south of British America into northern New York, the Adirondack region being a portion of it, and also south of Lake Superior into northern Michigan and Wisconsin.