time only in dikes. We see the channels through which the material ascended, but can not be sure whether any reached the land surface of the time, giving rise to true volcanic action, nor do we anywhere get a glimpse of the underlying reservoirs which supplied the material, since erosion has nowhere cut deeply enough to disclose them. It may well be, therefore, that the mere dikes give little idea of the possible importance of this period of igneous activity. But, if great surface flows occurred, or volcanos were formed, it seems strange that no vestiges of their presence remain, since, as has been stated, the character of the dikes themselves does not indicate any very great amount of erosion of the present surface as compared with that of that time. The most of the erosion since has been expended on the paleozoic cover which subsequently overspread this old land surface.

These dikes apparently owe their existence to the same causes which were responsible for the earlier, great intrusions, and mark the last paroxysm of igneous activity from that source. They are wholly unmetamorphosed and are the only Precambric rocks in the region of which this is true. Moreover, in cooling, the chilling influence of the walls has been very marked, indicating comparatively near surface conditions at the time. The borders of even the largest dikes have cooled so rapidly as to be glassy, though the rock may become quite coarsely crystalline toward the center. Little or no trace of such strong, chilling effect is to be found in the older dikes of the region. Occasionally the dikes are even somewhat amygdaloidal, which is also indicative of cooling at no great depth. These characters point conclusively to a much younger age for these dikes. Their time of appearance was not only subsequent to the great metamorphism of the region, but was near the close of the following long period of Precambric erosion. Before their appearance the rocks which they cut had had the greater part of the overlying load of material which covered them during metamorphism, laboriously pared away by the slow processes of erosion, a depth of erosion being involved which necessarily argues the lapse of a vast interval of time.

These rocks are very similar to those of the igneous outflows which characterized Keweenawan time (supposedly late Pre-