

sort which usually accompany nephelin syenite igneous bodies, but that such are absent in the immediate region, though occurring in Canada to the northward, and to the eastward in New England. It is of course possible that masses of the sort are present in the Champlain region but are as yet uncovered by erosion. It would seem however that these Champlain dikes are on the southeast margin of a considerable region which was affected by the igneous action, and that evidence regarding their age may be sought in the entire affected area. In the immediate Champlain region no closer determination of their age can be made than that they are younger than the Utica shale, which some of them cut. There would seem to be no question that they are older than the Trias, or are of Paleozoic age, since the igneous rocks of the Trias are of quite different sort, and rocks like these are nowhere found associated with them. The evidence given by the exposures on St Helen's island, near Montreal would indicate that these rocks are at least as young as the early Devonian; and the writer has recently come to the belief that a Carboniferous age must be assigned to them, though this is not possible of demonstration at the present time.

Chemical analyses. No very good and complete analyses of these Champlain eruptives have yet been made, though they closely conform to similar rocks elsewhere. Such as are available are given by Kemp in United States Geological Survey, bul. 107. It is however of interest to note their quite striking similarity in composition to the earlier dikes, which preceded them in late Precambrian time. The camptonites and monchiquites are chemically very close to the earlier diabases, and an equally strong resemblance obtains between the bostonites and the syenite porphyries.

Igneous rocks of the upper Mohawk region. Smyth, G. H. Williams, Darton and Kemp have described very basic rocks, of the peridotite class, about Manheim, Syracuse and Ithaca.¹ These rocks are only remotely connected with the Adirondack region, but completeness would seem to make desirable some considera-

¹Darton & Kemp, Am. Jour. Sci. June 1895, p.456-62; Kemp, J. F. Am. Jour. Sci. Nov. 1891, p.410-12; Smyth, C. H. Am. Jour. Sci. Ap. 1892, p.322-27; — Am. Jour. Sci. Aug. 1893, p.104-7; Geol. Soc. Am. Bul. 9: 257-68; Williams, G. H. Am. Jour. Sci. Aug. 1887, p.137-45.