

dike are found on both sides of the river, showing both the ophitic and the granular types of the rock; a small boss on the north-west shore of Upper Chateaugay lake, which shows ophitic gabbro in the center passing rapidly into an amphibolite gneiss on all sides; and a considerable boss not far from the lower end of Chazy lake. These all show portions only slightly metamorphosed and still retaining ophitic structure. There are many other places in the county where wholly gneissoid rocks of gabbroic make-up occur as dikes and are in all likelihood referable to this same group. In Franklin county there is a considerable boss by the north branch of the Saranac, 2 miles east of Hunters Home, showing a fairly coarse rock with a comparatively unmetamorphosed core; there is another, well shown in cuts along the New York & Ottawa Railroad, 2 miles above St Regis Falls, which shows beautifully the gradual passage from the unchanged core into amphibolite, the latter containing a profusion of enormous garnets; and there is another showing along the west shore at the upper end of Lower Saranac lake, which is quite a large mass and correspondingly coarse, and which must cut the anorthosite, since it is surrounded by that rock on all sides, though no contacts were seen. There are here also numerous smaller masses and dikes which are more completely metamorphosed. Kemp and Smyth have shown the wide distribution of similar rocks in the eastern and western Adirondacks.

To gabbros of this type, with ophitic structure, the name "hyperite" has been applied by Tornebohm.

In many localities metamorphism has produced an amphibolite from these gabbros, instead of the merely granulitic gabbro. In these amphibolite phases there is always considerable pyroxene in addition to the hornblende, but in the field these are absolutely not to be distinguished from the amphibolites associated with the various gneisses, and these too often contain pyroxenes. Where there is an unmetamorphosed core, the origin and relations are evident, otherwise they are wholly obscure. This gradation is beautifully shown at the localities on Upper Chateaugay lake and along the New York & Ottawa Railroad referred to above.

The fact that these gabbros are found in dikes cutting the anorthosites shows conclusively that they are younger. The writer has noted gabbro dikes also cutting the syenite in the Little