

reacting minerals and may perhaps have developed during the cooling of the rock, since they are found in the least metamorphosed portions, and since such phenomena are known in other gabbros which have not been metamorphosed. In this manner are formed the well known "corrosion rims" which appear in many gabbros in all parts of the world.

In addition to these minerals there appear others in the granular condition in all rocks in which there is any trace of metamorphism. These are in the main the same as the original minerals of the rock, plagioclase (mostly labradorite), augite, hypersthene, and green hornblende. It seems quite certain that the material for the formation of these has been derived from the original minerals of the rock, and that the process has been one of granulation and recrystallization. The newly formed labradorite and augite are entirely lacking in the multitudinous inclusions which are so characteristic of the original minerals, and in virtue of which even the smallest remaining fragments of them may be detected. The original minerals may often be seen tailing off into granular material, which has evidently formed at their expense. But the grains are not mere shattered fragments of the larger crystals, but consist of a mixture of all the minerals mentioned above.

Additional minerals which are usually or occasionally present are apatite and titanite frequently, pyrite and pyrrhotite occasionally, and sometimes a little green spinel (pleonaste). Scapolite is sometimes present as an alteration product, and in the gneissoid gabbros there is often considerable untwinned feldspar which may be orthoclase.<sup>1</sup>

Some of the more important localities in the northern Adirondacks where these rocks occur are as follows:

In Clinton county at Keeseville, where occasional dikes of the gabbro are found cutting the anorthosite gabbro, showing that they are younger; at Petersburg, where exposures of a very wide

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<sup>1</sup> More detailed descriptions of some of these rocks may be found in the following papers:

Kemp, J. F. Am. Jour. Sci. August 1892, p.109-14.

——— Geol. Soc. Am. Bul. 5:213-24.

Smyth, C. H. jr. Am. Jour. Sci. July 1894, p.54-63.

——— Am. Jour. Sci. April 1896, p.273-81.

——— Geol. Soc. Am. Bul. 6:268-83.