

certainly, and in the former probably, there are granites of more than one, perhaps of several different ages. The Grenville and Saranac rocks have been already described. It remains to consider the others. These appear in several forms, some fine and some coarse grained, some almost lacking in dark colored minerals and others comparatively rich in them, some representing well defined types which may be recognized anywhere, while others are more indefinite and variable, and all are much easier to recognize than to describe.

*Granitic phase of the syenite.* In several localities syenite has been noted passing into a red, granitic gneiss, as first shown by Smyth for the Diana area. In all cases observed the transition is gradual, and there can be no doubt of the unity of the two rocks. The Tupper lake syenite shows changes of the sort most excellently. The color change is gradual and intermediate rocks of mottled green and red appearance are not uncommon. Such are seen to good advantage in Litchfield park, where the numerous rock ledges, often blasted, along the carefully constructed roadways give exceptional advantages for observation. Quartz increases in amount in these rocks while pyroxene commonly disappears, being replaced by hornblende and biotite, usually in respectable amount. No analyses have yet been made of these rocks, and it may be that they do not quite reach a sufficient degree of acidity to justify their being classed as granites, but it seems that in large part they must do so, and they certainly represent as great a departure from the normal syenite type in one direction as the gabbroic variety does in the other. The rock shows the same variations in coarseness and in presence or absence of feldspar augen that the ordinary syenite exhibits. There is also in some varieties the same tendency of the quartz to assume the lens, or spindle form that is seen in the more quartzose syenites.

In going farther south this granitic phase of the syenite gives place to an even more distinctly granitic gneiss, or rather gneissoid granite, in which frequent patchy outcrops of both ordinary syenite and its granitic phase occur, and this rock extends out beyond the limits of the district which the writer has studied. The exposures have not been so situated as to permit of precise