

the rock. In all the large igneous masses, the general more basic character of their peripheral portions has resulted in the formation of such minerals there, hence their tendency to pass over into gneisses at their borders, a tendency so widespread as to be practically universal. The gabbros of the region possess throughout a large proportion of such minerals, and in the writer's experience they, though the youngest of the igneous rocks of the group, are much more uniformly gneissoid than are any of the others. True, comparatively unchanged cores remain in nearly every case, so that the original character of the rock may be demonstrated, but this is usually of small bulk in comparison with the hornblende gneiss, produced from it by metamorphism.

In many of the granites also there is a great scarcity of the foliation-producing minerals, the rock being mainly, or wholly, constituted of quartz and alkali feldspars. These rocks are apt to lack foliation, and then not infrequently have a somewhat similar linear structure, the quartzes being drawn out into spindles and pencils, with a direction corresponding to the foliation direction of the inclosing rocks. A similar tendency may often be noted in the more quartzose syenites. This structure has only been noted in these quartzose rocks, hence a natural tendency to attribute it to the mineral composition. But coupled with that may well have been such slight differences in the mean and maximum pressures in the rock that it suffered nearly equal shortening in two directions at right angles, and elongation merely in the third.¹

The foliation in the Precambrian sediments seems, in general, to be parallel to the bedding, so far as the latter may be made out. Over the greater part of the district the dips are comparatively steep, ranging in general from 20° upward. Judging from the writer's own experience, and from the published data of other observers, the strike is seldom uniform over any considerable area, but is now to the northeast, now to the northwest. North and south, or east and west directions are much more infrequent. The shifting of the strike direction indicates that we are dealing with folded rocks, and that this is actually the case is readily demonstrated in the Grenville sediments, but with difficulty elsewhere. It is also evident that the folds

¹Hoskins, L. M. U. S. Geol. Sur. 16th An. Rep't, p.870.