

General Application.

The Moyie Sill does not teach much that is absolutely new among the principles of petrology. The main purpose of the writer has been, on the other hand, to emphasize through the witness of an unusually well exposed example in nature, the importance of both magmatic assimilation and magmatic differentiation. The most significant single feature of the Moyie and neighboring sills and of the Minnesota and Ontario intrusives is their evidences of gravitative adjustment in magma. That is the most practical result of the investigation. If the principle is once thoroughly established, it must take a prominent place in petrological theory. This is true whatever be the origin of the magmas from which igneous rocks have been derived. The principle will evidently apply whether a magma were the compound product of assimilation by an earlier magma or whether it were the compound product of fusion through the rising of the isotherms in sediments, schists or ancient igneous terranes.

"In the foregoing discussion the secondary origin of certain granites has been deduced from the study of intrusive sills or sheets. It is clearly by no means necessary that the igneous rock body should have the sill form. The wider and more important question is immediately at hand: does the assimilation-differentiation theory apply to truly abyssal contacts? Do the granites of stocks and batholiths sometimes originate in a manner similar or analogous to that outlined for sills? The writer has briefly noted general reasons affording affirmative answers to these questions. (Cf. *American Journal of Science*, Vol. XV., 1903, p. 269, Vol. XVI., 1903, p. 107).

"The difficulty of discussing these questions is largely owing to the absence of accessible lower contacts in the average granite body of large size. All the more valuable must be the information derived from intrusive sheets. The comparative rarity of such rock-relations as are described in