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1.—The Origin of Granite (Micropegmatite) in the Purcell Sills.

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INTRODUCTION.

Of late years, the assimilation-differentiation hypothesis, in connexion with the larger problems of petrogenesis, has received some measure of support from the study of the gabbro and associated granites occurring as sills in various parts of the world.

The purpose of this paper is the examination and discussion of this hypothesis with reference to the origin of the so-called "secondary" granite in sills; especially in those of East Kootenay, B.C. This is all the more desirable since the East Kootenay sills show a general type of phenomena common throughout the world, and since they present such exceptional opportunities for study.

The problem was suggested by Professor R. A. Daly of Harvard University and was studied in connexion with the geological mapping of East Kootenay, B.C., during the field seasons of 1909, 1910, 1911, and 1912.

Previously Daly studied occurrences of similar phenomena and published several interesting papers.¹ Daly's main conclusions are as follows:—

(1) "The Moyie intrusive is an enormously thick sill composed in greatest part of a peculiar hornblende gabbro slightly acidified at the lower contact. An equally abnormal biotite granite

¹Daly, R. A., Geol. Surv. Can., Ann. Rep., 1904, p. 91A.

Daly, R. A., Amer. Jour. Sci., vol. 20, 1905, p. 185.

Daly, R. A., Festschrift zum siebenzigsten Geburtstage von H. Rosenbusch, 1906, p. 203.