

attributed to the conditions of the primary solidification of the rock, perhaps analogous to those under which pegmatite is formed. Pegmatite, which was formerly regarded as a more or less distinct rock species, is now generally considered as a possible varietal phase of almost any deep-seated rock, distinguished from the normal rock of its type by a more acid composition, usually by the presence of rare minerals, and certain structural differences, the whole being ascribed largely to the accumulation of water attendant upon the last stages of the progressive crystallization of a cooling magma confined under considerable pressure.* It is especially marked by peculiar mineral intergrowths produced by the nearly contemporaneous crystallization of minerals which usually form in succession, as quartz and feldspar granitic pegmatite, which produce the structure known as graphic granite, or in microstructure, as granophyre, or microgranite. In such cases the relation of quartz to feldspar in respect to their changed order of crystallization is quite analogous to that between feldspar and hornblende in the quartz-free basic rock of Shefford.

Origin of
pegmatite.

BASIC OR AMPHIBOLITIC SEGREGATIONS.

Irregular patches of fine dark rock material occur frequently in the essexite. Hornblende can be distinguished in them with the unaided eye, and under the microscope is found to be the only constituent of importance besides plagioclase feldspar. There is a smaller amount of magnetite also present. The hornblende is generally green, and the feldspar always plagioclase. They have thus the composition of amphibolite, but have not the schistose structure which is a common though not an invariable characteristic of that rock. These masses appear in irregular string-like forms, ranging in size from a few inches in either dimension, to bodies commonly fifteen or twenty feet in length and perhaps a foot wide. One such mass was found which was exposed for over one hundred yards in length and about fifteen in breadth. It is intersected in many places by offshoots from the enclosing essexite in different directions giving it the appearance of an

Amphibolite.

* W. C. Brögger.—'Die Mineralien der Syenitpegmatitgänge der süd-norwegischen Augit- und Nephelin-syenit,' 1 Theil, pp. 215-225, translated by N. N. Evans, Canadian Record of Science, Vol. VI, Nos. 1 & 2, pp. 33-46 & 61-71.

A. Harker.—'Petrology for Students,' Cambridge, 1897, p. 25.

G. H. Williams.—'On the Origin of the Maryland Pegmatites,' XV. Rept. U. S. Geol. Survey, pp. 675-694.

A. E. Barlow.—Annual Report Geol. Surv. Can., Vol. X, (N.S.) part I, pp. 61-67.

W. O. Crosby and M. L. Fuller.—Technology Quarterly, Vol. IX, Dec. 1896, pp. 236-356.