

subsequently have been greatly changed and recrystallized by the earth movements which have taken place since their formation. The exact time at which these rocks were intruded into the surrounding masses is not definitely known. They are clearly older than the youngest of the granites at Broad Branch and are younger than some of the older more metamorphic granites and granite gneisses. It seems reasonably probable that they were erupted just before or just after the gabbros.

THE GRANITE.—The eruptive granites of central Maryland rival the gabbros in extent and petrographical interest, while they greatly surpass them in economic importance.

These rocks are, as a rule, *granitites*, of medium grain and remarkably compact and homogeneous texture. They sometimes carry a considerable quantity of muscovite (Guilford), and are noticeable for the large and constant proportion of allanite which they contain, this latter mineral being surrounded by a parallel growth of isomorphous epidote.

Variations in the structure of the granites are due to the development of porphyritic crystals, as at Ellicott City and along the road from Meredith's Bridge on the Gunpowder river to Cockeyville. Other structural facies are due to secondary features, like foliation, produced by dynamic agencies.

The granites are partly younger and partly older than the other eruptive types, and are not connected with them, as those with each other, by intermediate facies. They represent entirely distinct epochs of eruptive activity. The evidence of their eruptive origin is most satisfactory and conclusive. They form intrusive bosses with diverging dikes and apophyses; they produce disturbance and crumpling in the rocks through which they break; they enclose fragments of the older rocks—gneiss, marble, quartz-schist, gabbro and pyroxenite; and finally they produce all the well-known phenomena of contact-metamorphism, both in these fragments and in the rocks which adjoin them.

The granites are extensively quarried for building and paving stones at Port Deposit, Woodstock, Granite, Ellicott City and Guilford, which represent great granite masses.