

treme. As has been seen, that consists (1) in a change in composition due to increasing amount of pyroxenes and ilmenite with corresponding diminution of feldspar and the appearance of garnet in quantity; (2) in a change in texture, the rock becoming less coarsely crystalline and the large feldspars diminishing in frequency and size, with increase in the amount of granulated material; and (3) in the rock becoming more prominently foliated with concentration of the dark minerals along the cleavage planes. In this further change the dark minerals come to form 50% or more of the rock; the large feldspars become constantly smaller and less frequent up to complete disappearance; and the rock becomes eventually a finely granular, well foliated, dark gneiss. The change from the anorthosite into this rock is gradual, and the relationship unmistakable; yet to an observer first coming on the rock from without the anorthosite area, such a relationship would seem most improbable. This gneiss is just as clearly a border differentiation product of the anorthosite gabbro as that is of the anorthosite, a differentiation produced in the molten mass after it had reached its present resting place and while cooling. It is however impossible to say why this further differentiation has taken place only on this one side of the mass instead of rather uniformly about the whole, as is the case with the anorthosite gabbro.

*Surrounding rocks.* The Franklin county anorthosite is bordered by all sorts of rocks, both Grenville and doubtful gneisses and later igneous rocks. That it is younger than the Grenville and some of the doubtful gneisses is definitely established by (1) the fact that masses of varying size are found inclosed in the anorthosite; (2) by the fact that the few contacts exposed show the anorthosite cutting them and sending tongues into them; and (3) by the fact that, where no contacts are exposed, the anorthosite can be shown to cut out the other rocks along their strike. The later date of certain igneous rocks, shortly to be described, is mainly deduced from the finding of dikes of what are thought to be identical rocks which cut the anorthosite. So far as the actual dikes are concerned, there can be no question of their later