the dyke. This change, even though it be due in great part to paramorphism, testifies to an important variation in the character of the rock developed from the same magma at various distances from the dyke walls. The augite nearer the middle of the dyke would appear to be much more susceptible of paramorphic change than that near the dyke walls. The middle part of the dyke is also richer in accessory minerals such as apatite, biotite, epidote, and leucoxene than the lateral parts.

*Chemical variation.*—The chemical variations observed in this dyke will be gathered from a consideration of the following table of analyses of the specimens above referred to :

Stop Island dyke.

| | I. | II. | III. | IV. |
|---|---|---|---|---|
| $SiO_2$ | 47.83 | 47.08 | 47.84 | 57.50 |
| $Fe_2O_3+FeO$ | 4.57 | | 6.72 | 5.07 |
| $Al_2O_3$ | 30.28 | | 25.40 | 23.44 |
| CaO | 6.72 | | 8.44 | 5.62 |
| MgO | 4.32 | | 5.25 | 2.76 |
| $K_2O$ | trace | | .60 | .45 |
| $Na_2O$ | 1.30 | | 2.55 | 2.01 |
| $P_2O_5$ | 2.19 | | .94 | 2.02 |
| Loss on ig. | 2.05 | | 2.53 | 2.25 |
| | 99.26 | | 100.27 | 101.12 |
| Sp. g. | 3.028 | 3.060 | 3.080 | 2.856 |

These analyses show a remarkable increase in the proportion of silica in the middle of the dyke over that in the lateral parts. The difference in silica content of about 10 per cent is sufficient to separate the specimens into two distinct rock species according to current methods of classification. The difference is in keeping with the quartzose character of the middle of the dyke as compared with the quartzless character at the side, and also harmonizes with the difference in specific gravities given in the table.

Thus in half the space of a sharply defined dyke only 150 feet wide our study reveals variations in all of those characters which we make use of in the description and classification of rocks. Totally distinct types of texture, structure and composition belong to the same geological unit mass. This fact suggests an interesting commentary upon our system of rock classification. Is such classification in cases like the present, or even generally, anything