on equally good grounds, and may, therefore, be taken as fairly well proved. The same conclusions may be considered to apply to the lavas of Matachewan area, which are almost identical in their nature and the conditions of their extrusion with the lavas of northern Quebec. They afford a satisfactory explanation of the varying extent to which the different rocks have been altered. The pyroxenites or peridotites, the youngest rocks of the complex, have suffered the most intense alteration; the basalts and andesites, the oldest rocks, though badly altered, are much less so than the pyroxenites; and the rhyolites, of intermediate age, are comparatively slightly affected. Any agent acting uniformly on all the rocks, such as meteoric water, would have produced much more uniform effects in spite of the differences in the composition of the rocks.

MODE OF ORIGIN.

The lavas of Matachewan area appear to have been largely extruded under water. Pillow structures are common in the basalts and andesites of the series, and much evidence has accumulated in late years which goes to show that this structure is the result of subaqueous extrusion. In places, as on the east shore of Mistinikon lake opposite the north end of Bell island, well-bedded tuffs are found between the flows, also indicating subaqueous extrusion. The rhyolites rarely possess pillow structure, although it was found in one place on the west shore of Lloyd lake, but the cherty tuffs that accompany them are finely bedded, and the coarse tuffs that overlie them at the contact with the Kiask conglomerate in Midlothian township are well bedded. Subaqueous extrusion is thus indicated throughout the whole period of volcanism.

STRUCTURAL RELATIONS.

Internal.

Stratigraphy. In a general way the stratigraphy of the basement volcanics in Matachewan area is similar to that of the Abitibi volcanics in northern Quebec, the succession of which was determined by the writer in 1916 to be basalt at the base, followed by andesite and rhyolite.[1] Good exposures are, however, not numerous enough to allow of the stratigraphy being determined with accuracy. In Matachewan district the structural relations indicate that the rhyolite of Midlothian, Montrose, and Bannockburn townships overlies the other volcanics; but so far as the present fragmentary information will permit a conclusion to be reached there does not seem to be any definite succession among the other volcanics such as is found in northern Quebec. The only place in the area where a fairly continuous series of outcrops may be observed is on the east shore of Mistinikon lake, where the structure appears to be that of an anticline, the crest of which over a considerable width has been eroded and covered with sediments of the Cobalt series, a band of which crosses the lake at Bell island. The underlying volcanics have thus been covered to such an extent as to render it impossible to obtain a complete succession. The rocks of the volcanic complex still remaining exposed include basalt,

[1] Jour. of Geol., 1919.