the rhyolite of northern Quebec, described by the writer,[1] although it is somewhat less quartzose; the Quebec rhyolite is interbedded conformably with the other volcanics of the region, and is fresh although the other volcanics are metasomatically altered. For the present, therefore, the rhyolite is considered as a member of the old volcanic complex, without any notable difference in age between it and the andesites and basalts.

Under the microscope the rhyolite is seen to consist mainly of feldspar. The feldspar was closely studied, but only albite could be identified. Quartz in small amount is present in some specimens, but is more often absent. The largest amount noted in any section was about 5 per cent. Little ferromagnesian mineral is present, not more than 2 to 3 per cent on the average. It was probably originally acicular hornblende, but is now invariably chlorite. The rock has a pronounced porphyritic texture, about one-fourth of the rock being made up of phenocrysts of albite up to 5 mm. in length embedded in a matrix of 0·02 mm. average grain. Amygdaloidal textures are very common. The amygdules are filled with quartz, calcite, and occasionally albite.

In places the fresh, hard rhyolite can be traced, without any sudden break, into a rather soft, dull-looking rock. Suites of specimens collected across the gradation zone show a progressive alteration, seen under the microscope to consist of carbonation and sericitization. The albite phenocrysts are the first to be affected, and are altered to masses of calcite and sericite or paragonite. The feldspars of the groundmass are then attacked, and the same end products produced. In the most highly altered types, alteration products form about 50 per cent of the whole, of which somewhat more than half is sericite or paragonite. This alteration is along the lines outlined by Wilson[2] and supports his view that dolomitic rocks are produced by the carbonation of rhyolites.

Rhyolite Breccias.

Breccias are found in many places, but are particularly common on Rhyolite lake and the northwest arm of Lloyd lake. They are commonly ash rocks, consisting of angular lumps of rhyolite 1 to 4 inches in diameter embedded in a fragmental matrix. They rarely show bedding. In some places true flow breccias are seen, consisting of fragments of rhyolite in a matrix of massive rhyolite. One of these was found at the east end of Halfmile lake, the second small lake on the canoe route from Midlothian lake to Lloyd lake.

Cherty Tuffs.

The cherty tuffs are light grey or white, glassy rocks with the appearance of cherts. They are common on the south shore of Rhyolite lake. They are finely bedded, although the bedding is often difficult to detect owing to the lack of sufficient differences in colour and grain of the beds. Under the microscope they are seen to consist of varying numbers of fragments embedded in a matrix of less than 0·05 mm. grain. In the most dense, cherty-looking varieties the fragments are few, and consist of angular

[1] Jour. of Geol., 1919.
[2] Wilson, M. E., Geol. Surv., Can., Mem. 39, 1914, pp. 65-70.