

about 5 per cent of the total mass, instead of 95 per cent as in the lower horizon. The remainder are of the ancient greenstones, or volcanics. Singularly enough, it is almost impossible to find one of the rhyolites or the associated cherty tuffs.

The pebbles of the conglomerate are neither noticeably angular nor noticeably well-rounded. The granites are fairly well rounded, the greenstones rounded or elliptical. None of the greenstone pebbles are noticeably sheared, but they are all altered metasomatically, suggesting that such alteration had taken place before the formation of the conglomerate.

The matrix of the greenstone conglomerate is greenstone dust, which in places makes the outlines of the pebbles difficult to distinguish on freshly broken surfaces.

A few beds of conglomerate also occur interbedded with the arkoses of the series. They are rarely over 6 feet in thickness or thereabouts, and are mostly found toward the base of the arkose horizon. The pebbles in some of these are fairly well rounded or subangular, in others quite sharp angled. The composition of these conglomerates differs from both of the varieties already described, in that both pebbles and matrix consist almost entirely of debris from the rhyolites and cherty tuffs. In this they resemble the arkoses with which they are interbedded.

Arkose.

Arkose or grit overlies the conglomerate. On Midlothian lake the grits have a thickness of about 6,000 feet. They are all steel-grey rocks, uniformly hard, fresh, and well bedded. The beds are 6 inches to 3 or 4 feet in thickness, and are marked by differences in grain rather than in colour. For this reason the bedding is difficult to detect on any but clean, wave-washed surfaces, except in the places where the difference in grain of adjoining beds is considerable. The grain of the coarsest grits is about 2 mm., that of the finest grained massive types 0.05 mm.

The composition of the arkoses is very similar to that of a rhyolite tuff. Fragments of rocks and minerals, many of them sharp angled and even chisel-edged, but never more than slightly worn, constitute a larger or smaller part, and are embedded in a fine-grained matrix. The fragments of the coarser varieties are of rhyolite and cherty tuff, and, rarely, a bit of some other rock; together with chips of individual minerals, such as quartz, albite-oligoclase, and magnetite. A thin section cut from an average bed of medium grain contained about 30 per cent of such fragments. The matrix of this rock consisted of about 50 per cent of chlorite, and the remainder mostly feldspar. Quartz, sericite, and magnetite were also present in minor amount. In other beds the matrix is largely sericite and kaolin. The sericite appears to be a primary constituent, and not formed by secondary alteration. Generally a little secondary carbonate and pyrite is present.

Slate.

A band of black slate about 50 feet thick lies on the west shore of Midlothian lake. A similar band crosses Niven's line at mile 82.60 chains. Other bands cross the northern boundary of the township at three or four