

with the siltstones or slates of the Kiask series are invariably argillites, the upper members of the Gowganda formation. Such a contact cannot be explained except by faulting.

In the Mistinikon district the Kiask series is represented by a few beds of arkose and grit, identical with those observed on Midlothian lake. No basal conglomerate was anywhere observed there and the contacts with the older volcanics are nowhere parallel to the strike of the Kiask rocks. The relations are clearly those of faulting. The shear zones of the faults may be seen in at least two places on the lake shore.

#### *External.*

*Relations to the Keewatin.* The Kiask series lies unconformably upon the surface of the ancient volcanics. At the present time it is not known whether the unconformity is erosional only, or both structural and erosional. The Kiask basal conglomerate, wherever found, lies on rhyolite. In the Midlothian area a careful study failed to show any difference in strike or dip between the sediments and the underlying rhyolite. Near Rahn lake, where the basal conglomerate lies flat and is present only in small patches or erosion remnants, the most careful examination failed to determine the structure of the rhyolite. From the facts determined around Lloyd lake, however, and the fact that, as the map shows, the conglomerate everywhere rests on rhyolite, it is concluded that there can be no pronounced structural unconformity between the two; so that they are either conformable, or else folding in the rhyolite has been only slight before the sediments were laid down.

There can be no doubt, however, as to the erosional nature of the unconformity between the Kiask series and the Keewatin. The upper Kiask conglomerate is largely made up of fragments from the lower volcanics, the basalts and andesites commonly grouped together as greenstones; whereas the upper beds are composed largely of debris from the rhyolite member of the lower series. Rhyolite pebbles, though in smaller numbers, are also to be found in all horizons down to the basal conglomerate.

The rhyolite is intruded on the south shore of Rahn lake by a dyke of serpentinized peridotite striking north 30 degrees west and dipping steeply southwest. It is also intruded by a badly altered gabbro which has not been serpentinized. The south shore of the lake is a cliff about 20 feet high, overhanging somewhat in places, and passing at the top into a steep slope that flattens rapidly into the normal ground surface. On this surface, on the steep-sloping edge, and on the face of the cliff itself in one place down to the waters edge, are to be seen patches of the Kiask basal conglomerate, varying from a few inches to a few feet in thickness. It is clear that it must have been laid down on a very irregular surface, approaching that of the present; and it is equally clear that the irregularity must have been one of erosion, since the old surface cuts across not only the rhyolite but also the gabbro intrusive into the rhyolite. The period between the extrusion of the rhyolite and the deposition of the Kiask series must have been sufficiently long, therefore, to permit of the intrusion and cooling of the intrusive, and for erosion to cut away the rhyolite and expose it.