

series outcrop. Although it is hardly correct to consider that such a method would locate the bottom of the syncline with exactness, still it seems probable that the synclinal axis does cross Mistinikon lake somewhere in this general neighbourhood. The determination agrees well with the independently made determination of an anticline to the south, the axis of which strikes north 70 degrees east and is located near the south end of Bell island.

The Midlothian syncline is succeeded on the north by an anticline which occupies Montrose township, whose axis appears to pass near the northwest corner of the township and whose eastern nose was found at the east end of the 49-chain portage, near the eastern boundary of the township. At this point, which lies on the northward projection of the Bannockburn cross fold, the andesite lavas strike south 20 degrees east and dip 40 degrees west. The north limb of this anticline occupies the greater part of Hincks township. As in the Midlothian syncline, the limbs of the fold appear to have a wide angle between them, of nearly 90 degrees. Whereas the strikes on the south limb, in the neighbourhood of Montrose and Hutt lakes, are about north 20 degrees east, those of the flows on the north limb were determined on Austen lake to be south 50 degrees to 60 degrees east. The strike of the axis is thus north 70 degrees east.

In Powell township, near the gold deposits, the strike of the basalt and rhyolite tuffs was observed to have a general trend of north 75 degrees east.

Outcrops were not sufficient over the remainder of the area for the determination of the structures in the volcanics. It seems probable, however, from the uniformity in the strikes of the axes of the folds as already determined, that the axial trend of the major folds for the whole area is about north 70 degrees east, and for the cross folding north 10 degrees west.

*Faulting.* Fault lake, in Midlothian township, occupies a part of a narrow, steep-walled valley which appears to have been a horst, or upthrust fault block. The fault was at first inferred from the fact that the rhyolite-Kiask contact is somewhat farther north in the valley than on either side, more so than would be accounted for by the dip and difference of elevation. Afterwards, evidence was sought along the sides of the valley to the south, and in one place about 10 chains south of the lake the rhyolites were found to be intensely sheared. A projection of the valley's axis to the south passes through the northwest part of Lloyd lake, which here runs north, then passes on into a somewhat wider, steep-walled valley occupied farther to the south by another long, narrow, north-and-south bay of Lloyd lake. It seems probable, therefore, that this whole depression may be one fault. Its age is post-Kiask.

In Montrose township a prominent fault has upthrust the rocks on its north side, and brought the basalts of the older volcanic series into contact with the arkoses of the Kiask series. The age of this fault is, therefore, also post-Kiask. It does not appear to have displaced the Cobalt series to the east, and is thus of pre-Cobalt age. The fault is supposed to extend eastward through the north end of Hutt lake, where the older volcanics are intensely sheared. The fault strikes nearly east in its eastern part, and supposedly swings to northeast in its western part.