

A small fault striking north 40 degrees west is found on Rahn lake, Bannockburn township, along the rhyolite-peridotite boundary.

Mistinikon lake has been a zone of intense faulting in pre-Cobalt time. Like the other faults mentioned, those on Mistinikon lake are probably of post-Kiask age, as some of them cut the Kiask series and bound it. A large fault may be seen on the east shore of the lake in Yarrow township, cutting the cherty tuffs which lie to the north of the northernmost body of granite. The fault has sheared the tuffs intensely over a zone 15 to 20 feet in width, and the shear zone has apparently been somewhat mineralized, as the rocks are badly iron-stained. The fault has brought the cherty tuffs into contact with basalts on the north, and its northeast side is, therefore, presumably the upthrow side. At its south end the fault trends somewhat east of north and passes out into the lake. On the north it swings more to the east. The shore follows it here, probably because it was a zone of easy erosion, and forms a good-sized bay. At the point where the 90-chain portage leaves Mistinikon lake it is again visible, striking somewhat east of north, and apparently following a large valley. It could not be traced farther directly, but is believed to continue eastwards into the lake at the other end of the 90-chain portage. This fault will be referred to further under "Faulting of the Cobalt series."

Another large fault is visible on the west shore of Mistinikon lake, in the narrows about half a mile north of Bell island. It has a north-south strike and a vertical dip, and has formed a shear zone 40 to 50 feet in width. It has brought the cherty tuffs of the series, which may be seen on the east side of the narrows, into contact with basic andesites. The east side, therefore, has been upthrown.

To the north, where the Kiask series outcrop, several faults with shear zones of some width may be observed on the lake shore. They have brought the rocks of the Kiask series down into contact with the andesites of the basement volcanics.

*Metamorphic Effects of Folding and Faulting.* Folding has not exercised any pronounced metamorphic effect on the volcanics of Matachewan area. General shearing has been so slight on the whole that over the greater part of the area delicate and easily destructible textures, such as amygdaloidal, spherulitic, and variolitic textures and pillow structures, have not been destroyed. Schistosity produced by folding is commonly confined to relatively narrow bands at the contact of one flow with another, where it was produced by the slipping of one flow over another as the lavas were brought from the horizontal to the vertical position. The strike of schistosity produced in this way is always parallel to the bedding.

Faulting also produced schistosity along the relatively narrow bands of the fault zones. Such schistosity is parallel to the strike of the fault, and, therefore, need have no relation to the bedding.

The eastern part of the area appears to have been somewhat more intensely metamorphosed than the western. The volcanics of Powell township and the south side of Cairo township have a fairly general schistose texture developed throughout. Under the microscope they all possess a parallel or sub-parallel arrangement of the mica and chlorite crystals; the corresponding rocks of the western side of the area do not commonly exhibit this characteristic.