

ORE DEPOSITS OF THE KIRKLAND LAKE DISTRICT

By Charles Spearman.

That part of Teck and Lebel Townships, in the neighbourhood of Kirkland and Gull Lakes, is usually spoken of as the Kirkland Lake district. The centre of the district is about five miles east of Swastika Station, which is at mileage 164 on the Timiskaming and Northern Ontario Railway.

The history of the district has been more or less fully covered by papers published at various times, and therefore no space need now be devoted to it.*

The rocks of the district are for the most part sedimentaries, which have been correlated with the Timiskaming series of the Algonkian. Intrusive into the sedimentaries are lamprophyres and porphyries. Outside of the immediate neighbourhood of the district are some patches of Keewatin, upon which the above sedimentaries lie unconformably.

The relative ages of the above rocks are clearly shown at different exposures in the district, for instance, on the McKane claim, near Kirkland Lake, lamprophyre dikes cut the sedimentary series, which are in turn cut by porphyry dikes.

The conglomerate is in places rather coarse, the boulders being from two feet to three feet in diameter, but on the whole it cannot be called coarse, for the

average pebble is not much larger than egg size. Practically all of the conglomerate shows evidence of great strain, for most of the pebbles are highly fractured. Thin sections also show this fragmental nature, together with abundant decomposition products, such as kaolin, chlorite, serpentine, epidote and sericite. The greywacke also shows much of the same secondary minerals of decomposition as the conglomerate, under the microscope. There is every evidence of a great thickness of the sedimentaries.

The lamprophyre is very near the camptonite porphyry variety, the predominating feldspar being plagioclase and the phenocrysts being augite and hornblende. Some of these lamprophyre exposures are very large, covering several acres. From observation in the field, so far, there is no evidence that the lamprophyre played any important part in the introduction of the ore.

The porphyry, of which there are many different varieties, is probably the most widespread igneous rock of the district. The common variety is a reddish alkali porphyry, with predominating orthoclase phenocrysts. Some of these phenocrysts are over half an inch long, and display wonderful zonal structure, while still other gradations show a fine grained hypidiomorphic structure.

* For description of some of the deposits see July 15 issue of this journal.

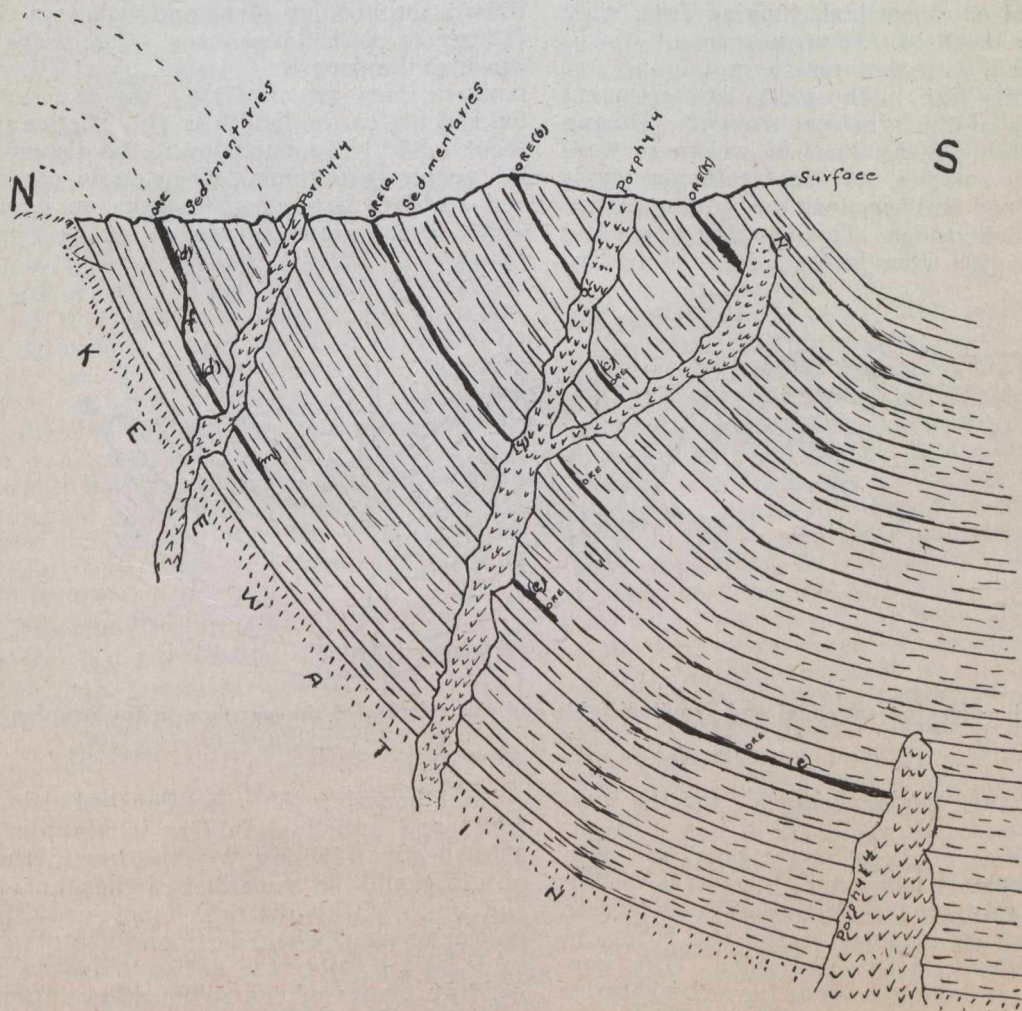


Fig. No. 1.—Showing the relation between the porphyry and the ore bodies in the sedimentaries.