

number of microscopic slides of this porphyry from a number of localities, and I find that, while orthoclase is usually present, and is sometimes abundant, plagioclase greatly predominates in this rock which I have designated 'diorite-porphry,' and which Mr. Bence in his official report published by the Bureau of Mines of the Province of Ontario, calls 'feldspar-porphry.'

Since this paper was presented to the Institution, the Bureau of Mines of Ontario has also published a very valuable 'Map of the Kirkland Lake and Swastika Gold Areas,' by A. G. Burrows, with marginal notes. On this map Mr. Burrows also uses the term 'feldspar-porphry' for these rocks. He regards them as later in age than the conglomerates (of the Temiskaming series), but the evidence which I presented in my paper shows clearly that they are earlier. I consider that, though the porphyries are older than the gold-bearing veins, the latter are genetically associated with them to this extent, that they have been derived from the same deep-seated magma.

With regard to Mr. Baelz's statement that the gold-bearing veins are connected with great granite intrusions of Laurentian age, I have no exact evidence as to the relative ages of the porphyry and the Laurentian granites, except that stated for the Huronian district where Laurentian granites are intruded by porphyry similar to that at Kirkland Lake, and gold-bearing quartz veins are found in the granite adjoining the porphyry.

As to the influence of the country rock on the gold contents of the veins, I have but little evidence to offer. At the Hollinger property some of the richest veins are in an old greenstone, which is a highly altered diabase or basalt. In the Pearl Lake section of the Porcupine country the porphyry extends north-eastward as a tongue into the adjoining country, with basic greenstones, such as those above mentioned, on both sides of it, and the gold-bearing veins have an undoubted tendency to form in this greenstone. Some of the veins, however, are in the porphyry which is then often altered into a calc schist.

In many other places in the Pre-Cambrian areas of Northern Ontario quartz veins are scattered irregularly through the contact zone between porphyry and greenstone. In most of such cases they are short, and where gold is present in them it is also likely to be in short irregular shoots.

I would consider that the extent and value of the gold-bearing veins in the greenstone was much more fully controlled by the proximity and size of a mass of intrusive porphyry, and by the length and width of the fissures through which the gold-bearing