

## The Gold Fields of Western Ontario.

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Gold is very widely distributed in the Province of Ontario, having been found at many points between the townships of Madoc and Marmora in the east, and the boundary of Manitoba, more than nine hundred miles to the northwest. In the eastern part of the Province it has been obtained to a greater or less extent at several points east of the town of Peterborough, such as Deloro, Belmont and Madoc; near Parry Sound on the Georgian Bay; east of the famous Sudbury nickel mines at Wabnapitac, from which magnificent specimens come; west of Sudbury, at the Vermillion mine; north of lake Huron, at the Ophir mine in Galbraith township; and north of lake Superior, at the Empress mine, near Jackfish bay; but the most promising region at present lies west of lake Superior, from Moss township to Shoal lake on the boundary of Manitoba.

The gold deposits of the eastern part of the Province have been known for thirty years, and have been worked to a small extent during that time; but some of the ores are difficult to treat, such as those mined near Deloro, and it is only recently that the difficulties seem to have been successfully met, so that their development belongs to the future. The deposits near Sudbury also are attracting attention, but cannot yet be called mines. On the north shore of the upper lakes only the Empress mine requires mention. Here work has been begun on a series of bedded or lenticular quartz veins enclosed in green Huronian schist, near an outcrop of granite. A very complete ten-stamp mill has been at work for some months, and several bricks of gold have been obtained. The ore is not high in gold and is rather refractory, so that not more than 40 or 45 per cent. is extracted by the stamp mill, the rest being contained in the concentrates, which consist of iron and copper pyrites with some galena; nevertheless the gold obtained by free milling methods already more than pays for the mining and milling. By tunnelling in from near the foot of a lofty hill the veins can be struck about one hundred and forty feet below the level of the present open working, and the ore obtained in the easiest way, without the need for hoisting or pumping apparatus. When this tunnel is made, supposing that the veins retain their present thickness of about twenty feet in all, the mine should afford at least a reasonable return for the comparatively small capital invested.

Attention is, however, specially directed at present to the main gold region of Ontario, which extends for more than two hundred and fifty miles from Moss township westward, and has been proved to be at least a hundred and thirty miles wide, between the Little America mine just south of the international boundary in Minnesota and lake Minnetakie twenty miles north of the Canadian Pacific Railway. Here the number of locations, usually of forty acres each, taken up for gold mining purposes within the last four years runs into the hundreds. Many of these will of course not prove workable mines; but, on the other hand, new finds are constantly being made, sometimes in quite new localities, sometimes in regions supposed to have been well explored years ago.

In general the gold bearing veins occur in green chloritic and hornblende schist, probably of Huronian (Keewatin) age, and are of a bedded or lenticular kind; but sometimes they are found in masses of eruptive granite or gneiss which have pushed their way up through the Huronian schists. In the latter case the veins are commonly true fissures, and may be followed for considerable distances. In either case the contact of an eruptive rock with schist seems of importance, since the best veins are found within a mile or two of such a contact.

In addition to gold bearing veins there are deposits of other kinds which are worthy of attention, such as fahlbands, wide bands of schist heavily charged with sulphides, and showing a considerable amount of free gold; and dikes of felsite or quartz porphyry containing pyrites and gold; though up to the present none of these have been mined sufficiently to prove their value.

During the past summer all the gold deposits on which any important amount of work has been done were visited, except the Huronian mine in Moss township; and it is proposed to give a brief preliminary report on what was observed.

Our canoes were dropped into the water at Sayanme, a station on the Canadian Pacific Railway seventy miles west of Port Arthur, and traversed nearly seven hundred miles of lake, river and portage before ending the summer's travels at Rat Portage. On Lac des Mille Lacs and the waters of Partridge river no delay was made though gold was found year's ago by the McKellar's on Partridge lake.

On and near Reserve Island in the river Seine, near the entry of Partridge river, several gold bearing veins have been discovered, and two or three of them are being opened up by Mr. H. B. Proudfoot, but at the time of our visit his shafts had not been sunk more than twenty feet and it was impossible to judge of the real value of the locations.

On Sawbill lake, which opens into the Seine from the north some distance below Proudfoot's camp, and thirty-three miles southwest of Bonheur station on the Canadian Pacific Railway, the now well-known Sawbill mine is situated. At our arrival early in July we found that a shaft had been sunk to a depth of 49 feet, and that the vein had increased in width from four feet on the surface to six at the bottom and showed very distinct walls. The vein can be traced for more than a quarter of a mile on the surface, and will no doubt afford a great quantity of ore. The quartz contains the usual sulphides, and free gold can frequently be seen. Mr. F. S. Wiley, the manager, states that the shaft has since been sunk below ninety feet, with no diminution in the width of vein nor in the gold contents of the quartz. It is worthy of special note that this promising mine is in what has been mapped by the Geological Survey as biotite-granite gneiss of the Laurentian, so that gold occurs in satisfactory amounts in a rock hitherto looked on as barren. Several other gold bearing veins of a somewhat similar kind have been located in the region since work began at the Sawbill mine, and there is reason to suppose that diligent prospecting will disclose a number of valuable deposits.

Still farther down the Seine, a little west of its expansion, Steep Rock lake, the Harold Lake Mine, owned by Messrs. Wiley and Gibbs, is situated. Here several veins, in general, not very large, have been more or less opened up by shafts or drifts, and a five-stamp mill worked intermittently has yielded a number of gold bricks. One small vein on the shore of Harold lake contains ore exceedingly rich in free gold, in leaf form. The country rock here is quite varied, granite of the greenish altered kind, often called protogine, piercing green and yellowish rocks of the Huronian.

From this point westward to Shoal lake, another expansion of the Seine river, no mining has been done, though a number of locations have been taken up, especially west of Calm lake.

Shoal lake may be looked on as the focal point of the Seine river and Rainy lake gold region, hundreds of locations having been taken up during the last three years within a radius of ten miles of this small lake, and a very considerable amount of work has been done on several of the properties.

Up to the present the most important mines have been found in an area of protogine granite about six miles in length from northeast to southwest and about a mile in width, lying between Shoal and Bad Vermillion lakes. The whole granite area has been located and scores of veins have been found, varying greatly in gold contents but generally true fissure veins with well defined walls of slickensided talc or sericite schist.

The largest amount of development has been done on the Foley mine, now owned by the Ontario Gold Mines Co., the property comprising AL74, 75, 76. On one of their veins, the Bonanza, one shaft had been sunk to 210 feet and another 1,200 feet away to a depth of 113 feet, and more than 300 feet of drifting had been done at various levels at the time of our visit, July 17. The vein proves very uniform in width, running from 2½ to about 4 feet, and the ore, which contains a considerable amount of visible gold, is said to average £20 in free milling gold and \$5 in concentrates per ton. By this time a well equipped twenty-stamp is being erected, and before the new year should be producing gold. There is every reason to expect that this will prove a very profitable mine.

The Ferguson mine is situated northeast of the Foley mine in the same area of granite, on locations AL110, 111 and K223. This property is owned by the Seine River Gold Mines Company of England, which is at present doing mainly exploring work. There are several veins ranging from a foot to three feet or more in width and traceable for hundreds of feet. On the Daisy vein two shafts had been sunk to a depth of fifty