

A large proportion of this work has been done on quartz veins, about the average values of which but little is known, except that assaying tests have shown more or less free gold, while in some instances, notably on the vein known as No. 5, which outcrops in the face of a perpendicular bluff at the water's edge, many particles of gold, visible to the naked eye, are seen in a width of 8 inches of the vein. The full width of the vein-matter between the well defined walls averages about 18 inches, on which an adit has been driven for a distance of 40 feet. This No. 5 vein is another representative of the second series and cannot be traced to have any connection with the extensive masses of quartz before referred to, but is closely associated with an intrusive igneous dyke.

No systematic sampling was attempted on any of the veins, as such was not practicable; in fact, the only satisfactory method of sampling, in the writer's opinion, would be actual mill tests of large samples, which could be easily done in the 200-hp. mill. Such sampling would demonstrate what proportion of the large quantities of quartz occurring on the property is available for treatment on a commercial scale.

This group contains six mineral claims owned by Captain W. Hawthorn, R.N., and Thos. Kirtland, of Athol. The *Jersey Lilly* mineral claim, one of this group, adjoins the southern boundary of the *Engineer* property, and from there the *Kirtland* group extends southward along the east shore of Takn arm a distance of approximately 5,000 feet. The geological formation of the *Kirtland* property is the same as the *Engineer* mine, and the veins that have been found resemble those found on the *Engineer* property.

The only work, except prospecting, that has been done on the *Jersey Lilly* mineral claim, where two shallow shafts 10 and 14 feet deep respectively were sunk a short distance from the southern boundary of the *Engineer* mine. These are on two distinct quartz outcrop exposures a vein with its strike north-east and dip 88 degrees towards the north-west. It is about 3 feet wide and filled with quartz. An average sample taken across the full width assayed only traces in gold and silver. The location of the shaft is 250 feet south from the *Engineer* line.

The 14-foot shaft is located about 25 feet south from the same boundary line, and exposes a vein averaging about 5 feet wide, filled principally with quartz, but with considerable brecciated shale and slate, especially in the centre. The vein has its line of strike N. 23° E., dipping 76 degrees towards the north-east. It has been traced on the surface for a distance of about 200 feet, showing the same characteristics for that length.

Only one sample was taken which represented an average of the vein in the shaft, and after assaying showed only traces of gold and silver.

This group consists of three mineral claims that are situated to the east of and adjoining the *Engineer* mine. As no work has been done for several years past on any of the owners were in the vicinity, the property was not examined by the writer, but, from the report of D. D. Cairnes in Memoir No. 37 of the Geological Survey, the following information is gleaned: That the conditions on the *Gleaner* claims are the same as on the *Engineer* mine. At least there are five veins occurring on the property; these are filled with quartz and brecciated layers and fragments of wall-rock which constitute the entire vein, with the exception of small amounts of native gold, iron pyrites, and iron oxide.

This group of six mineral claims is situated about twelve miles from the shore of Takn arm, on the west side of Big Horn creek, which empties into the west side of Takn arm about ten miles north from the *Engineer* mine. The group is owned by Fred Lawson, who resides on the property. Thos. Kirtland, William Powell, Robt. Pelton, Dan Sullivan, and Agnes A. Lawson. As the season was late and, from the most reliable information that could be obtained, snow covered the surface of the property, which would have prevented a thorough examination, the writer did not visit it.

Memoir 37, Canadian Geological Survey, contains a full description of this group. A brief synopsis of that report is as follows: That the rock formations