

PROSPECTING FOR IRON ORE IN THE TORBROOK DISTRICT, NOVA SCOTIA.

By W. F. C. PARSONS.

Extent.—The territory covered by the titles of The Annapolis Iron Company, Limited, extends practically from the County line between Annapolis and Kings, westerly to the Nictaux River, a distance of slightly over five miles, and has a width throughout its entire length of about one and a half miles. It may very conveniently be divided into two sections, namely the north section and the south section. The veins run nearly east and west. The north section contains the outcrop of three veins, and the south section the outcrop of two veins.

The north and south outcrops run almost parallel to each other. There is every reason to believe they form the upper edges of a syncline of continuous veins of ore, that is, the outcrop on the north dips under the intervening territory and outcrops again in the south section along the South Mountain.

The northern section has been prospected very extensively. The eastern end has been exploited by the workings of the Leekie Mine, (now operated by the Londonderry Iron & Mining Co.) The main shaft of the mine has been sunk to a depth of 350 feet, levels being started 50 feet apart and extending to the east and west for many hundreds of feet. The lower levels Nos. 3, 4, 5, and 6 are being pushed to the westward in order to open up new territory. The plant at the mine comprises three 40 H.P. boilers and one 80 H.P. boiler, one Lidgerwood hoist and two 12" x 18", Allis-Chalmers Bullock Co. straight line air compressors, besides air drills, pumps, etc., as well as boiler, engine and dry houses, blacksmith and carpenter shops, office and superintendent's house.

About one mile west of the Leekie Shaft a new inclined shaft, called the Hoffman, was started upon what is known as the shell vein. The width of this vein is about 5½ feet, and its dip about 85 degrees. Sinking was commenced on this vein in December, 1905. At the latter end of January, 1906, it was sunk to a depth of 163 feet, at which point it was decided to cross-cut to the north of the Leekie Vein, which is about 82 feet distant. This work is now under way. The plant at this shaft consists of one 60 H.P. R.T. boiler, one 12" x 18" Allis-Chalmers Bullock, Ltd. straight line air compressor and one 14" x 7" x 14" Knowles sinking pump. The size of shaft is 7' x 14'. It was only necessary to permanently timber this shaft for the first 25 feet. The balance of shaft is timbered with stulls set about 6 feet apart on either side of the skip road. The walls being very hard and regular, very little water was encountered in sinking. It was handled by bailing except on Sundays, when pump was lowered to keep the water out. Sinking averaged over three feet per day, of three 8 hour shifts. The drills used were Ingersoll Sergeant "D" 24, supplied by Allis-Chalmers Bullock, Ltd. of Montreal. These drills proved suitable for this work.

Another inclined shaft, called the Wheelock, situated one mile west of the Hoffman was commenced in November, 1905. This also is sunk upon the shell vein. The width of the vein is 6 feet and its dip was 77 degrees for 63 feet. Then it flattened to 45 degrees for 15 feet. Then to 43 degrees for 16 feet. At the point where the vein flattened, it increased in thickness to 12 feet. At 94 feet the vein suddenly dipped to an angle of 75 degrees, narrowing again to 6 feet. This was followed to a depth of 116 feet, at which point it took another flatter pitch to the south. It was decided to continue

sinking upon the line of the 75 degree pitch. This was sunk to a depth of 170 feet, the last 54 feet in rock. It was deemed advisable to sink in rock owing to the numerous changes in the dip. It would be difficult to operate a skip over these changes of grade. At a depth of 155 feet a cross cut tunnel was started to the north to intersect the Leekie Vein, which is estimated to be about 112 feet distant. This work is now underway. When completed a cross-cut will be started to the south to locate the lost vein. The sinking of this shaft was a comparatively difficult proposition, owing to the quantity of water encountered. Progress of sinking did not average over 2 feet per day. The size of the inclined shaft is 7' x 14'. The plant is a duplicate of that at the Hoffman Shaft.

It is the intention as soon as the Leekie Vein is intersected at these two shafts to drift upon the veins east and west so as to prove the continuity of the same.

Two boreholes were put down by the Nova Scotia Steel Co. in this district. One, a diamond drill hole, is situated about 550 feet west of the Hoffman Shaft. From Government records, this hole proved the shell vein at this point to be 5' 2" wide and the Leekie about 6 feet. There is also a third vein about 2 feet.

The second hole is a 5" Calyx, sunk to a depth of 387 feet on the farm of Josephine Wheelock, about 1,500 feet east of the Wheelock Shaft. The Government records show that at a depth of 330 feet from the surface, ore was intersected, and at a depth of 387 feet this hole was still in ore. It is estimated that the shell vein at this point is at least 9 feet wide and of good quality, iron tenor 49.5%. Messrs. Brookfield & Corbett, who owned the property at this time, continued this hole for another 7 feet. This core showed indications of approaching the foot wall. However, the analysis showed the ore to run considerably over 40% metallic iron.

A borehole was sunk some years ago by Messrs. Brookfield & Corbett on the farm of Fletcher Wheelock. This hole is about 350 feet east of the Wheelock Shaft and 40 feet south of the shell vein. The Nova Scotia Government records show that it cut the three veins, shell vein at 112 feet, width of vein 15 feet; Leekie vein at 330 feet, width 9 feet; 3rd vein 435 feet, width of ore 14 feet.

It should be stated that the shell vein from the Hoffman to the Wheelock Shaft is a magnetic ore due no doubt to the proximity of diorite.

The following analyses shows the quality of the ore in this district, that is, from the Leekie Mine to the Wheelock Shaft where the prospecting work has been confined. From the numerous samples taken from the Leekie Mine, the analysis may be stated as Metallic iron 52.00%, Phosphorus 1.15%, Sulphur 0.02%, Manganese 0.10%, Insol. 13.5%, Magnesia 0.30%, Lime 2.5%.

Hoffman Shaft on shell vein iron 47.47, phos. 1.32, insol. 17.23.

Wheelock Shaft on shell vein iron 49.00%, insol. 15.28, phos. 1.02, lime 3.35, magnesia 0.57.

Page & Stearns farm, shell vein, iron 50.00%, insoluble 16.00.

Leekie vein, iron 50.55%, insoluble 13.65.

George Holland, shell vein.

Leekie Vein, iron 51.95, insol. 11.57, phos. 1.517, lime 3.21.

Southern section This section, mentioned before as being the southern outcrop of syncline, extends three miles and contains an area of two and three quarter square miles. It has not been as thoroughly prospected as the northern one. The ore is a black mag-