

Lot 27. No. 10.—This was the first point inspected on Lot 27, and consisted of a shallow opening, which at a depth of six feet disclosed a solid body of ore somewhat mixed with rock. The nature of this deposit and the enclosing rock, which is a well stratified diorite having distinct vertical walls and bed joints, combined with the very decided needle attractions (being 90 degrees over an area 50 by 20 feet), indicates it to be one of decided and permanent importance, and is probably an outlier of the range or series of deposits next to be noticed.

Nos. 11, 12 and 13.—These are areas of attraction which, although limited in extent, are of undoubted importance in establishing the sweep or trend of the ore ground and its relation to the zones or dykes of diorite traversing the lots. The average diameter of the indications at these points is about 12 feet, the attraction being 90 degrees probably over the apex of chimneys of cone-shaped masses, ascending from a main body of ore.

No. 14.—At this point, known as the pine stump, there are excavations disclosing ore of a very fair grade. The needle attractions extend over an elongated area 48 feet by 12 feet.

No. 15.—This working is a few feet deep, uncovering the ore which seems to open out downward into a heaped or cone-shaped mass. The needle attractions cover an area of 22 feet by 14, being 90 degrees over the centre and diminishing outwards towards the circumference.

No. 16.—This is a small opening showing an excellent quality of magnetic iron ore, finely granulated and free from rock matter. The needle attraction here ranges from 80 to 90 degrees over an area 20 feet by 6 feet.

Nos. 17 and 18.—Openings were made at these points from needle indications, the ore being found at shallow depths below the surface.

No. 19.—This last point examined was an outcrop of ore on the extreme northeast corner of Lot 27, on the face of the precipitous bluff overlooking the Burnt River. The ore is of excellent quality, and extensive shipments might easily be made. The presence of small particles of pyrites noticed are scarcely worthy of mention, the quantity being insignificant. This and the Howland Mine are the only points where traces of sulphur or pyrites were seen.

**Conclusions.**

In further considering the subject, the writer would direct attention to the excellent natural facilities for carrying on extensive mining operations at a minimum cost, particularly on Lot 27, where the deposits occur along the highest part of the slope, than which in regard to underground drainage and the transportation of ore to a railway, no more favorable location could well be chosen. In regard to the quality and quantity of ore, the first point may be answered by referring to the accompanying analyses, the main feature being the freedom from phosphorus, rendering the ore suitable to make the finest steel. The second point is not so easily decided, but enough is known to make it reasonably certain that the iron ore deposits in this region will afford ample scope for mining and a production limited only by the demand.

**Depth of ore.**

The general trend of these ore deposits is northeast and southwest, similar to that of most of the best magnetic ore mines of New Jersey. The fact also that good ore has been found wherever there are needle attractions, is a proof of the success of the prospecting and developing operations. With regard to deep working and continuance of the deposits, it is worthy of note that the Howland Mine, where they have a shaft 85 feet deep, and are still in solid and improving ore-ground, was located on a small outcrop where the needle attraction was comparatively insignificant. The wide areas of attraction enumerated above, and their strength and tenacity, are evidences of the value and extent of these deposits; and they most assuredly warrant the outlay of capital in their thorough exploitation or development, with the view of establishing permanent mining operations.

Respectfully submitted.

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