1943

OLALLA CREEK MANGANESE DEPOSIT

by

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Vancouver, B. C.
December 11, 1942

C O N T E N T S

Figures

O L A L L A C R E E K M A N G A N E S E D E P O S I T

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References: Geological Survey, Canada, Map 628A, Olalla, and
Map 538A, Kettle River (West Half).

GENERAL STATEMENT

A deposit containing manganese oxide and situated near Olalla Creek was examined by the writer during the field season of 1942. The deposit contains some ore which is shown by the writer's assays to carry up to 43.6 per cent MnO_2, but much of the material consists of chert carrying thin films of MnO_2 in a large number of fracture planes that traverse the rock in various directions. Samples indicate that material of this grade carries from 8 to 15 per cent MnO_2. Other deposits of a somewhat similar nature have since been reported to occur north of Olalla, but were not seen by the writer.

LOCATION

The property is on a hill overlooking the south fork of Olalla Creek, 3 miles north 60° west of Olalla in the Osoyoos Mining Division, British Columbia. It is roughly 23 miles by road and trail from Penticton, and about 12 or 13 miles by road and trail from Keremeos.

OWNERSHIP

The property is owned by D. J. McRae of 1010 Hall Building, Vancouver, B. C.

GENERAL CONDITIONS

Topography: The area in which the deposit occurs lies between Similkameen and Okanagan Valleys. The hills in the vicinity rise to elevations of about 7,000 feet, whereas the neighbouring floor of Similkameen Valley is about 1,500 feet above sea-level. Olalla Creek itself lies in a narrow steep-walled valley and enters Keremeos Creek through a narrow canyon. The manganese is approximately 1,800 feet in elevation above Olalla Creek.

Accessibility: There is no road in to the property. The highway between Penticton and Keremeos passes the village of Olalla at the mouth of Olalla Creek about 7 miles north of Keremeos, and about 18 miles south of Penticton. From the highway, a trail about 5 miles long leads up Olalla Creek to the mineral showings. In this distance, the trail rises about 3,400 feet.

A tractor road follows the south side of Olalla Creek to a molybdenite prospect situated on that side of the creek about a mile and a half above the mouth of the creek. This road climbs to the top of a canyon that marks the lower part of Olalla Creek. It would be possible to take advantage of this road and continue it to the property, crossing the creek near the forks. However, a road could be built on the north side of the creek without extreme difficulty. In either case, putting a road with a reasonably good grade in to the property would involve the construction of 4 miles or more of new road. The writer is not prepared to make any estimate of the cost of constructing such a road, but it would involve cutting a road on a steep hillside most of the distance. Some rock work might also be involved.

Building and Tunnel Sites: There is ample space available at the showings for the necessary mine buildings, but, lack of water at this point would probably necessitate a principal camp-site at the creek below. Building sites could be obtained close to the creek on any of a number of small benches that appear along the creek above the forks.

The steep slope of the hillside near the mineral showings would enable the property to be opened efficiently to a considerable depth by means of adits.

Timber: The timber in the vicinity of the property consists of the typical dry belt forest of openly spaced fairly large trees, with relatively little underbrush. The forest would furnish sufficient timber for mining purposes.

Water Supply: There is no water near the mineral showings and no nearby springs are known. As the showings are on a southern or dry slope, it is doubtful if a permanent supply of water could be secured by sinking wells.

One spring has been reported on the same ridge about a mile from the property but it is considered likely that in the event of the property being worked, the camp would be placed near Olalla Creek and a road built from the camp to the property. This creek would furnish water for domestic purposes and is probably sufficient for a small mill, but it is not large enough to furnish power for operating.

Power: There is no source of hydro-electric power in the vicinity. The line of West Kootenay Power Company passes up Similkameen Valley near Keremeos, probably within five miles in a direct line from the property. However, it seems probable that the needs of a small mine would best be served by diesel power.

Labour: Labour is very scarce in the district at the present time, and it is doubtful if many miners could be secured locally. The mines near Princeton and Hedley, in the same general area, are experiencing some difficulty in obtaining sufficient labour.

Climate: The property is situated in the dry belt of southern British Columbia and the climate as it affects the operation of mineral properties is very nearly ideal. The summers are hot and dry, and while the winters are cold they are not excessively severe. Precipitation is not heavy and surface prospecting can be carried on for much of the year.

Plant and Milling Facilities: There is no plant on the property and no buildings have been constructed. As pointed out below, practically no work has been done on the property.

History: So far as is known, the property is a new discovery. The presence at the showings of an old claim post and some cuts which are very largely sloughed in make it appear that the showings were staked many years ago, but no references to it were found in the literature. No recent work has been done on the property, which was staked in the spring of 1942.

Property: The property consists of two claims, Pete and Jerry, staked by D. J. McRae of Vancouver in 1942.

GENERAL GEOLOGY

A wide band of Mesozoic sedimentary and volcanic rocks strikes northerly across Similkameen Valley and continues across Olalla Creek. Bostock (Map 628A, Olalla) divides the rocks into the Old Tom formation (mainly basalt and andesite with related dioritic intrusion and chert) and the Shoemaker formation (mainly chert; greenstone, breccia, argillite and limestone). These are both referred to as of Triassic age or older. In the vicinity of Olalla Creek these rocks are cut by small bodies of diorite, quartz diorite and gabbro and by one body of pyroxenite. Farther north are large bodies of granite and granodiorite of later Mesozoic age.

The manganese deposits lie within a belt of chert of the Shoemaker formation. Where they occur but little information could be obtained on the attitude of the bedding; Bostock, however, shows the regional strike to be northwest and the dip northeast.

MINERAL DEPOSITS

The mineral deposits are expressed very largely as float rather than as outcrops. For this reason the relations of the mineralized bodies to the surrounding rocks are largely unknown. The manganese appears to occur in three ways: (a) as masses of porous black material that seem to be mainly manganese oxide but contain considerable silica; these were found only as float. (b) as massive black heavy material that appears to be largely manganese oxide and is probably a fine intergrowth of manganese oxide and silica; this material also was found mainly as float; at the one or two places where it was seen to outcrop, its relations to the cherts could not be determined. (c) as a thin film of black manganese oxide along numerous fractures that traverse the chert in all directions. The rock breaks along these fracture planes and fragments commonly have the appearance of solid manganese oxide. The thickness of film varies greatly; in many instances it is paper thin, but many instances were noted where replacement of the chert had apparently taken place along the fracture planes, resulting in bands of manganese oxide up to 1/8 inch thick.

As the porous or first type of material was found only as float, no samples were taken for assay. It was judged that it would approach the second type mentioned in manganese content.

Samples taken across bands of the massive black material, including float that was deemed to be nearly in place, assayed from 28 per cent to 43.6 per cent MnO_2 or from 18 to 27.5 per cent Mn.

Chip samples taken across considerable widths of chert intersected by the numerous films of manganese oxide along the fracture planes assayed from 8.5 to 15 per cent MnO_2 or from 5.4 to 9.5 per cent Mn.

The manganese oxide is apparently a hard, black massive mineral with a black streak. The mineral has not been identified positively, but from its hardness and the fact that it yields abundant water in the closed tube, it is believed to be psilomelane. It may, however, be in part pyrolusite and the hardness may be due to intergrowth with silica. The material has not been examined under the microscope.

The deposit is exposed on a steep hillside about 1,800 feet above Olalla Creek. A small bench at the top of a large irregular outcrop in the form of a small cliff, shows scattered outcrops of chert with thin films of manganese oxide together with considerable float, consisting mainly of manganese oxide (Fig. 1). The rock cliff shows somewhat irregular bands or areas where the chert is intersected by numerous fracture planes carrying thin films of manganese oxide. The cliff is partly obscured by large blocks of talus which are nearly in place. Below it, the hillside is a talus slope of large blocks some of which are possible outcrops. About 300 feet below the cliff, the hillside is less steep and has a considerable forest cover with no outcrops. To the north and northeast of the showings bedrock is concealed. No outcrops were seen within a limited distance of the showings. Above the most northwesterly of the showings, located on the accompanying sketch, there is a drift-covered, grassy slope reported to extend for 900 feet on which, according to information supplied by the writer's guide, an occasional boulder of float manganese ore has been picked up.

Briefly, the showings are found along a line stretching northwest up the hill for a distance of about 400 feet. The numbered localities

(See accompanying sketch) refer to stations measured on a line running southeast from the upper showings, and owing to the lack of workings are used as reference points in the description of the property. Other stations appear on lines measured nearly at right angles to this line.

At Station 1, the most northwesterly showing, there is an old cut which shows bedrock on one side only. This consists of white chert with a few thin films of manganese oxide along fracture planes. In the cut are a number of boulders of porous material that is a mixture of manganese oxide and silica. These are quite different from the bedrock seen at the cut.

Twenty-three feet southeast of this cut is an outcrop of white chert carrying thin films of manganese along fracture planes. About 10 feet north of the outcrop are scattered boulders of fairly massive manganese ore.

Eighteen feet southeast of Station 2 is an outcrop, 5 feet by 3 feet, of shattered chert that carries numerous films of manganese oxide along fracture planes and in places appears to be partly replaced by manganese oxide. The replacement is irregular and appears to have penetrated the rock from the fracture planes. The films are generally 1/8 inch thick or less but as fractures are numerous, the aggregate amount of manganese oxide is considerable. Thirty feet southeast of Station 2 are boulders of porous material that are probably mixtures of silica and manganese oxide. Forty feet southeast of Station 2 is another outcrop of chert with abundant manganese oxide along fracture planes. Boulders of the porous material were also picked up here.

At Station 3 are outcrops of chert with thin films of manganese along fracture planes. Some films up to 1/4 inch thick are apparently replacing the chert.

At Station 4 are outcrops of chert with manganese along the fracture planes. There are also bands a few inches wide where the chert appears largely replaced by manganese oxide. A sample (No. 3) was chipped across 11 feet of the outcrop including probably the best of the manganese showing. It assayed 15 per cent MnO_2 or 9.5 per cent Mn.

Beyond Station 4 is a small depression 15 to 20 feet across. About halfway to Station 5, and continuing to Station 5, there is a belt 6 to

10 feet wide of relatively massive manganese ore, consisting almost entirely of float, some of which is believed to lie above bedrock, virtually in place. Two samples were trenched across the material as it lay on the ground. Sample No. 4, across 6 feet, assayed 40.1 per cent MnO_2 or 25.3 per cent Mn, and sample No. 1, across 10.7 feet, assayed 43.6 per cent MnO_2 or 27.5 per cent Mn. Immediately to the southwest of this belt is an outcrop of chert containing numerous thin films of manganese oxide. This would not assay more than 12 to 15 per cent MnO_2.

About 17 feet northeast of Station 5, a band of manganese oxide, about 2 feet wide, occurs as a single small outcrop. Adjacent to it is a small outcrop of chert with thin films of manganese oxide in it. The relations of the two could not be ascertained from the showings, but the chert outcrop would appear to limit the width of the massive manganese to the northeast. A sample, (No. 2) cut across 24 inches of the massive manganese, assayed 28.6 per cent MnO_2 or 18.1 per cent Mn.

About 20 feet of Station 6 and a few feet to the north of Station 7 are outcrops of white chert. These did not appear to carry the thin films of manganese oxide found in other chert outcrops and consequently appeared to limit the extent of the deposit in this direction.

A small cliff stretching for about 45 feet southwest of Station 6 consists of chert badly shattered and with thin films of manganese oxide along the fractures. The amount of manganese varies greatly from place to place. Irregular areas of white chert carry very little manganese but nearly all the rock in this exposure carries some. The outcrop was not sampled but a general idea of its content may be obtained from the results of samples 5, 6 and 7, which, taken from similar material, assayed 8.5, 9.6 and 11.4 per cent MnO_2 respectively. Between this and the larger outcrop or cliff shown on the sketch, the ground is covered with large blocks of talus, most of which carry some manganese.

Extending from a short distance northeast of, to a point 170 feet southwest of, Station 7 and then northwest to Stations 3 and 4 is an irregular area of rock outcrop. Most of this area slopes steeply and, in some part forms

small cliffs. In places the rock surface is obscured by large blocks of talus nearly in place. For 30 feet northeast and 120 feet southwest of Station 7 the rock consists of chert carrying thin films of manganese oxide along fracture planes. The rest of the outcrop disclosed no manganese minerals. The amount of mineralization varies greatly from place to place. Bands of reddish chert from 5 to 25 or 30 feet wide are intensely fractured and best mineralized. Other bands or areas of white chert carry less manganese. There is no sharp boundary between the two rock types or between the chert carrying manganese and that in which none was observed. The best mineralization appears to centre about Station 7 and to be 50 to 60 feet wide. Three samples were cut across parts of the outcrop: Sample No. 5 across 4.4 feet east of Station 7 assayed 8.5 per cent MnO_2 or 5.4 per cent Mn; a wider stretch south of Station 7 was sampled in two sections. Sample No. 6 across 11 feet, assayed 9.6 per cent MnO_2 or 6.1 per cent Mn, and Sample No. 7 across 12 feet, assayed 11.4 per cent MnO_2 or 7.2 per cent Mn. These samples may be considered typical of the material occurring over a width of possibly 50 feet. To the southwest the outcrop is on the whole leaner although some narrow streaks may contain as much manganese as the assays quoted.

For a considerable distance below the outcrop the hillside is covered with large blocks of talus. Several large blocks that may be outcrops are shown on the accompanying sketch. These show manganese mineralization of about the same grade as those belts sampled on the bluff above.

ORE RESERVES

As will be seen from the above descriptions it is difficult to arrive at an estimate of the probable size of the deposit or to determine its type until some trenching is undertaken to determine the relations of the ore to the rock. Northwest for 35 feet from Station 5 for a length of 35 feet is a band of relatively pure material 6 to 10 feet wide that assays over 40 per cent MnO_2. This band consists entirely of float. From the numerous thin films of manganese oxide that occur elsewhere in the rock and give evidence of replacing the rock, it is assumed that the dense massive manganese rock is a replacement of the chert, but this evidence is not conclusive. To the northwest of this showing considerable manganese float has been picked up, but

but differs somewhat in character from that described, being porous and possibly of a different origin. There is, at present, no evidence to show that the high-grade streak near station 5 extends in this direction, and although there appears to be manganese oxide in the chert near station 4, a sample of this assayed only 15 per cent MnO_2. There is thus a probability that the high grade streak does not extend far to the northwest. Southeast of station 5, no comparable material was found, except the 2-foot streak sampled some 20 feet northeast of station 5. Beyond that, any manganese seen was of much lower grade.

On the large bluff there is a width (assuming the deposit runs northwest) of about 50 feet that would assay about 10 per cent MnO_2. Within the next 100 feet to the southwest are much narrower bands, with leaner material between that may contain 10 per cent or less MnO_2. These bands may be assumed to extend for 180 feet to the northwest, but it is not known if they maintain their width and manganese content over this distance.

With the information at hand, it will be seen that it is impossible to make any calculation of probable ore. There is no ore blocked out and conclusions reached as to the areal extent of the ore present are apt to be misleading. For the high-grade streak near Station 5, one might calculate 30 tons per foot of depth and, for the wide streak of low grade ore northwest from Station 7, about 800 tons per foot of depth, but neither calculation has much present value for the reason that until more is known about the type of deposit, little can be said about its extension at depth. Considerable work would be required to outline the area within which the chert has been shattered and the fractures filled with manganese oxide.

METALLURGICAL DATA

No concentration tests have been made on the ore. It will be seen from the assays of the writer's samples that all of the material would require beneficiation to provide a marketable grade of ore. It may be assumed that the chief gangue material is silica. Although the writer's samples were not assayed for sulphur and phosphorus, assays made for the owner indicate that these elements are present only in minute amounts.

RECOMMENDATIONS

There is undoubtedly a small tonnage of fairly high-grade manganese ore indicated on the property. This ore would assay in excess of 40 per cent MnO_2 but is mostly in the form of float. In addition, boulders of porous ore are scattered over the surface at intervals, and may have been derived from superficial deposits. The deposits represented by thin films of manganese oxide in chert, assaying about 10 per cent MnO_2, are larger but are possibly below the content that could be worked at a profit except in a very large operation.

The higher grade deposits do not appear to be sufficiently extensive to justify the capital expenditure necessary to build a road in to the property and to equip it with mining and milling plants.

The lower grade deposits would probably need to be of great extent to be considered commercial. The writer consequently does not regard the prospect as a likely source of manganese judged on a commercial basis.

However, as there is considerable manganese float, and as the extent of the deposits is unknown, a certain amount of trenching and other exploratory work might be done to investigate the extent and character of the mineralization in place. This trenching should, in the first instance, be directed towards exposing and tracing the high grade streak northwest of Station 5 and in exploring for the source of the material found near Stations 1, 2 and 3. If the manganese mineralization could be demonstrated to follow a bed in the chert , such exploration would be worth while.

Trenching could also be undertaken to outline the areas to which the lower grade mineralization is confined. At present, little is known of the trend of the shattered zone in the cherts.

Prospecting of the type indicated might be of value for the reason that other deposits believed to be of a somewhat similar nature have been reported to the writer from the same belt of cherty rocks at considerable distances from Olalla.