

013583

72A II

AN OCCURRENCE OF MAGNESITE NEAR CLINTON, BRITISH COLUMBIA

By W. E. Cockfield and J. F. Walker

In the course of field work in Cariboo District the writers were instructed to examine a deposit of magnesite near Clinton, samples of which had been sent in to the department by D. B. Hutchison of Seventy-mile House, and which appeared to be high-grade magnesite. The writers express their thanks to Mr. Hutchison for the time given in guiding them to the property.

The deposit is readily accessible, being situated near the valley of Bonaparte River about a mile east of Mond ranch and approximately 6 miles by road from Clinton, which is situated on the Pacific Great Eastern Railway. A road from Clinton to Bonaparte Valley passes within half to three-quarters of a mile of the property, and the construction of a road to the property itself offers no difficulties, as the valley is the sparsely timbered country typical of the dry belt.

The deposit occurs at a change of slope on the hill-side overlooking Bonaparte Valley. Below, the slope is somewhat steep, but above it flattens out to a gentle slope covered with superficial deposits, no outcrops being seen over a considerable area. A washout or rockslide has broken away part of the unconsolidated material and bedrock for about 150 feet along the top of the steep slope, and the rock debris, including much magnesite, is scattered as talus below. Magnesite is exposed in places up to 65 feet apart along the top of the slope. An open-cut has been made at one point showing the nature of the occurrence.

The bedrock of the vicinity is a badly altered, basic rock, now consisting largely of serpentine. The main mass of the rock consists of pale greenish grey serpentine with crystals of an olivine colour. These crystals are, however, soft, and although they may have originally been olivine, are probably now highly serpentinized.

The magnesite is apparently formed by surface alteration of this rock and various stages in the alteration may be noted. As far as could be seen the alteration to magnesite is confined to within 4 or 5 feet of the surface of the bedrock.

The altered serpentine rock in one stage shows further alteration to more highly serpentinized green material with yellowish brown, ankeritic carbonates and possibly some hydrous iron oxide, with grains of magnetite and black streaks that are possibly manganese.

A further stage in the alteration shows grains and small masses of magnesite in the serpentinized rock. Further alteration changes the rock largely to magnesite and ankeritic carbonates, and the final alteration, to magnesite. The magnesite replaces both the serpentine and the ankeritic carbonates, and in the early stages occurs as small, pale brownish white grains and replacement masses. The complete alteration produces a china-white, dense magnesite of good quality. The better quality of the material

PROPERTY FILE

GSC Sum Rpt 1932 Pt. A II

92P082-074

is confined to within 3 or 4 feet of the surface of bedrock and then decreases rapidly to the coloured variety occurring in the serpentized rock. Mr. Poitevin of the Geological Survey reports "The samples submitted by Mr. Hutchison consist of compact cryptocrystalline magnesite showing no cleavage and breaking with a conchoidal fracture. In appearance it resembles the magnesite occurring in Tulare, Santa Clara, and San Benito, California, and it also resembles the magnesite from the old typical Grecian locality."

As the deposit appears to be the result of surface alteration it is considered that it is less likely to extend over the steep slope of the hill-side than it is up the gentle slope above the exposures. This slope is covered with unconsolidated materials that are probably fairly thin and development work should in the first instance be confined to trenching this slope to see if the magnesite extends in this direction. The deposit does not appear to have any depth, but it may extend over a considerable area, and since the size of the deposit bears such a close relation to the area over which it can be demonstrated that alteration has taken place, the development outlined would appear to be the quickest and cheapest method of testing the commercial possibilities of the property. Although perhaps only half of the material recovered to a depth of 3 to 4 feet from the surface of bedrock would be of commercial grade, nevertheless it appears to be very pure material, and warrants a limited amount of exploration.

It should be borne in mind, however, that even if a body of commercial size and grade be demonstrated, the question of securing markets for the product must also be considered as one of the problems to be solved in the utilization of this material. The chief use for magnesite is in the lining of steel furnaces, but it is also used to some extent in the building industry and in the manufacture of artificial periclase. The local or British Columbia market would probably be very limited. Hitherto magnesite of this quality has not been readily obtainable in close proximity to a railway, but C. E. Cairnes of the Geological Survey has recently announced the discovery of good grade magnesite of considerable extent, occurring in the vicinity of Marysville, Cranbrook area, B.C. This deposit is also conveniently situated with regard to transportation, but is much farther from tide water than the Clinton deposit.

Magnesite is produced from a number of countries, but the chief producers are Austria, United States of America, Greece, Czechoslovakia, and Russia.

VANCOUVER AREA.

Britannia Mining and Smelting Co., Ltd. Company office, 730 Fifth Avenue, New York City; mine office, Britannia Beach, B.C.; E. B. Schley, President; C. P. Charlton, Secretary-Treasurer; C. P. Browning, General Manager; and George C. Lipsey, Superintendent. The company operates the *Britannia* mines at Britannia Beach on Howe Sound. The property is fully equipped with mining and milling plant to handle 6,000 to 7,000 tons per day. The regular development-work and stoping has been carried on in the *Victoria*, *Fairview*, No. 5, and *Bluff* mines. The 4,100 tunnel at mill-level has now been connected to the bottom of the *Victoria* shaft, and No. 6 inclined shaft has been continued to the 4,500 level and 4,500 level drifted on for a considerable distance with satisfactory results. Development-work over the whole mine was made up as follows: Drifting, 18,791 feet; crosscutting, 2,382 feet; and shafts and raises, 6,564 feet. A total of 45,437 feet of diamond-drilling was done. The average number of men employed fell to 870.

The recovery of the metals was augmented by the operations of the copper precipitation plant which continued to treat the copper-bearing portion of the mine-drainage water.

ANTIMONY DEPOSITS.

BRIDGE RIVER AREA.

Stewart and Federal Groups.—Arthur LeClere and associates, of San Francisco, made a test shipment of 30 tons of cobbled ore; 17 tons from the *Stewart* group on Ferguson Creek and 13 tons from the *Federal* group at Minto. The season was largely devoted to an exploratory campaign.

MAGNESITE DEPOSITS.

WILLIAMS LAKE AREA.

B.C. Magnesium Co., Ltd. Company office, 1010 Hall Building, Vancouver, B.C.; C. F. Anderson, President; H. H. Reid, Managing Director. This company holds twenty-four claims near St. Joseph Mission, 14 miles south of Williams Lake, and also on the Bonaparte River, about 5 miles north-east of Clinton. At the first location the company, with E. R. Shepherd supervising, put down seven diamond-drill holes; total footage, 1,200 feet. The holes were spaced about 500 feet apart and staggered across the 3,000-foot known width of the deposit, which is about 4,500 feet long. Several holes extending to at least 200 feet below the general plain level and were still in serpentine.

At the last location the serpentine extends about 9,000 feet alongside a hill and is known to be about 2,000 feet wide. Six holes were drilled, the deepest of which was 196 feet.

CRANBROOK AREA.

Consolidated Mining and Smelting Co. of Canada, Ltd. In the early summer about 3,000 tons was mined from the outcrop of the magnesite-bed, discovered thirteen years ago by the Geological Survey west of the St. Mary River, and shipped to the Trail smelter for experimental treatment. The ore was hauled by trucks from the point of origin to a siding on the Kimberley branch of the Canadian Pacific Railway, a distance of about 10 miles. When it becomes expe-

~~CLINTON?~~
CLINTON?
MAGNESITE