

MERCURY DEPOSITS

93K-49 -07 (?)

Fort St. James-Stuart Lake-Pinchi Lake areaOmineca Mining DivisionMercury group

This property consisted of the Mercury No. 1, No. 2 and No. 3 mineral claims at the time of examination by the writer on August 16th. Since that time several other claims have been staked to cover possible extensions of the ore-deposit. It is owned by Andrew Ostrem and associates of Fort St. James and is under option to the Consolidated Mining and Smelting Company of Canada. The property is situated at about <sup>latitude</sup> 54 degrees, 37 minutes, 56 seconds north and longitude 124 degrees, 25 minutes, 50 seconds west, along the crest of a ridge (2750 feet elevation) on the north side of Pinchi Lake (2230 feet elevation) which drains to Stuart Lake (2200 feet elevation) and about 15½ miles north-westerly from Fort St. James.

Cinnabar mineralization was first discovered in places over a small area of about 250 square feet in this locality by J. G. Gray in 1938 during the course of field-work for the Canada Department of Mines and Resources and is mentioned in that Department's Paper 38-14, 1938. The locality was prospected by A. Ostrem who discovered cinnabar mineralization in an area exceeding 1200 feet in length by about 80 feet in width and ~~then~~ the property was staked by the present owners later in the year.

At the time of examination by the writer on August 16th, no work other than very superficial chip-prospecting and one small "pop-hole" had been done on the claims by the owners. The property was examined by the Consolidated Mining and Smelting Company engineer in September and a few days later by an engineer representing the Noah Timmins Corporation. Although the Timmins Corporation was prepared to option the property, the Consolidated Company exercised its priority option early in October and immediately commenced extensive preliminary exploration. This has continued throughout the winter with reported very encouraging results and the indication of an appreciable possible tonnage of commercial-grade mercury ore.

The locality of the property is illustrated on the accompanying map. A motor-road extends from the village of Vanderhoof on the Canadian National Railway to Fort St. James at the foot of Stuart Lake, a distance of 42 miles. From Fort St. James the property can be reached via Stuart Lake to Pinchi Indian Reserve at the mouth of Pinchi Creek, a distance of  $15\frac{1}{2}$  miles. From this point trails extend to the southerly shore of Pinchi Lake, along distances of from 3 to  $4\frac{1}{2}$  miles.

Pinchi Lake, which is 14 miles long and from 1 to 2 miles wide is then crossed to its northerly shore at the foot of the ridge along the crest of which, about 2000 feet from the lake-shore, the deposit outcrops. The ridge-slope of from 10 to 35 degrees is then ascended through comparatively openly-timbered terrain to the showings at between 2675 and 2750 feet elevation.

An alternative route is via the Manson Creek Truck-road from Fort St. James to about <sup>the</sup> 16½ mile point, from whence a trail extends along Hyman Creek for about 6¾ miles to the northerly shore of the southerly end of Pinchi Lake.

The rock-formation of the locality consists of cream-coloured limestone and buff-coloured ferro-dolomite, intercalated between bands of quartzite and calcareous gneissic rock. The flanks of the ridge on both sides along the lower elevations is underlain by mainly the calcareous gneissic component of the series with some narrow bands of quartzite and creamy-grey limestone, striking north 71 degrees west and appearing to dip steeply northerly. Towards the crest of the ridge the gneissic rock diminishes and narrow bands of limestone, gradually becoming more dolomitic, intercalated between narrow bands of quartzite, become preponderant.

This sequence appears to prevail on both the northerly and southerly slopes of the ridge with a retention of the easterly strike and steep northerly dip. Along the crest of the ridge a belt of porous ferro-dolomitic limestone from 60 to 80 feet in width with some calcite and locally silicified, occupies the centre of the series with apparently conformable attitude. This is appreciably silicified along its margins for an additional width of about 30 feet, especially on the foot-wall side.

The ore-deposit is mainly localized to the centre belt of ferro-dolomitic limestone. This is mineralized with cinnabar in varying degrees and types of distribution and intensity. In one place at the westerly end of the observed mineralized belt, a few blebs of stibnite were associated with the best cinnabar mineralization that was seen. Some sparse distribution of cinnabar was also observed in the more silicified margins of the belt, especially in the form of thin filaments along minute fractures in the quartz.

The cinnabar is distributed in the form of veinings, streaks and varying density of dissemination. The veinings generally occupy minute fractures in the more siliceous sections of the formation and in fresh breaks along such fractures in the dense quartz the cinnabar is seen to be in the form of thin filaments covering the faces of the fractures.

In the sections of moderate silicification the cinnabar mineralization inclines towards a distribution in streaks with some dissemination. In the purer limestone and more porous ferro-dolomitic sections of the formation the cinnabar occurs mainly in fine and comparatively even dissemination which appears to increase in density in direct proportion to the ferro-dolomite content.

Representative samples forwarded by the writer to the Department of Mines at Victoria for microscopic examination with the objective of determining the rock constituents and the paragenesis of the deposit, presents the following:

Sample I - General gangue of the deposit with no visible cinnabar (hardness @ 5) - "Late silicification of limestone".

Sample J - Light-coloured type of rock with buff spots and containing veinlets and streaks of cinnabar (hardness @ 4) - "Limestone veined by cinnabar and buff-coloured ferro-dolomitic carbonate".

Sample K - Buff brown type of rock with streaks and blebs of cinnabar - "Ferro-dolomite veined by cinnabar".

Sample L - High-grade type, ferro-dolomite with densely-disseminated cinnabar and some silicification - "Deposition of quartz succeeds that of ferro-dolomite; even dissemination of cinnabar prevents determination of its age relationship".

These determinations, together with the examination of hand-specimens in the field, and especially the occurrence of cinnabar in the form of thin filaments and veinings in minute fractures in the quartz, indicates a sequence of dolomitization followed by silicification, followed by mineralization with cinnabar. The structural aspects of the deposit indicate a localization or tendency for confinement of cinnabar mineralization in the porous rocks between the more dense margins of silicification and impervious bordering quartzites.

A feature of the deposit is <sup>a</sup> brownish colour of the cinnabar on surface and the typical cochineal-red or vermilion colour of the mineral only appears on these surfaces when they are freshly scratched. In the bulk of the surface exposure cinnabar mineralization is not apparent unless the rock is freshly broken. On this account apparently barren outcrops on being freshly-broken are seen to contain appreciable cinnabar mineralization commencing a fraction of an inch under the barren-appearing surface.

At the time of examination (August 16th) the cinnabar deposit was traced by longitudinal and cross-sectional chipping along the apex of the ridge for a distance of 1200 feet between 2675 feet elevation at the westerly end and 2750 <sup>elevation</sup> feet on the crest of the hill at the easterly end.

In this tracing the deposit strikes north 71 degrees west, parallel to the ridge, and appears to dip steeply north-easterly, conformable to the formation. The ferro-dolomitic formation with cinnabar mineralization probably continues beyond both ends of this tracing. Further continuity in a westerly direction is obscured by overburden. At the easterly end, the ferro-dolomitic formation continues but further tracing in this direction of the cinnabar mineralization by chipping was not carried out.

The described cinnabar mineralization was traced across the ferro-dolomitic belt for widths of from 60 to 80 feet. Some scattered mineralization was, however, also seen beyond the more intensely silicified hanging and foot-walls. This would indicate the possibility for the occurrence of cinnabar, though probably in a lesser degree of concentration, in some of the lateral narrower bands of porous limestone on both the hanging and footwall-sides of the main belt.

For the purpose of achieving some approximation of the possible grade of the mercury content of this deposit, composite samples were prepared from the cross-sectional and longitudinal chipping. The following is the description of these samples and the results:

- (1) Average of the best mineralization observed - Mercury, 23.5 per cent.

- (2) Average of the medium grade mineralization-Mercury, 3.3 per cent.
- (3) Average of the poorest grade mineralization-Mercury, 0.66 per cent.

These results indicate a selective-mining possible ore-grade in excess of 3.3 per cent mercury, and a possible general mine-run ore-grade of about 1.98 per cent mercury.

Although the depth limitation generally associated with mercury deposits may prevail in this occurrence, the geological conditions associated with this deposit indicate the possibility for appreciable horizontal continuity.