

never seen above the 700-ft. level or in any other instance, was found associated with the hornite below the 700-ft. level. The workings were suspended at about 1,500 feet. With reference to the previous speaker's remark, it might be stated that calcite was not unknown as a matrix of gold; and A. G. Lock had stated that most of the rich quartz-reefs at Gympie (Queensland) contained abundance of calcite in strong veins and patches, often richly impregnated with gold. A fine specimen from these showed actual veins of fairly-large gold specks, irregularly distributed through white opaque calcite.

CONDITIONS IN NORTHERN MINING CAMPS.

(By W. M. Brewer.)

TO attempt to give a full and detailed description of the territory tributary to Atlin and Whitehorse in a brief article is impossible, therefore I shall content myself with dealing generally with the conditions in regard to the mining industry in these localities as they at present exist.

Activity in the Atlin district at the present time is centered in placer and dredging operations. From a mechanical point of view the dredging plant recently installed is in every detail nearly perfect. The power house situated below the falls on Pine Creek, furnishes ample horsepower to generate electricity sufficient to run several dredges of the same type and is complete in every particular from the concrete foundations upwards. The electrical plant at the dredge is of the most modern design, the voltage transmitted direct from the power house is 22,000, which is reduced by a series of step-transformers to 1100 volts, that being the power transmitted to the dredge. The machinery on the dredge is operated by four motors, the largest being 100 horsepower which runs the buckets, of which there are ninety-two, each having a capacity of $3\frac{1}{2}$ cubic feet. Of the smaller motors one operates the revolving screen into which the buckets discharge, another the pump which supplies the water for the screen and sluice boxes, and another operates the lighting plant. The total power required is 150 horsepower.

Of the gold-saving ability of this plant it is impossible yet to speak definitely because no clean-up has been made and at the time of my visit the dredge was working in a bed of boulders and gravel about four feet above bed-rock and at a depth of about thirty feet below the surface. It may be found necessary in order to handle the boulders successfully, (many of them being of a very large size) to re-arrange the buckets by inserting in place of some of them very strong grab-hooks designed after such a pattern that the teeth can be thrust under a boulder and thereby afford a better purchase than is obtainable by the smooth lips of the buckets as at present designed. It rarely occurs that newly installed machinery works as smoothly as does that of this dredging plant, which had been in operation less than a month at the time of my visit. The pond or pool in which the

dredge itself stands is thirty feet deep and supplied with continuously flowing water taken from the Deck's ditch, which is one of the longest on Pine Creek.

On Pine, Spruce, McGee, Boulder and several other creeks greater activity has been shown during the past season than at any former period, especially is this the case on Spruce Creek, where a larger number of individual mine-owners are working than is usually the case in placer diggings which have worked continuously since 1899. The reason for this is that it has been found very profitable to mine the hill claims by drifting. On most of the other creeks, hydraulic companies are operating under very favourable conditions, as the supply of water has been more regular and greater than usual.

With regard to quartz properties in this district, there is but little activity at present, the owners of nearly all of them, being also interested in placer claims, are naturally devoting all their energies to taking out gold while the conditions are so favourable.

A comparatively new and un-known section of country extending north-westerly from Atlin and a portion of which lies in British Columbia, the remainder being in the Yukon, is receiving considerable attention by quartz miners during the present season. Several well defined and persistent veins of quartz carrying gold, silver, copper and sometimes lead values have been discovered in this mountainous section. Some of the claims located have been bonded to outside syndicates and are being developed. The results so far obtained are very satisfactory and as several of these are located at a comparatively short distance from navigable water, the district should in the near future prove an attractive one, especially as the grade of the ore so far found has been sufficiently high to warrant the opinion that it can be mined, shipped and treated at a profit.

Most of my attention during the past few months has been devoted to the Whitehorse copper belt and the quartz ledges centered in the Big Salmon country which is tributary to the Hootalinqua River, a stream navigable for stern wheel steamers for at least forty or fifty miles above its mouth. This river empties into the Thirty-Mile River about twenty-five miles below the lower end of Lake La Berge, and about eighty miles northerly from Whitehorse, the head of navigation on this series of lakes and rivers which form the Yukon below the mouth of the Pelly.

On the Whitehorse copper belt, the development work which has been done up to the present time has demonstrated that the opinion formed by myself of the camp in 1901 and before any serious attempt had been made at its development was a correct one. The ore bodies evidently maintain their continuity to considerable depth and occur under very similar geological conditions to those on Texada Island. Although the greatest depth attained on any of the Whitehorse properties is only 150 feet following the dip of the ore, yet at that point all the indications show apparent persistence for a much greater depth. The lack of capital to enable property owners to