

interested in and likely to patronize the process, and in all cases they appear to be on the high side if anything, especially in the case of milling which under good circumstances with water power available would probably be as low as 60c. to 70c. per ton. As is the case with most estimates, they must not be taken as exact, and any suggestions or criticism on this article with a view of making things clearer in any way will be appreciated.

MINING DEVELOPMENT IN

THE OKANAGAN DISTRICT.

(By A. A. Watson, B.Sc.)

IT is a well known adage that "a man cannot eat his cake and have it too," and a survey of the mining development in the Okanagan District of British Columbia is a forcible reminder of the truth of this saying. Its soil is so rich and its climate so mild and favourable to the growth of all kinds of fruit that the attention of men of means in the district is irresistibly attracted to the possibilities of fortunes to be made out of fruit-growing, with the result that while the prospects for the successful mining of gold and copper are as good in the district as in any other district of British Columbia no serious attempt at mining has ever been attempted. This year, however, several claims have changed hands and in one or two instances energetic efforts at development have disclosed conditions justifying the expenditure of large sums of money for further development.

The Okanagan District is bounded on the north by Sicamous Lake, on the east and west by ranges of mountains and extends south into United States territory. Vernon, the chief town of the district, is situated four miles north of Okanagan Landing on Okanagan Arm. The whole valley north of Vernon is adapted to the growth of nearly everything that can be raised in a temperate climate, while at favourable spots on the lake small settlements are continually being made. At Kelowna the climate is so mild that tobacco is successfully grown, while on the west shore of the lake fruit ranches are being planted wherever level land can be found.

Geologically the district in the lower valleys consists of clays and shales with exposures of porphyry and granite, while the summits of the mountains for, at any rate, sixty miles east of Vernon, reveal granite as the prevailing country rock with numerous veins of quartz, in some cases carrying gold. The summits of the range west of Vernon show a little granite and a great deal of porphyry with some diabase. The quartz claims are located, I think, without exception, in granite and porphyry formations, while the exposures of copper ore are found in diabase.

Taking Vernon as the centre and dealing with the claims in the order of their proximity to the town, the nearest locations are two claims located last October, called the Glenoro and the Tranmere, the locators being respectively Messrs. Milligan and McPhail. They are situated on the west shore of Long Lake two and a half miles from Vernon. The ore is a very fine lime conglomerate on the Glenoro and a fine

quartz conglomerate on the Tranmere. On the Glenoro the bed of ore is two hundred feet wide and is exposed clear up from the lake shore to the top of the hill. Following the ore up the hill to the top we find it overlaid with clay shale and following the apparent direction of the bed of ore we find ourselves on the edge of an inaccessible cliff. Five hundred feet of the cliff in width consists of quartz conglomerate from a point a hundred feet from the summit of the hill to the bottom of the cliff. The few samples that have as yet been taken have run from \$1.80 to \$2.20 per ton, while a five-foot hole on the lime conglomerate showed quartz conglomerate underneath which assayed \$3.20 a ton in gold. It appears that the bed of quartz conglomerate cuts through the hill from the cliff to the lake and is overlaid with lime conglomerate on the lake side of the hill. Work will be actively pursued on both these claims next spring with the object of seeing whether the values diminish or increase inside the ore. The bed of ore is so situated that it could be quarried. No shafts whatever would be required. Two men are already at work on the Glenoro. The next mineral field as regards distance from Vernon is situated on the peninsula at the northern end of Okanagan Lake four miles from Vernon and directly opposite Okanagan Landing. The most important of the claims is the British Empire owned by Messrs. Highman, Miller and Muller. On this claim there are altogether nine veins of free milling gold quartz ranging in width from ten inches to two feet, in value from \$8 to \$48 per ton and running about north and south. Clay and shale cover the hill largely, but there are numerous exposures of porphyry. On one vein a shaft is now down 68 feet, in all the width of the vein averaging two feet and its value \$16 per ton in free milling gold. At a depth of thirty feet a slight fault was encountered and at a depth of sixty feet from the surface a cross-cut was run due east which struck the vein again five feet from the shaft. Eight feet more sinking on the vein showed the richest quartz yet encountered, a piece supposed to be about an average assaying \$168 per ton. The vein is a true fissure, the walls consisting of porphyry, schist and talc and assaying over \$2 per ton. The Sarah claim north of the British Empire claim shows the same vein as the one on the British Empire on which the shaft has been sunk and is owned by Messrs. Highman and Seydel. The following extract from the report of the Provincial Mineralogist for the year 1901 on the British Empire claim is of interest:—

"There is here a quartz vein two feet wide having a strike 45 degrees west cutting through schist and slate and apparently associated with an igneous dyke. The development consists of a shaft from 40 to 45 feet deep, from the bottom of which a drift has been run some five feet. The shaft which at the time of inspection was half full of water, was timbered and encased in planks and provided with a good ladder, etc., but it could not be closely examined. The quartz was mineralized with iron sulphides carrying gold values and a certain amount of free gold. While the mineralization is sparse, such as there is must be quite