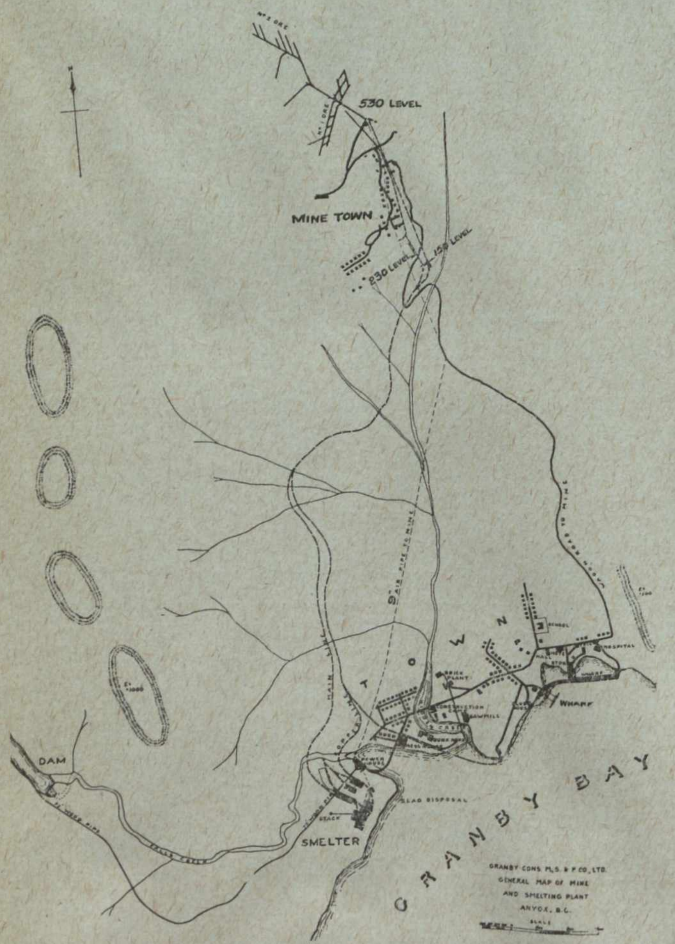
of any reasonable tonnage required by the smelter, at a cost per ton well within the economic limits for such work. The shipments from this mine for the year were 477,435 tons. Very little development work was undertaken, but this work for the year on ore showing 2.2 per cent. copper added to the tonnage reported last year about 187,500 tons. The reserve ore (having 2.2 per cent. copper) at the end of the year was 9,205,837 tons. There is a further reserve of low grade (.63 per cent. copper) ore of about 8,628,000 tons. The cost of mining per ton of ore shipped for the year was $1.03.

At the Bonanza mine, located about 2 miles up Bonanza creek—which is a tributary to Granby Bay, two miles south of the smelter—nothing has been done during the year, either in the way of development or in preparation for shipping ore. The ore roughly blocked out by the work previously done on this property shows for a grade of 2.6 per cent. copper, 414,775 tons. There is, in addition to the above, a grade of .7 per cent. copper, 489,580 tons.



The quartz claims—consisting of 30 claims, located on Granby peninsula, which forms the easterly shore line of Granby bay—were purchased during the year. The property has been opened up to afford a source of supply for clean quartz when it is required by the furnaces. For this purpose much preliminary work, by way of clearing and stripping the ledges at three different places and constructing rough loading chutes and wharves to load flat-deck scows, has been accomplished, and while at this writing very little quartz is being taken from this quarry, it is in readiness for shipment whenever required in the future.

On the Kasaan peninsula of Prince of Wales island, southeastern Alaska, the company owns the Mamie and Dean mines and has an option to purchase the It mine, adjoining the Dean. Work on all of these properties was discontinued in August, 1914, until April, 1915. These mines are comparatively small. However, the results of the work on them, up to the present writing, give sufficient encouragement to warrant the continuation of this work of prospecting for and seeking an extension and enlargement of the known orebodies. From these mines there has been shipped, during the fiscal year (of a grade of 1.5 per cent. copper), 15,000 tons, the reserve showing at 130,000 tons, with a fair prospect of developing treble this tonnage with future work.

At the Midas mines, Valdez, southwestern Alaska, such work as was necessary to complete the aerial tramway, mine terminal of this tramway, a few buildings at the mine, and to fill in about the pile foundation of the wharf shipping bins—to prevent destruction by teredos—was started in April of this year. At this writing this work is about complete and with the little development work that has been advanced in the mine during the year, this property will be ready to make shipments as soon as arrangements are made for securing power to operate the compressor.

The two reduction works owned and operated by the company are located, one at Grand Forks, B.C., the other at Anyox, B.C. The first named works have been in operation since 1901; the second since 1914.

At Grand Forks the operation is a simple one, all of the difficulties of treatment and handling of the Phoenix ores having been solved some years ago. This, with practically no expense for new construction, makes possible costs very substantially under those of recent years at this plant.

The operations of the smelting works at Anyox have been attended with many difficulties of a minor nature, and some of greater degree, resulting in a low tonnage, and, as naturally follows, high costs, particularly for the first eight months of this year. Most of these difficulties are of a nature having to do with establishing the best methods of handling the ores, which vary considerably in their silica, iron and alumina content.

The further difficulties were mechanical, and those inherent to a new plant, beginning its operation with new crews, and, as was the case with the mining operation at this point, the experience of the first year's operation has gone far in securing a condition of smooth running with lengthening campaigns for the furnaces and as a consequence a greater tonnage treated per month with constantly lowering unit costs. In this connection the writer believes that it is fair to assume that during the succeeding years of operation there will be noted the same constant lowering of unit costs as has been shown in the operations of the Grand Forks plant, and that this result will be attained in less time than it was at the older plant.

The plant—originally designed to treat 2,000 tons of Hidden Creek ore per day—has been well arranged and constructed for the economical treatment of these ores. The changes that have been made are minor ones, which actual operation has demonstrated would simplify methods and give greater efficiency. The addition of the fourth furnace and appliances for taking care of fluedust—authorized during the latter part of the fiscal year—will undoubtedly raise the normal output of the plant as first designed, fully 50 per cent. Very little foreign ore has been treated at either plant.

Recoveries, including foreign ore, at the Grand Forks plant were: Copper, 10,041,175 lb.; silver, 180,177 oz.; gold, 27,807 oz.