Practically all reserve tonnage is in the Ironsides." District newspaper statements are to the effect that only four of the eight blast furnaces at Grand Forks are being regularly operated. Ore reserves in the Granby mines in Phoenix camp were estimated to be about 3,576,000 tons as at June 30, 1917. Total blast-furnace capacity at the Granby smeltery at Grand Forks is stated to be 1,440,000 tons of ore per annum. There are three electrically-operated converter stands with ten 84 x 126 in. shells of barrel type; product is blister copper of 98.5 per cent. tenor, containing an average of 18 oz. silver and 4 oz. gold per ton.

The decreasing production of the British Columbia Copper Co., now the Canada Copper Corporation, is indicated by the following yearly output figures: In 1912, 11,146,811 lb. copper; in 1913, 8,296,902 lb.; 1914 and 1915 were broken years, with small production; in 1916, 5,196,239 lb. Figures for 1917 are not at hand. It will be seen that production in 1916 was less than one-half of that in 1912. Weed refers to the company's Mother Lode mine as being "now nearly exhausted," and adds, "It was only possible to operate the smeltery profitably because of the high price of copper." The company has, however, in its Lone Star property, situate just across the International Boundary line, in the State of Washington, approximately 300,000 tons of ore developed by drilling and other work, of which quantity it is stated that in April, 1916, 170,000 tons of 1.60% copper constituted the ore reserves. Comment made is: "Average assay value of Lone Star ore is higher than that of other Boundary district ores, but ore is silicious and as it contains alumina as well it is much more refractory. Most of the Lone Star ground is still unprospected." The Canada Copper Corporation's smeltery at Greenwood has three blast-furnaces, total capacity more than 2,000 tons of ore a day, but all are not in regular operation. In the converter-house there are two stands with 84 x 126 in. shells taking matte with from 25 to 55% copper and producing blister of 99 to 99.5% copper, containing 20 to 50 oz. silver and 5 to 10 oz. gold per ton.

Similkameen.—In strong and favorable contrast to the situation at the Canada Copper Corporation's Mother Lode property near Greenwood, is that at its Copper Mountain mine, near Princeton, Similkameen district. Weed states that the ore reserves here are estimated at 10,000,000 tons developed ore and 2,000,000 tons probable ore; assay value, 1.74% copper and approximately 35c a ton in gold and silver. "Careful geological study suggests the possibility of eventually doubling the present tonnage of assured ore." A published estimate of future operations is that with treatment of 1,000,000 tons per annum, a yearly output of 27,400,000 lb. of copper will be made. The life of the property, based on present ore reserves, is estimated at twelve years. A contract has been let for the construction of a railway about 13 miles in length from Princeton, and completion by the middle of 1919 is expected. Meanwhile, the erection and equipment of a 3,000-tons a day concentrating mill is to be proceeded with. Concentration will include the flotation process, a 40-ton experimental mill having satisfactorily demonstrated its suitability to Copper Mountain ore.

Coast.—Information supplied to Dr. Wilson was in effect that normal production of the Britannia mines, in Vancouver mining division, was 15,000,000 to 18,000,000 lb. of copper per annum and that when work under way in 1915 should be completed, production would be about 25,000 lb. per annum. It is probable that the higher output has now been reached, but no official information to this effect has been received for use in this review. Higher costs of labor and materials, aggravated by increased Provincial Government taxation, are reported to have influenced the management of the Britannia Co. in the direction of curtailing the intended expansion of operations. Ore reserves were estimated to have been at the beginning of last year as follows:

Broken ore in stopes	919,322 tons, aver. 3.08% copper
Total ore developed	6,462,780 tons
Probable ore	6,756,350 tons
Possible ore	4,616,050 tons
Total	18,754,502 tons, aver. 1.97% copper

The Britannia ships selected ore and concentrate to the smelting works near Tacoma, Puget Sound, Washington. Figures for 1917 have not been received, but for 1916 they were: Product shipped, 55,186 dry tons. Average assay: Gold, 0.014 oz.; silver, 1.67 oz. to the ton; copper, 14.76%; zinc, 3.22%.

There is little to add to what has already been stated relative to the smaller mines in the lower Coast district, except that the normal production of the Marble Bay mine, on Texada island, is about 1,000,000 lb. of copper a year, though in some recent years its output has not reached that quantity. The ore is sent to the Tacoma smeltery.

While there is nothing very important to state concerning copper mining on Vancouver Island, it may be of interest to mention that the Tyee smeltery at Ladysmith, recently purchased by the Ladysmith Smelting Corporation, has two blast-furnaces, one 42 x 120 in. 200 tons, and one 48 x 160 in., 300 tons daily capacity. It has not yet been found practicable, though, by the present owners, to obtain sufficient ore to admit of operating except but for short periods, intermittently.

Progress in Copper Refining.

Colonel Carnegie was gracious enough to inform the Minister of Militia and Defence that the report of the commission of which he was chairman "contains the mature opinions of the most expert men in Canada on the subjects dealt with." As, however, a considerable proportion of those who busied themselves in gathering information for the benefit of the commission were laymen with but little knowledge of the subject of copper refining, it is not surprising to now find that their "mature opinions" have not since been realized. Even some of those who might have been fairly expected to be nearer facts in their forecast proved to be not entirely dependable. For instance, one well-known man, general manager for a large mining and smelting company, replying in January, 1915, to an inquiry from the mining committee of the Vancouver Board of Trade, is quoted in the report of the commission as having given reasons not favorable to the establishment of a copper refinery in British Columbia, closing his letter as follows: "For these reasons I am of the opinion that it is premature to consider the question at the present time." And yet before the close of the following year the Consolidated Mining and Smelting Co. had undertaken to carry into effect the establishment of an electrolytic copper refinery, and has since operated it successfully. There is an old adage which seems to have been lost sight of, namely, "never prophesy unless you know."

The production of electrolytically refined copper at Trail is now no longer a novelty, but is regarded as an ordinary part of the accomplishments of the metallur-