

10,011,227 lb. in Slocan, and 3,001,048 lb. in Ainsworth mining division.

COPPER.

There has been a further advance made in the production of *per.*, the output this year being 35,710,128 lb., valued at \$4,578,937, an increase of about 4 per cent over the preceding year, which makes this output of copper the greatest ever made by the province.

The product was obtained in the following districts.

Boundary district	22,006,407 lb.
Rossland district	7,119,876 lb.
Coast district	5,960,593 lb.
Yale Kamloops district	328,380 lb.
Nelson district	220,500 lb.
Various districts	14,372 lb.
	35,710,128 lb.

The average assays of the ores of the various camps, based upon copper recovered, were as follows: Boundary camp, 1.38 per cent copper; Rossland, 1.12 per cent, and Coast district, 3.68 per cent.

OTHER MINERALS.

Iron Ore.—There has been no ore mined for iron-making this past year, as the only iron blast furnace on the North-West coast, that on Puget sound, has not been operated. Formerly, the lead smelters mined ore (magnetite) at Kamloops for fluxing purposes, but this has been discontinued, as ores have been found nearer home which, although not carrying so high a percentage of iron, contained small values in copper, gold or silver, which rendered them more desirable.

Zinc.—Zinc ores have been receiving a great deal of attention during this past year, more particularly those of the Slocan district, but, with the exception of the ore from the Ivanhoe mine, Sandon, it could not be learned that any important amount of ore had been sold before the close of the year. In the Slocan district zinc blende occurs with the galena ores, sometimes in considerable quantity, and usually associated with iron carbonates. Most of the concentrating mills have now been equipped so as to separate out a "zinc concentrate" from the jigs and tables. These concentrates will run from 38 to 48 per cent zinc (as zinc blende), but will carry as impurities, considered from the standpoint of a zinc ore, from 2 to 5 per cent of lead, as galena, from 5 to 15 per cent of iron, as pyrite and carbonate, and from 20 to 45 oz. of silver to the ton, with the balance gangue matter, usually highly silicious.

Most of the zinc smelting works which are prepared to buy zinc ores are now using the Belgian furnace, in which the ore is mixed with coal or other reducing agent, placed in a clay retort, the reduced zinc being distilled off and caught in a condenser. Iron and lead are highly objectionable in this process, inasmuch as they flux with and destroy the retorts, adding greatly to the cost of the process. For this reason crude Slocan concentrates have not found a ready market, and to remove these objectionable impurities two "zinc enrichment" plants are under con-

struction, in addition to the Payne mine magnetic separator. It is believed that these impurities can be so removed, to such an extent at least as to render them non-injurious, but the question of the silver still remains to be solved, for, as far as could be observed, it is directly included in, and a part of, the zinc blende, and can not be separated, save by smelting or some other form of disintegration of that mineral.

While this silver cannot be considered as detrimental to the ore as a zinc ore, it is very difficult to separate and save the silver, and but a partial recovery can be made at the best, consequently, the price offered by ore buyers seems very low for the silver contents. For this reason it has so far been found advisable by all the producers to throw as much zinc into the lead concentrates as the lead smelter will accept without a penalty, in which case the producer gets no pay for his zinc, but gets a price for its silver contents which more than recoups him for his loss of zinc. These conditions apply to zinc smelting as it is usually carried on. There are, however, two or three newer processes not very widely known, which are especially adapted to such ores, but operators of these concerns are naturally only prepared to give enough for the ore to outbid the regular zinc smelter. An electric process is being developed in Vancouver which has considerable promise and which can be utilised in small units, and this may help to solve the problem by the local treatment of the concentrates.

The ore from the Lucky Jim mine, of the Slocan, is a zinc ore, low in silver, with iron and lead as occasional impurities. About 2,000 tons of this ore were shipped to Kaslo about the end of 1904, but the sales had not been completed by the close of the year.

There are zinc ore properties on Quatsino sound and also near Vancouver, but so far no shipments have been made and little development has been done.

Platinum.—The production of platinum has this year been confined to Granite creek, in the Similkameen, and this creek produced only 35 oz., valued at \$12 an oz., recovered from the sluice-boxes in washing for placer gold. As far as can be ascertained, platinum has not as yet been found "in place" in British Columbia, although its occurrence is widespread in the gravel of the placer gold deposits throughout the province.

In the report of 1902 the occurrence of platinum in considerable quantity was noted at several points on the Quesnel river, Cariboo district. These occurrences were the subject of a special investigation by a representative of an Eastern firm interested in the metals, but with what results has not been learned.

Mr. J. B. Hobson, in his report of last year's operations of the Consolidated Cariboo Co., notes the occurrence of platinum, osmiridium, and also of palladium in the heavy concentrates from his sluice-boxes, and he is preparing to put in a system of undercurrents to collect all of these heavy concentrates.

In the Thibert creek hydraulic workings, platinum has previously been noted, but this company did no sluicing this past season. Mr. Hamfield, the manager, in his report, speaking of work planned for next sea-