

Subsection 6.—Cobalt.

The major portion of the world's supply of cobalt has for almost two decades been derived from the silver-cobalt-nickel arsenides of the Cobalt district, the silver refineries at Thorold and Deloro in Ontario having practically controlled the world's production until recent years. Large deposits of cobalt-bearing ores occur in central Africa, and the introduction into the world's markets of cobalt from this source has limited the market for the Canadian product to the extent that since 1926 Canadian production has dropped to about half of the world's production.

The ore bodies at Cobalt, discovered in 1903, carry silver, cobalt, nickel and arsenic. The Deloro smelter treats ores and residues and disposes of cobalt oxide, metallic cobalt and unseparated oxides of nickel and cobalt. The cobalt residues from the cyanide process are for the most part treated in Canada, though some are shipped abroad for treatment. The smelter output of cobalt, computed as the metallic contents of cobalt oxide, nickel oxide and mixed oxides, together with the cobalt recovered in ores exported from the mines, and including cobalt in speiss residues exported, amounted in 1928 to 956,590 lb. valued at \$1,672,320, as against 1,116,492 lb. valued at \$2,328,517 in 1925. Production in 1929 is estimated at 929,415 lb.

Subsection 7.—Zinc.

The zinc-mining industry of Canada has recently made rapid strides, largely on account of the application of the electrolytic method to treating the lead-zinc ores of British Columbia. The metallic recoveries from Canadian ores were 184,647,374 lb. in 1928, as compared with 5,600,000 lb. in 1913, and constituted a record. From an insignificant position in 1913, the country advanced to the sixth rank among the world's producers in 1928, with an output of about 5.0 p.c. of the world total. Production in 1929 is estimated at 196,213,221 lb.

British Columbia.—The principal zinc-mining regions are situated in the Kootenay district of British Columbia, where there are large deposits of silver-lead-zinc ore. The chief producing mine is the Sullivan near Kimberley, where the ore worked is a replacement deposit of considerable size. Other active mines are located in the Ainsworth and Slocan divisions of the West Kootenay district.

Before the war the industry was greatly retarded by unsatisfactory marketing conditions. The majority of the mines were essentially producers of silver and lead, and zinc-blende occurred as an accessory ore. Until local smelting proved successful, practically all the British Columbia ores were treated at smelters in the United States, but the cost of freight to these, although covered by a combined "freight and treatment rate", was necessarily an important charge against the ore. The high tariff on zinc ores imported into the United States was also a consideration. The smelter at Trail, originally intended, on its erection in 1895, for the treatment of gold- and silver-bearing copper ores, was made ready for the treatment of silver-lead ores at a later date. No zinc is recovered in lead blast-furnace smelting, and its presence is detrimental to operation.

The urgent demand for zinc during the Great War was largely responsible for energetic and aggressive action on the part of the Consolidated Mining and Smelting Co., owners of the Trail plant, in producing this metal; with this object in view, the erection of an electrolytic zinc refinery was commenced in 1915, rushed to completion and put into operation early in 1916. The company had then to turn its attention to solving the problem of recovering the values in the complex lead-zinc ores of the famous Sullivan mine. This was largely a problem of concentration in