

tuyeres, this mammoth furnace actually having smelted 3,100 tons within 24 hours. It has been my privilege to see this great blast-furnace with smelting in progress at the western end, while the eastern end was frozen, and repairs in progress within the bosh.

The past decade has been a further extension of the electrolytic process of refining, and the great bulk of the world's copper now is refined by electrolysis. In fact, very little finished copper, other than electrolytic, reaches the market, except from the Lake Superior mines, the product of which commands a premium by reason of its extra toughness and superior adaptibility to drawing and stamping. With depth, many of the Lake Superior mines have shown a marked increase in arsenic, and for this reason a considerable part of the Lake Superior copper now is refined electrolytically, and sold as electrolytic and not as Lake copper.

COMBINES AND MERGERS.

At various times in the past efforts have been made at copper corners, but these have proven uniformly unsuccessful. The first copper corner was by the Associated Smelters, of Swansea, and might be termed the original copper trust. The Associated Smelters, which flourished from 1840 to 1860, were arbitrary in their operations, buying cheaply, selling dearly, and zealously guarding their smelting processes. As a result of the very short-sighted policy of screwing prices of ore and matte to the lowest possible figures, while selling the finished product at the highest possible prices, with the ore producers aggravated by arbitrary charges for draftage and moisture, and the further grievance of unfair assay methods, the mine-owners were led to build independent smelters at and near the mines, in most of the principal copper-producing districts, these effectually destroying the power of the Associated Smelters of Swansea as the arbiter of the copper industry.

The second attempt at a copper corner was made by the Société des Metaux, of Paris, under the leadership of M. Secretan, the Société des Metaux becoming, in February, 1887, one of the sixteen underwriters that organized the Syndicat Secretan, with a nominal capitalization of \$13,587,000. This syndicate contracted with the leading copper producers for their output, and speedily advanced the price of the metal to 17¾ cents, effecting an increase of more than 50 per cent. in price within one month. Consumption immediately declined to a low figure, and the Secretan Syndicate borrowed enormous sums to carry its rapidly accumulating copper from French, German, and English banking houses, the Comptoir d'Escompte of Paris alone lending the enormous sum of \$33,368,000 to the Syndicat Secretan. This corner broke early in 1889, after about eighteen months' existence, and in a single day, in the spring of 1889, the price of copper dropped from £70 down to £35 per long ton. About four years were required to clean up the wreckage remaining from this ill-advised corner, and put the copper industry soundly on its feet again.

The third attempt at a copper corner was made in February, 1889, by the organization of the Amalgamated Copper Co., which corporation maintained the price of copper, arbitrarily, at 17 cents per pound, until October, 1901, when an accumulation of 200,000,000 pounds of metal compelled a break that took the price of copper down to about 12 cents per pound, and about three years were required by the industry to recover from the effects of this corner.

The price of 26¼ cents per pound, reached in March, 1907, by Lake copper, was not the result of any corner, but came about through an ill-advised scramble by consumers, who feared that they could not secure the metal. As a result of the high price, consumption was curtailed sharply, in all directions, as happens inevitably under such unsatisfactory price conditions, and the copper industry of the world still suffers from the existence of a surplus of slightly under 300,000,000 pounds of metal, remaining from a surplus that, including both visible and invisible supplies, reached about 450,000,000 pounds at the end of 1909, since which time there has been a small but steady decrease in surplus from month to month.

The tendency in copper mining, as in all other branches of industry, is toward combination in ever-larger units. This tendency is based upon and governed by purely economic laws, and the laws of political economy are so much stronger than any law ever devised by a parliament, or any ukase ever promulgated by a deposit, that it requires no spirit of prophecy to forecast the ultimate outcome of the present clash between the laws of political economy and the laws of congress.

In the copper industry the great bulk of production now is furnished by about a dozen different interests. The Amalgamated Copper Co. has a productive capacity of about 300,000,000 pounds yearly, with an actual output last year of 223,808,546 pounds. The American Smelting & Refining Co., or Guggenheim interests, have a productive capacity only slightly inferior to the Amalgamated, with an actual output of 174,150,000 pounds in 1910, which figure will be exceeded materially this year. The production of Phelps, Dodge & Co. was 116,888,070 pounds in 1910, while smelter production, including custom ores treated, was 138,805,562 pounds, and the sales agency of this firm handled 194,138,696 pounds of copper last year. The Calumet & Hecla, with its subsidiaries, has a productive capacity of nearly or quite 150,000,000 pounds yearly. The Rothschild interests, controlling the Rio-Tinto of Spain, and the Boléo of Mexico, have a copper output of more than 100,000,000 pounds yearly.

The leading copper producers of the world are now operating under check, a 10 per cent. reduction in output having been put into effect in August of last year. Under the Sherman Anti-Trust law, this checking of production would be considered criminal, if it could be proven, yet the reduction of output was absolutely necessary in order to save the copper industry from a prolonged period of utter demoralization, during which scores of millions of dollars would have been lost by investors, and a quarter-million or more of working men would have suffered severely, many of them losing their jobs, and the remainder suffering severe cuts in wages. We have the authority of eminent statesmen, totally devoid of business experience, that the Sherman Act is a panacea for all ills of the body politic, yet no sensible business man would do otherwise, if he had the power, than to reduce production, at a time when a surplus product threatened not only the small remaining profits, but the very foundations of the copper industry. The issue thus is drawn very plainly between our present politico-criminal law, and all the laws of business and of political economy.

BUSINESS AND POLITICS.

I have no connection, direct or indirect, with any copper mining company or copper producer, except that, in