Clean-up supplies	0.029
Repairs	0,014
Miscellaneous	0.003
Labor (wages at $3.50 and $4.50 per day)	0.234
Total	$0.520

Assay office costs were not allocated; but the cyanide plant proportion should approximate $0.025 per ton. These results were obtained when treating but seventy-eight tons per day. The cost can be reduced to 38.6 cents when the plant is treating its full-rated capacity of 200 tons per day; and the introduction of reverberatory and cupel furnaces for clean-up would still further reduce it.

The plant is equipped with steam heating and electric lighting plants, and has an auxiliary water power system capable of developing to 300 h.p. The pumps and lighting dynamo are run by Pelton water motors under 320 feet head; and the only cost of power is the trifling item of maintenance of flumes.

The total cost of the works, including the power plant, was $57,951.63. Omitting the costs of the main mill building, boarding houses, power plant and heating system, and thus reducing the estimate to the basis of an open air plant, the cost was $33,782, including the clearing, excavating and masonry, previously referred to, which amounted to $6,321.34.

THE METALLURGY OF ZINC AND CADMIUM

(By Alfred C. Garde.)

AFTER reading Professor Ingall's recent publication on the "Metallurgy of Zinc and Cadmium"* I recognize in this valuable treatise a full-fledged sequel to "Hoffman's Metallurgy of Lead" and "Peters' Modern Copper Smelting." To the metallurgist, the engineer, the scholar and the student this valuable volume fills the same place and want in the scientific library as the two others have proved with reference to lead and copper smelting. Aside from Schabel's exhaustive German hand-book on metallurgy the American library possesses no treatise dealing with zinc individually. Zinc and Cadmium, owing to their close relationship to one of the chief metals as well as on account of being unknown in the arts until about fifty years ago, have heretofore always been tied to the apron-strings of the ancient lead industry and treated in conjunction therewith. Professor Ingalls in recognizing the astonishing demand for spelter and zinc oxides in the world's markets has foreseen the rank which these products now command by virtue of their rare qualities, and he is therefore to be highly congratulated upon his efforts in presenting the subject so admirably and at so opportune a moment. His treatise will undoubtedly be hailed by the fraternity as one of the missing links in this "Era of metallurgy."

His description of the various roasting processes, together with historical sketch of the evolution of the modern roasting furnace, will readily be admitted as classic and must be regarded as the most complete accumulation of data and illustrations ever published on this important feature of spelter production. Of no less importance is the painstaking description of European and American methods of smelting and distillation of the various zinc ores.

To Canadian engineers and investors the zinc question is becoming of importance. Within the past few years large deposits of desirable zinc ores have been found in British Columbia and Ontario. The discoveries in British Columbia are of such recent date that they are not even mentioned in any of Professor Ingall's late books pertaining to the production and properties of zinc.

The writer is of the opinion that Professor Ingalls would be much interested in looking over this new field, as it presents features in many respects different from other deposits in North America. It is specially noteworthy that the ores are of a highly argentiferous character.

The writer also observes that Professor Ingalls only briefly comments upon the recovery of zinc by means of electrolysis, probably because a number of processes have proved unsuccessful and others of the electro-chemical or electro-metallurgical order, are still more or less within the experimental stage. With this in view, Professor Ingalls no doubt wishes to obtain more facts and data, and it shall be most interesting to follow the evolution of the metallurgy of zinc in any of his future editions.

Engineering and Mining Journal, New York; $6.

THE REFINING OF SILVER IN BRITISH COLUMBIA.

A SHIPMENT of 85,000 ounces of silver 999 fine was made this month to the United States Government at San Francisco for shipment to the Phillipines, representing the product from the smelting of British Columbian lead ores at Trail, and refining the resulting bullion by the electrolytic lead process, which has for many months past been supplying Eastern Canada with commercial pig lead.

When the electrolytic lead refinery was first operated the "silver slimes" (composed of the precious metals and all the impurities, such as copper, antimony, arsenic, etc.) were sold to United States refineries, where the actual separation of the precious metals from the impurities was made. As there were no plants in operation prepared to economically handle this particular product, which differs somewhat from the slimes produced from electrolytic copper refining, it was decided to build a special plant at Trail for the purpose of making a complete separation of the precious metals and impurities, which will make, in connection with the electrolytic lead process and the smelting works, a complete works for the treatment of all lead-silver ores and the production therefrom of pure lead, fine silver, fine gold, copper sulphate, and probably later, metallic antimony.

The first shipment of about 300 ounces of gold which was over 995 fine was made to the United States Assay Office at Seattle a few weeks ago, and a second shipment of about 700 ounces of gold was made shortly thereafter to the same place.