

LECTURE ON THE TREATMENT OF COPPER ORES BY THE ELECTRIC FURNACE.*

(Keller Process)

Compagnie Electrothermique Keller et Leleux.

BY M. VATTIER.

It is now some two years since I had the pleasure, in this very hall of reading a paper on the very remarkable results obtained from experiments on the treatment of iron ores in electric furnaces. I gave a description of the electro-metallurgical works which I had had the opportunity of visiting, both in Europe and the United States; and at the time I expressed the hope that these new processes, owing to the development of the energy of the "White Coal," would soon prove economical and practical, and would then leave the realm of the laboratory and of experimental plants to boldly enter the industrial arena.

You are all familiar with the yet recent history of electro-metallurgy; with the scientific observations of such men as Moissant, Siemens, Acheson, Minet and other authorities, as a starting point. We have witnessed the strenuous labors of Stassano, Héroult, Laval, Keller, and others, whose names would make up a long list, and whose efforts are striving toward the advent of a new electric metallurgy which bids fair to become the metallurgy of the future.

Twice in three years I have been entrusted by the Chilean government with the study of the latest developments of electro-metallurgical processes in Europe and the United States. In August last, I brought over from Chili some 200 tons of copper and manganese ores for the purpose of making experiments on a commercial scale, on the smelting of these ores in the electric furnace. The main object of this paper is to give you the results of these experiments. I shall be as brief as possible, owing to the necessity of yielding my place to several eminent lecturers.

After a few preliminary experiments, I was authorized to continue my investigations on this subject, in the works of Messrs. Keller et Leleux, at Keroussel, in Brittany, under the direction of Mr. Keller. After discussing the subject with him, we agreed upon the method of procedure, the form of the furnace and accessory apparatus to be adopted; these were subsequently put in operation in the Keller and Leleux electro-

* From the French.