

INTRODUCTION.

The rapid growth of the electric furnace makes it increasingly difficult for the metallurgist to keep in touch with its recent developments. A few years ago it was a scientific curiosity; now it threatens to rival the Bessemer converter, the open-hearth steel furnace, and even the blast furnace itself.

The halo of romance, that has always surrounded electricity in all its forms, has caused the wildest schemes to be originated, and has given them a hearing; while, on the other hand, practicable electric smelting processes have been considered visionary.

In this book, it has been the author's purpose to trace the evolution of the electric furnace from its simplest beginnings, and to set forth, as briefly as is consistent with clearness, the more important facts relating to its theory and practice.

No attempt has been made to give a description of all the electric furnaces that have been invented, but rather to set forth clearly the fundamental principles of this form of furnace; to show its various uses; to indicate its limitations; and, if possible, to be of some assistance to those who wish to design electric furnaces, or to judge of the feasibility of schemes involving their use.

The scope of the book can be gathered from the titles of the seven chapters of which it is composed. The first is historical, the next three relate to the classification, efficiency and design of electric furnaces, while Chapters V. and VI. are devoted to the manufacture of iron and steel, and other products of the electric furnace. Chapter VII. is an attempt to look into the future and to note the directions in which electrical heating may be expected to develop.