Louis Pasteur. By Prof. S. J. Holmes. Pp. vi+246+4 plates. (New York: Harcourt, Brace and Co., 1924.) n.p.

THIS short biography gives all the essential facts of Pasteur's life and work. Commencing with his early days, the salient features of his researches and discoveries are summarised in chronological order, and for the uninitiated reader explanatory paragraphs are introduced where necessary. The text is very readable, and is illustrated with several figures and some good portraits. A sympathetic account is given of the celebrations on Pasteur's seventieth birthday and of his last days, and we leave the great veteran sleeping in the beautiful little chapel in the basement of the Pasteur Institute, where "four angels watch over him, Faith, Hope, Charity, and Science, and in the laboratories above his tomb, his great work is going on."

METALLURGY.

Practical Microscopical Metallography. By Dr. R. H. Greaves and H. Wrighton. Pp. x+125+28 plates. (London: Chapman and Hall, Ltd., 1924.) 16*s.* net.

THE authors state in their preface that their intention is "to provide, within a small compass, a set of typical photomicrographs suitably annotated and accompanied by an account of such related matters as might profitably occupy the minds of students during the necessarily long hours—many of them spent in purely mechanical operations—devoted to microscopical work," and that the book is intended both for metallurgical students and for students of engineering who study metallography.

We feel some doubt as to whether the book will be found useful. So far as metallurgical students are concerned, it is so restricted in scope that it could not serve as an adequate introduction even to microscopical metallography. None of the chapters deal with the construction of the equilibrium diagram and thermal methods of investigation which, in conjunction with microscopical work, constitute the experimental data on which the diagrams are based. With respect to engineering students, it is necessary to face the fact that the properties of any metal or alloy cannot be deduced from its microstructure. The polyhedral structure, characteristic of a pure metal, holds equally for tough and ductile metals on one hand, and for brittle metals on the other. Even the most skilled metallographer confronted with a photograph representing the microstructure of a metal or alloy, of the chemical composition of which he was unaware, could say very little about the mechanical properties it would be likely to possess. We doubt whether any student of engineering, in the absence of previous knowledge of the subject, could grasp the real implications of the equilibrium diagrams reproduced in the book, and whether he could form a true mental picture of the facts which they convey. It seems to us that the book cannot do much more than awaken an interest on the part of metallurgical and engineering students in the subject of microscopical metallography, and a desire to study the subject in a much broader way such as is afforded by one of the numerous text-books of metallography already available.

The Planning, Erection, and Operation of Modern Open-Hearth Steel Works. By H. Hermanns. Pp. vii+307. (London: Ernest Benn, Ltd., 1924.) 42*s.* net.

MR. WESLEY AUSTIN has performed a valuable service to English metallurgy in translating Mr. Hermann's important work on the planning and operation of modern open-hearth steel works. Technical literature is rich in works which concern themselves with descriptions of the metallurgy of steel production in open hearths. The auxiliaries, however, which serve to carry out the metallurgical work and to lighten or cheapen the mechanical operations, have been given only secondary attention. They are of equal economic importance to the processes, and in great measure not only render these possible, but also assure their efficiency. The point driven home in this book is the economy which results from excellences in furnace design and equipment, from attention to practical expediencies in the general arrangement of plant, and from a careful lay-out of storage, handling, and transport facilities. Every type of equipment for open-hearth steel production is described in detail and very clearly illustrated, not only from Continental practice but also from a very close study of English and American practice. The book is intended on one hand for the steel works staff and managers and, on the other hand, for technical and higher grade students. In addition, it should provide hints for designers and draftsmen. It is abundantly illustrated by clear drawings, which are one of the best features of the book. We think that Mr. Hermann's work would repay careful study by the management of every open-hearth steel works in Great Britain.

Arc Welding Handbook. By C. J. Holslag. Pp. xi+250. (London: McGraw-Hill Publishing Co., Ltd., 1924.) 10*s.* net.

THIS book is intended to serve as a simple and practical manual of instruction in arc welding. An attempt has been made—and made successfully—to describe the methods step by step in a clear and practical manner so that the beginner may understand both the equipment and the processes. The author has also kept in mind those men who may supervise the work, so that there may be no mystery to them about what the welding operator is trying to accomplish. The book is very clearly written and illustrated by numerous figures.

The early chapters deal with the various types of welds that can be produced. Regard is paid both to thin and heavy sections. We have found the chapter on the welding of cast iron and malleable iron particularly interesting. There is an illustration on p. 125 of a 15-ton cast iron gear housing which had been broken in eight pieces and was afterwards mended by arc welding. A total length of 190 feet of welding 1½ inches thick was required. Considering the brittleness and low tensile strength of such iron, this must be regarded as a remarkable achievement. Later chapters deal with the welding of structural steel, sheet iron and non-ferrous metals, electric arc cutting, and the welding of alloy steels. The book is full of useful information and may be heartily recommended to those for whom it is intended.