

necessary to consult other volumes in order to obtain information regarding the subjects covered. We are afraid that this claim is too wide. The engineer will find a great deal of information of a practical character in the volume, together with methods of calculation (often short cuts) which will enable him to carry through his designs, but to understand completely what he is doing he will certainly either have to possess other knowledge or consult other books. For example, in the section dealing with the calculations of piers, footings and retaining walls, earth-work problems are treated sometimes by the wedge theory, elsewhere by Rankine's theory, and again with friction allowance on the wall. Attention is not directed to the differences of these methods. The treatment of the pressures on the base of the wall is not at all clear, and will leave the engineer who uses the method given in a state of uncertainty as to what he has really done.

*Principles of Metallurgy.* By A. H. Hiorns. Second edition. Pp. xiv + 389. (London: Macmillan and Co., Ltd., 1914.) Price 6s.

It is almost twenty years since the first edition of this book appeared. During that time metallurgy has advanced very rapidly, and any new book or new edition which is published should have many novel features to indicate.

The present volume reviews briefly the principal metallurgical phenomena and extraction processes and forms one of a series by the author. It is a work which is intended for use in a technical school and for the instruction of apprentices and other workers engaged in the metal industries and whose employment demands some elementary knowledge of metals, their properties, and methods of production.

As a consequence of attempting to cover the whole field of metallurgy in some 370 pages, the author has treated several sections rather scantily, while others are out of proportion to their importance. Thus, in the paragraph on the Bessemerisation of copper, no discussion is given of the true function of the furnace lining, and although a "more or less basic" lining is mentioned, no stress is laid upon the recent adoption of basic-lined converters. It is noticeable, too, that the author occupies twelve pages in descriptions of various, almost obsolete, chlorination processes for the treatment of gold ores, whereas he dismisses the more important cyanide process in three pages.

The work is suitable to place in the hands of a young student on his earliest venture into the domains of metallurgy, but he would be well advised to pass, at an early stage, to the larger treatises on the subject. W. A. C. NEWMAN.

*Gearing: a Practical Treatise.* By A. E. Ingham. Pp. xi + 181. (London: Methuen and Co., Ltd., 1914.) Price 5s. net.

THE object of this volume is to present in a simple manner the general scientific principles which underlie the subject, and to give particulars of the most approved methods of solving problems

connected with various forms of gears. Spur, bevel, worm, spiral and helical gears are included, and methods of cutting these gears are explained and illustrated by photographs. The calculations given are of the simplest possible character and should present no difficulty to anyone who knows ordinary arithmetic. Extensive tables are given which will simplify the process of finding the pitch, diameter, and outside diameter of wheels having a given circular pitch. A considerable amount of space is taken up with blacked drawings showing the comparative sizes of teeth having progressive diametral and circular pitches. The latter might have been omitted, and space found for a discussion of the new problems introduced by the applications of helical wheels in marine turbine speed-reduction gears. The desire of the author to keep the matter treated within the limits of simplicity prescribed by the knowledge of the readers he has in view no doubt accounts for the many omissions in an otherwise useful volume.

*Historical Sketches of Old Charing: The Hospital and Chapel of Saint Mary Roncevall; Eleanor of Castile, Queen of England, and the Monuments erected in Her Memory.* By Dr. J. Galloway. Pp. 82. (London: John Bale, Sons, and Danielsson, Ltd., 1914.) Price 10s. 6d. net.

THESE studies in the history of Old London, by the senior physician and vice-president of Charing Cross Hospital, originally published in the hospital *Gazette*, and reprinted for the benefit of that institution, form a useful contribution to local history. The first part contains an account of the hospital and chapel of St. Mary Roncevall at Charing Cross, a branch house of the great convent at Roncesvalles in the western Pyrenees. The London convent owed its foundation to the liberality of William Marshall, Earl of Pembroke, eldest son of the great William Marshall, Protector of the King and his kingdom after the death of John. It enjoyed a long career of prosperity and usefulness until its final dissolution by Henry VIII. in 1544. On the site was built Northumberland House, purchased by the Metropolitan Board of Works in 1874, and now occupied by Northumberland Avenue and the great buildings which flank that thoroughfare.

The second part of the book is an account of the monuments erected to commemorate the death of Queen Eleanor, and the removal of her remains from Harby, near Lincoln, where she died in 1290, to Westminster Abbey. These consist of her tomb in the Abbey, the work of Richard Crandale, and the series of beautiful crosses, of which those at Chepe, Charing (the site now occupied by the statue of Charles I.) Grantham, Stamford, Stony Stratford, Woburn, Dunstable, and St. Albans, have disappeared, while those at Geddington, Northampton, and Waltham survive in a more or less perfect condition. The preparation of this book, with its fine illustrations and copious references to original authorities, was obviously a labour of love, and it forms an interesting addition to the great library of books on Old London.