

arranged by years with the name of the author, followed by the title of the paper. Instead of a continuous consecutive numbering, however, the numbering is broken by each year and is consecutive for that year only. Nearly fifty pages are filled with a subject index in which the references are divided under sixty-six different headings. This makes the book particularly useful to a worker in any special field. An author index, filling some fifteen double-columned pages, completes the book.

Chemists owe a debt of gratitude to Dr. Howe for this tedious yet most helpful work, which he has so ably completed, and to the Smithsonian Institution for rendering its publication possible.

F. P. VENABLE.

THE CALORIFIC POWER OF FUELS. Founded on Scheurer-Kestner's *Pouvoir Calorifique des Combustibles*, with the addition of a very full collection of tables of heats of combustion of fuels, solid, liquid, and gaseous, to which is also appended the report of the committee on boiler tests of the American Society of Mechanical Engineers (December, 1897); table of constants used. By HERMAN POOLE, F.C.S. New York: John Wiley & Sons. 1898. xv + 255 pp. Price, \$3.00.

The general character of the book is pretty well indicated by the somewhat lengthy title. The first six chapters of the book are given, mainly, to a description of the various forms of calorimeters in common use for the determination of the heating power of fuels. The descriptions are satisfactory and include brief directions for the use of the more important forms of apparatus and an account of the corrections to be applied. Chapters VII to IX discuss solid, liquid and gaseous fuels chiefly from the standpoint of heating effect. Then follow three chapters devoted to the subject of boiler tests and the necessary determinations and calculations, especially those relating to loss of heat in waste gases. The Appendix includes the report of the committee on boiler tests referred to in the title, and very full tables, especially of the heating power of coals from all parts of the world. Unfortunately these tables, which the author appears to consider especially valuable, contain internal evidence that some of the values given are worthless. Thus, on page 216, three determinations for the same coal are given, with a difference of twenty-five per cent. between the highest and lowest values. Also, although most of the values are on the basis of

the coal burned to liquid water, in one case, at least, results which were published in terms of the fuel burned to vapor of water are given without the necessary correction. On page 106 analyses of natural gas are given which represent it as containing large amounts of hydrogen, although Professor Philips has, apparently, demonstrated¹ that this gas is never present. In the same table marsh gas and methane are given as though they were different substances. The value of the tables would be greatly increased if exact references to the source of the data were given.

While it is evident that the tables must be used with care and discrimination, the book will prove a useful one to engineers and chemists interested in the subject of fuels.

W. A. NOYES.

METHODS FOR THE ANALYSIS OF ORES, PIG IRON, AND STEEL. Easton, Pa.: The Chemical Publishing Co. 1898. 8vo. 131 pp. Price, \$1.00.

This well printed and neatly bound volume contains a symposium of methods of iron analysis, in use in the laboratories of iron and steel works in the region about Pittsburg, Pa., together with an appendix containing various special methods of analysis of ores and furnace products. The methods are given in detail by the chemists in charge of the fifteen laboratories represented and may be considered to represent the general practice of the chief iron and steel works in the principal center of the iron industry in the United States. When one reflects upon the vast commercial and manufacturing interests that are based upon the results of these methods of analysis, they become well worth careful study and comparison by every one interested in iron analysis.

P. W. SHIMER.

TEXT-BOOK OF PHYSICAL CHEMISTRY. By CLARENCE L. SPEYERS. iv + 224 pp. New York: D. Van Nostrand Co. Price, \$2.25.

There is a deplorable lack of continuity in the teaching of science between our universities and the schools preparing for them. While the student continues his study of languages and mathematics on entering college, he generally begins his study of science over again. Many students have had good courses in physics and chemistry in the secondary schools and are fitted to go on with that work in college. To such students as these,

¹*Am. Chem. J.*, 16, 406.