

The subject throughout the book has been treated in the third quadrant, and at the end of each chapter a number of practical engineering problems are given on the theory discussed in this chapter. For these reasons the book should be very valuable to the student in engineering and the draftsman, as it points out the way to the application of the subject to the requirements of engineering practice.

The Chemistry of Colloids. By Richard Zsigmondy, Ellwood B. Spear and John Foote Norton. Published by John Wiley & Sons, Inc., New York City, and Chapman & Hall, Limited, London; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1917. 288 pages, 39 figures, 6 x 9 ins., cloth. Price \$3. (Reviewed by T. Linsey Crossley, of J. T. Donald & Co., Chemical Engineers, Toronto.)

It may be objected that the engineer is not interested in the "Chemistry of Colloids," but when it is remarked that the title could as well have been the "Physics of Colloids" or simply "Colloids," and when it is noted that photography, water supplies, soaps, lighting effects, asphalt paving, inks, electrolysis, mining, agriculture and metal filament lamps depend largely on practical applications of the physics and chemistry of colloids, some knowledge of the subject is necessary.

The book under review, taking for itself the nature of a review, gives a very fair idea of the theory and present knowledge of this important phase in the conditions of matter.

The author and translator are to be commended in assuming that the reader has little knowledge of the present development of the subject. The definitions suffice to make the book available to one who has not specialized. The brief, simple description of the ultramicroscope is sufficient and the diagrams (pages 17 and 18) show readily the very high state of subdivision in colloidal solutions and suspensions, indicating the reason for the turbidity of water supplies and the difficulty of handling slimes in mining operations, such as cyanidation.

The book is divided into two parts of which Part I. is a translation of Zsigmondy's work by Ellwood B. Spear, and Part II. is a brief account of "Industrial Colloidal Chemistry," including smoke, flue flumes, vapors, rubber, tanning, milk, clays and soils, with a short chapter by John Foote Norton on "Colloids in Sanitation."

The chapter on clays and soils is interesting to the engineer, more perhaps by what it suggests than by what is actually stated. The consideration of protective colloids might have a bearing on cases where concrete has failed due to a fine envelope of colloidal siliceous or organic matter on sands preventing the reaction between cement and sand at the contact surface.

Waterworks engineers will also find much of interest in Dr. Norton's chapter on "Colloids in Sanitation."

In some passages condensation would give clarity and make smoother reading. In Part I. the translator has been a shade too conscientious possibly. One instance, on page 106, lower third: "By the gold number we will understand the maximum number of milligrams of protective colloid that may be added to 10 c.c. of gold solution without preventing a change of color from deep red to violet shades by 1 c.c. of a 10 per cent. solution of sodium chloride, where the change would take place if no protective colloid were added." It appears possible to put this sentence in the positive and save some mental labor. It might be suggested that any subsequent editions

be more carefully revised and that some typographical errors, such as "hydrols" for hydrosols, "collodium" for collodion, "disenfection" for disinfection, "anistropic" for anisotropic, be corrected, and such passages as this, on page 16, "If the particles are not all visible and the large majority are submicrons, the result obtained represents the lower limits. On the other hand, if the majority of the particles are not visible, the result will be very wide of the mark," and this on page 164, "The want of the characteristic iron taste, or ink taste, is entirely lacking."

The book is, however, a very useful brief of the whole subject and will not fail to be suggestive of useful applications to men engaged in almost any form of industrial technology.

A Practical Book in Elementary Metallurgy. By Ernest Edgar Thum. Published by John Wiley & Sons, Inc., New York City, and Chapman & Hall, Limited, London; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1917. 313 pages, 59 figures, 6 x 9 ins., cloth. Price, \$2.75. (Reviewed by Dr. Alfred Stansfield, McGill University.)

This is a laboratory instruction book prepared for students working in the metallurgical laboratories of the University of Cincinnati. Explanatory or theoretical matter has been added so that the average engineering student can understand the bearing of each experiment and carry it out intelligently, after reading these instructions, even if he has not had the advantage of attending a course of lectures on the subject.

The work described is divided into twenty-six separate experiments, each of them being arranged for a group of four students. The experiments are designed to give practice and instruction in regard to gas furnaces, refractory materials, slags, pyrometers, alloys, metallography, hardness of metals, electric furnaces, heat treatment of steel, foundry methods, etc. Under each heading is given (a) general explanation, (b) detailed instruction for the experiment, and (c) questions intended to test the student's grasp of the subject. In addition to the above matter, which occupies 224 pages, there are three appendices, (A) of 44 pages devoted to elementary metallurgical calculations, (B) of 22 pages describing foundry practice, and (C) of 9 pages giving detailed instruction in the art of writing reports.

The nature of the experiments included in this book depends, of course, on the equipment of Mr. Thum's laboratory; but this appears to have been well-chosen and the course is wide enough to prove suitable for undergraduate class work in metallurgy in many universities. The course was designed, however, for engineering students and does not include work on the recovery of metals from their ores, which would form an important part of laboratory work for students intending to graduate in metallurgy or mining. The book is well and carefully written and is well illustrated, and will be helpful to instructors in metallurgical laboratories.

Tecnic of Surveying Instruments and Methods. By Walter Loring Webb, C.E., and J. C. L. Fish, C.E. Published by John Wiley & Sons, Inc., New York, and Chapman & Hall, Limited, London; Canadian selling agents, Renouf Publishing Co., Montreal. First edition, 1917. 319 pages, 59 figures, 4 x 6 3/4 ins., flexible binding. Price, \$2 net. (Reviewed by Tracy D'Lemay, city surveyor, Toronto.)

This book will admirably fill the purpose for which it is intended by the authors; that is to say, it is not to be