RECENT BOOKS

ATOMIC ENERGY FOR MILITARY PURPOSES. *Henry DeWolf Smyth*, Department of Physics, Princeton University. Princeton University Press, Princeton, New Jersey, 1945. ix + 264 pp. 13.5 × 18.5 cm. Paper, $1.25; cloth, $2.00.

The "Smyth Report" is not only a clear exposition of the research and technical development which went into the production of the atomic bomb, but is such good writing that the author also catches some of the dramatic suspense of the tests leading to final success. It was written "for scientific men and engineers who can understand the technology involved in order that they may explain the potentialities of atomic energy to their fellow citizens." A more or less chronological account of the Manhattan project from 1940–45 includes a description of the general division of work at Columbia, the University of California, the Metallurgical Laboratory in Chicago, and the plants at Hanford, Washington, Oak Ridge, Tennessee, and Los Alamos, New Mexico. Methods (and their limitations) of separating isotopes are discussed at some length. The introduction contains an account of the principal results of nuclear physics obtained prior to 1940.

"Time capsules" of the future might well include this report as a tribute to what scientists were thinking about and doing in the years 1940–45. It seems destined to be the classic starting reference to future students beginning work in this field.

LEALLYN B. CLAPP

BROWN UNIVERISTY
PROVIDENCE, RHODE ISLAND

CHEMISTRY FOR ELECTROPLATERS. *C. B. F. Young*, Consultant; Director of Research, Clark Babbitt Industries, Inc.; Adjunct Professor, Brooklyn Polytechnic Institute; Head, Institute of Electrochemistry and Metallurgy. Chemical Publishing Company, Inc., Brooklyn, 1945. vi + 205 pp. 6 figs. 1 table. 13.8 × 21.7 cm. $4.00.

The author attempts to supply the scientific background for the electroplater's art and to give a résumé of general chemistry using illustrative examples from practical situations met in the plating room. The examples are fitted to the purpose, but the survey of chemistry is an eyebrow-arching disappointment. Granted the difficulties of compressing elementary general chemistry into 186 pages; nevertheless there are abundant errors in factual information, incorrect inferences are given, and outdated explanations of such important topics as electrolysis and hydrolysis remain.

The proofreading is unfortunate, for spelling, grammatical, and mathematical errors are frequent. The periodic chart (p. 138) is taken from the 1931 edition of a popular high-school textbook, excepting the misprint for the atomic weight of boron. Another edition of that same book appeared in 1942, and the revised chart differs in 33 details from the one used by the present author.

The following are direct quotations:

"Monovalent means having one valence" (p. 43).

"One volume of carbon unites with one-half volume of oxygen to give one volume of carbon monoxide" (p. 34).

"One of the best ways of manufacturing hydrogen peroxide is to unite cold, dilute sulfuric acid with barium peroxide" (p. 29).

"Each molecule of water is composed of one molecule of hydrogen and one atom of oxygen" (p. 53).

"Thus, one sees that most of the ammonium hydroxide is in the molecular state" (p. 117).

"If sodium cyanide is added to the solution of a cupric salt, cupric cyanide, $Cu(CN)_2$, is precipitated" (p. 179).

"Cupric cyanide cannot be precipitated from solution" (p. 180).

ELBERT C. WEAVER

PHILLIPS ACADEMY
ANDOVER, MASSACHUSSETS

INTRODUCTION TO QUANTITATIVE ANALYSIS. *Saul B. Arenson*, Professor of Inorganic Chemistry, University of Cincinnati, and *George Rieveschal, Jr.*, Parke, Davis and Company. Thomas Y. Crowell Company, New York, 1944. xiii + 386 pp. 14 × 22 cm. $2.75.

This text is a definite departure from the usual book in the field. It follows the usual pattern of starting with the balance, the calibration of weights and of volumetric equipment, and a brief survey of chemical equilibrium. Next comes titrimetric analysis in three chapters—acid-base titrimetry, oxidation-reduction titrimetry, and precipitation titrimetry. This is followed by a chapter on gravimetric analysis and two final chapters with titles "Some Applications of Electrochemistry," and "Photometric Methods of Analysis." Seventy-nine laboratory experiments are distributed as follows:

7 simple weighing or measurement of volumes
14 acid-base titrimetry
32 oxidation-reduction titrimetry
17 precipitation titrimetry
9 gravimetric determinations

The three most obvious ways in which the text is unusual are: (1) the large number of references to other texts and to the original literature for extended treatment of topics and methods which are touched on very briefly in the book itself; (2) the introduction of a number of technical applications of quantitative procedures, such as the moisture content of coal and of butter, per cent of alcohol in a medicine or beverage, change in lactic acid content of milk on souring, iodine number of a fat or oil, etc.; and (3) the marked preference for organic reagents as precipitants in gravimetric analysis. Also, many problems are included in the book, for which the solutions are based on the "common sense" method of understanding the principles involved rather than depending on formulas.

The large number of references to other books and to journal articles has the commendable aim of giving the student some contact with the literature of the subject. In practice, however, this involves a considerable amount of wear and tear on the library books as well as wasted time when a number of students are asked to read the same article.

The treatment of theory is rather weak in spots, occasionally being oversimplified to the point where it is actually misleading. Thus, ionization constants are discussed briefly, but practically no use is made of them in the treatment of acid-base titrimetry, the selection of indicators being based on graphs derived apparently from titrations using a pH meter. Again, the solubility product principle is derived from the discredited assumption that the concentration of undissociated salt in saturated solutions is constant (p. 70). Also, in discussing a cell, reference is made to electrons flowing through the outer metallic circuit in one direction and through the solution in the opposite direction (p. 289). Obviously, there are no electrons flowing through the solution.

The book is written in a rather informal style, is well done on the whole, and should prove stimulating both to the student and to the teacher. It places more responsibility on the teacher for assignments, supplementary discussion, and direct contact with individual students than does the usual text.

R. K. MCALPINE

UNIVERSITY OF MICHIGAN
ANN ARBOR, MICHIGAN

BETTER COLLEGES—BETTER TEACHERS. *Russell M. Cooper and collaborators of 28 colleges.* The Macmillan Company, New York, 1944. viii + 167 pp. 15 × 23 cm. $1.25.

This publication of the North Central Association Committee on the Preparation of High School Teachers in Colleges of Liberal Arts is a report concerned with the preparation of high-school teachers in 28 liberal arts colleges.