facilitating the movement of food from surplus-producing nations to the hungry peoples all over the world. Time is demonstrating that the application of science and technology by the underdeveloped nations to increase the production of food and of things they can exchange for food—and not a world food bank administered by an international agency—will be the mechanism by which science and technology can improve human nutrition and raise levels of living.

All royalties on Hambidge's book will go to support the work of FAO.

NOBLE CLARK
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Chemical Engineering Cost Estimation. Robert S. Aries and Robert D. Newton. McGraw-Hill, New York, 1955. xiii + 263 pp. $6.

This is a well-organized effort comprising 10 chapters on cost estimation. It includes an analysis of various cost items entering directly into the manufacture of a product as well as a good deal of pertinent discussion of the economics involved in a chemical enterprise. For the practical engineer, who is daily faced with a need to justify engineering recommendations on a dollars-and-cents basis, the book fills a real need. The authors have drawn extensively from the contributions of Harding Bliss, C. H. Chilton, Roger Williams, Jr., and others.

The chief criticisms to be leveled against the book are (i) failure to use a cost index system or (at least) to recognize its value, (ii) failure to indicate in the cost-of-equipment graphs that the curves are either averages or medians of a considerable spread of data, and (iii) overemphasis on equipment costs at the expense of discussion of items such as transportation, installation, and maintenance costs. The book as it stands is far from being comprehensive. But although it is *dated* and *imperfect* with respect to the matters just indicated there is no denying its immediate usefulness.

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Inorganic Reactions and Structure. Edwin S. Gould. Holt, New York, 1955. viii + 470 pp. Illus. $6.50.

This book was written to serve as a textbook for chemistry students at the senior or first-year graduate-student level. It is to be used with those courses in inorganic chemistry that have developed in recognition of the renaissance of inorganic chemistry and the general lack of knowledge of the subject shown by so many chemistry graduates in the past 20 years. The author states that the book will serve the students who have had courses in both qualitative and quantitative analysis, but it is my opinion that some introduction to physical chemistry is also necessary.

The book is made up of alternating chapters of theoretical and descriptive inorganic chemistry. No attempt is made to cover the chemistry of all the elements, but the common elements of each group are adequately treated, and generalizations are made wherever possible. The theoretical treatment is exhaustive in that all the current rationalizations to "explain" structure and reactions in inorganic chemistry are covered and numerous specific applications are cited. The development of the theories is limited, however, and a good set of lectures will have to accompany the book if the students are to have a real understanding of these theories.

This book will provide an excellent orientation and a review of modern inorganic chemistry for the practicing chemist whose academic training ended before such terms as *bond angles, bond length, bond strength, bond order, sigma, pi,* and *delta bonds, Lewis acids*, and so forth, became standard terms in the chemistry courses. Further works will have to be consulted for complete comprehension of all aspects of this new approach, however. There are few references to the original literature, but there are numerous references to treatises and books on special phases of inorganic chemistry.

I was particularly impressed by the exercises at the end of each chapter. They are thought-provoking, stimulating, and an excellent test of one's ability to apply what has been learned. The information within the chapter is not always adequate to supply the answers to the exercises. For example, the text carries that all-too-common phrase "It may be shown that . . ." but without actually showing that "it" is so. One of the exercises at the end of a chapter states "Show that . . . is so." I believe that this is a good exercise. A number of exercises involve oxidation-reduction potentials at other than the standard conditions. Although the standard oxidation-reduction potentials are given in an appendix, the Nernst equation does not appear in the text. It must be presumed that the student will recall the equation from his course in quantitative analysis.

The only serious omission is a chapter on oxidation-reduction. Even though the topic is referred to repeatedly throughout the book and is covered in piecemeal fashion, it is of sufficient importance to justify a separate chapter.

Typographic and factual errors are few. The implication that pentavalent vanadium is readily reduced to the trivalent state by SO_2 in acid solution is erroneous, since the reduction proceeds only to tetravalent vanadium.

Inorganic Reactions and Structure is a worth-while addition to the growing list of modern inorganic books and will be valuable both as a textbook and as a guidebook to bridge the gap between the "old" and the "new" inorganic chemistry. It should serve as a stimulus to many chemistry departments to offer a course wherein such a textbook will be appropriate, because too few such courses are being offered at the present time.

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A Study of the Brain. A companion text to the stereoscopic atlas of neuroanatomy. Hyman S. Rubinstein. Grune and Stratton, New York, 1953. xiii + 209 pp. Illus. + plates. $9.50.

Designed to be used in conjunction with the author's *Stereoscopic Atlas of Neuroanatomy,* yet complete in itself, this textbook is intended to provide students with a functional approach to the organization of the central nervous system by guiding them through a dissection of the human brain. The first chapter provides directions on how to proceed with the dissection; interspersed at appropriate points in its text are suggestions with regard to the portions of subsequent chapters that should be studied in conjunction with a particular stage in dissection or before proceeding farther with it. The subsequent chapters, which represent the material usually covered in textbooks of neuroanatomy, are in turn generously populated with references to the "Atlas of transverse sections" and an appendix that follow the text; the latter includes the key drawings of the aforementioned *Stereoscopic Atlas.*

As an approach to the study of neuroanatomy, the plan on which the textbook is organized has merit; for there is no better way to obtain a three-dimensional view of the organization of the brain than by dissection. Unfortunately, the manner and form in which the ancillary material is treated—the text and illustrations—lack the merit of the plan. For example, the value of the "Atlas of transverse sections" is considerably lessened by the fact that too many structures are identified in many of the illustrations; as a consequence, the labels are too small and too crowded to be easily read, and the direction lines are difficult to follow. Many times the identifying line ends in a region in which the structure mentioned may reside but its presence or the limits of its distribution in the case of a