ions in dynamics, which were quite at variance with the ideas in the Problems, a gross historical distortion is hereby introduced.

Furthermore, I can think of no excuse—except in books for children—for using wholly imaginary portraits of scientific personages. I am not sure whether this is less excusable in the case of Newton and Galileo, of whom admirable portraits exist, or in the case of the Greeks, where the portraits do not exist at all. Yet here we find a full-page picture of Archimedes, looking like an aging Shakespearean actor, and a sketch of Euclid in a rabbinical cap and beard! All this jovial indifference to historical accuracy can only be defended on pedagogical grounds—Dr. Fraser is a "B. Paed."—with the assumption that it is proper to make a blood sacrifice of one field of knowledge in order to teach another. But even if this were true, which it decidedly is not, the method would defeat itself; for it is precisely the student for whom this book might be intended, the student with a flair for history or social studies but ignorant of physics, who will be disgusted with such childishness, and close the book without discovering its merits and its usefulness for him. The material is far too valuable, and the expositions of elementary science are much too good, for the book to be irreparably damaged by these avoidable and meretricious failings. If the book is successful enough to warrant a later edition, it would not be too difficult to eliminate these blemishes. When this is done, a bibliography and suggestions for further reading should by all means be included.

The "Readings in the Physical Sciences," edited by Professor Shapley and his associates, is likewise intended to promote the cause of general education in the field of science. It contains much interesting material, but it uses the spray or buckshot approach, and its lack of coordination makes it hard to see how it could be used systematically in a college course. The work includes a few lonely classic sources; some historical accounts, like Mr. Conant's admirable analysis of the work of Lavoisier; some good examples of scientific journalism by veterans like Watson Davis, George Gray, and Wolfgang Langewiesche; and some popular accounts of modern developments (President Lee DuBridge on microwaves and Linus Pauling on molecular architecture). There is even a section from David E. Lilienthal's admirable "TVA: Democracy on the March" and a condensation (!) of the Smyth Report. This compendium cannot teach much science or even give much idea of the tactics and strategy of investigation. It is a set of readings *about* science, chosen for their intrinsic, interest-catching appeal. But it is bait for the wholly indifferent, and therefore might be used as the first rung of the ladder. It could, for example, provide some of the first assigned readings in a general science course, and be consulted occasionally thereafter. For both teacher and students the extensive bibliography, divided into historical and technical lists, will certainly prove useful.

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Luminescence

PREPARATION AND CHARACTERISTICS OF SOLID LUMINESCENT MATERIALS (Symposium held at Cornell University October 24–26, 1946). Gorton R. Fonda and Frederick Seitz, editors. 459 pp. John Wiley and Sons, Inc., New York City, 1948. $5.00.

As a record of the first large symposium on luminescence since the 1938 Faraday Society Conference, this volume automatically achieves the status of the most important book on the luminescence of solids in recent years. It might have been an even greater contribution to the understanding of luminescent phenomena and to the advancement of research on this subject had it been possible to include more contributions from foreign workers—the British are represented by only one paper, and the excellent work of the Dutch is completely absent. The book is nevertheless to be highly recommended to workers both in and out of the field.

The general impression obtained from the book as to the present status of phosphor theory is well summarized by Seitz's recommendation in his introductory paper and in the final discussion: "We have only the most rudimentary knowledge of the mechanisms that operate in the various luminescent materials. . . . Practical development is far ahead of our basic knowledge and will remain so unless a larger fraction of the effort placed in the field is focused on the measurement of quantities which can be used in interpretative work . . . particularly if . . . carried out on the simplest materials." In general, this type of research is less compatible with the operation of laboratories devoted to the development of phosphors for various practical purposes than it is with academic research. The book contains ample evidence that university research groups have acquitted themselves nobly in the phosphor field during the war, and should constitute an invitation for more such groups to participate in this field of study.

The physical make-up of the book is good, and the numerous illustrations and graphs are excellent. A subject index might have added considerably to the value of the book as a reference source.

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History of Mathematics

MAKERS OF MATHEMATICS. By Alfred Hooper. 402 pp. Random House, New York City, 1948. $3.75.
MATHEMATICS: OUR GREAT HERITAGE. Edited by William L. Schaaf. 291 pp. Harper and Brothers, New York City, 1948. $3.50.

The purported series of biographies by Alfred Hooper is actually a mixture of biography, history, and conventional technical mathematics through the calculus. The technical material, which occupies at least a third of the book, is textbooky, repetitive of at least a dozen recent popular books on mathematics—two of them by Mr. Hooper himself—and loses the reader in a mass of details. For example over one hundred pages deal with the calculus but the central thoughts and the central contributions of Newton and Leibniz are never clearly stated. Fifty pages on Newton alone deal primarily with the me-