BOOK REVIEWS

The Principles of Optics. ARTHUR C. HARDY AND FRED H. PERRIN. *McGraw-Hill Book Co., Inc.*, New York, N. Y., 1932, 632 pp., $6.00.

This new book is designed to meet a specific purpose—to serve as a text-book for third-year students of physics who, contrary to the usual assumption, are none too well grounded in mathematics. Its method is to elucidate the optical principles involved in the behavior of light when confronted by lenses, prisms, and mirrors rather than to serve as a series of mathematical exercises based upon the electromagnetic theory of light. Its writing was conducted in much the same manner as the assembly and packing of the baggage of an experienced explorer. The total available space was limited. The resources were collected in the form of the available text-books on optics; the complete array was laid out for inspection. Then began the process of concentration, the elimination of useless bulk, while striving to retain everything of value. Upon thumbing the pages of the book, the reviewer was greeted by the simple straightforward demonstrations of a number of fundamental optical principles, the formulation of which, and subsequent application in lens systems, required in the older texts considerable space.

The book covers the usual field of optics. The reviewer was particularly pleased to note the informative treatment of the concept of aperture as affecting the light available for image formation, as well as the usual discussion of lens aberrations of the well-known types. Some interesting uses of cylindrical lenses for special optical apparatus are included. A chapter devoted to the scientific aspects of photography and a discussion of photoelectric cells is somewhat of an innovation in books on optics. H. P. GAGE

Motion and Time Study. ALLAN H. MOGENSEN. *McGraw-Hill Publishing Co.*, New York, N. Y., 1932, 228 pp., $2.50.

Although the book is primarily devoted to the subject of eliminating waste of time and motion in industrial operations, the extent to which the motion picture camera, and, of course, the projector, is used in making the necessary micro-motion studies justifies the appearance of a review of the book in a journal devoted to motion picture engineering.

One chapter is devoted to the methods followed in using the motion picture camera in order to analyze complicated motions into their component motions. A motion picture taken of the individual performing the motions to be studied, a microchronometer being included in the field, provides the material for analysis. The procedure to be followed in conducting the analysis is described.

Another chapter is devoted to the description of motion picture equipment and the manner of using it. Still another chapter is concerned with the use of motion pictures in training industrial operatives and others. Although emphasis is placed upon the value of motion pictures in making time and motion studies, appropriate references to other means of making the studies are made where the circumstances indicate the greater utility of these methods. S. HARRIS