BOOK REVIEWS

Visual Aids in Education. J. J. WEBER. *Valparaiso University*, Valparaiso, Indiana, 1930, 220 pp. In the preface, the author stresses the term "visual aids in education" instead of "visual education." The volume represents a summary of his previous publications with elaborations, and includes reports and a discussion of his experiments. Lists of words were handed to graduate students for introspective study. Statistical results indicated that the visual sense contributed about 31 per cent to experience and the auditory only 12 per cent. Films contribute to the realm of the specific rather than to generalizations. The experiments showed that the learning and retention of lessons were appreciably aided by using closely correlated films. The efficiency was greatest when accompanied by oral commentary and when used very early in the lesson period. The scatter of the scores was less after a visually aided lesson than after the unaided lesson. Therefore films either help the dull pupils more, or those inexperienced in the problem, or both. Films for schools should be divided into two very distinct types: (1) informational films; (2) instructional films. The first should be short-fact films with few or no titles. The second type, possibly sound films, act as visiting expert teachers. Standards for both types are discussed.

The discussions throughout are often made in positive statements and do not reflect a judicial attitude toward the situation; as, "the 16 mm. film is, in this writer's opinion, unsatisfactory for school use. Its image is yellow and grainy and its definition is poor."

The volume is a preliminary mimeographed edition. R. P. LOVELAND

Television. H. HORTON SHELDON AND E. N. GRISEWOOD. *D. Van Nostrand Co.*, New York, N. Y., 1929, 194 pp. $2.75. A review of the development of television beginning with the elementary problem of picture transmission, tracing the significant steps which have led to the realization of television. The text is written in story form, and the authors have succeeded in presenting the subject matter in a manner easily understood by a reader of limited technical knowledge.

Beginning with the Bakewell picture transmission system in 1847, the work of the early inventors is described, showing how the art progressed as the development of the selenium cell, the photoelectric cell, and the vacuum tube amplifier removed the limitations controlling the speed and fidelity of reproduction. To assist the reader, chapters outlining the elementary theory of optical systems and electromagnetic wave propagation are given. The authors then describe the selenium cell, the photoelectric cell, glow lamps, oscillographs, scanning mechanisms, and synchronizing equipment.

This is followed by chapters showing how these units have been combined into complete systems: first, for telephotography and, finally, for television. The television systems of Baird, Bell Telephone Laboratories, Jenkins, and Alexanderson are briefly described. A chapter on amateur equipment is added for the

guidance of the experimenter who wishes to build his own equipment. The book is concluded by a chapter on the future of television. The authors, while frankly recognizing the technical difficulties yet to be overcome, quote predictions from various authorities and conclude that within ten years we shall receive television broadcasts as readily as we receive radio programs today. H. M. STOLLER