BOOK REVIEWS

Cinematographic Annual—Vol. 2. *American Society of Cinematographers*, Hollywood, Calif., 1931, 425 pp.

This volume contains contributed material from all branches of the motion picture industry, ranging from highly theoretical papers to those dealing exclusively with modern practice. The year 1931, according to Arnold, marked a return to the older technic of letting the camera tell the story rather than making the dialog and sound effects the chief element of the picture. More compact camera housings, improved film, and better quality reproduction of sound represent a few of the new developments. The editor reviews the advantages resulting from the newer panchromatic emulsions, his opinions being supplemented by two articles prepared by Huse and Chambers, and by White, respectively. Camera lenses are treated adequately in three papers. Warmisham gives useful data on chromatic correction of Cooke ciné lenses. Westerberg discusses transmission losses in lenses, and a precise method of testing lenses is described by Rayton. Stull discusses the elements of lighting in a well-illustrated article which deals chiefly with portrait or close-up effects, whereas Howe treats of the broader subject of set lighting, emphasizing the value of light for enhancing dramatic sequences. Carbon arcs for set lighting are dealt with briefly by Kalb, who also joins with Downes in discussing the characteristics of projection arcs. The making of miniature sets and the design of costumes is treated adequately by Ree, a well-known supervisor of art direction. Rose tells of some of his experiences in using a small camera for preliminary tests of set lighting. Several papers are included on laboratory technic, such as the evolution of film processing apparatus, making a fade-out by after treatment, process photography, graininess of photographic deposits, and optical printing. In the field of sound recording technic, MacKenzie has presented a comprehensive discussion of the sensitometric characteristics of light valve records. Jones gives a brief summary of his extensive research in the theory of tone reproduction, and Sheppard presents data on the relative masses of photo-silver in latent image formation. There are several other interesting papers on various subjects and a well-illustrated section on new equipment. An appendix includes many useful formulas and practical hints. The pictorial section reproduces sixty-four beautiful stills made by cameramen.

G. E. MATTHEWS

Photoelectric Phenomena. ARTHUR LLEWELYN HUGHES AND LEE ALVIN DUBRIDGE. *McGraw-Hill Book Company, Inc.*, New York, N. Y., 1932, 531 pp., $5.00.

This work comprehensively covers the field of experimental photoelectricity and summarizes in an able manner the relevant prevailing physical theories. The authors have made a most complete study of the original papers in this field and have presented the results in a clear and logical manner. The complete references to the original work will be of special value to the worker in this field. For those interested in the technological applications of photoelectricity, the book

should be a valuable guide to fundamental principles and to experimental methods and results.

The book is divided into fourteen chapters. The first chapter is an introduction to the subject and is followed by five chapters devoted to the emission of electrons from metallic surfaces when illuminated by visible and ultra-violet light. Four of these chapters are devoted to a presentation of experimental results and the fifth to the prevalent theories of photoelectric emission. The writers, who are primarily experimental physicists, have presented the theoretical material in such a clear and understandable manner that the applied physicist and engineer should be able to obtain a valuable insight into the theoretical aspects of the subject from this treatment.

Chapter VII presents the experimental results on ionization of gases and vapors by ultra-violet light. The photoconductivity of solids is treated in Chapter VIII. Photovoltaic effects and the rather uncorrelated work on the photoelectric effects in liquids and insulators are treated in the next two chapters. In Chapter XI is given a limited treatment of the very broad field of the photoelectric effects of x-rays and gamma rays. The material selected for this chapter is consistent with the general field of the book.

Chapter XII gives a valuable summary of technics that have been used in experimental photoelectricity. The last two chapters deal with applications of the photoelectric effect and with several unclassified subjects. The authors limit themselves to a very general statement of the technological applications and make no attempt at rigor or detail in discussion of the engineering problems involved.

This book is a most worthwhile contribution to the literature of experimental physics and through its comprehensive critical survey and review of experimental work has established a valuable milestone for the future worker in this field.

M. J. KELLY