books reviewed

Practical Sensitometry

By George L. Wakefield. Published (1970) by Fountain Press Ltd., 46–47 Chancery Lane, London, W.C. 2A 1JU, England. (Represented in the United States by Morgan and Morgan, Inc., 400 Warburton Ave., Hastings-on-Hudson, NY 10706.) 238 pp. Illus. Diagrams. 6 by 8½ in. Price 50 s.

This book is a fairly complete practical treatise on sensitometry, with special emphasis on its application in the field of still photography.

The first chapter — on densitometers and density measurement — discusses and defines density, transmission and opacity, and gives a good description of the relationship of specular, totally diffuse and doubly diffuse density to printing conditions. Visual and electronic densitometers are discussed, and several commercially available densitometers are described.

Chapters 2, 3 and 4 are devoted to light, its color quality, intensity measurement and modulation. Dr. Wakefield points out that it is important not to confuse the brightness of a source with its intensity. He explains the difference by means of a simple example: "If we look at a car headlamp bulb while it is alight, even with no reflector behind it, it is dazzling bright. This is because the filament is very small and the intensity per-unit-area is high. Use the same lamp to light a room and the illumination is pitifully inadequate because the intensity, i.e. brightness × area, is small."

Chapters 5, on sensitometric exposures, and 6, on processing, outline practical darkroom techniques for the photographer. An enlarger without a negative in the carrier is suggested as even illumination. For short exposures, it is suggested that the regular enlarger lens be replaced with one having a shutter. The uses of several processing techniques are described, including tray, spiral tank and vacuum flask, but the only systems discussed in detail are the current USASI, BS and DIN systems. The worker is advised of the need for good temperature control in sensitometric processing and warned about the inaccuracy of most common thermometers used by photographers.

The remaining chapters are devoted to the application of sensitometry in the specific areas of black-and-white and color printing, copying and duplicating, with subdivisions in masking and tone reproduction. Of particular interest are the sections on color sensitometry which discuss the evaluation of multilayer color materials and the interpretation of their sensitometric curves. A sample series of three color densities is given for both negative and reversal materials so that the reader can practice plotting and evaluating his own set of typical curves. These can be compared to the illustrations and evaluation furnished by the author in the appendix.

The stated aim of this book is to show the photographer how sensitometry can be put to work in everyday photographic practice. Dr. Wakefield seems to have achieved his aim quite well. He has produced a thoroughly readable book which concentrates heavily on the application of basic principles and contains only a minimum, though adequate, theoretical discussion of their origins. Unfortunately, the emphasis on the techniques and equipment necessary to produce a paper print limit the usefulness of this book for the motion-picture laboratory technician. — *Roderick T. Ryan*, 2636 Stoner St., Los Angeles, CA 90064.

The Technique of the Sound Studio: Radio, Television and Recording (2d ed.)

By Alec Nisbett. Published (1970) by Hastings House, Publishers, Inc., 10 E. 40 St., New York, NY 10016. 560 pp. Illus. Diagrams. 5½ by 8½ in. Price $13.50.

The first edition of this book was reviewed in the April 1964 issue of the *Journal* by Clyde R. Keith who noted that the book "is for the operator of sound equipment rather than for the design or maintenance engineer." The second edition has been considerably expanded and has been brought up to date. The book has been revised by the author and 240 pages

of text and 174 new diagrams have been added. A Glossary and a Bibliography are included.

As Mr. Keith pointed out in his review of the first edition, the book is of particular value to the advanced amateur and also to the beginning professional. This evaluation is also true of the second edition. Within the limits of the author's stated intention ("The book is concerned with general principles. . .it places great emphasis on training in the use of the ears, telling what to listen for.") it is highly successful.

Although the book is not intended as a technical book for engineers, it does contain some topics of interest. Included is an extensive discussion of microphone placement and several chapters are devoted to microphone balance of speech and music. Other chapters discuss tape editing and film sound editing. — *Edit.*

Biological Engineering

Ed. Herman P. Schwan. Published (1969) by McGraw-Hill Book Co., 330 W. 42 St., New York, NY 10036. 556 + x pp. Diagrams. 6 by 9 in. Price $18.50.

With the explosive growth of electronics, there is a general feeling that somehow, engineering will play a major role in resolving many problems in the increasing demands of modern medicine. But since biology is a complex subject, and engineering can interact with it in many ways, from mathematical theory, to ecology, to the clinical care of patients, the field of biomedical engineering is diffuse and poorly defined. A book on the subject faces a dilemma. If it attempts to be comprehensive it will be shallow and satisfy neither the biologist nor the engineer. The editor of this book has chosen to avoid this dilemma by choosing "a representative sampling of sub-specialties, presented in greater depth."

The book has five chapters. Each is a major area of current fundamental biological research by an author who is an expert in that field. The common approach is to present the mathematical and physical principles that an engineer would use in collaborating with biologists in such research. There are references to technological developments and to clinical applications as needed to orient the subject matter, but these are deliberately restricted in favor of the basic theory.

The first chapter, "Mathematical Models of Excitation and Propagation in Nerve," by Fitzhugh, analyzes the transmission of signals down a nerve fibre as a problem in non-linear oscillatory systems. The several models, varying in complexity, that have been proposed to conceptualize nerve action are described and compared.

Chapter 2, "Biological Control Mechanisms," by W. Jones, studies a number of systems in the living organism as examples of control by negative-feedback regulation. Typical systems are spinal reflexes for muscle control, temperature regulation, and the exchange of chemical materials. The systems are characteristically multipath, adaptive, and very nonlinear.

"Absorption and Dispersion of Ultrasound in Biological Media," Chapter 3, by F. Dunn, P. D. Edmonds and W. J. Fry, is perhaps the most engineering-level chapter. It presents the basic physics of ultrasound, with an extensive set of tables of tissue properties, as well as the currently accepted theory of interactions and the implications of the theory for further exploitation of the technique.

Chapter 4, "Electrocardiography," by D. B. Geselowitz and O. H. Schmitt, is chiefly concerned with electric field theory. The heart is assumed to be a set of generators which cause currents to flow through a volume conductor, the body, and present detectable potentials on the surface. The engineer must invert this matrix and determine the source from the measured potentials.

The last chapter, "Hemodynamics," by A. Noordergraaf, is a thorough study of what is becoming a major medical research problem, the motion of the blood through the vessels. To the mechanical engineer, wave transmission in a nonlinear fluid contained in a nonuniform set of pipes with elastic walls, is a fascinating problem. Mathematical models are analyzed, but also the medical implications of the results obtained with these models are discussed.

Quite obviously this is not a textbook or an introductory guide to the field. However, while each chapter explores its subject in depth, each contains sufficient introductory material so that a nonspecialist can comprehend what is presented. The general technical reader might well want to examine this book to get a good picture of the technical sophistication toward

which biomedical engineering is moving.

This volume is No. 9 in the *Inter-University Electronics Series* of McGraw-Hill. The editor states as the series justification: "the need for unified state-of-the-art presentations that give authoritative pictures of individual fields of electronics." While not strictly electronics, this book meets this criterion. — *Saul Aronow*, Director of Medical Engineering, Massachusetts General Hospital, Boston, Mass.

The American Film Institute's Guide to College Film Courses 1970–71

Ed. by Linda B. Greensfelder. Published for the American Film Institute by the American Library Assn., 50 East Huron St., Chicago, IL 60611. 154 + iv pp. 5½ by 8½ in. Paperbound. Price $2.50.

More than 300 colleges and universities offering film courses at undergraduate and graduate levels are listed in this informative book. Titles of the courses are given together with the units of credit, average enrollment and the number of times each year the course is given. The list also shows whether the courses are for undergraduate or graduate students. The *Guide* also gives information about degrees offered, equipment and facilities provided.

The Institute's Education Department survey for the *Guide* found that the budget for film programs has increased on and average of 301% in the last five years in all schools surveyed. A total of 1,679 film courses is being offered during the 1970–71 academic year; 68 schools now offer a major in film; 3,015 undergraduates and 1,216 graduates are majoring in film. — *Edit.*

Films in America 1929–1969

By Martin Quigley, Jr. and Richard Gertner. Published (1970) by Western Publishing Co., 1220 Mound Ave., Racine, WI 53404. 379 pp. Illus. 8½ by 9 in. Price $12.95.

Some 400 films are described and illustrated in this nostalgic volume. The films are arranged according to the year they were released in America and a brief account of the nation-wide and world-wide events affecting the motion-picture industry is given for each year. The book is well written and the stills selected to illustrate the descriptions of the films are well chosen.

The illustrations for the earlier films have a tinge of sadness — all those handsome young faces that are now gone forever, or can be seen on the TV screen all wrinkled and jowly. However, it is pleasant to be reminded of all the good pictures one has seen over the years. It is also interesting to note some profound changes in public taste.

This is a book that should be much enjoyed by anyone who cares at all about films and filmmaking. — *Edit.*

Guide to the Ford Film Collection in the National Archives

By Mayfield Bray. Published (1970) by National Archives and Records Service, GSA, Washington, DC 20408. 118 + xiii pp. Illus. 7 by 10 in. Price $5.00.

The book contains brief descriptions of the films presented to the National Archives in 1963 by the Ford Motor Company. Most of them are educational and news films produced by the Ford Motor Company (at one time one of the world's largest producers of nontheatrical films).

Ford started producing films in 1914. The early films were 10- to 15-min "on-the-spot" news features and short films about cities and subjects of general interest. Later films dealt with educational subjects such as banana raising and beekeeping. All industrial processes relating to the manufacture of automobiles were thoroughly documented on film.

The films in the collection were made between 1914 and 1953 and constitute an historical record of considerable potential value to researchers. A few of the films in the collection are from sources other than the Ford Company.

The illustrations (stills from the films) are representative of the collection and also give an idea of the condition of the film. Most of the film is in good condition.

The book is intended mainly to facilitate the use of the Ford Film Collection — *Edit.*

The Image Empire: A History of Broadcasting in the United States From 1953

By Erik Barnouw. Published (1970) by Oxford University Press, 200 Madison Ave., New York, NY 10016. 396 pp. 6 by 9 in. Price $9.75.

This is the final volume in the three-volume *History of Broadcasting*. The first volume, *A Tower in Babel* (reviewed in the December 1966 issue of the *Journal*),

covers the years between Marconi's pioneering in wireless telegraphy in the early 1890s and President Franklin D. Roosevelt's first inauguration in 1933. The second volume, *The Golden Web* (reviewed in the May 1969 issue of the *Journal*), covers the years between 1933 and 1953. *The Image Empire* carries the reader from the Joseph McCarthy hearings in 1953 through such historic events as the "Bay of Pigs" ("The very term, 'Bay of Pigs fiasco' used repeatedly on the air was a face-saving term. It made the failure, not the action, the subject of discussion."), the terrible series of assassinations, the landing on the moon and the election of President Nixon, as well as many other significant events that made television history as well as world history.

This book and the two previous ones are considerably more than mere chronological reporting of the development of television and fascinating behind-the scenes glimpses of events related to the televising of moments in history. This is a genuinely important book of lasting value. This volume shows the television industry, closely allied with American business and military interests, becoming an international force — as well as a powerful influence on national opinion — with far-flung political and social implications.

In one sense this is an easy book to read. Stylistically it is a gem. It is replete with anecdotes and the amount of research that must have gone into this book is impressive; but the book is never heavy-handed nor didactic. On the contrary, the less scholarly-inclined reader can read it with the same avidity that he would read a novel.

But in another sense it is a hard book to read. It is iconoclastic, honest and frightening. Although Mr. Barnouw's voice is by no means the Voice of Doom and his evaluations, suggestions and conclusions are set forth in a quietly moderate fashion, the facts, as he recounts them, can arouse the emotions of "pity and terror" in the vast audience of television viewers. The "average reader" (whatever that convenient term means) will be shaken out of his complacency and will find himself regarding some of his favorite television series (e.g., *Mission Impossible, Land of the Giants* and a number of "kiddy" programs) with suspician. He will also, no matter what his political predeliction, find an unwelcome question in his mind as he looks at newscasts and documentaries ("Is anybody fooling me, and if so, WHY?")

An extensive bibliography (19 pp.), Appendixes (Chronology and Laws) and an excellent index aid the serious reader This is a book that should be read — and carefully read — by anyone who has ever so much as turned on the six o'clock news as well as by dedicated viewers. — *Edit.*

E. & H. Anthony & Co. Illustrated Catalogue of Photographic Equipments and Material for Amateurs (facsimile of 1891 catalog)

Published (in exact facsimile) by Morgan and Morgan, Inc., 400 Warburton Ave., Hastings-on-Hudson, New York, NY 10706. 135 pp. Illus. 6 by 9¼ in. Paperbound. Price $4.95.

This book, a facsimile of the 1891 catalog (including its decorative cover in ivory, maroon and gold with curlicues, pine branches and stylized cameras) reflects a period "of transition in photographic equipment, following the successful production of gelatin dry plates in the early 1880s," according to Eaton S. Lothrop, Jr., Editor, and publisher, of *The Photographic Collectors' Newsletter.*

The overworked word "quaint" seems unavoidable in attempting to describe this delightful catalog. Obviously, it has special interest for historians and researchers, but it is also a charming bibelot for anyone interested in photography and/or the late Victorian era. This reviewer found especially amusing the group of cameras called "detective cameras," especially the P.D.Q. (Photography Done Quickly) camera. Ingenious devices were used to disguise the detective cameras. One of them (Dr. Krugener's Patent Book Camera) had "the appearance of a neat 16mo volume bound in black leather and only upon the *closest inspection* would it be suspected that it was anything else."

In addition to cameras, the catalog lists numerous other items, including plates and accessories, film, shutters, trays, magic lanterns, bicycle equipment, papers, holders, tripods and others (230 indexed items are included). The illustrations (191 in all) are faithful illustrations of the line illustrations in the original catalog. — *Edit.*