Coming in the April *Journal*—

- The Potential of Super 8 in Television
- Audio Performance of Magnetic Prestriped Super-8 Motion-Picture Films
- A Kit to Improve the Efficiency of Existing Model "C" Printers in the Lab
- Wide-Range Depth-of-Field Calculators
- The Design of Television Color Rendition

In addition, the April issue will contain the newest SMPTE Standards and Recommended Practices, plus all the regular SMPTE *Journal* features including industry news and new products.

All SMPTE members receive the SMPTE *Journal*. If you're not an SMPTE member and wish to share in the benefits membership can bring (including a *Journal* subscription) fill out and send in the membership application on page 243 of this issue.

The SMPTE *Journal*

books reviewed

The Perception of Color

By Ralph M. Evans. Published (1974) by John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10016. 248 + ix pp. Diagrams. 5½ by 9 in. Price $14.95.

It is currently of great interest to find new discussions on visual perception, particularly in reports based on experimental work. The name of Ralph Evans was long associated with color and its perception, and its description has been a knotty problem. In the matter of vision it was clear that there are differences among persons. But it was also noted that except for a really minor portion of the population the individual differences are actually small. Small to the extent that the CIE (International Commission on Illumination) were able to standardize color measurements quite satisfactorily with the assumption of a typical "standard observer." But the subjective perceptual phenomena are a further step.

A considerable portion of this book is devoted to perceptual phenomena involved in the problem of heterochromatic photometry. This is the matter of measuring the perceptual luminous strengths of lights of different colors. The strength has been considered equal for two halves of a divided test field when the half of one color appears neither darker nor lighter than the half of the other color. They are both then said to measure the same number of millilamberts. This comparison, it happens, is difficult to make for inexperienced observers. The lightness or darkness can be easily confused with the relative vividness of the two halves of the field. That characteristic may again be confused with the realtive saturation of the colored lights, but that parameter can be isolated where the two lights are each monochromatic spectral sources. At one point the author describes the perceptual problem thus: "At 100 millilamberts in a 10° isolated stimulus, for example, λ430 nanometers (bluish purple) is dazzling and λ574 nanometers (yellow) can be considered as only comfortably bright. It is because this 'other variable' as seen in an isolated stimulus is very much like brightness that it has been customary to say that hue, saturation, and brightness are the *only* perceptual variables involved in such stimuli . . . We can anticipate our later conclusions by stating at this point that it is this other variable that the experts had to *learn to ignore* in order to make a luminance match, visually, between widely different wavelengths . . . It is closely allied to MacAdams's 'chromatic moment'."

The author has carried out and reported many experiments in perception on this point, and a substantial portion of the book is devoted to summarizing them. He finally concludes that while three parameters are necessary to specify color in a stimulus, four or more pa-

rameters are required to describe a perception of color. He considers that this is at the root of many ambiguities and contradictions by past distinguished writers on the subject of color.

The book goes into other matters involved in the perception of color, such as adaptation effects (including the separate adaptations of the two eyes, metameric colors, the visual arrangement of color stimuli (such as those of Munsell, Ostwald, Hering, the Uniform Chromaticity System, and others), the Land peculiar adaptation effects, scotopic phenomena, anaglyphs, etc.

Those who have been charmed by the typical simplicity and clarity of the language used by Ralph Evans in the past will find it harder going here. In part this may be due to the greater complexity of the phenomena that he is discussing, and in part due to the book being posthumously published, so that the author had only a limited possibility of editing the text in manuscript. In spite of Bonnie Swenholt's careful work a number of "rough spots" remain. The book will nevertheless be of considerable interest to all those involved with the use of color in almost any application. — *Pierre Mertz*, Meadow Lakes 901, Etra Rd., Hightstown, NJ 08520.

Book Design Note: The text is page after page of even, flat dark gray large-sized type without space between lines. The first impression discourages the reader; assiduous attention will enable rapid reading though there are too few words to the line. The Bibliography is a splatter of badly spaced headings and items, perhaps designed and composed by an overriding computer on short rations. This is discouraging because other books by this author, particularly *An Introduction to Color*, have been very attractive and encouraging for the reader. — *Editor, SMPTE*

Photometry and Radiometry for Engineers

By Allen Stimson. Published (1974) by John Wiley & Sons, Inc., 605 Third Ave., New York, NY 10016. 446 + xiv pp. Illus. Diagrams. 6 by 9 in. Price $19.95.

In his preface, the author states that "This book is for engineers who need photometry and radiometry in their work but whose main work is in other disciplines" and, further, "This book contains information on photometry and radiometry that I consider to be most useful to optoelectronic engineers." Achievement of these objectives requires broad coverage in the topics treated, which is quite evident in this volume, but this breadth should be accompanied by careful consideration of the background of information required for the successful use of the text, which is not equally evident in the presentation.

The book itself is divided into twenty chapters, three appendices, a reference section and a topical index. The five longest chapters are Chapter 3 (38 pages), Sensors of Radiation and Illumination; Chapter 4 (27 pages), Circuits for Optoelectronic Sensors; Chapter 5 (56 pages), Sources of Light and Radiation; Chapter 6 (46 pages), Control of Light and Chapter 19 (30 pages), Photometry in Photography.

The chapter on Sensors considers and dismisses the eye as an effective instrument for measuring brightness, although it is able to make comparisons under carefully controlled conditions. A wide range of photoelectric sensors are considered and compared. The most sensitive are photomultiplier tubes which can be selected with a sensitivity high enough to detect the illuminance "during a starless and moonless night." Much information is given on photoconductors, photovoltaic cells, photodiodes and phototransistors. In addition, the characteristics of thermopiles, bolometers, photographic film, xerography, photochromism and phosphors are considered as means of measuring illuminance. Mention is made of Darlington phototransistors (page 45) consisting of two phototransistors "connected in the Darlington configuration." Search for information on this configuration was unsuccessful. The topical index referred the reader to page 48 for Darlington phototransistors and there was no reference indicated for further information on the subject.

Circuits useful in using optoelectronic sensors are considered in Chapter 4. A great many of the diagrams shown here may be considered schematics. Resistances are indicated in the diagrams with little or no information as to the values used. In this chapter, a reader familiar with solid-state circuitry will have an easier time than other readers. In spite of this limitation, it seems quite probable that this will prove one of the more valuable sections of this book.

Chapter 5, (Sources) gives data on a large number of sources, varying in intensity from sunlight and high temperature black body ra-

diation to nuclear powered light sources used as markers in dark rooms. Many of these sources are continuous, but combustion and electronic types of flash lamps are also considered. Spectral energy distributions of many sources and their resultant color temperatures are given. Some of the basic problems associated with the use of the term "color temperature" are discussed. "Correlated color temperature" is mentioned in the text and "mireds" is used in Figure 5.4 but neither of these terms is here defined, although reference to definitions of both terms can be found in the Index.

Control of light is presented in Chapter 6 as including control at the source, of its origin and intensity and of its path by mirrors, lenses, prisms, gratings, filters, polarizers and diffusers. An accurate illuminance photometer is discussed under the heading "Directional Systems." Paragraphs on "Light Pipes and Fiber Optics" and "Optical Interference Components" with discussions of antireflection and mirror coatings and brief mention of interference filters conclude the chapter.

The other long chapter in the book, Chapter 19 (Photometry in Photography) is one in which the author speaks from special personal experience with years of work known to this reviewer. This chapter speaks with clarity and authority in its field and deals with many of the problems of sensitometry encountered in using photographic methods of measurement and in establishing standards for film speeds, exposure guides and exposure meters.

Shorter chapters in this book include five devoted to measurements of optical radiation, illuminance, luminous intensity, color temperature and luminance. Illustrative examples are presented and photographs of commercially available meters are included. Two chapters are devoted to radiometric and photometric standards, precision attainable and problems in the attainment of that precision.

The chapter on colorimetry offers a good but brief review of that subject and the measurement and designation systems which have been evolved in this area.

A similar word of commendation can be given for the chapter on lasers — which in this text is treated as a separate subject. This separation is first evidenced in the omission of any mention of lasers in the otherwise quite complete discussion of sources of light and radiation (Chapter 4). Of course the conciseness of this presentation of material in this developing field has some disadvantages, but these are mitigated by the free use of references, giving the reader direct access to the reports of workers in the field.

In considering the organization of the work as a whole, this reviewer was (and remains) somewhat puzzled concerning the criteria used in the selection and arrangement of material within the volume. For example, Chapter 2 discusses (defines) selected radiometric and photometric terms. Appendix A starts with a "Glossary of Related Photometric and Radiometric Terms" which, in turn, is followed by an "Alphabetical Glossary." The criteria and reasons for the choices made is not self evident.

Appendix B, Supplementary Technical Information, gives detailed information on topics germane to the subject of the book. It includes a section, B.4., on the Capacitor and Inductor in Electronic Circuits, which is written at a level which does not seem consonant with the authors announced intent of writing for engineers.

This book makes frequent use of diagrams from other publications, with use permission noted, but this leads to some cases of inclusion in diagrams of lines or symbols not explained in the text. The case of Figure 5.4 was noted earlier. Figures 3.11 and 3.15 contain series of dotted lines to which no reference was found. Fig. 3.11 had a credit line but 3.15 did not, suggesting that this was an original plot.

The presentation of "References" as a unit at the back of the book is appropriate to the writing style chosen for the text. These references rely heavily on company catalogs and bulletins, a source of material that may be lacking in many general libraries.

This reviewer considers that the technical value of this book far outweighs its minor disadvantages and expects that it will find valuable use in the field. — *Deane R. White*, 60 Devon Rd., Colonia, NJ 07067.

Small Studio Video Tape Production

By John Quick and Herbert Wolff. Published (1972) by Addison-Wesley Publishing Co., Reading, MA 01867. 229 + vii pp. Illus. 6 by 9 in. Price $11.95

This book is written for the small-studio video producer, or the person who is about to become one, in business, government, or education. The blurb on the jacket says, "this is the book that tells you what small-studio professional standards are. It takes you through each step of the video tape process, from program planning to post-production. And it gives you the kind of solid down to earth advice you need to run a small-studio operation,

HIGH FIDELITY IN SUPER-8 THE BEAULIEU "5008S"

Sound. The newest dimension in Super-8 movie making. With Kodak's new sound movie cartridges, you are now able to film perfect lip synchronized sound movies using only a sound-on-film Super-8 camera and a microphone.

Beaulieu was first to take this concept of sound-on-film Super-8 and give it a professional touch with the introduction of the "5008S".

Professional "High Fidelity" Sound

Insert a new Super-8 sound-on-film cartridge. Plug in the mike. Then, focus. That's all the preparation you need. With the Beaulieu "5008S", you're now ready to start filming professional quality, high fidelity sound Super-8 movies.

An amplifier is built into the camera which records perfect lip synchronized sound directly onto the magnetic stripe of your sound film. The camera records high fidelity sound, both in treble as well as bass (*frequency response:* 50-12,000 Hz ± 1.5 dB; *distortion:* less than 0.75%; *signal-to-noise ratio:* 57 dB; *wow and flutter,* attenuated peak: less than 0.4%).

The "5008S" modulates the single system sound recording automatically. Or, you can modulate the sound "manually" as you are filming (by using the VU meter).

From the "Widest" Wide Angle . . . To An Extremely Long Telephoto

Imagine what you could do in 35mm still photography with a 35-400mm zoom lens!

You can achieve this comparable effect with the Beaulieu-Optivaron 6-66mm (11 to 1 zoom ratio) lens on your "5008S".

Continuously Variable Power Zoom

The power zoom of the Beaulieu "5008S" is continuously variable. You can travel the full focal length range in 2 seconds, or 12 seconds *(or any speed in between).*

Macrocinematography (Special Effects)

Film macrocinematography (insects, coins, stamps, and other small objects) *–without the use of attachments or additional accessories*–at any distance ranging from the front lens element to five feet.

A unique, additional feature of the Beaulieu macro system is the ability to create special effects such as soft-focus fade-ins and fade-outs.

Fully Automatic Exposure Control

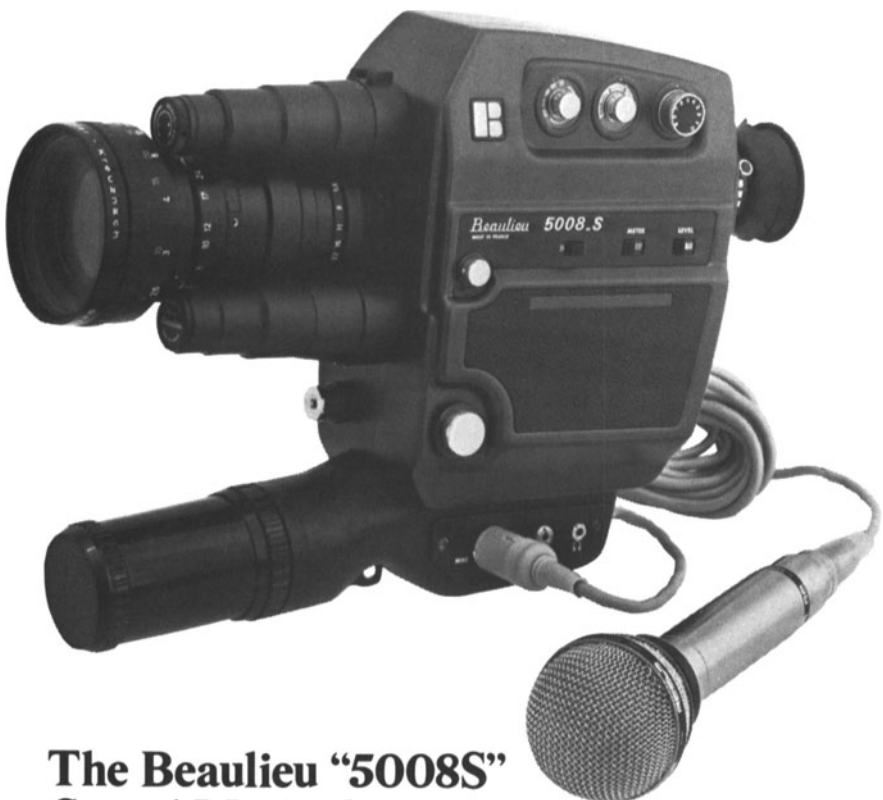
The diaphragm of the "5008S" operates automatically and *stops instantly* at the right aperture. Exposure accuracy is governed by a new Reflex-matic Motor (Beaulieu-patented). (This feature has "Manual Override".)

Lens Interchangeability

Although the "5008S" comes equipped with a 6-66mm zoom lens . . . you can interchange an unlimited number of other lenses in order to create a certain feeling or effect in your films. The camera accepts all "C" mount lenses, as well as 35mm still camera lenses (when using the proper adapter).

For full information on the new Beaulieu "5008S" HIGH FIDELITY SOUND Super-8 Camera, please write to:

HERVIC CORPORATION
14225 Ventura Boulevard
Sherman Oaks, California 91423



The Beaulieu "5008S" Sound Movie Camera
(equipped with a Beaulieu-Optivaron 6-66mm zoom lens)

and run it well." This description is a precise one, and the authors have accomplished their aim most successfully. Messrs. Quick and Wolff have long track records in TV, radio, and film production in the private sector, in major corporations, and in colleges. In addition, they have enlisted the services of six top professionals in the field, some of whom have spoken before Society conferences to review the material.

This then is a book by working practitioners who know from actual work experience whereof they speak. I dwell on this at some length, because, as a college teacher and reviewer of books in the communications field, I am constantly annoyed at the length, the repetition, the pomposity of the jargon, and the pervasive vagueness encountered in works on TV production and mass communication. These books usually, if not always, start with a variant of the communication model (transmitter-receiver, etc.) and then go on to some 600 pages of repetition without however ever becoming very specific. Many of these authors have impressive college records, but little or no experience in a professional studio.

By contrast, the present book manages to cover its field in a small space — some 220 pages including a glossary and a useful list of Associations, Manufacturers, Facilities and Suppliers. The planning, space requirement, and equipment for a studio is discussed first, with many illustrations of current production equipment. Personnel, planning, and operations are next covered in specific details, pointing out especially those pitfalls that are not immediately obvious. Chapters on designing visual aids, sets and props, and on lighting, are followed by a complete description of the production process and a section on script preparation. The concluding chapters cover locations and the use of outside facilities, postproduction, videocassettes and other playback systems, and storage and handling of tapes.

The authors throughout have managed to anticipate the questions and uncertainties in the mind of the beginning or partly skilled producer. The information throughout is very complete, accurate and up to date. Costs and budgetary considerations are indicated, as well as planning for future expansion. In short, the book does exactly what it set out to do, and it does it very well. The style is functional, straightforward and readable. This work is highly recommended for anyone interested in learning about the small studio from the beginning, or for the fledgling producer desirous of improving his skill and understanding. I would consider adopting it as a primer of operations for a college course in TV studio operation. *Murray Duitz*, A.R.P.S., Film Producer, AV Consultant, 1004 Barth Drive, Baldwin, NY 11510.

A Companion to the Movies: From 1903 to the Present Day

By Roy Pickard. Published (1974) by Hippocrene Books, Inc., 171 Madison Ave., New York, NY 10016. 288 pp. Illus. 5 by 8 in. Price $8.95

According to the book jacket, this work is intended to be a guide to the leading players, directors, screenwriters, composers, cameramen etc, who have worked in the English speaking cinema during the last 70 years. It contains over 1000 entries including reviews of nearly 100 classic films. Within its self-imposed limitation of size and space, the compilation is a good one. However, there is no getting away from the need for a really huge book to begin to do this job, simply because of the enormous number of films around.

The book is organized into categories of films: Comedy, Fantasy, Thrillers and Crime, Westerns, Musicals, Romance, Epics, Warm Swashbucklers, Adventure. Under each category is listed the screen credits of 10 or so films that are deemed by the author, to be "classics" or otherwise significant. The categories are followed by a Who's Who listing of talent and production personnel who have worked in the particular category, together with dates, a brief biographical note and their filmographies. The number of people so listed varied from 62 in the Comedy category to 105 in Thrillers and Crime. The films selected for listing also include a capsule review consisting, in general, of a synopsis and brief comments on high spots.

Two listings are included of novels and of plays that have been made into films. There are 114 novels and 75 plays listed with credits from the resulting films, including two versions in some cases. The Appendices include: Check List of Cameramen, Check List of Composers, Check List of Original Screenplays, and List of Academy Awards.

The book is not an encyclopedia and can not presume to compete with the larger works, nor with the yearly trade listings. It also omits foreign language (and silent) films. It is recent and so has the advantage of including some contemporary titles. Within its limitations, the work is an interesting one, and can be a useful reference tool, although not a research one. — *Murray Duitz*, A.R.P.S., 1004 Barth Dr., Baldwin, NY 11510.