



SPECTRA

Brightness Spot Meter



- Checks uniformity of blue backing for matte shots directly from camera position
- Checks brightness of selected areas on set to determine brightness range
- Checks color temperature of light sources to maintain uniform color quality
- Shows footcandle output of individual light units without interference from other sources
- Measures uniformity of illumination and discoloration of projection screens for any distance or angle
- Maintains standard brightness and COLOR TEMPERATURE of printer lights

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books reviewed

Mathematics for Electronics With Applications

By Henry M. Nodelman and Frederick W. Smith. Published (1956) by McGraw-Hill Book Co., 330 W. 42 St., New York 36. 360 pp. + 14 pp. appendix + 14 pp. index, Illus. 6 X 9 in. Price \$7.00.

As its title implies, this book is intended primarily for the study of certain topics in mathematics which are useful in the analysis of problems arising in electronics. Most of the material, therefore, applies to only one part of the field of motion-picture engineering. However, much of the theory is of general interest, since it is applicable to broader problems of the motion-picture art.

There are some sections and problems which relate to specific phases of the motion-picture field. One section and problem both concern disk recording, one section illustrates an application of the theory to luminance problems, and a problem concerns an acoustics application, that of loudness-weighting equalization. These, however, constitute only a fraction of the total volume. Thus, although the book is specifically useful in some cases, it might not be one to which the motion-picture engineer would normally refer for general information.

For the field of electronics, however, the book represents a different and refreshing approach to higher mathematics — that of "learning by doing." For the person who has, in the words of the authors, "a background of elementary calculus, physics, and elementary network theory," it helps to bridge the very important and often neglected gap which exists between the mathematical theory as presented in most textbooks, and the application of this theory to the solution of practical problems. In place of carefully rigorous proofs often found in mathematics textbooks, practical problems are numerically solved to illustrate the methods of solution. In many cases, these problems serve as proofs.

The presentation of information is, on the average, extremely good. The inherent drawback to the "learning by doing" method, that of learning to solve only specific problems, is to a great extent overcome by the wealth of different types of problems presented.

The subject material includes dimensional analysis, determinants and matrices, Taylor series, and Boolean algebra. One serious omission is the lack of any discussion of Fourier Series. On page 360 this topic is rated higher in importance than such topics as Laplace Transforms and Matrix Algebra. However, although the

latter subjects are covered in some detail, only a few references are made to Fourier Series and Fourier Transforms, and nowhere are the general Fourier Series expansion formulas given. Also, the extension of the determinant theorem 5-7B on page 90 is not valid, and equation 5-45 on page 91 is therefore in error.

Although these drawbacks, particularly the omission of the Fourier technique, reduce the value of the book, the material is well arranged and provides the student with the often-lacking motivation for study.

In conclusion, the lack of problems pertaining to the motion-picture field makes the book of only general interest to many motion-picture engineers, but electronics and television engineers should find it interesting and useful.—*Harvey W. Mertz, TechRep Div., Philco Corp., Tioga and C Sts., Philadelphia 34.*

Lenses in Photography

By Rudolf Kingslake. Published (1951) by Case-Hoyt Corp. for Garden City Books, Garden City, N.Y. 246 pp. Illus. 8½ X 5½ in. Price \$2.95

(*Edit. Note: Through no fault of the present reviewer, this book has far too long awaited attention in the Journal.*)

The inquiring cameraman who wants to know how and why one lens differs from another frequently lacks mathematics. Without this background to study advanced texts, he may find little of substance in popular articles to answer his questions. This is the man to whom Mr. Kingslake's book is addressed.

The book contains much of factual content, even for the man who has sufficient mathematics to follow advanced texts, and is presented in easily understood language. Terms are precisely defined and terminology is consistent throughout the text. Well-conceived illustrations demonstrate very effectively such lens defects as different types of distortion, coma, ghost images and flare. The story on types of photographic objectives provides good historical background. Motion-picture taking and projection lenses are adequately covered. A bibliography is included for more detailed background when required. Coverage is not confined to lenses, but includes such material as screens, viewfinders, shutters, condensers used in projection, stereoscopy and perspective.

Where mathematical terms or formulas are used, their significance is explained by diagrams or photographic illustrations. Thus, in entering into a discussion on specular and diffuse densities of an emulsion (a point ordinarily avoided in cursory popular treatments), the author provides simple diagrams which make the technical content clear and interesting. This material follows and emphasizes a related discussion on reflection from projection screens. Through such treatment, the reader is easily introduced to a gratifyingly wide range of subject matter. In this reviewer's opinion, the book is a masterpiece of clear, simple writing.—*Bernard D. Plakun, General Precision Laboratory Inc., Pleasantville, N.Y.*