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books reviewed

Transistor Circuits for Magnetic Recording

By N. M. Haynes. Published (1964) by Howard W. Sams & Company, Inc., Indianapolis 6, Ind. 384 pp. incl. preface, table of contents, appendixes, index, diagrams, illus., 5½ by 8½ in. Price \$9.95.

This book ought to have the word "audio" in its title, for it is concerned with audio recording. Video is not considered; however, two chapters supply an introduction to FM and digital recording.

The author's preface promises to avoid

complex mathematical treatment, and in this he has succeeded. The book is clearly written, and, for the most part, qualitative, rather than quantitative. For this reason, it will appeal to technicians and service engineers, but will disappoint design engineers.

The subject material is divided into four parts: Part I, *Transistors*; Part II, *Magnetic Recording Elements*; Part III, *Sectional Circuitry*, and Part IV, *System Circuitry*. Three appendixes supply additional information on Decibel Nomenclature, Circuit Perturbabilities (to temperature, voltage, etc.) and Typographical Circuit Diagrams (which is a shorthand notation for signal flow). The author makes considerable use of abbreviations; perhaps too much so, for the reader is never sure which ones are common, and which ones were invented by the author.

Part I, *Transistors*, is particularly well written for it introduces transistors without employing transistor physics. Part II, *Magnetic Recording Elements*, is clearly written, but contains numerous minor errors. Readers looking for information on magnetic recording might well consider reading other books and articles for verification, or, better still, make the measurements themselves. This part covers noise, the recording process, magnetic heads, and basic circuit requirements. Part III, *Sectional Circuitry*, covers "blocks" of circuits such as pre-amplifiers, equalizers, output amplifiers, bias oscillators and motor control circuits. This is the heart of the book, and it is well written. Of particular interest is the chapter on motor-control circuits, an area about which little has been written previously.

Part IV, *System Circuitry*, shows how the blocks of the previous part are put together to form recording channels, playback channels and complete recorders.

This book can be recommended to technicians, service engineers and others who are curious about the subject, but designers will find a minimum of design data.—*Charles B. Meyer*, Radio Corp. of America, Broadcast and Communications Products Div., Camden 2, N.J.

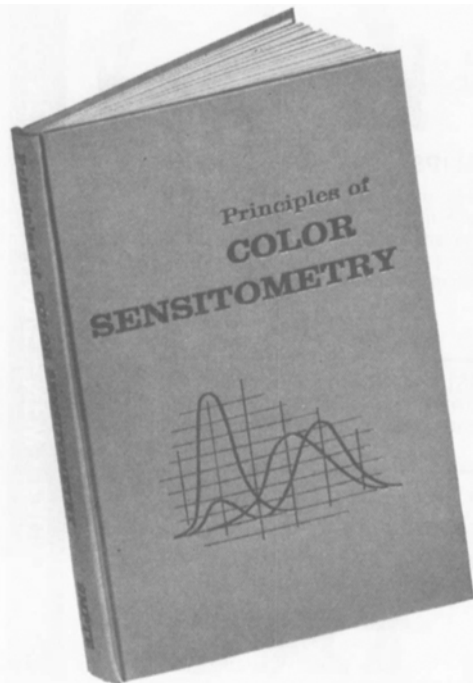
Principles of Cinematography (3d Ed.)

By Leslie J. Wheeler. Published (1963) by Fountain Press, 46 Chancery Lane, London, W.C.2, England. 424 pp. Illus., index, bibliography, 8½ by 5½ in. Price 75s.

This third edition of a book initially published in 1953 brings to the reader a wealth of information on many aspects of motion-picture work. The title is misleading because the content goes far beyond basic principles. The volume is actually an encyclopaedia of motion-picture technical facts.

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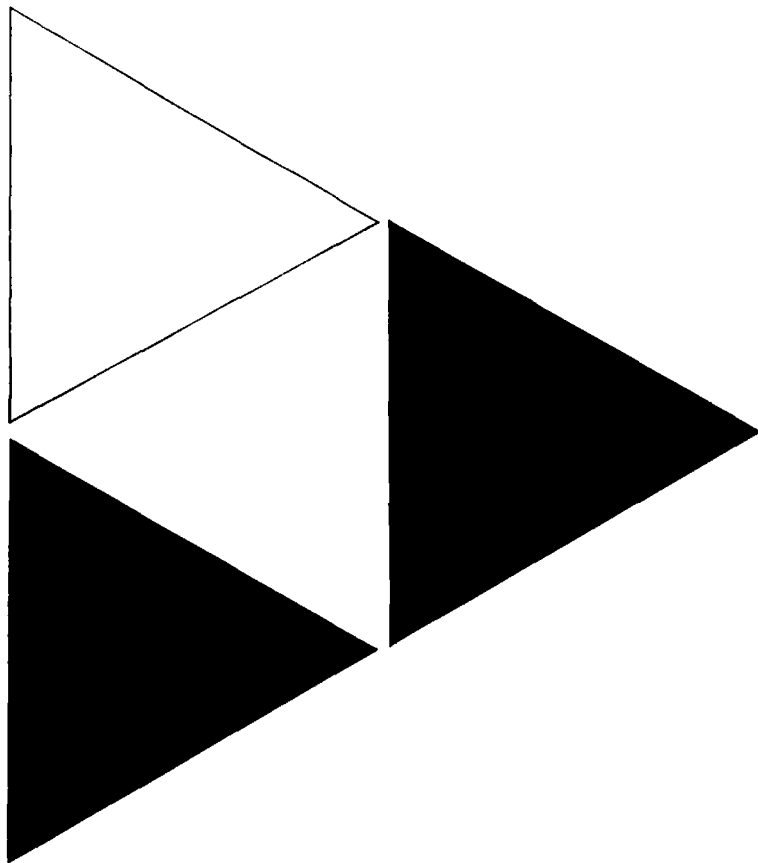
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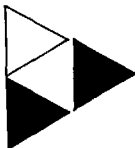
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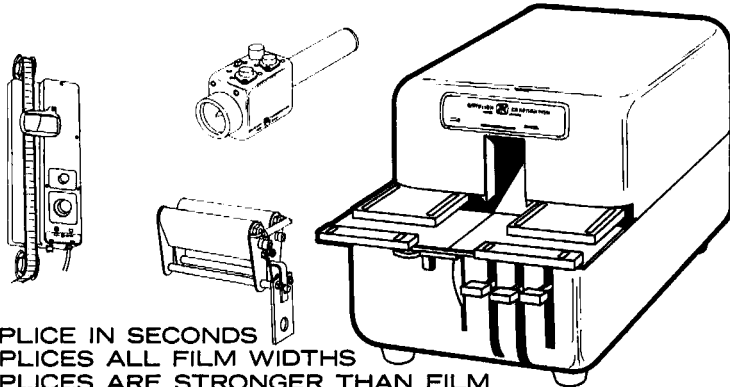


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The subject matter is of most interest to those with engineering interest in motion-picture work, including students entering the field and individuals who have to do with any technical work in the laboratory, or studio or with the design of equipment.

The reader should be cautioned that there are some differences in nomenclature between England and the United States. Also, there are a few matters which will bear careful scrutiny if the reader is to avoid confusion. For example, in Fig. 1.9 (p. 38) there is a line drawing of a few frames of 35mm film captioned "A Married Print" which in American terminology would be called "A Composite Print." The diagram and text explain that the emulsion faces the reader and that the soundtrack is on the right. No mention is made as to whether the picture is upside down or right side up, thus lacking information that would make this diagram either correct or incorrect.

On page 58 the author states, "One novel design intended to minimize these variables is the Bell & Howell Shuttle Gate, which although used in printing machines and not in camera equipment..." This is a reference to a particular type of intermittent movement. In point of fact, this type of movement is used in certain cameras for process photography, animation and stop-motion work, and optical printers. This is not in as widespread use as some other types, because of the inherent noise, but at least three manufacturers in this country make such cameras—Bell & Howell, Oxberry and Acme. Many studios doing titles, inserts and special effects use nothing but this type of camera movement.

Of course it is easy for anyone to take pot shots at isolated flaws in this type of a book. These minor deficiencies recede into virtual unimportance in the light of the general excellence of the book, the useful information made available to the user and the wide scope of the volume.

The revision is sufficient to warrant an owner's replacing an older edition with this more up-to-date version. Any serious film worker would be wise to include this book in his collection where it will be well thumbed in the same way as issues of the *SMPTE Journal*.

As in many British photographic books, line drawings are used predominantly.—*Ernest M. Pittaro*, Trend Films, 137-73 70th Ave., Flushing, N.Y. 11367.

Magnetic Tape Recording (2d ed.)

By H. G. M. Spratt. Published (1964) by D. Van Nostrand Co., 120 Alexander St., Princeton, N.J. (printed in Great Britain). 368 pp., incl. index and appendixes. Illus., graphs. 8½ by 5½ in. Price \$10.50.

"The breadth of coverage by this comparatively small book is quite surprising... and that the author is thoroughly versed in the various aspects of tape recording there can be no doubt." This statement occurs in the review by R. A. White of the first edition of this book (*Journal*, p. 654, Aug. 1961), and it is equally applicable to the second edition.

The text of the new edition has been brought up to date and includes discussions of developments in techniques and applications that have taken place in the field of

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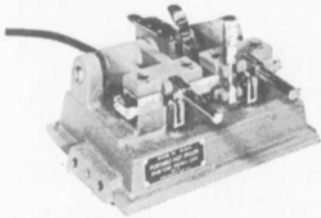
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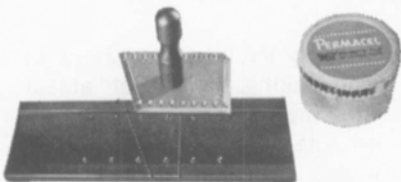
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magnetic tape recording since the first edition. The first chapter has been rewritten to include a discussion of ferrites and the behavior of single domain acicular particles and the second chapter now includes discussions of alternative recording methods, frequency dependent losses, pulse-duration modulation, and digital recording. Other subjects treated for the first time or in greater detail include transistor circuits, magnetic coating of drums, exploration of tape magnetic field and new magnetic materials for tape manufacture. Appendix 1 now includes extracts from British Standard, BS 1568: 1960.

As Mr. White points out in his review of the first edition, since this is a British book, American engineers may find some of the terminology unfamiliar. Aside from that reservation, this book should be very useful to engineers and technicians on both sides of the Atlantic.—*Ed.*

Nurturing Individual Potential: Papers and Reports From The ASCD Seventh Curriculum Research Institute

Ed. by A. Harry Passow, Director of the Institute Staff. Published (1964) by the Association for Supervision and Curriculum Development, NEA, 1201 Sixteenth St., N.W., Washington, D.C. 20036. vii + 91 pp. 6 by 9 in. Paperbound. Price \$1.50.

Individualizing Instruction: ASCD 1964 Yearbook

Published (1964) by the Association for Supervision and Curriculum Development, 1201 Sixteenth St., N.W., Washington, D.C. 20036. ix + 174 pp. 5½ by 8½ in. Cloth Bound. Price \$4.00.

The uses to which audio-visual aids may be put should influence the design of those aids, and the engineer concerned with audio-visual aids may find helpful the publications of the Association for Supervision and Curriculum Development. For instance, the two recently published titles, *Nurturing Individual Potential* and *Individualizing Instruction*, could serve to fill in the designer of audio-visual aids on the broad philosophical questions that he is helping to solve. These publications will also serve to keep the application of audio-visual aids in perspective, for the education world believes that "these automatic devices will no more replace the teacher than did the advanced automation of the kitchen eliminate the housewife." But, continues James J. Gallagher, one of the contributors to *Nurturing Individual Potential*, "These aids will allow the teacher to do more of the things that he has never had the time for and will release him from more routine tasks. The advantages of the machines are many. They never get mad or impatient or disgruntled. They give instant feedback . . . Indirectly, learning machines have forced upon us the necessity for systematizing our own instruction. . . . While the machines answer questions effectively, they do not as yet choose the questions to ask."

Man has not yet been replaced, nor have those who are teachers and engineers. Indeed teachers and engineers have a long road to travel together.—*Ed.*

abc's of Boolean Algebra

By Allan Lytel. Cat. No. BAB-1; published

(1963) by Howard W. Sams & Co., Inc., Div. of The Bobbs-Merrill Company, Inc., Indianapolis and New York. 112 pp., block and circuit diagrams, index, 5½ by 8½ in., paperbound, price \$1.95.

abc's of Television

By Len Buckwalter. Cat. No. ATV-1; published (1964) by Howard W. Sams & Co., Inc., Div. of The Bobbs-Merrill Company, Inc., Indianapolis and New York. 96 pp., block and schematic diagrams, photographs, index, 5½ by 8½ in., paperbound, price \$1.95.

Magnetic Recording for the Hobbyist

By Arthur Zuckerman. Cat. No. MRZ-1; published (1964) by Howard W. Sams & Co., Inc., Div. of The Bobbs-Merrill Company, Inc., Indianapolis and New York. 128 pp., block diagrams, photographs, index, 5½ by 8½ in., price \$2.50.

Of these three books primarily useful to the hobbyist, the *abc's of Boolean Algebra* has the most to offer the serious engineering student. For the man whose work is on the periphery of the field of digital computers, this introduction to symbolic logic may be very helpful. Beginning with a chapter on Basic Logical Concepts, it continues with: Languages and Electronic Switches; Logical Circuits; Circuit Block Diagrams; The Algebra of Sets; The Algebra of Switching Circuits; Numbers and Numbering Systems; and Switching Circuits.

The books on television and tape recording answer to their descriptive titles. The professional may want to keep them handy to lend to youthful and nonprofessional friends who come to him for information.—*Ed.*

Lenses in Photography

The Practical Guide to Optics for Photographers, Rev. Ed.

By Rudolf Kingslake. Published (1963) by A. S. Barnes & Co., Inc., 8 East 36th St., New York 16; and Thos. Yoseloff, Ltd., 18 Charing Cross Rd., London W.C. 2, England. 278 pp. (199 illus.). 5½ by 8½ in. Price \$5.95.

As Rudolf Kingslake comments in the Preface to this revised edition, the "miniaturization of almost everything in amateur photography — film sizes, flash equipment, and sometimes the cameras themselves" — has altered the popular photography field substantially since the book was first published in 1951. The changes and innovations have caused the author, who is Director of Optical Design at Eastman Kodak Company, to augment his original presentation, and take "the opportunity to correct a few minor errors and omissions" that occurred in the earlier volume. The 32 added pages represent expanded information throughout the book, still presented under these chapter headings:

Perspective; Light Rays and Lens Aberrations; Light Waves and How They Behave; Definition and Resolving Power; Depth of Field; The Brightness of Images; Types of Photographic Objectives; Lens Attachments; Enlarging and Projection Systems; Stereoscopic Photography; Shutters; and Camera View Finders and Range Finders.

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up-dating of the text, in one respect the new edition falls short of the old. Printed on a somewhat bulky and soft-finish paper, the halftone illustrations in the new edition lack clarity. Since this is an informational, not an art, book, the muddiness might be unimportant were it not that the photographs are intended to illustrate such qualities as definition and depth of field.

This is a compact and readable textbook of value to the general science college student and the student preparing for a career in photographic science, as well as to the photographer who knows his basic mathematics and has a serious approach.—*Ed.*

Mathematics and the Physical World

By Morris Kline. Originally published (1959) by Thomas Y. Crowell Co., reprinted in Anchor Books edition (1963) by Doubleday & Co., Inc., Garden City, N.Y. 546 pp., illus., index, 4½ by 7½ in., paper-bound. Price, \$1.95.

Dr. Morris Kline, Professor of Mathematics at New York University, believes that "unfortunately the relationship of mathematics to the study of nature is not presented in our dry and technique-soaked textbooks," and he has written *Mathematics*

and the *Physical World* to fill this gap. His book is also designed to show "how physical problems, when idealized and formulated in the language of number and geometry, become mathematical problems and... how, guided still by intuition and physical thinking, the mathematician creates a new method or a new branch."

Dr. Kline's method is to outline the history of mathematics, interwoven with developments in the physical sciences. The undergraduate student of photographic science will find it a useful guide to understanding the implications of mathematics for his own field.—*Ed.*

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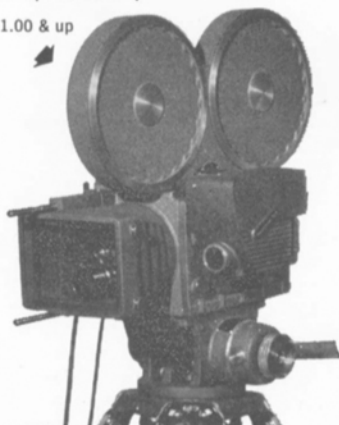


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