

course designed to assist engineers and scientists in applying photography to the acquisition of data. Sessions will cover statistics, chemistry, contamination and image evaluation. Classes will meet from 8:30 A.M. to 4:30 P.M. daily in laboratories of RIT's College of Graphic Arts and Photography. Faculty members in the Photographic Science area of the School of Photography will conduct courses. Further information is available from A. Robert Maurice, Assistant Director, Extended Services Div., Rochester Institute of Technology, Rochester, N.Y. 14608.

A new IEEE Journal on Solid-State Circuits will appear quarterly beginning in September, it was announced by Donald G. Fink, General Manager of IEEE, 345 E. 47 St., New York, N.Y. 10017. The new journal will be the central IEEE publication on solid-state circuits and will emphasize a broad coverage of the technical area extending from devices to systems. It will provide, in one publication, subject content similar to that provided in the program of the International Solid-State Circuits Conference. Selected papers from the ISSCC will be regularly published in the new journal.

The announcement noted that the technical area represented by solid-state circuits is growing in importance with the broadening use of integrated circuits in systems. In solid-state circuits a confluence of disciplines must be integrated to provide coverage and perspective. The new journal will provide both device coverage and system coverage, with the emphasis on practical application. It will provide a medium in the reviewed-journal area for papers which should be commonly available in regular technical libraries.

The new journal was initiated through the IEEE Group on Circuit Theory, in cooperation with the Group on Electron Devices, the Group on Microwave Theory and Techniques, and the Computer Group. It was noted that this cooperative effort represents a new level of inter-group activity in the IEEE.

Ampex Corp. and MVR (formerly Mach-Tronics) Corp. have reached an agreement settling all litigation between them, according to a joint announcement. Ampex had trade secrets and patent infringement claims against MVR and MVR had claims against Ampex under the antitrust laws (*Journal*, p. 442, May 1963). A Stipulated Judgment has been filed in the U.S. District Court approving the settlement. The settlement sets aside a previous antitrust verdict against Ampex and a theft of trade secrets award against MVR. MVR has acknowledged the validity of the contested Ampex patent and is enjoined from future production of video-tape recorders using the patent. The firm has entered into a patent license agreement with Ampex which grants rights to use various Ampex patents in MVR's continuing production and sale of video disc recorders.

Metro/Kalvar, Inc., is now located at 745 Post Road, Darien, Conn. 06820. The firm's management offices were formerly at 550 Fifth Ave., New York.

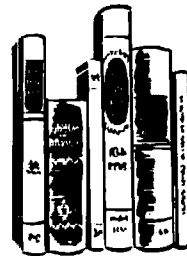
A new form of English called FASE (Fundamentally Analyzable Simplified English) has been developed at Bell Telephone Laboratories so that computers will not become confused about the relation of words in a sentence. For example, the simple sentence "Time flies" could confuse a computer because the computer would have no way of knowing whether "time" was being used as a noun or a verb. When FASE is used there is no confusion because a sentence in FASE strictly maintains the sequence of subject, verb and object; modifiers such as adjectives, adverbs and other parts of speech must fall into line. In FASE, "time" is unequivocally a noun. If "time" were intended as a verb the sentence would have to be rewritten in FASE in some such fashion as "Determine how fast a fly flies."

The development of FASE stems from studies presently being carried on at Bell Laboratories with the aim of helping people to communicate with machines, and vice versa. It was suggested that FASE may eventually be the basis for information retrieved by machines in libraries and institutions that handle large numbers of written documents. In such cases, abstracts or documents would be written or rewritten in FASE. They would then be punched on cards and stored in a computer. The computer could then be instructed to index or to retrieve information by a special program based on FASE grammar. The documents could be indexed and retrieved on the basis of grammatical units and relations which are not useful in present systems because of possible ambiguities.

Sidney P. Solow, who, for 21 years, has taught motion-picture processing and laboratory procedures for black-and-white and color films at the University of Southern California, Department of Cinema, has been appointed a full professor. Mr. Solow is President of Consolidated Film Industries, Hollywood, and a Vice-President and Director of Republic Corp., of which Consolidated is a division. He was graduated from New York University in 1930 with the degree of Bachelor of Science in chemistry. Announcement was made by Bernard Kantor. Dr. Kantor is Chairman of the Department of Cinema and Associate Dean of the USC School of Performing Arts.

Hollis Todd, Chairman of the Photographic Science and Instrumentation faculty, School of Photography, Rochester Institute of Technology, has been awarded RIT's second annual \$1,000 award for outstanding teaching. Selection was made by an administration-faculty-student committee which considered nominations from members of the faculty council and a student opinion poll. Selection was made on the basis of "demonstrated excellence in teaching, not only in the classroom but also through the active involvement of individual students..." Mr. Todd has been instrumental in student-oriented and education activities centering around professional societies such as the SMPTE and the SPSE.

books reviewed



The Theory of the Photographic Process (3rd ed.)

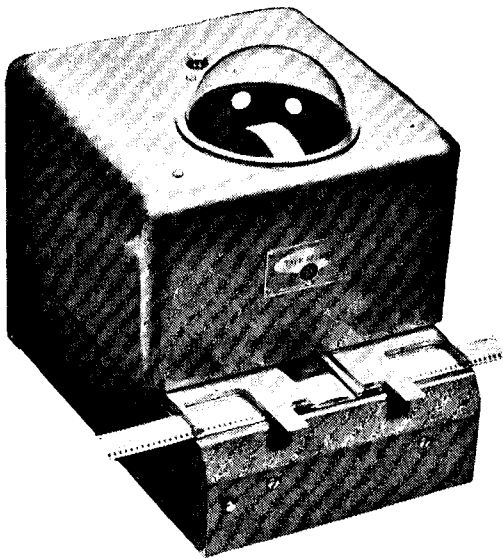
Ed. by C. E. Kenneth Mees and T. H. James. Published (1966) by The Macmillan Co., 60 Fifth Ave., New York, N.Y. 10011. 591 + xi pp. incl. index, table of contents, list of contributors. Illus. Diagrams. 10 by 8½ in. Price \$25.00.

This famous work of Dr. Mees, the first edition of which was published in 1942, has now, 24 years later, reached its third edition. A comparison between the two may not be amiss. The most striking change is in the format, which now comprises slightly over half the number of pages, each slightly less than twice the surface area, giving roughly the same total space.

The new edition has been written by a rather large group of experts, each concentrating on his specialty; incidentally, not many of the contributors to the first edition remain in the third. The fast growing field has required the inclusion of much new material. It has been accomplished, without increasing total bulk, by restricting the discussion more severely to the theory of photography, and discarding more practical details, or applications, or historical material. For two examples, the first edition contained 41 pages on photographic aspects of sound recording, which have now been eliminated. It contained a section on the preparation and properties of gelatin, but in the third edition the preparation has been omitted and the text here starts directly with the properties of collagen and gelatin. The parts left have been fairly completely rewritten. The effect of all this is that a reader desiring a comprehensive work should keep both editions.

The subject material comprises the silver halides, gelatin, the latent image and exposure effects, exposure by nuclear particles, electron beams, x-rays and gamma rays, dye sensitization, development, sensitometry and tone reproduction (both monochrome and color), and the structure of the developed image — with its implications on graininess, resolution, modulation transfer function and its cascading, information theory, and quantum efficiency. The editor states that the scope is confined to silver halide processes, to keep within a book of desirable size.

The greater part of the writing is distinctly professional in tone, and occasionally one wonders if just a little unbending might permit a more understanding reading. To cite just one illustration; in the dis-



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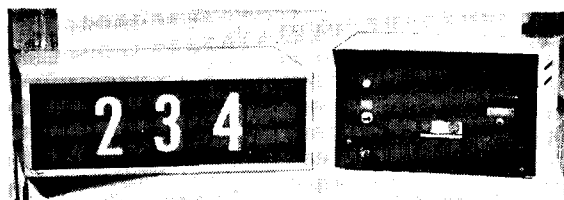
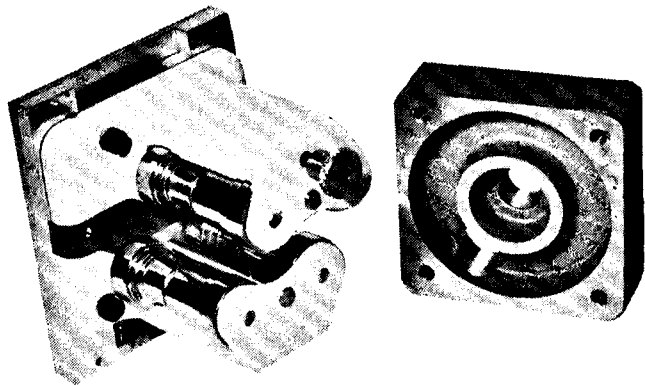
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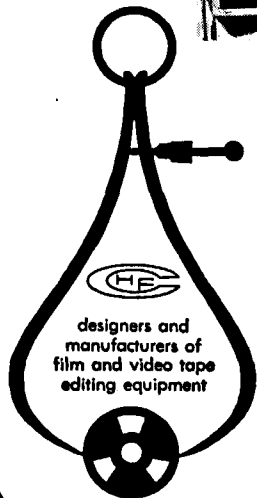
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discussion of the three sensitive layer color film, the successive steps are given rather glibly, although the chemical compounds are described in some detail. But in the process where the dye couplers are included in the processing solution (rather than in the individual layers), the reader can wonder how the three different dye couplers can find their appropriate emulsion layers and act on them only. It is not stated (and the reader has to get the explanation from the references) that this is done in the reversing process, by using only one colored illumination at a time. Hence the dye coupler in that developer affects only the particular layer thus reexposed, and ignores the other two. It would seem that a simple statement of this at the appropriate point could make the description clearer. An author has his own ideas of clearness, and this observation may seem relatively trivial, but it occurs over and over, and would seem to reduce the potential audience for the book.

The portions of the work that deal with the evaluation of image quality — both in the part relating to tone reproduction, and the part describing image structure — are more realistic than in the first edition, and reflect the large amount of work that was done on this subject in the interim; nevertheless it still remains a moot point, awaiting further elucidation. The closing sentence in the book is: "The development of the concepts and principles that are outlined here and that are being developed in associated technologies should make the study of photographic science even more stimulating in the future than it has been in the past."

All in all, the work is an outstanding and authoritative record of the current state of the art in the photographic theory of silver emulsions.—*Pierre Mertz*, Consultant, Lido Beach, L.I., N.Y. 11561.

General Sensitometry

By Yu. N. Gorokhovskii and T. M. Levenberg. Translated from the Russian in co-operation with the Department of Scientific and Industrial Research, National Lending Library for Science and Technology, Boston Spa (Yorks). Published (1965) by Focal Press, Inc., 20 E. 46 St., New York, N.Y. 10017. 304 pp. Illus. Diagrams. 9½ by 7 in. Price \$27.50.

Broader than its title indicates, this book is without doubt the most comprehensive yet published on the subject. It discusses the principles and practice of sensitometric testing in great detail, and includes as well many subjects usually classed as photographic theory.

The book is based on a series of lectures for a college level course, so it is fairly advanced and somewhat academic, leaning heavily on theory and mathematics. Thus it is not a primer for the raw beginner, even though its exposition is clear and logical. On the whole, its coverage of sensitometry is thorough, detailed and authentic; even readers thoroughly familiar with the field will likely find some new insights and information. Yet the treatment is surprisingly naive in a few particulars. As one example, in their discussion of tone reproduction, the authors assume — incorrectly — that the ideal characteristic curve is a straight line

for both the negative and the positive, with a gamma-product of unity.

In presenting their subject matter the authors follow a rigid but logical pattern in this book: they first examine the theoretical aspects of each topic, then describe experimental methods and apparatus. They start the book with a bonus, a discourse on that essential, but usually neglected, ingredient of photography — light. This first chapter deals with photometry and the laws of radiation; thus it provides the reader with a handy source of prerequisite information and data. The authors turn next to the theory of photographic reproduction, the concept of the sensitometric curve, and the emulsion factors that affect it. This includes latent image theory and a chapter on reciprocity law phenomena. In the sections that follow, the authors cover sensitometric exposure, sensitometric processing, densitometry and sensitometric calculations. Their descriptions of sensitometric equipment (Russian) and procedures are especially detailed. They devote two chapters to spectral sensitivity, and the final chapter to sensitometry of printing papers. The authors confine their attention to black-and-white materials; they do not discuss sensitometry of multilayer color materials. Likewise, they omit the subjects of image structure and definition, except for the barest mention of graininess and resolving power.

As a source book this would be a useful addition to any library that strives for completeness in photography. In particular, it describes in detail Soviet sensitometers, densitometers and processing equipment — information not found in books by Western authors. In addition, it provides convenient reference to *GOST* (State Committee on Standards, Measurements and Measuring Instruments, USSR) sensitometric standards.

It is a tribute to the translators that this book came through their hands with remarkably little loss in "signal-to-noise ratio." Only two translation slip-ups were spotted: on page 14 the consequences of *Purkinje* effect are improperly described; on page 194 there is a mix-up in the relation between *millimeters* and *microns*.

On the minus side, it is unfortunate that a book as complete as this one is in so many respects should be so poorly documented. The work of many other authors is cited, but the customary literature references are not given. And the bibliography is downright meager. All told, just 34 different publications are listed, and of these only six are from non-Russian sources. The abundant literature on sensitometry surely deserves more recognition than this.—*J. P. Weiss*, Parlin Research Laboratory, Photo Products Dept., E. I. du Pont de Nemours & Co., Parlin, N.J. 08859.

Photographic Science: Symposium: Torino 1963

Ed. by G. Semerano and U. Mazzucato. Published (1966) by Focal Press, Inc., 20 E. 46 St., New York, N.Y. 10017. 250 pp. Illus. Diagrams. 7 by 9 in. Price \$30.

This book contains summaries of sixty-four papers presented at the International Meeting on the Science of Photography

held in Turin, Italy, in September 1963. The discussions which followed the presentations of the papers in the four Sessions of the Symposium are also included. The subdivisions of the book which correspond to the four Sessions are:

Properties of Photographic Emulsion Grains

Fundamental Processes of Latent Image Formation: (1) Fundamental photochemical processes in silver halides; (2) Chemical sensitization of silver halide emulsions; (3a) Incidence of and properties of development centers; (3b) The redox potentials in equilibrium with latent image centers; and (4) Miscellaneous aspects of latent image formation

Information Aspects of the Photographic Image Image Color and Covering Power

The summaries are in English, are well written and in general explain the subject material covered quite well. Since most of the papers presented at the Symposium have since been published in scientific journals, the few obscure statements in the book may be clarified by referring to the journal articles.

This book should be of most value to those doing photographic research. The papers, themselves, the discussions which followed the presentations and the literature references focus the reader's attention on the current research status of the many theoretical and practical photographic subjects covered at the Symposium. Of special interest are the papers which show the relative importance of twinning as opposed to dislocations in determining the course and speed of crystal growth, the papers on chemical sensitization which contribute to the understanding of this process and the desire shown by those involved with the information aspects of the photographic image to help the emulsion maker to choose the best grain-size and grain-sensitivity distributions for specific needs.—*J. D. Overman*, Parlin Research Laboratory, Photo Products Dept., E. I. du Pont de Nemours & Co., Parlin, N.J. 08859.

Applied Optics and Optical Engineering: A Comprehensive Treatise:

Vol. III: Optical Components

Ed. Rudolf Kingslake. Published (1966) by Academic Press, Inc., 111 Fifth Avenue, New York, N.Y. 10003. 174 pp. incl. indexes. Illus. Diagrams. 6 by 9 in. Price \$15.00.

With the third volume of Kingslake's series on Applied Optics and Optical Engineering, the subject matter gets more deeply into the professional aspects of the field. The topics discussed are Lens Design, Optical Manufacturing, Photographic Objectives, Microscope Objectives, Testing of Complete Objectives, Spectacle Lenses, Mirror and Prism Systems, Mirror Coatings, and Eyepieces and Magnifiers.

The treatment of the material represents quite an accomplishment in this extensive field. As for the previous volumes, the contributions are from experts in their various specialties. It is incidentally noted that, for reference, the comprehensive work of Conrady is cited more often than any other single item.

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The exposition of lens design always brings to an author the choice between sufficient completeness for the reader to feel that he is becoming comfortably acquainted with the subject, and on the other hand sufficient simplicity in presentation for the text to be readable enough for him to follow it with understanding. In this volume the treatment is first presented generally (including, as an illustration, outline steps in the design of a Cooke triplet). Then specialized discussions are given on the development of photographic and microscope objectives, eyepieces, and spectacle lenses. It is about as complete as could be expected within this compass. However, as the author says, "Even today the design of a well-corrected lens of a high relative aperture capable of giving a sharp image over a wide angular field is a problem of very great difficulty." That is to say, for the neophyte this text, although extensive, is really only a brief introduction.

The chapter on testing of complete objectives is very interesting, because this, essentially, is the "proof of the pudding" of the lens design. The variety of criteria of realistic quality in a lens is stressed. The correlations between some of these criteria are noted, and the methods of measuring the performance under the different aspects are described. Here again, the volume of material presents a problem. As an example, a fairly comprehensive outline is given of measurements of the optical transfer function, but probably more illustrations could have clarified it. The one illustration given presents certain aspects that can be very puzzling to the reader.

It is noted that the discussion on eyepieces does not outline the classical distinction between the field lens and the eye lens components (and functions) that made the simpler eyepieces more understandable. In a number of the more modern and sophisticated eyepieces that are later described, it must be admitted that this distinction is difficult to maintain.

The chapter on spectacle lenses describes interesting material that rarely appears outside of journals of ophthalmology. It does not, it happens, include any discussion on contact lenses.

All in all, it must be said, perhaps with even more emphasis than for the previous two, that this third volume is most important to the engineer who deals with optics and optical components, and needs to understand what he is about. This is in addition to its especial importance to the student, for whom the series has been particularly prepared.—*Pierre Mertz*, Consultant, Lido Beach, L.I., N.Y. 11561.

Semiconductor Junctions and Devices: Theory to Practice

By William B. Burford III and H. Grey Verner. Published (1965) by McGraw-Hill Book Co., 330 W. 42 St., New York, N.Y. 10036. 316 pp. plus index. 136 illus. 6 by 9 in. Price \$12.00.

This volume deals primarily with the physics of the semiconductor junction and the operation of semiconductor junction devices. The authors' purpose is to "present the basic principles of semiconductor physics in non-rigorous form, proceed to the

development of conventional semiconductor device parameters and conclude with a description of typical units in simple circuit applications." They seek a broad audience consisting of scientists and engineers of all ages and technical backgrounds.

The first chapter defines the scope of the book and gives a brief historical survey of semiconductor materials and devices. Chapter 2 contains a short discussion of atomic structure and the band theory of solids. The third and fourth chapters are on the application of band theory and Fermi statistics to intrinsic and impurity semiconductor materials. Chapters 5 and 6 give a general description of the biased and unbiased p-n junctions and note the special features of abrupt and graded junctions. The seventh chapter describes the methods used to fabricate junctions and the physical and electrical operation of several single junction devices. Chapters 8 and 9 cover the operation of the transistor as an amplifier. Chapters 10, 11 and 12 develop the black box equivalent circuit parameters of the transistor. Chapter 13 explains the terminology used in transistor specifications. Chapter 14 describes the transistor's operation as a switch in the normal and the avalanche mode. Chapters 15, 16 and 18 cover the operation of a myriad of semiconductor devices ranging from the point contact diode and transistor, through four layer devices, to the junction gate field effect and thin-film transistor. Chapter 17 briefly discusses the physics of metal semiconductor contacts and the last chapter, Chapter 19, covers semiconductor device and system reliability.

Reviewed by the SMPTE Advisory Committee on Special Effects in Motion Pictures: Herbert Meyer, Chairman, Russell Brown, Thomas G. Fisher, Jack Froehlich, Max Hankins, Ub Iwerks, Ivan Martin, Bob Matthey, Frederic L. Ponedel, John Roche, J. Edward Stembridge, Edward Stones, Virgil Summers.

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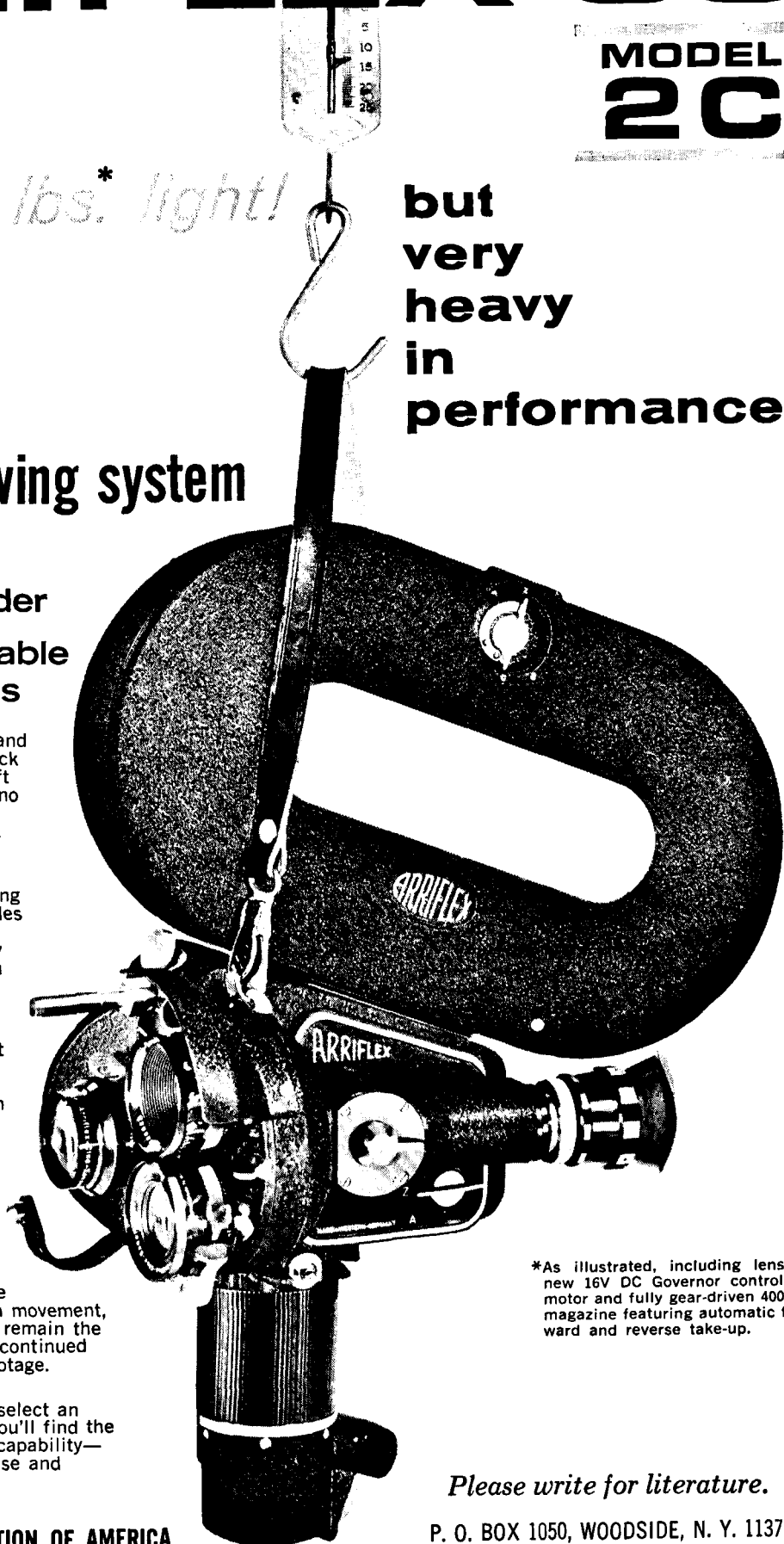
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There are many texts available on the material of this book. The majority emphasize circuit applications, but a large minority dwell on device physics and operation; this book is definitely on the latter type. It differs mainly in that the presentation is more elementary and the coverage is broader than most of its counterparts. The chapters on semiconductor material physics and junction physics are by far the best portions of the book. The physical and electrical parameter coverage is fairly good. The chapters are also fairly easy to read and understand, and all of this is achieved without too much distortion of fact. The broader coverage is in the large number of devices described in the chapters on specific devices, in which the operational physics or

characteristics of approximately 20 semiconductor devices are explained to a varying degree. Some explanations are complete enough for a reasonable introduction to the mode of operation; however, most are just enough to convey that the particular device exists. The most disappointing aspects of the book are found in this portion. The authors did not make good use of the junction physics in their device operational explanations. For instance, junction physics was not even used in the operational explanations of the key device, the bipolar transistor. Also, they gave wide coverage to outmoded devices (the p-n hook, avalanche, and point contact transistors) that presently have little or no technical significance in the field of semiconductor technology.

Even with the above shortcomings, the book gives a good presentation of semiconductor devices for persons who do not require a rigorous treatment of device technology. More specifically, the book will be of value to two groups of engineers: those with backgrounds far removed from the field who desire an introduction to semiconductor devices; and electronic-circuit engineers who need only a limited knowledge of semiconductor materials and junction physics.—*Henry D. Harmon, Astro-Electronics Div., Radio Corp. of America, Hightstown, N.J.*

Compendium of Televised Education (Vol. 12)

Ed. by Lawrence E. McKune. Published (1965) Michigan State University, Continuing Education Service, University of the Air, Kellogg Center, East Lansing, Mich. 410 + vi pp. Paperbound. 8½ by 11 in. Price \$4.00.

This comprehensive compendium contains a great deal of interesting data. For example, 25 State Departments of Education have instituted statewide systems of televised education or have specific plans to do so. A total of 36,788,625 enrollments for televised courses was reported for the school year 1964–65. Higher education in 39 subject listings accounts for 317,951, representing less than 1% of all enrollments in 166 universities, 524 colleges, 62 institutes, 22 TV stations and 25 state organizations. Highest enrollments were listed for Health and Physical Education, English, Social Science, Mathematics, Education, Business, Psychology, Biology, History and Spanish, in that order.

In respect to video tape, it is noted in the Foreword that "... (the) University of Pennsylvania, a pioneer in televised education, reported, 'The increase in video-tape machines and the growth in requests for videotaping courses made it necessary to establish a master control center. In March of 1965, such a center became a reality. All of Penn State's closed-circuit television studios are presently interconnected, whereby they can be used independently or as one integrated unit ...'

The survey upon which the Compendium is based included chief state school officers, school boards, educational television commissions, television councils, state networks, commercial television stations and personnel responsible for television education. A total of 13,946 sources of information were queried.

It is also noted that many closed-circuit systems have multiple units. For example, South Carolina is reported as a single system even though 210 schools, 11 universities and colleges, 6 technical education centers, 10 hospitals and 3 state institutions are served by the system network.—*Edit.*

Television in Medical Teaching and Research

(a survey and annotated bibliography)

By Dr. James W. Ramey. Published (1965) by U.S. Department of Health, Education and Welfare, Office of Education (available, Superintendent of Documents, Government Printing Office, Washington, D.C.

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The first part of this book is a report on a survey conducted by the Council on Medical Television of the Institute for Advancement of Medical Communication according to terms of a contract with the U.S. Office of Education. The survey is based on queries sent to 88 medical schools and site visits made to 22 of these schools. It was found that since the first television installation for the teaching of medicine was installed at the University of Kansas in 1949 more than half of the medical schools in the United States are now using television, three have tried it and given it up, four are planning installations and nine have been experimenting with it.

The second part of the book, described as an annotated bibliography is more than that. Some 116 papers have been abstracted from about 65 medical and scientific journals, bulletins and reports. Some of the abstracts are quite extensive, having as many as 8 or 10 paragraphs. Thus a very comprehensive idea can be gained of what is really significant in the literature on this general subject. The abstracts are grouped under ten categories, Basic Sciences; Endoscopy, Eye, Ear, Nose, Throat; Microscopy; Postgraduate Education; Psychiatry; Radiology; Research and Diagnostic Instrumentation; Surgery; and Miscellaneous.

A subject index and an index of authors are included.—*Edit.*

Factual Television

By Norman Swallow. Published (1966) by Hastings House Publishers, Inc., 151 E. 50 St., New York, N.Y. 10022. 228 pp. incl. index. 8½ by 5½ in. Price \$7.50.

The author, a distinguished producer of television documentaries, presents a frank and, in some instances, controversial appraisal of factual television (as opposed to entertainment) which includes news reports, news comment, documentaries, interviews and informational programs. He is keenly aware of the responsibility of the sponsor, as well as the reporter, producer, writer and commentator, to present not only a program of technical excellence but to give the public an unbiased view of world events. He recognizes that "impartiality in television, like chastity in fiancés is much admired but hard to sustain. It is constantly subjected to the pressures of those for whom the objective truth is a thing to be concealed at all costs. The pressure of the sponsor is something to be expected. . . . When the Aluminum Corporation of America withdrew its sponsorship of *See It Now* there were a few voices raised in anger but none in surprise."

The book examines numbers of factual programs, both British and American, and offers penetrating and sometimes profound comments. It is beautifully written with wit and elegance as well as didacticism.

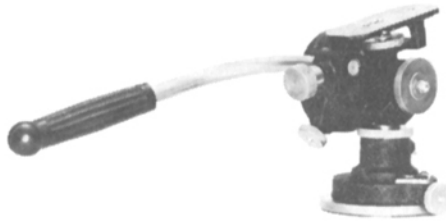
Although it is unfair to a book as compact and superbly organized as this one to wrench a quotation out of context, a comment chosen almost at random may serve to illustrate the delights to be found in this book. Thus, *Death in the Morning*, as its provocative title implies, was . . . about the taking of life. Moreover it was concerned with the taking of animals' lives and this, in



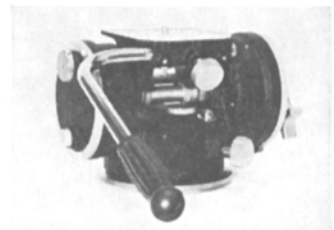
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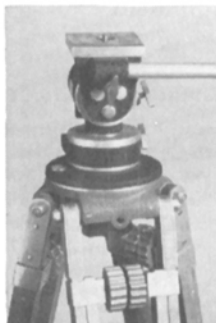
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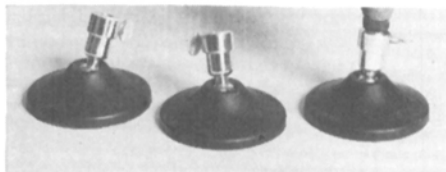
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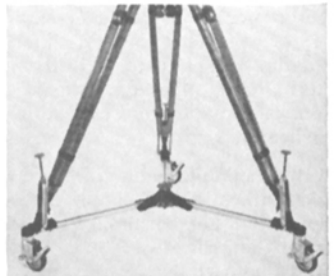
CM 106—NCE Hi-Hat. For low angle photography.



CM 107—Camart Heavy-Duty Collapsible Triangle. Rigid tripod support with true lock center casting. No breaking hinges, twisting or buckling.



CM 108—Camart Car Top Clamps. Steady support for your camera tripod when atop a station wagon or car platform.



CM 109—Camart Three Wheel Light Weight Collapsible Tripod Dolly. Moves heaviest camera in any direction even while shooting.

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Britain, is a highly emotional matter indeed, especially when the animal is as pretty and furry as a fox. Fox-hunting, or blood sport, is a subject at least as dangerous to handle as the execution of murderers . . . "(This was) a film of total impartiality (yet) it was a highly emotional work. (The film) did not go off in search of a global view . . . it remained firmly rooted in the English countryside in rather bleak weather and its central figures were the huntsmen (and women), their dogs, their horses and the fox. Nor did anyone speak directly to the camera — though there was at least one moment when the fox seemed to be about to do so — but were openly interviewed by Alan Whicker in (a) sharp provocative manner."

Adult education is discussed in the chapter on Television and General Knowledge where the author points out that "two of television's enormous advantages as a communicator of general knowledge (are that) it can command the services of those men and women who are recognized leaders in their own spheres, and it can offer them an audience which is literally thousands of times larger than that obtainable in any other medium."

In the concluding chapter the author asks, "Is it too much to hope that television might eventually remedy its most conspicuous deficiency — its failure to realize its full potentiality as an international medium of communication?" And he comments, "It is sad to think that there are probably more international exchanges in the other media of the press, radio and the cinema than in television (the most powerful communicator of them all)."

This is a most rewarding book and deserves a place not only with the literature of television but among the more thoughtful discussions of man in the late 20th century.—*Edit.*

Manual of Photogrammetry (3rd Ed.)

Ed. by Morris M. Thompson (Assoc. Ed.), Robert C. Eller, William A. Radlinski and Julius L. Spreet. Published (1966) American Society of Photogrammetry, 105 N. Virginia Ave., Falls Church, Va. 22046. In two vol. 600 (approx.) pp. each. Illus. Price (2-vol. set) \$22.50.

This is a comprehensive work covering all aspects of photogrammetry, including mathematics, optics, theory, instrumentation, techniques, planning, practical applications, automation and education. The chapter headings are:

- I. An Introduction to Photogrammetry
- II. Basic Mathematics of Photogrammetry
- III. Elements of Photogrammetric Optics
- IV. Aerial Cameras
- V. Aerial Photography
- VI. The Photographic Process
- VII. Planning and Executing the Photogrammetric Project
- VIII. Field Surveys for Photogrammetry
- IX. Mechanical Methods of Phototriangulation
- X. Analytical Photogrammetry
- XI. Stereoscopes
- XII. Paper-Print Plotters
- XIII. Double-Projection Direct-Viewing Plotting Instruments

- XIV. Plotting Machines With Optical Trains
- XV. Automation of Stereocompilation
- XVI. Transformation and Rectification
- XVII. Aerial Mosaics and Photo Maps
- XVIII. Mapping From Oblique Photographs
- XIX. Terrestrial Photogrammetry
- XX. Various Applications of Photogrammetry
- XXI. Combinations of Radar and Photogrammetry Techniques
- XXII. Photogrammetry in the Space Age
- XXIII. Training, Education and Professional Status
- XXIV. Definition of Terms Used in Photogrammetry
- XXV. References and General Information

This edition has not been prepared simply to bring the Second Edition up to date. With new material, the *Manual* now contains more than 800 illustrations (photographs and diagrams).—*Edit.*

The Measurement of Audio Signals in Motion Picture Sound Recording Equipment (in Russian)

By V. V. Rakovsky. Published (1962) by Cultural Publications, Moscow. Price \$1.50.

This publication is a complete and thorough study of the theories and methods used in the measurement of audio signals. The first several chapters deal with the mathematics and science of sound recording and various measurement techniques used in the production of motion-picture films in the USSR.

The author has given special attention to methods of measuring nonlinear distortion of optical or photographic sound records and discusses at some length techniques encompassing white noise, a sawtooth form of sound in which the higher frequencies get successively less in amplitude.

The book, approximately 400 pages with over 400 illustrations, would be of interest to anyone working with motion-picture sound measurement problems. The final chapter is a reference bibliography containing 410 listings of pertinent papers and articles.—*A.E.A.*

Motion Picture Printing Equipment (in Russian)

By N. D. Bernstein, U. C. Golod and C. M. Provorov. Published (1962) by Cultural Publications, Moscow.

The publication, about 325 pages, is one of the most complete and thorough works on the theory and design of printing equipment for motion-picture films. The authors have covered the subject of printer design from not only the mechanical concept but also both mathematical and optical theories. Every phase of the dissertation is illustrated with numerous diagrams, formulas and photographs.

Regrettably the book is not in English; however, the more serious equipment designers would find the diagrams and pictures most interesting. It would be our recommendation that the publisher consider releasing an English version for distribution outside of Russia.—*A.E.A.*

current literature



The Editors present for convenient reference a list of articles dealing with subjects cognate to motion-picture engineering published in a number of selected journals. Photostatic or microfilm copies of articles in magazines that are available may be obtained from The Library of Congress, Washington, D.C., or from the New York Public Library, New York, N.Y., at prevailing rates.

- American Cinematographer** vol. 47, no. 6, June 1966
"Bat-Matography" or Capturing Batman on Film (p. 384) *Howard Schwartz*
An Eye-Witness Report on Russian Film Technology (p. 394)
A Combination Zoom-Anamorphic Lens for 16mm Filming (p. 412) *R. E. Herold*
- British Kinematography** vol. 48, no. 2, Feb. 1966
Where Are We Going With 8mm Sound? (p. 54) *H. S. Hind*
vol. 48, no. 4, April 1966
Helical Scan Video Recording (p. 108) *Fraser Morrison*
Lighting Grid Techniques (p. 116) *L. Johnson*
vol. 48, no. 3, Mar. 1966
Colour Film for Colour Television (p. 74) *C. B. Wood and F. A. Griffiths*
The Samuelson Collection of Veteran Cameras (p. 82) *David Samuelson*
Marconi Mark V Television Camera (p. 90) *D. Pay*
vol. 48, no. 5, May 1966
Television Aids to Motion Picture Film Making —the Livingston Add-a-Vision & EFS Systems (p. 140) *G. E. Hayden-Pigg*
- Color Eng.** vol. 4, no. 3, May-June 1966
Industrial Use of Instrumentation and Computation for Color Matching and Control (p. 18) *Hugh R. Davidson and Henry Hemmendinger*
- Electronic Age** vol. 25, no. 2, Spring 1966
Lunar Orbiter: Prelude to a Landing (p. 29) *Robert E. Tolles*
- Jour. Optical Society of America** vol. 56, no. 2, Feb. 1966
Measurement of Absolute Wavelength Stability of Lasers (p. 8) *K. D. Mielenz, R. B. Stephens, K. E. Gilliland and K. F. Nefflen*
- Jour. Photographic Science** vol. 14, no. 1, Jan./Feb. 1966
Visual Factors in Projected Picture Quality—II Contrast Threshold Measurements Under Daylight Viewing Conditions (p. 23) *R. L. Porteous and G. F. Doughty*
vol. 14, no. 2, March/April 1966
Quantitative Analysis of Colour Printing by Way of Various Photographic Techniques (p. 87) *H. Corluy and R. Verbrughe*
- Marconi Rev.** vol. XXIX, no. 161, 2d Quarter 1966
A High Stability Oven for Temperature Control of Crystal Oscillators (p. 89) *J. B. Goodacre*
- Photographic Science and Eng.** vol. 10, no. 1, Jan./Feb. 1966
Image Conversion and Recording With a Silver Emulsion-Photoconductor System (p. 30) *L. E. Somers*
Three-Bar Target Modulation Detectability (p. 49) *Frank Scott*
Red-Sensitive Photoplastic Recording Film (p. 60) *J. J. Barifai, V. Ozarow and J. Gaynor*