

books reviewed

The Technique of the Television Cameraman

By Peter Jones. Published (1965) by Hastings House Publishers, 151 E. 50 St., New York, N.Y. 10022. 243 pp. incl. index and glossary of technical terms. Illus. Diagrams. 5½ by 8½ in. Price \$10.00.

Both as a valuable addition to the literature of television production and as a thoughtful, useful manual this book should experience a very minimum of obsolescence over the decade ahead. Moreover, it is extremely well written. While maintaining precision in his choice of words, the author uses them sparingly in simple, smooth sentences so that the reader absorbs the meaning quickly and without effort.

Of course, the book is based on the author's own experience. This is its strength, and if any weakness were to be found, the source of that also. Peter Jones describes the technique of the cameraman in the large studio, specifically the large English

studio. He makes occasional references to methods used in the United States, in an attempt to give the book a universal application, and these are not always complete. But no mention at all is made of operating methods in other countries where a camera crew of three or four, for instance, will be responsible to a head cameraman who operates the key camera, or of systems where in a small studio one cameraman will operate more than one camera, or systems where the camera operator is remotely located from the cameras and operates them by a complex system of remote controls. He might at least have mentioned some of these methods and dismissed them, if he wished as not being true cameraman functions and hence beneath inclusion; leaving them out entirely implies possible inattention to current practices in the field before attempting to write a manual which, hopefully, would be useful throughout the world.

While this book should be in the hands of every beginning cameraman and every serious student of television production, it can be particularly useful to the television production teacher. Few teachers have had much professional camera experience and, during class laboratory periods, these teachers are invariably preoccupied with the performance of the student director and give little direct attention to the techniques of the cameramen. This book is filled with helpful hints, practical suggestions and operating rules which, if given to the student early in his training, could greatly simplify a learning process which otherwise has to be built on trial and error.

Students are sometimes over-eager for "rules and laws" which they can memorize and apply, probably because it saves them from the necessity of making constant value judgements, which takes a lot more brain energy. This reception might meet Jones' first law of composition. Eyes, he says, and quite rightly, are the most important features. If, in composing the shot, you place the eyes no lower than halfway down the frame, and no higher than a third of the distance down from the top of the frame, you will always have a good composition and head room will take care of itself. This rule holds good, he says, until the shot is so wide that we can see the artist's feet, and at that point the position of the eyes in the frame is no longer important. The student should remember, however, that this law, however helpful, was not set down by God but only by Peter Jones; it can and like any other artistic "rule," should be, broken by cameramen and directors whenever they feel they have something to gain.

Jones' operating hints are less controversial, and could be of even greater help to the student. Following focus while dollying the camera is always a difficult task to learn. The cameraman is often not sure when he sees the picture go soft, whether he focused too far, or not far enough; he runs a fifty per cent risk of making the situation worse by trying to correct in the wrong direction. Jones says "dolly first, and don't touch the focus control until the picture first begins to go soft." In changing composition from a two-shot to a close-up on the left of the person, for another example, Jones defines a technique which he calls "pivoting."

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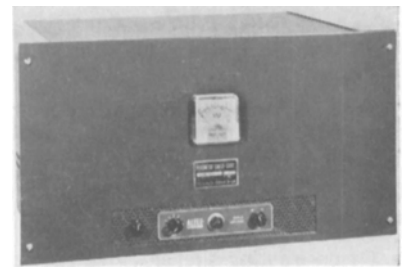
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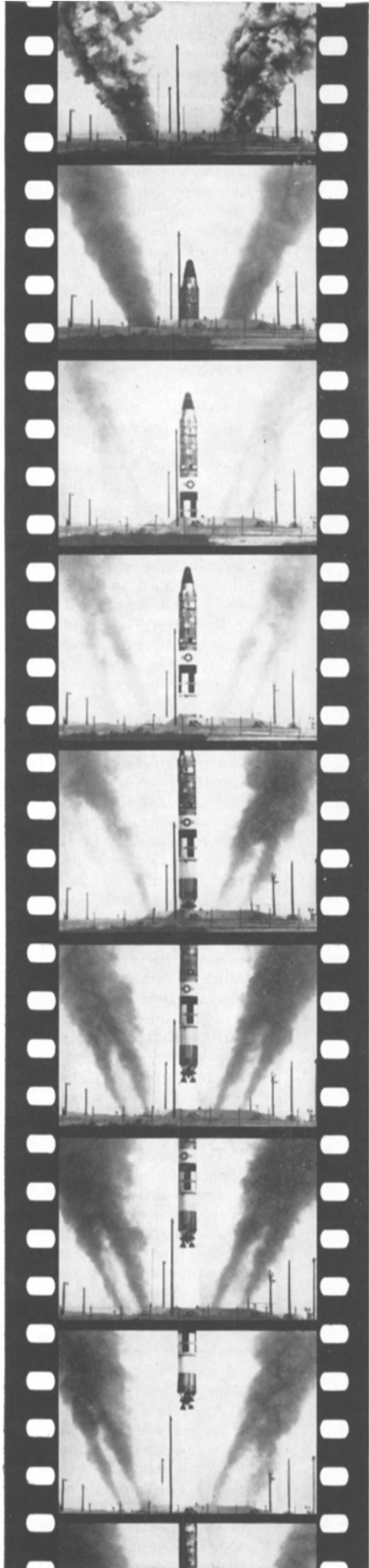
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Instead of first centering the single person and then dollying in, an obvious crudity which need only be demonstrated to be realized by the student, Jones says, "pivot on the left side of the frame." In other words, keep the left side of the frame where it is and dolly in until the person is isolated in a single shot. This should be a more precise suggestion to the student than the vague "dolly in and pan left at the same time" which we usually tell him.

Jones has opened up a few auxiliary or background areas that are not exactly in the "need to know" category but are nice to know a little something about. For this reason he has included a short chapter on basic optics. While this could have been eliminated without affecting the book in the slightest its mere presence brings to mind

the fact that any discussion of the electronics of the television camera is most conspicuous by its absence. In fact, the need for any familiarity with electronics or even the vocabulary of electronics is played down. It would seem to this reviewer that a little electronics is really more important to the television cameraman than optics. For general enlightenment, he could say, for instance, that cameras are referred to in terms of the camera tube they employ, and that these tubes are of different sizes, require different lenses, respond differently to light, etc.; instead, he says "[the terms] vidicon, photocon, image orthicon or CPS Emitron . . . merely refer to the *particular system* the manufacturer . . . has used in order to produce a television picture." (reviewer's italics). However, his basic

reason for this is sound. "The trainee cameraman" he says, "should not be discouraged from becoming a cameraman if he is not technically minded. It is far more important that he be artistically minded."

If he has neglected the electronics of the picture, he has exonerated himself by a very fine chapter on lighting, another subject in the "nice to know" category. This is accompanied by some very good diagrams and descriptions of lighting set-ups which, unfortunately, were not deemed important enough to rate standard size type and require rather close concentration, under a good reading lamp, to make out. The effort is worth while; and here again, some good principles of studio lighting are clearly set forth and could help the teacher fully as much as the student.

This book was written, according to the Foreword, while Jones was a practicing television cameraman. As a result one obtains a wonderful inside picture—practically always from the cameraman's seat. If the author could also have written on the basis of some directing experience, the book could have been tempered occasionally with more objectivity. The director, in this book, emerges as a sort of shadowy figure whom you help and work for, but never, it seems, work *with*. The director's role in conceiving and planning everything that the cameraman does is not mentioned. We can be certain, however, that if Peter Jones has now advanced to the craft of directing, he will surely rectify this oversight in the next edition.

He leaves the question of union jurisdictions, often the deciding factor in establishing the relationships between cameramen and others in the studio, strictly alone. The index carries no listing such as Union, Trade Union, Contracts or Awards. However, the reader is not totally neglected in this area, if he can read between the lines. "The cameraman," Jones states unequivocally, "must never move pieces of equipment belonging to other sections, however well-meaning his intentions. Props, in particular, must be left severely alone. If a bottle of ink has tipped and spread its contents over a white tablecloth, the cameraman must assume that it is intended to be like that. He will receive no thanks for putting matters to right." This, again, is based on experience in a large station in a large metropolitan area. Things aren't as bad as that all over.

The book is well illustrated, with a visual representation or diagram used whenever the need arises. The total lack of photographs, however, is to be deplored. Perhaps it was assumed that this book would always be a supplement to practical work or to other literature and would have more basic and long-term value if not tied too closely to concrete examples which can become obsolete. When specific equipment is described in the text, however, one does wish for something better than a verbal description.

A necessary chapter is the one on camera work outside the studio. Outside broadcasts present conditions quite different from the studio and these are described in detail. The importance of the cameraman's concentration when covering one of the most difficult assignments in television, a sporting event, is pointed up particularly—"It is always possible to tell if a cameraman

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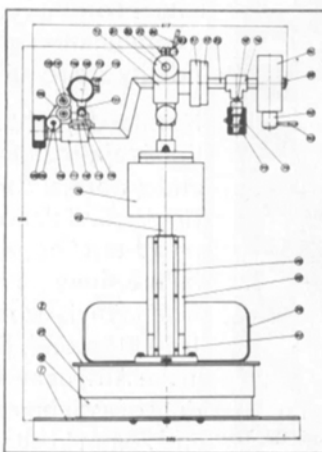
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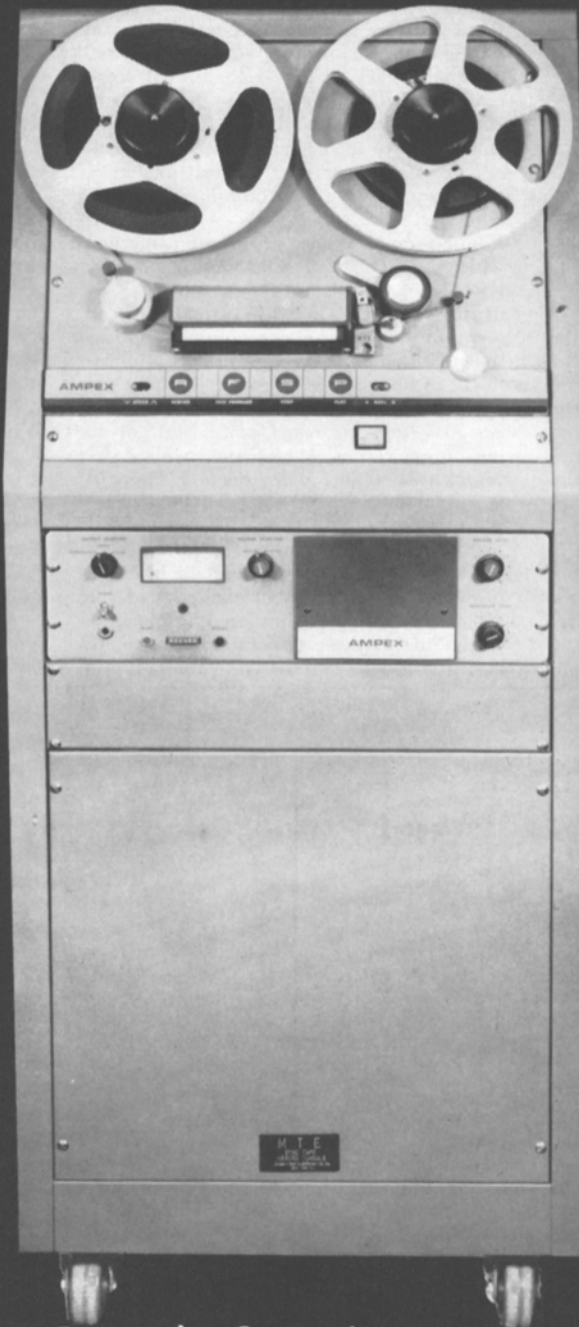
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has been concentrating on his camera-work . . . At the end of the program he will remove his earphones and ask what the score was, or who won, or if it was an exciting event."

Peter Jones' picture of the television cameraman is clear and vivid. His book should be as exciting to the student or beginner as it is informative. It is a fine addition to our libraries.—*Rudy Bretz*, National Education Sciences Corp., 1360 South Los Angeles St., Anaheim, Calif.

Applied Optics and Optical Engineering:

Vol. II. The Detection of Light and Infrared Radiation

Edited by Rudolf Kingslake. Published (1965) by Academic Press, Inc., 111 Fifth Ave., New York, N.Y. 10003 (United Kingdom edition published by Academic Press, Ltd., Berkeley Square House, London, W.1.) 190 pp. incl. index. Illus. Diagrams. 6 by 9 in. Price \$15.00.

Volume II of this work continues the subject of optical engineering into the detection of light and infrared radiation. It covers the eye and vision, stereoscopy, the photographic emulsion, the combination of lens and film, illumination of optical images, electrooptical devices, television optics, infrared detectors and infrared equipment. The central subject of detection is really extended in several places, notably in the case of television, which is described right up to and including the production and viewing of the received image.

By delegating the writing of the various

chapters to top-ranking experts in their fields, it is possible to present the reader with authoritative treatments of the various parts of this complex subject. There appears, however, the same problem as in Vol. I, namely that a great deal of subject matter is compressed into a very small space. It must be said that most of this is done very deftly and creditably. Thus the material on the eye and vision gives the reader a generally good appreciation of the broad field involved, and much the same may be said even of television and photography. However, condensation occasionally goes so far as to present some really difficult reading for the student. An example occurs on page 182, in the calculation of the optical transfer function, and the illustration of the result in Fig. 5, especially in regard to the role of the puzzling variable *s*.

The famous Weber's law (often merged with the name of Fechner) is briefly noted on page 44, but it is not even listed in the index. There is practically no mention made of the astronomical applications (in contrast with military applications) of image converters. Brief reference is made to the 1960 issue of *Advances in Electronic and Electron Physics*, but not to the more recent 1962 issue, which develops this subject more deeply. There is an annoying misprint on page 196, where a lux is put equal to 0.93 foot-candle, instead of 0.093 foot-candle.

These, and other points which could possibly be cited, are all examples of the difficulties in preparing an encyclopedic work. On the whole, they bulk rather small, and the book represents a most useful

collection of the art for the optical engineer.—*Pierre Mertz*, Consultant, 66 Leamington St., Lido Beach, L.I., N.Y. 11561.

Traité de Télévision

By P. Stroobants. Published (1960) by the Ateliers de Constructions Electriques de Charleroi, Charleroi, Belgium. 504 + xvi pp. Illus. Diagrams. 6½ by 9½ in. French.

The television art is one that has found evolution in a variety of countries. The United States has contributed considerably to it, but many studies and developments have come independently from several European countries.

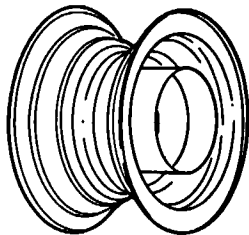
The present work is particularly interesting because it lays great stress on the numerous alternative choices in the resolution of a problem — be it an electron gun, beam focusing, modulation, or deflection (including sweep circuits), synchronizing means, interlacing, or the many other elements of design of a complete television system. Thus one can recognize some of the background for the several techniques that are current in the various countries.

This is a two-volume work; the present Vol. I covers general notions, cathode-ray beam techniques, synchronization and sweeps, the video signal, and the generation and emission of television signals. A second volume will cover propagation and reception.

The book was published in 1960, and solid state components and circuits are not discussed. These have required an entirely new evaluation of the engineering alternatives, and suggest an interesting

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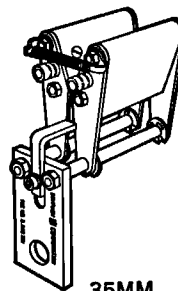
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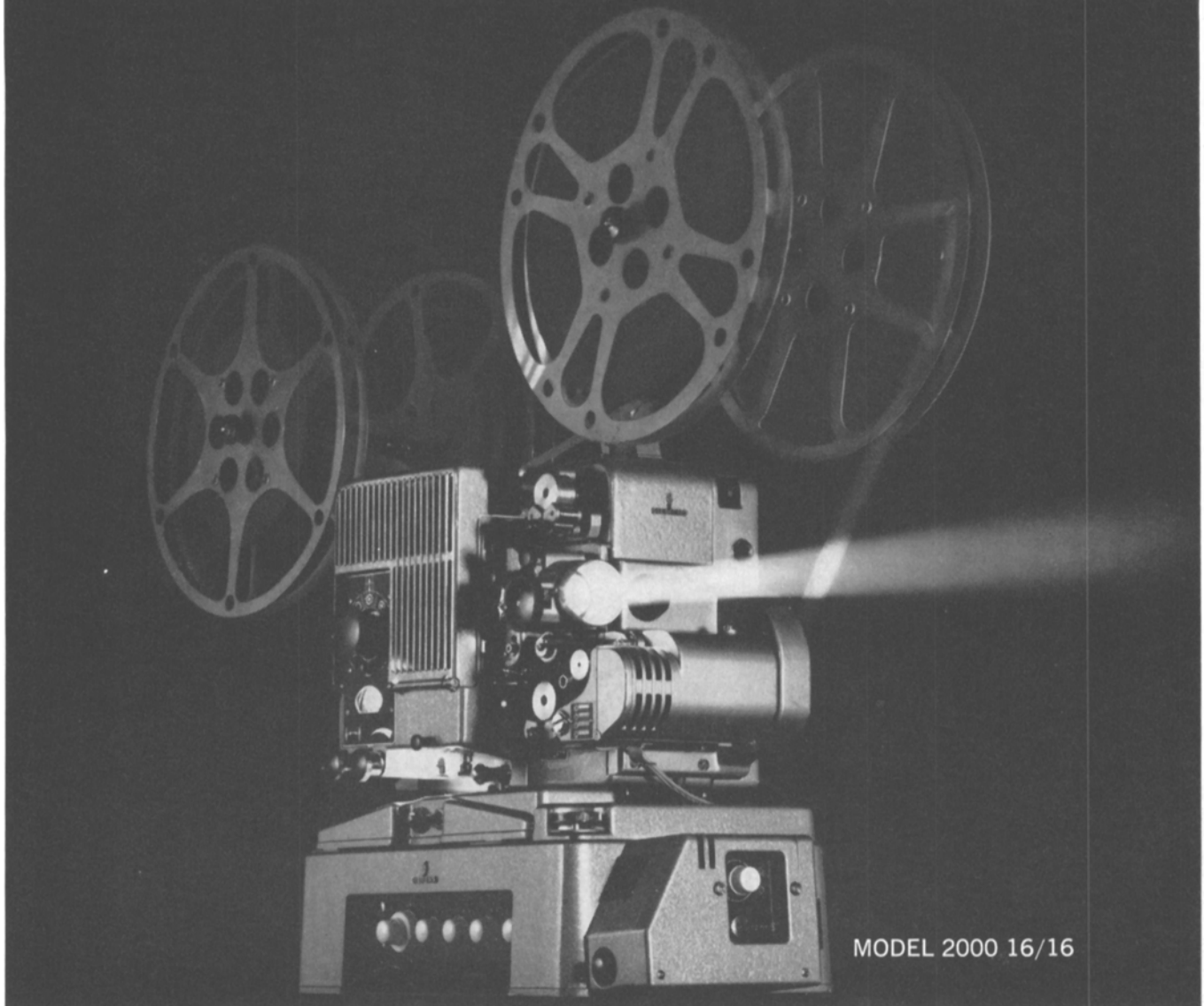
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sequel to the material presented here. Also, there is no discussion of color television, which at that time, had not reached a significant stage of development in Europe. Such a discussion would further enlarge the scope of the sequel.

An extensive bibliography is presented, but it still is missing some very important papers. Unfortunately there is also a four-page list of addenda and errata, and, as often noted in books in French, there is no index.

In summary, the book forms a useful reference work, particularly to one who is interested in the rationalization of the various engineering choices involved in television development.—*Pierre Mertz*, Consultant, 66 Leamington St., Lido Beach, L.I., N.Y. 11561.

Manual of Electromechanical Devices:

Component Types, Characteristics and Design Applications

By Douglas C. Greenwood. Published (1965) by McGraw-Hill Book Co., 330 W. 42 St., New York, N.Y. 10036. 327 pp. + index. 218 illus. 6 by 9 in. Price \$12.50.

This volume appears to be basically a group of catalog-type descriptions of existing devices, forming a convenient, although far from complete, collection. The connective and explanatory material is rather brief and tends to be superficial. The equations for electric brakes are good; the few other equations can also be found in any standard text on mechanics. The

book does not provide information on procedures used to design electromechanical components. It is quite evidently intended to aid in their selection, yet there are specific selection tables and discussions for only four of the eight items treated. The sections on Motors and on Ancillary Control Devices are quite comprehensive in a qualitative sense.

Omissions and weaknesses noted:

- (1) no treatment of costs, availability or sources;
- (2) no treatment of Code Limitations or safety (beyond passing references);
- (3) no limiting devices indexed for speed, voltage, force or current;
- (4) inadequate treatment of motor and clutch torque (p. 99 et seq. and p. 164 et seq.);
- (5) inadequate treatment of magnetic leakage (p. 11 et seq.);
- (6) inadequate treatment of environmental limitations and resistances; and
- (7) no references other than occasional credit lines for illustrations—*Carl E. Osgood*, Radio Corp. of America, Astro-Electronics Div., Princeton, N.J. 08540.

Linear Analysis of Electronic Circuits

By G. M. Glasford. Published (1965) by Addison-Wesley Publishing Co., Reading, Mass. 580 pages incl. index, appendixes. Diagrams. 6 X 9 in. Price \$15.00.

The advent of semiconductors as replacements for vacuum tubes in many applications has significantly increased the complexity of circuit analysis. This textbook, intended primarily for use at the college level, treats a specific aspect of such analysis—that of linear operation—for both vacuum tubes and semiconductors as well as for circuits containing only passive elements.

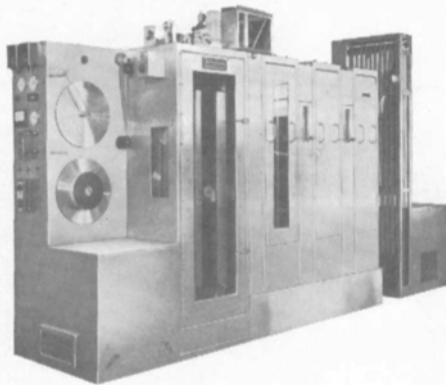
The equivalent circuits for vacuum tubes in linear applications are generally well-known, and their derivation and application should be familiar. Not so well-known are the equivalent circuits for semiconductors in similar applications. Thus, the first of the five chapters is devoted to the development of suitable models for all of the common circuit configurations. Both vacuum tubes and semiconductors are included, with emphasis on the similarities between the two types of devices.

With the equivalent circuits in hand, the author proceeds to a number of related topics required for circuit analysis—including Fourier series and the Fourier integral, transfer functions, transmission lines, delay lines, and system response. Each topic is treated with a thoroughness not always found in a text devoted primarily to circuit applications.

Again in logical sequence, the third chapter is concerned with the operating characteristics of vacuum tubes and semiconductors—environment, bias, frequency, noise, etc.—in the common circuit configurations for linear applications. Although these are treated in some detail, including, for example, the effect of lead inductance, a list of references is included for those who may wish to delve further.

With the background now fully established, the author proceeds to a de-

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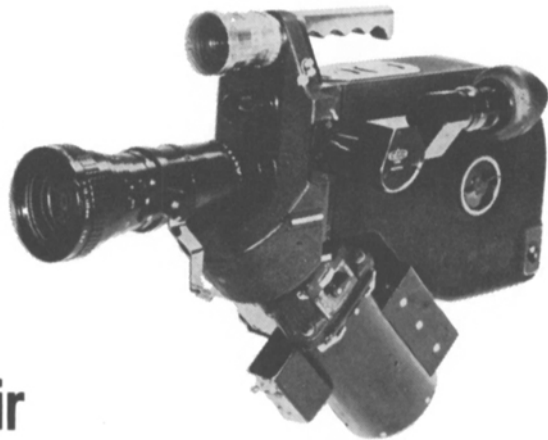
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tailed analysis of the various amplifier configurations. This and the final chapter, an analysis of circuits with feedback, represent the ultimate purpose of the book. The treatment is quite detailed, including drift, frequency response, and compensation gain, bandpass, stabilization, etc.

Two appendices are included, one an extremely useful table of 32 of the most common Laplace transforms, the second a compilation of data on specific devices.

Within the boundaries of linear applications, the book presents a sound, logical, and thorough approach to circuit analysis. As the author states in the Preface, it is intended primarily as a textbook; however, practicing engineers will also find it a useful reference in everyday design work. Many engineers will deplore the lack of

coverage of circuit analysis for nonlinear applications such as motor control and process control. Such applications are, of course, plentiful, but constitute a separate and distinct subject.—*Harvey W. Mertz*, 406 Cornwall Rd., Cherry Hill, N.J.

The Technique of Special Effects Cinematography

By Raymond Fielding. Published (1965) by Communication Arts Books, Hastings House Publishers Inc., 151 E. 50 St., New York, N.Y. 10022. 396 pp. 156 illus. 5½ by 8½. Price \$15.00.

This is a thorough, precise and scholarly work, reflecting the author's technical competence and his background in the history of the motion picture. The book is

literally an encyclopaedia of special-effects cinematography dealing generally with (1) in-the-camera effects, (2) laboratory processes and (3) combinations of the two, "in which," the author explains with characteristic detail, "some of the image components are photographed directly on to the final composite film, while others are produced through duplication."

Pointing out that sophisticated special effects once available only to the 35mm producer are now available in 16mm production, and that such effects are increasingly important for economic, practical, and creative reasons, the author not only describes, but also usefully compares alternative processes (e.g. the traveling matte vs. rear projection) from an operational point of view.

This practical approach should make the book of special interest and immediate value to the nontheatrical and low-budget producer as well as to students of film.

Much of the material has been drawn from original sources. Technical details are accurate, the illustrations are well done, and there are ample, concrete references to the use of special effects in both theatrical and nontheatrical productions. An extensive bibliography of 371 references to books and periodicals on the subject is included.

For the professional in special effects, the book may be regarded as effective and authentic reporting of the field. For the vast majority of its potential readership, it should stand for a long time as the standard work on the subject, despite the earlier, although relatively recent, writings of Bulleid (*Special Effects Cinematography*, 1954), and Reff and Vasarhelyi (*Der Filmtrick und der Trickfilm*, 1961).

In short, this comprehensive, readable and practical volume covers just about everything that has been done and is being done in a field which, since the days of Méliès, has been very close to the heart of the special "magic" of the motion picture—*Robert W. Wagner*, Motion Picture Div., Department of Photography, Ohio State University, 1885 Neil Ave., Columbus, Ohio.

Electrophotography

By R. M. Schaffert. Published (1965) by Focal Press, Inc., 20 E. 46 St., New York, N.Y. 10017. 463 pp. Illus. Diagrams 9½ by 7 in. Price \$38.00.

The electrophotographic printing process is one of the latest techniques of image reproduction. It was at first incredulously received, but by now it has been developed to form the basis of operation of a large proportion of office copying machines. Xerography comprises a portion of the processes included in the entire field. The quality of reproduction obtained by these processes has gradually been improved, until now it seems that they are even being investigated in Japan for the possible printing of motion-picture film where simpler images, such as line drawings, are involved.

The present work comprises the compilation, summarization and description of the huge volume of literature which has so quickly grown up in this art. Over 500 references in a variety of languages are cited, most of them publications within the last 12 or 15 years, and the most significant of them are described and analyzed in some

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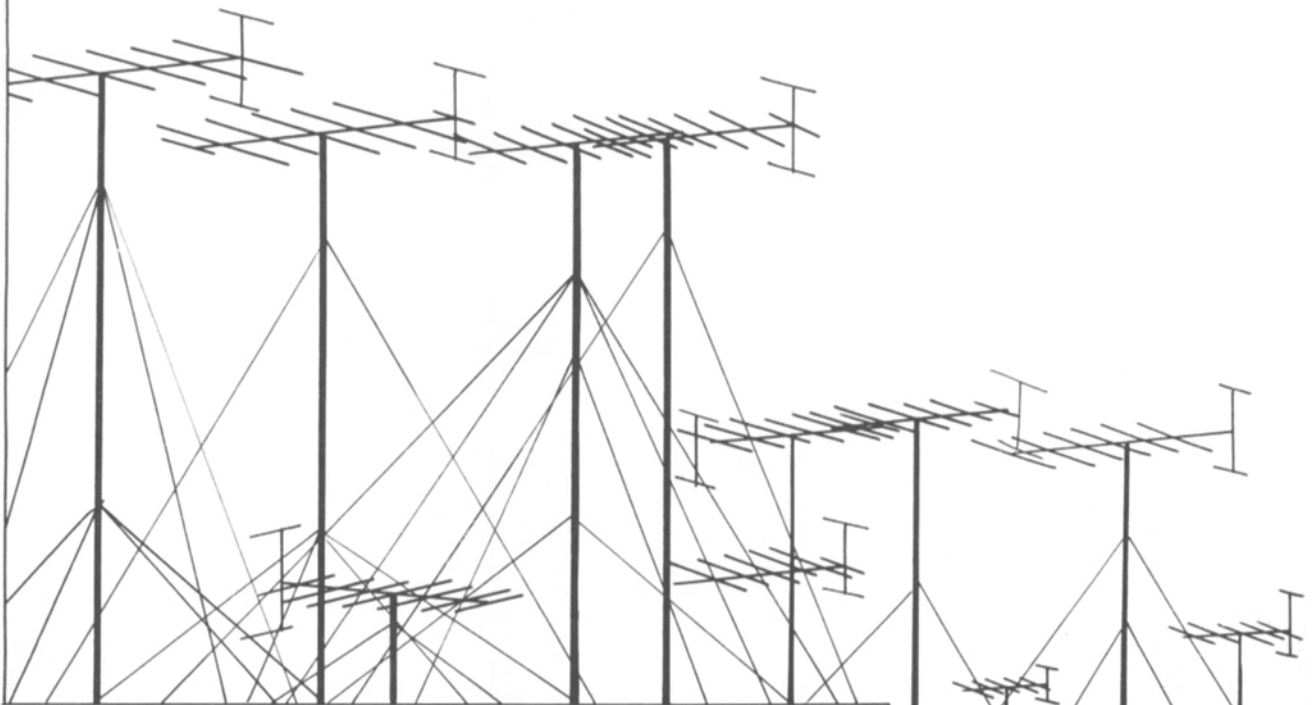
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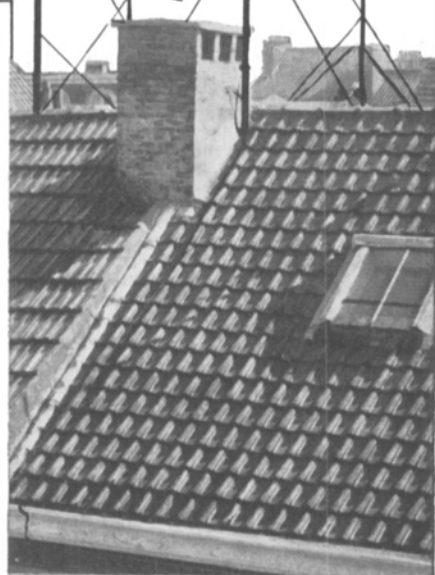
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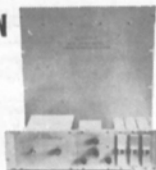


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detail. In addition, a listing of some six or seven hundred U.S. patents covers the number, dates of filing and issue, inventors, assignees, and a brief outline of subject matter. The aim of the work has been to provide a comprehensive treatment of the theory and practice in this rapidly moving field.

The discussion is in general quite readable, and numerous diagrams and plots are used to illustrate the text. The material is generally divided into three parts. The first covers a broad description of the various processes and techniques. The second covers an analytical theory of the various electrographic processes, and the third gives a bibliography of the reference material on the whole subject.

The printing and illustrations throughout the book are of the usual high quality of the Focal Press, but it somehow seemed impossible to avoid the spelling "fluorescein" in Fig. 16.

Modern Optics

By Earle B. Brown. Published (1965) by Reinhold Publishing Corp., 430 Park Ave., New York, N.Y. 10022. 646 pp. incl. index. Illus. Diagrams. 9 by 5½ in. Price \$25.00.

Interest in optics has been increasing rapidly of late, and a number of books have been published, which deal particularly with the many recent developments in this field. The present volume, in the author's words, "is not intended as a text for a classroom course in optics, but for self-study." This sets a high goal in clarity of exposition, since the self-taught student misses the explanations of his teacher and discussion with his fellow-students. The task is even more difficult where the large amount of material dealing with the art is to be covered in the relatively small space of one volume, particularly if the author's "aim has been scope rather than uniqueness of subject."

The book is divided into three parts. The first, on "fundamentals," covers what might be called "old," as contrasted with "modern," optics. The second part, on "optical systems and devices," covers all of modern optics except lasers. Here the transition is developed between 19th century optics and the recent developments. The topics considered are: imaging systems, optical detection, optical measurement, communication theory in optics, and miscellaneous topics. The entire third part of the book is devoted to the subject of lasers.

The condensation of all this material into one volume has some obvious effects. The subject of zoom lenses is treated by a few sentences here and there in scattered parts of the book, and no references are cited. Interferometric spectroscopy is covered in four pages and one reference, and ultra-high-speed photography also gets sketchy treatment, with no reference to the Proceedings of the successive recent international congresses on this subject. Beyond this matter of brevity, some irritation is caused by a lack of correspondence, over much of the book, between the items on figures and in the text.

Nevertheless one can say that some difficult subjects are handled rather better than might be expected in a tutorial summary. Examples are the discussions on communication theory and modulation

transfer functions, and lasers; although, even for these topics, some occasional greater explicitness could further ease the task of the self-study reader. However, the author may be commended for having taken from the literature various especially clarifying expositions and diagrams, as in the cases of the Schmidt optics and of conical optical channels.

All in all, the book will be found useful not only for self-study but for general reference. Even where other reference books are handy, differences in treatment can elucidate occasionally puzzling points. All this is assuming that the reader can afford these costly books.

One can certainly say that the book is a necessary text to any person who is involved in electrographic processes, copying machines, or related portions of the art.—*Pierre Mertz*, Consultant, 66 Leamington, Lido Beach, L.I., New York 11561.

Proceedings of the Conference on Signal Recording on Moving Magnetic Media

Edited by Gábor Heckenast. Published (1964) by Akadémiai Kiadó, Publishing House of the Hungarian Academy of Sciences, Budapest V. Alkotmány U. 21. 470 pp. Illus. 9½ by 6½ in. Price \$12.00.

The thirty-seven papers on magnetic recording reproduced in this volume were presented at a four-day international conference held at Budapest, Hungary, in October 1962. There were no restrictions as to exclusive presentation or publication, so that many of these papers can be recognized as having been presented at other meetings and having been published elsewhere. The subjects were drawn from the gamut of the magnetic recording art, including:

- (1) overall systems ranging from computers to geophysical recorders; and from motion-picture sound to home tape cartridges.
- (2) mechanical drives for tapes, discs and drums, including devices, theoretical analyses, flutter characteristics.
- (3) magnetic heads — conventional and flux sensitive types.
- (4) tapes and magnetic coated films — materials and measurements.
- (5) analyses of recording demagnetization, noise, equilization, etc.

The papers most closely related to the motion-picture art are: Bodenstein and Watter on a disc for recording still frames of television (in German); Gondensen on tape synchronization techniques for motion-picture sound (in German); Rens on storage of magnetic records (in French); Tourin on 8mm magnetic film formats (in French); and Kisch on magnetic sound films (in German). The papers are reproduced in their language of presentation, most of them in German, a few in French and Russian, and the rest in English.

The book has been prepared and printed much more carefully than is usual for a conference proceedings. Although its multilingual character is a disadvantage, it is recommended as a record of the state of the magnetic recording art in the year 1962.—*Marvin Camras*, IIT Research Inst., 10 West 35 St., Chicago, Ill. 60616.

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