in his area, illustrating his talk with examples of the visual aids employed. He also had on hand a variety of new equipment that is used in the schools today.

Bill A. High, Director of Photography for the Oakland Junior College, gave a talk on the standards which must be met to pass the College's two-year course in photography. Mr. High brought with him a series of pictures produced by the students of the school with which he pointed out that the school is concerned with commercial aspects rather than the fine arts. The work of the classes covers approximately 80% still and 20% motion-picture photography, and quality is kept very high.

Leo Diner, of Leo Diner Films, wound up the meeting with an informal rundown on some of the highlights of his recent tour of duty with the San Francisco Ballet in the Far East. Mr. Diner was in charge of the tape sound equipment on the trip. It was promised that at a future meeting he would give a complete account, with some of the many slides and motion pictures taken during the tour.—*Werner H. Ruhl*, Secretary-Treasurer, 415 Moline Dr., San Francisco, Calif.

**Membership Certificates** (Active and Associate members only). Attractive hand engrossed certificates, suitable for framing for display in offices or homes, may be obtained by writing to Society headquarters, at 55 West 42d St., New York 36, Price: $2.50.



# books reviewed

## Television Engineering Handbook

Donald G. Fink (Editor). Published (1957) by McGraw-Hill Book Co., 330 W. 42 St., New York 36. 1483 pp. + 22 pp. index, Illus. 6 × 9 in. Price $18.00.

The intent of Don Fink in preparing the *Television Engineering Handbook* can best be expressed by the following quotation from its Preface:

"The development of the techniques of television engineering, following the establishment of the compatible color system in the United States and the extension of monochrome broadcasting throughout the world in four major systems based on different standards, has reached such a point that no individual engineer can command all of the quantitative data required to design and operate television equipment. This situation has two consequences: there is a need for a unified compilation of these data, and the compilation must be prepared by a team of specialists. The *Television Engineering Handbook* is intended to fill this need."

The degree to which this objective has been attained is suggested by this list of the chapter headings: (1) Numbers, Equations, and Definitions; (2) Television Standards; (3) Monochrome Vision, Photometry, Illumination, and Optics; (4) Color Vision and Colorimetry; (5) Cathode-Ray Devices; (6) Scanning, Deflection, and Color Registration; (7) Synchronization of Scanning and Color Coding; (8) Transmission of Monochrome Information; (9) Transmission of Chrominance Values; (10) Composite Video Signals, Waveforms, and Spectra; (11) Video Amplification and D-C Restoration; (12) Wideband Amplification (Radio and Intermediate Frequency); (13) Wideband Modulation and Demodulation; (14) Wave Propagation, Radiation, and Absorption; (15) Television Receivers — Circuit Functions and Block Diagrams; (16) Television Receivers — Circuit Design and Component Specification; (17) Camera Chains and Related Equipment: Part I — Monochrome Systems, Part II — Color Terminal Equipment; (18) Coaxial Cables, Microwave Links, Relays, and Networks; (19) Television Transmitters and Auxiliary Equipment; and (20) Transmission Lines and Radiators.

The first chapter is written in true handbook form, that is, the material in this chapter represents a collection of facts and figures with a bare minimum of descriptive or expository material. The remainder of the book, however, consists of a number of essays on various phases of the problems arising in television engineering. This

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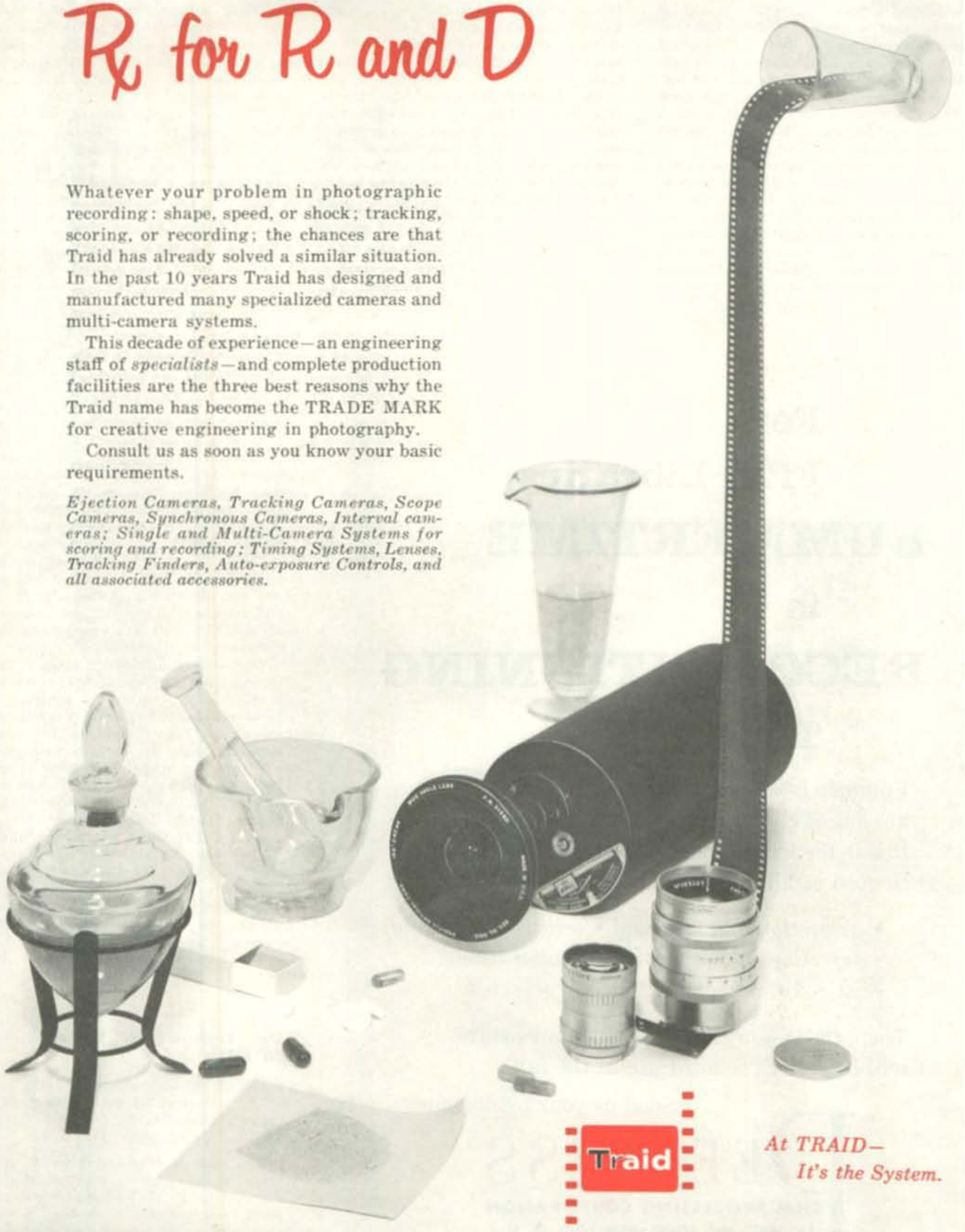

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method of handbook writing has both advantages and disadvantages for the user of the book. The reader in search of information can find it readily in case the author of a particular section is a good writer, that is, where a chapter has been carefully prepared so that the important facts are clearly marshaled in an orderly fashion and the writing is clear and succinct. Most of the chapters in this book show that between the individual author's efforts and the skill of the editor this desirable objective has been met.

There is, however, one exception to this desirable state of affairs. Some of the material in the chapter "Transmission of Monochrome Information" is treated from an entirely new and untried point of view. Consequently, this treatment, which may have seemed completely clear and obvious to the author, must be studied carefully if the reader even is to comprehend the purpose of the presentation. In this case, it appears to this reviewer that it would have been wiser if the conventional approach to this problem had been followed for this handbook and the new approach better tried on a large technical audience before it was considered as handbook material.

The chapter "Composite Video Signals, Waveforms and Spectra" lies at the other extreme. Here the authors have presented new data in a clear, concise and straightforward style. One cannot question the interest of all television engineers in the detailed spectrum analyses of television signals which are shown in this chapter. It is this reviewer's hope that these data will be published in one of the technical journals so that every interested engineer can become aware of their existence.

For many engineers this handbook will become a working tool taking its place alongside his pencil and slide rule. These engineers will represent a large fraction of those working in the television field, for the variety of facets of television engineering covered and the detailed treatment of each will satisfy most of the practicing engineers. Even so, there are some significant omissions.

This reviewer was surprised to discover that the chapter on "Television Receivers —Circuit Design and Component Specification" contained no material on the design of circuits for receivers using the Lawrence color picture tube. The theory of operation of this tube is described in other sections of the *Handbook* and, except for the shadow-mask type of tube, probably more receivers have been built to use it than any other known type of color display tube.

Other subjects omitted from the *Handbook* are industrial and closed-circuit television, projection receivers for use in auditoriums, kinescope or videotape recording, and community antenna systems. There are many television engineers who are concerned with each one of these topics.

Another subject which would be useful to many television engineers is that of requirements for the design of television systems. For many purposes, it is desirable to know the threshold and tolerable values of noise, echoes, interference and other defects arising in picture transmission.

This reviewer was somewhat troubled by the fact that no references or bibliography was included in chapters 12, 15, several sections of chapter 16, and chapter 19 of the *Handbook*. This was particularly distressing in the case of chapter 12 "Wideband Amplification (Radio and Intermediate Frequency)." The synthesis of broadband circuits by studying the location of poles and zeros is a technique which has been developed by mathematicians and circuit engineers over the whole world during the last 20 to 30 years, and references to these prior workers seem necessary to this reviewer if a complete picture of the art is to be presented.

Since this *Handbook* is in its first edition, it does contain errors. In spite of such errors, in spite of the shortcomings pointed out above, this reviewer can give his unqualified recommendation that this book belongs on every television engineer's bookshelf.—*W. T. Wintringham*, Bell Telephone Laboratories, Inc., Murray Hill, N.J.



## Die Technik für Filmvorführer, 2d Ed.

By Karl Rower. Published (1957) by VEB Wilhelm Knapp Verlag, Halle (Saale), Germany. 6 × 8¼ in. 352 pp., 257 illus. Tables. Price: DM 16.–.

This book is written very much on the order of our American *Blue Book on Projection* by F. H. Richardson and compares favorably with it although the correction of sound reproduction troubles is discussed rather ineffectively. Due to the quality of the paper and print, the reproduction of the illustrations is not always good.

Since the book is primarily intended to be a textbook at the East German "Central School for Projectionists of the Department of Culture," it contains all the information needed by projectionists, as required by the East German law of December 8, 1954. This information consists of:

General knowledge of acoustics and optics;

Electrical installations needed for theaters;

Detection and elimination of troubles in electric equipment;

Film properties and handling of film;

Servicing of the commonly used projectors;

Safety, police and fire regulations;

Plant and workmen's protection.

Remarkable are two items which are unusual requirements for us.

(1) Standard identification of theater prints (DIN 5381) consisting of colored paper bands on film rolls identifying them as the first, second, third news reel, the first or second roll propaganda reel and first to sixth reels of the main feature.

(2) One of the subject matters of the exam to become a projectionist is "the knowledge of the duties of the projectionist as an agitator."

Among other important features are the following items:

(3) The recommendations for the careful treatment of theater prints:

a. Standard nomenclature chart of defects.

b. Checking on a rewind every newly received roll before the first performance. Perforation damage and scratches have to be noted. Badly damaged perforations might cause fire, when the film is stopped in the gate.

c. Careful rewinding: Prints are damaged more frequently during rewinding, than during normal projection — unless the projector itself is in poor shape. Scratches might be introduced, mainly horizontal ones, when after rewinding, telescoping rolls are pressed or pounded. Good motor driven rewinds are therefore preferred to hand-rewinds. These should be built so that the friction depends on the weight, whereby a rather constant winding tension is obtained.

d. For a performance only reels with standard core should be used. They should be always in good shape, mainly they should not be bent. So-called "stick-up reels" (shipping reels) are not permitted since during unwinding the film roll strikes, whereby the film suffers.

e. Storage should always be according to regulations. Whatever is not actually on the projector should be in a partitioned hardwood cabinet. The film should never be exposed to excessive heat or humidity.

(4) There are at least two projectors manufactured with combined air and water cooling: the Zeiss-Ikon VIIB and the Ernemann X.

(5) Examples of good 16mm professional projection systems are listed. These projectors are required to meet nitrate standards for safe operation; this fact together with inferences in other parts of the handbook suggest that some 16mm nitrate film might be in use in "iron-curtain" countries which is directly opposed to practice in this and many other countries.

(6) Among the published tables the following are of interest to us:

Two tables contain symbols used on German electric diagrams and blueprints.

Film weight table shows length in meters vs. weight in kilograms.

Length of film vs. roll diameter when cores of 1.417 in., 1.969 in., 2.953 in., 4.134 in., 4.724 in. and 5.000 in. in diameter were used.

The last table gives running times for given length of rolls.

(7) Many of the published recommendations shed light on conditions in East Germany and probably in the U.S.S.R. also.

Building, electrical regulations are much on the old pre-1935 Prussian pattern. It is mentioned that even these are under scrutiny and will be rewritten, to take into consideration the cultural and technical changes of the present. None of the existing safety regulations can or should be considered final.

*Regulations for the Examination of Projectionists*

The Examination Committee consists of the following members:

Two members of the Dept. of Education, Film Administration branch;

One member of the Labor and Professional Improvement Dept.;

One member of the Police Dept., Fire Division;

One member of the Free German Trade Union, Art Branch; and

One representative of the Central School for Projectionists.

*Age requirement:* past 18 years (man or woman).

The education has to be received at the Central School for Projectionists, or from the equivalent of it. Previous to taking the course, a minimum of two months apprenticeship in a public film theater under the guidance of approved film teacher-demonstrators has to be proven.

Subject matters of the examination:

a. Proof of general knowledge in sociology and civilization in relation to politics, especially the sociological and culture political importance of film, and the agitative duties of the projectionist.

b. General knowledge of electrical installations in motion-picture theaters, construction and mode of operation of the most important electrical connections. The knowledge of locating of trouble spots with certainty; the elimination of troubles in electric equipment; general knowledge of sound and light technics, as well as optics; the construction and servicing of the most common projectors and the functions of the components, including portable sound equipment; familiarity with the most important safety, police, fire, plant and workman's protection regulations for projectionists of all kinds; the complete familiarity with the properties of film and with the methods of handling film; the knowledge of all measures to be undertaken in case of fire in motion-picture houses, or during any other film performances.—*E. I. Guttman and F. J. Kolb*, Manufacturing Experiments Div., Kodak Park, Eastman Kodak Co., Rochester 4, N.Y.

## Communication Engineering

By W. L. Everitt and G. E. Anner. Published (1956) by McGraw-Hill Book Co., 330 W. 42 St., New York 36. 644 pp. 346 illus. 6 × 9 in. Price $9.00.

This is the latest edition of a book which has enjoyed a long tradition in the field of communications. The earlier editions were by the senior author alone; Mr. Anner has joined in the preparation of the third edition.

As the authors note in a preface, it is a taller order in 1957, than it was in 1932, to put communication engineering into a single volume. Thus although the title is retained because of its reputation, the present volume attempts to cover only basic linear elements (including linear amplifiers and electromechanical devices) with a brief discussion of modulation. The reader needs other information to carry out a real system engineering project.

Specifically, the book, after noting the general nature of signals and modulation, comprises an outline of network analysis and network theorems, from simple networks and resonances through bridge networks, repeated networks, wave filters, to the various wire lines (smooth and with reflections), with impedance transformations and matching. The book continues with a discussion of equalization, an analysis of the linear amplifier, and a description of electromechanical coupling. It closes with an appendix on hyperbolic functions.

A candid appraisal must state that the treatment seems old-fashioned. First there is no need in 1957 to bring up the "mile of standard cable." Further, the older art, because it was largely applied directly to telephony, placed little emphasis on phase, and the book reflects this. It does not even mention the minimum phase concept, announced by Lee and applied so extensively by Bode. It gives a tantalizingly inadequate treatment of feedback, without a word on the stability criterion of Nyquist. The book gives a discussion of amplitude equalization, but only two pages to phase correction, and ignores the masterfully compact delay equalization technique of Nyquist. Noise, considering its paramount position as a parameter in communication engineering, also receives only very incidental treatment.

In spite, however, of these shortcomings, there is really much substance to this book, and the engineer will find it very handy for the understanding of a great deal of his network and signal transmission problems. —*Pierre Mertz*, Bell Telephone Laboratories, 463 West St., New York 14.

**Industrial Motion Pictures** is a new Kodak booklet primarily designed to give the industrial motion-picture photographer all the information he needs to produce low-cost films on all Kodak 16mm motion-picture films. It is sufficiently basic in its approach to be of use also to the serious amateur in supplying answers to problems concerning procedures and materials in film production.

Beginning with a discussion of the planning and schedule preparation that must precede actual shooting, the booklet reviews the equipment to be used and the procedures for using it, pictorial continuity, lighting techniques, special effects, editing and titling. A brief section on sound recording and reproducing is included, and there is a chapter on the various applications of motion-picture photography in industry, with short descriptions of the techniques involved in such matters as time-lapse, micro-motion analysis, infrared motion pictures and cinephotomicrography.

At the end of the booklet are five pages of complete data on 16mm Kodak films, both black-and-white and color, including exposure and illumination tables and a table of lamp-to-subject distances. The 78-page booklet is available from Kodak dealers for 50 cents.

**An International Calendar of Film Festivals, Contests and Awards** has been published by the University Film Producers Assn. Issued as an attractive 20-page booklet, the compilation was made by Frank Neusbaum, Administrative Head, Motion Picture and Recording Studio, Pennsylvania State University. It is valuable especially to producers and sponsors. The booklet lists the titles of the various events, the dates, the deadlines for entries, the categories, the procedures for entry, and the names and addresses of the persons

or organizations to whom to write for further information. Copies are available for $1.00 in the United States and $1.25 elsewhere, from Frank Neusbaum, 112 West College Ave., University Park, Pa.

**Artificial-Light Photography** by Ansel Adams is published by Morgan & Morgan, Inc., 101 Park Ave., New York 17, and is priced at $3.75. The 128-page book covers eight main sections and contains 55 illustrations. It is fifth in a series by Mr. Adams called the Basic Photo series. Each book explores some aspect of still photography. Titles of earlier books in the series are: *Camera & Lens; The Negative; The Print;* and *Natural Light Photography.*

**The American Society for Engineering Education** is conducting a study that has a long-range goal of increasing the number of engineering teachers and raising teaching standards. The survey will cover engineering teachers and the faculties of engineering colleges with the purpose of developing information with which to measure quantitatively the need for new engineering teachers. The survey is also expected to make it possible to identify and study the problems of meeting this need and to initiate and encourage activities to increase the supply and quality of engineering teachers. Headquarters of the Society are at the University of Illinois, Urbana, Ill., W. Leighton Collins, Secretary.

# 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. 38, Feb. 1957
Natural Source Set Lighting (p. 86) *C. Loring*
Zoom Effects in Animation (p. 88) *J. Hoke*
Cinemiracle (p. 94) *J. Henry*

vol. 38, Mar. 1957
"Night Passage"—First in New Technirama Large-Screen System (p. 148) *A. Rowan*
Filming "Championship Bowling" for Television (p. 150) *S. C. Goltz*
Tele-Cam—Newest of Video-Film Camera Systems (p. 152) *J. Forbes*
Location Filming "Down Under" (p. 160) *P. Beeson*

**British Kinematography** vol. 30, Jan. 1957
The Projectomatic System (p. 3) *T. Robinson*

vol. 30, Feb. 1957
A Magnetic Tape Recording System for Colour Television Signals (p. 31) *H. R. L. Lamont*
An Approach to Wide-Angle Motion Picture Photography (p. 43) *R. L. Hoult*

**Electronics** vol. 30, Mar. 1957
Monochrome Slides Broadcast Color (p. 169) *E. L. Covington*

**International Photographer** vol. 29, Mar. 1957
Film for Color Kinescope Recording (p. 5) *R. G. Hufford*

**International Projectionist** vol. 32, Feb. 1957
Screen Illumination: Some Pertinent Facts (p. 10) *A. J. Hatch*
The Historical Controversy of Molteni's Choreutoscope (p. 22) *J. Card*
The Faster Pulldown Geneva Movements (p. 26) *J. M. Ruiz*

vol. 32, Mar. 1957
The Important Optical Train (p. 7) *R. A. Mitchell*
New Italian Projector for Widescreen Presentation (p. 12) *R. G. Fedi*
A Defense of Magnetic Reproduction (p. 22) *J. G. Frayne*

**Kino-Technik** vol. 11, Jan. 1957
Modernste Atelier Technik in Hamburg: die Studioanlagen der Real-Film GmbH (p. 4)
Feinmechanische Präzision beim Bau von Atelierkameras (p. 7)
Ein Neuartiger Doppelscheinwerfer für das Filmatelier (p. 9) *Neitzel*
Augenschäden durch elektromagnetische Strahlung (p. 10) *H. Schober*
Die Schärfe bei Breitbildprojektion mit Sicherheitsfilm (p. 14) *A. Jotzoff*
Projektion von Werbedias auf breitem Bildschirm (p. 17) *H. Tümmel*
B 11—ein Neuer Bauer-Projektor für Kleinere Theater (p. 19)
Kinematische Eigenschaften des Malteserkreuzgetriebes (p. 20) *R. Böhme*
Aus der Geschichte der Kinematographie (p. 22) *H. Tümmel*

**Motion Picture Herald** (Better Theatres Section) vol. 206, Mar. 30, 1957
Proper Projection and Anamorphic Lens Combination (p. 24) *G. Gagliardi*

**Philips Technical Review** vol. 18, Dec. 1956
A Flying-Spot Scanner for Televising 35mm Film (p. 193) *F. H. J. van der Poel*

## SMPTE Test Films

Test films planned by the Society's technical committees and produced under the Society's exact supervision are available from the headquarters office at 55 West 42 St., New York 36. Catalogs containing brief descriptions of each film are obtainable on request.

These films are used by manufacturers for testing the performance of new equipment, by television station technicians for lining up and adjusting film pickup systems, by maintenance men for "in service" maintenance of projectors and sound equipment, and by dealers for testing and demonstrating equipment.

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35mm Color Television Test Film
16mm Color Television Test Film
Color Television Test Slides 2 × 2 in.
35mm Television Leader
16mm Television Leader