

Book Reviews

Die Lichtverteilung im Grossen in der Brennebene des photographischen Objektivs

By Dr. Ernst Wandersleb. Published (1952) by Akademie-Verlag GmbH., Berlin NW7, Schiffbauerdamm 19. i-xiv + 125 pp. 49 illus. 11 tables. $6\frac{3}{4} \times 9\frac{3}{4}$ in. \$4.80.

The author investigates the distribution of light in the focal plane of a photographic objective and especially the factors contributing to the intensity variation from the center of the picture to the border.

The factors contributing to the decrease of illumination are: First, the $\cos^4 w$ law, which gives the natural decrease of light. The angle w in this formula is the angle which the principal ray of the bundle forms with the axis on the object side. Second, there is the influence of distortion where it is found that barrel distortion has a favorable effect and pincushion distortion an unfavorable effect with respect to the amount of light received. Third, there is the vignetting factor, which comes from the fact that the apertures of the single lenses may not be sufficiently large, so that some of the light coming from an off-axis point may be cut out. Fourth and fifth, there are reflections at the glass-air surfaces and absorption in the glass which may further reduce the amount of light emerging from the objective.

The author investigates in great detail all these factors and their frequently erroneous treatment in the literature. Of special interest to the reader may be the chapter in which the author discusses and refutes the claim of the inventors of the so-called "cycloptic" systems, which were thought to overcome the $\cos^4 w$ law of light decrease because of the fact that the exit pupil in such a system is at infinity.

The book contains a large amount of theoretical and experimental material with respect to the subject. In the later chapters the author discusses also the "false light," which is not image-forming, but which may very well change the image contrast considerably. He calculates, in particular, the amount of light which comes from double reflection at two glass-air surfaces. Of great interest is the author's suggestion for separating false and image-forming light by looking at the image through a cysto-

scope, which, because of its length, "sees" only the direct light.

The book contains the analysis of the light-loss in a large number of typical optical systems. The excellent drawings and photographs deserve special mention and the publisher is to be commended for the clear print and the quality of the illustrations.—*Max Herzberger*, Research Laboratories, Eastman Kodak Co., Rochester 4, N.Y.

Electronic Measurements, 2d Ed.

By Frederick Emmons Terman and Joseph Mayo Pettit. Published (1952) by McGraw-Hill, 330 W. 42 St., New York 36. i-xiii + 683 pp. + 8 pp. Author Index + 15 pp. Subject Index. 448 illus. 6×9 in.

The first edition, *Measurements in Radio Engineering*, has been so extensively revised and expanded that *Electronic Measurements* may more reasonably be considered a new book than a second edition. *Electronic Measurements* is no compendium of electronic measuring techniques nor is it intended as such. It is, rather, a well-organized textbook devoted to the measurement of electrical quantities and constants in the frequency range of direct current up through the microwave region with the unaccountable exception of the subaudio range. The chapters on "Laboratory Oscillators" and "Generators of Special Waveforms" are unusually good and add much to the value of this book for reference uses. The figures are numerous—they average about two to every three pages—and very well done.

To write a book on measurements without straying too far into the closely allied field of instrumentation is a difficult task. The authors have succeeded admirably in treating fundamental measuring techniques without undue concern with instrument details. There are, of course, omissions. An ever present need to conserve text space militates against the mention of infrequently used techniques such as, for example, the measurement of voltage with the electrostatic meter or the alternating-current potentiometer. Specific footnote references might well be used to draw attention to those methods of limited practical usefulness which are illustrative of basic principles.

Members of this Society, with their special interests in the audio and video fields, will note a number of omissions. There is no mention of wave filters or of the precautions necessary when measuring their transmission characteristics although transmissions lines are discussed at some length. The chapter on waveforms has a good discussion of the fundamental-suppression method of distortion measurement but no reference to the fundamental-balance method. Several techniques of wave analysis receive well merited attention yet the method of simultaneous analysis by tuned circuits or tuned reeds goes unmentioned. The old reliable "gain-set" method of measuring amplifier gains is not described though similar techniques of lesser precision are explained. Rather surprising in view of the space devoted to the SMPTE method of intermodulation measurement is the omission of the cross modulation method (XM) of measuring distortion, for the XM test is also an American Standard. The CCIF method described is, of course, the equivalent of the XM method; both have the same limitation, as normally used, of measuring only even order distortion.

These sample criticisms are of minor importance in relation to the book as a whole. This reviewer, having very limited knowledge of microwave techniques finds the sections dealing with microwave measurements very satisfactory. A specialist in microwave techniques would probably find the coverage of audio and video measurements equally satisfactory. As a text for use in conjunction with classroom or laboratory work *Electronic Measurements* is highly recommended. The engineer working in fields outside of his specialty will find this text a valuable source book. It is replete with references, many of them to recent publications. This is an especially desirable feature for one can always trace the development of a subject backward in time if a good recent reference is available.—*W. K. Grimwood*, Research Laboratories, Eastman Kodak Co., Rochester 4, N.Y.

Television, A World Survey

Published by UNESCO. 175 pp. \$1.75.

This report covers 45 countries and territories. In 20 of these, public broadcasts are on the air; 8 are carrying out technical broadcast experi-

ments; and in the other 17, governments or private organizations are taking active steps to introduce television. The study gives detailed information on the history of television in each country surveyed, its structure and organization, its source of revenue, the technical facilities which are available or planned for the future, programming and reception, the number and characteristics of transmitters, and other subjects such as color television and the training of personnel for new stations. A final section describes United Nations television activities.

A comparative table of countries having regular or experimental broadcasts lists the number of television stations in operation, the estimated number of receivers, the potential audience, date of first broadcast and other information. Another table deals with countries where technical experiments are under way, and a third table lists countries planning the introduction of television. Copies can be obtained from the UN Bookshop or from Columbia University Press, 2690 Broadway, New York 27.

Television Factbook, No. 18

Published (January 15, 1954) by Radio News Bureau, Wyatt Bldg., Washington, D.C. 374 pp. 8½ × 11 in. \$3.00. 1954 TV map 43 × 29 in. \$1.00.

The latest in this semiannual reference series brings up to date statistical tables summarizing 1953 and preceding years' FCC, PIB and other reports on network and station revenues, expenses, etc.; set and tube production, sales and shipments; and financial data on leading TV-radio-electronic manufacturers.

Also included are the usual data on TV stations (150 more since the last edition—reviewed in September 1953 *Journal*), networks and personnel, and directories of advertising agencies, national sales representatives, TV program sources, FCC, attorneys, consulting engineers and other consulting services, major electronic laboratories, community antenna systems, theater television installations and firms, market research organizations, trade associations, labor unions, and bibliographies of the literature and periodicals in the field.

The accompanying map shows all TV cities, existing and projected AT&T and private network facilities, all cities peculiar to the TV allocation plan, and all other cities over 10,000 population.

3 SOUND MAGAZINES, to be noted since the *Journal of the Audio Engineering Society* was initiated a year ago, are:

International Sound Technician, an illustrated monthly published by International Sound Technicians, Local 695, IATSE, has now been appearing since early in 1953. Devoted to de-

velopments and activities in the field of sound recording, the contents cover a very wide range of material, from technical papers through more popular "how to" articles to news items about events and personalities in the industry. Subscription rates are \$2.50 per year or \$5.00 for three years.

Revue du Son is a French monthly journal concerned with every aspect of professional sound recording and reproduction. Compiled by a distinguished board of editors and under the technical direction of Lucien Chretien the material is on a high technical level and representative of the latest progress in French research and industrial development. Each issue contains a substantial editorial by the editor, Maxime de Cadenet, and the technical papers are grouped under such headings as: Sound Reproduction, Sound Recording, Sound Films, Acoustics, Supersonics, Sound Systems, Circuits, Design. There are also book reviews, notices of new products, and news items about the industry. Subscriptions, which can be obtained from Editions Chiron, 40 rue de Seine, Paris 6, France, are 2100 francs per year, for 11 issues.

Tape and Film Recording, the first number of which appeared in December 1953, is a new illustrated bimonthly published by Mooney-Rowan Publications, Inc., Severna Park, Md. It is aimed primarily at the amateur tape-recorder enthusiast and is made up of "how to" articles, New Products, Questions and Answers,

Consumer Reports on new equipment, etc. A year's subscription (6 issues) costs \$2.00.

Photo-Lab-Index, 14th Lifetime Edition, published by Morgan & Lester, 101 Park Ave., New York 17, is the 1954 issue of this standard reference work. All phases of photography and related fields are included in 24 separate sections: Ansco, Ilford, Gevaert, Dufaycolor, Du Pont, Eastman Kodak, Haloid, Film Data, Filter Data, Illumination, Photo Papers, Weights and Measures, Chemicals, Cine Data, Darkroom, Color Data, Optics, Defects in Negatives and Prints, Transparencies and Slides, Copying, Photomechanical Processes, Bibliography, Photo-Words, Television. *Photo-Lab-Index* has 1348 pages in a looseleaf binder and sells for \$17.95. Quarterly supplement subscriptions are available direct from the publishers only, at \$3.00 per year.

Slides and Opaques for Television is a new pamphlet prepared by the Eastman Kodak Co. for inclusion in the Kodak Photographic Notebook. It describes the various types of photographic stills that are used in television and discusses the problems of safe area, tonal range, restricted range, lighting, subject, photographic processing, distribution of tones, color sensitivity and visibility standards involved in the preparation of artwork. Information is also given on copying equipment, exposure, lighting and handling of materials in the actual making of opaques and slides. Members can obtain copies of this pamphlet by applying to the Motion Picture Film Dept., Eastman Kodak Co., Rochester 4, N.Y.

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. 34, Oct. 1953
"Penthouse" 4-Track Sound Reproducers (p. 479) *R. Lawton*
MGM's Variable Wide Screen Projection Lens (p. 484) *F. Foster*
Simplified Single-Film System for 3-D Exhibition (p. 485) *A. D. Roe*
Film Splicing Without Cements or Adhesives (p. 486) *L. A. Herzog*
The Pan Cinor-Variable Zoom Lens for 16mm Cameras (p. 490) *A. Rowan*
vol. 34, Nov. 1953
Extension Tubes in Cine Photography (p. 545) *J. Forbes*
Wide Screen for 16mm Presentations (p. 558) *J. Forbes*
vol. 34, Dec. 1953
Is 3-D Dead (p. 585)
Paramount's "Lazy-8" Double-Frame Camera (p. 588) *J. R. Bishop and L. L. Ryder*

- Electronic Recording of Pictures on Tape (p. 596) *A. Rowan*
Closeup Photography with 16mm Single-film Stereo Systems (p. 598) *E. Wildt*
Animated Movies with Paper Cutouts (p. 600) *G. W. Cushman*

Journal of the Audio Engineering Society

- vol. 1, no. 3, July 1953
A Variable-Speed Distributor System for Synchronizing Out-of-Sync Pictures and Sound Tracks (p. 241) *H. M. Tremaine*
The Amplifier and Its Place in the High-Fidelity System (p. 246) *H. H. Scott*

Bild und Ton

- vol. 8, Dec. 1953
Herstellung von Schwarzweiz-Kopien von Agfa-color-Negativen (p. 354) *W. Brune*
Die Gestaltung des Farbentwicklungs-Laboratoriums (p. 355) *C. Michel*