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.

Audio Engineering Society, Journal
vol. 3, Jan. 1955
Record Quality and Its Relation to Manufacturing (p. 19) *A. M. Max*
Frequency-Modulation Noise in Magnetic Recording (p. 26) *R. A. von Behren and R. J. Youngquist*
Correlation of Transient Measurements on Loudspeakers with Listening Tests (p. 35) *M. S. Corrington*

British Kinematography
vol. 27, No. 1, July 1955
The Measurement of Cinema Screen Luminance (p. 9) *H. P. Woods*

International Projectionist
vol. 30, No. 7, July 1955 Pt. II.
Prevention of Damage to Prints (p. 9) *R. A. Mitchell*
A 'Push-Pull' Projector? (p. 13) *J. G. Jackson*
'Cinemaplastic' White Screen Coating (p. 21) *L. Satz*

Institution of Electrical Engineers, Proceedings
vol. 102B; No. 4, July 1955
A Flux-Sensitive Reproducing Head for Magnetic Recording Systems (p. 442) *E. D. Daniel*

Kinematograph Weekly (Studio Review Section)
vol. 459, June 30, 1955
Standards for New Filming Techniques Taking Shape (p. iii)
New Production Techniques the Talking Point (p. vii) *R. H. Cricks*

Kino-Technik vol. 9, July 1955
Englische Ateliertechnik. Ein Bericht über Studioausstattungen (p. 232)
Stockholmer LSO-Tagung im Zeichen der Zusammenarbeit (p. 244)
Stereophonie-Einrichtungen bei der Bavaria-Filmkunst (p. 246)
Aus der Geschichte der Kinematographie. Teil III (p. 252)
Zum 100jährigen Bestehen der Firma Conrad Conradty (p. 255)
Erfolge deutscher Kinotechnik in der Freiluftprojektion (p. 257)

books reviewed

3-D Kinematography and New Screen Techniques

By Adrian Cornwell-Clyne. Published (1954) Hutchinson & Co., 62 E. 83d St., New York 28. 266 pp. 155 illus. 6 × 9 in. 18 shillings.

Mr. Cornwell-Clyne who is well known as an author of articles and books on color photography has succeeded remarkably well in presenting stereoscopic theory and fact in this well-written book. Early historical data are included but very briefly. I feel that some authors have dwelt too much on what has been experimented with in the past. The author has given just about enough space to these features. His review (Chap. 1) of eyes and their perception of depth and the physiological factors involved is concise and clearly presented. However, I should like to take mild exception to his statement (p. 28): "This is known as the breakdown of the accommodation — convergence ratio and *is to some extent a source of eyestrain.*" Eyestrain may exist if the convergence required is great. Probably there is no eyestrain at all if the observer is looking at a projected stereograph requiring long time convergence of about 1 degree. Very brief demands for much greater convergence are not believed to be an impor-

tant factor in contributing to eyestrain. Nor is some divergence, about one degree or so, believed to set up eyestrain as was the prevailing theory some years ago.

The author (in Chap. 2) comprehensively covers the stereoscopic motion picture in general and goes into sufficient detail effectively to describe and illustrate most of the methods proposed for projection and viewing including "juxtaposed pictures on the screen," "superimposed pictures" such as in the Anaglyph and polarized light systems, "eclipse systems" which depends upon alternate projection and obscuration of left- and right-eye views, "autostereoscopic" (free vision) systems employing grids of various types and lenticular screens.

Techniques of Taking and Projecting (Chap. 3) explores the fundamental geometry of the stereoscopic process and some of the hazards encountered in projection by the methods in common use.

Chapter 4 summarizes briefly but adequately the stereoscopic motion-picture camera and most of the expedients which have been employed in search of suitable stereoscopic camera equipment.

Chapters 5 through 8 cover the "wide screen" and "stereophonic sound" and they cover them very well indeed. Of particular value is the information about "CinemaScope" and "Cinerama." This section is full of data on ratios and dimensions and is up to date enough to serve as a general reference source.

Chapter 9 deals with "cartoons in 3-D." Enough information is given to serve as a springboard from which an individual interested in this fascinating subject can take off.

The remainder of the author's text is devoted to 3-D and wide screen with 16mm equipment, a review of 3-D in Continental Europe, and a healthy analysis of what has been wrong, what to do about it, and the potential future of 3-D tied up with the wide screen.

Of particular value to the serious worker in the stereoscopic art are the two appendixes, the first "A Mathematical and Experimental Foundation for Stereoscopic Photography" by Dr. Armin J. Hill (reprinted from the *Journal of the SMPTE*, vol. 61, no. 4, Oct. 1953); the second, "Notes on the Basic Geometry in Viewing 3-D" by S. H. Groom. These appendixes provide the best mathematical information yet available and is presented in a clear-cut and easily understood manner.

All in all, Mr. Cornwell-Clyne has written what ranks tops among the many books published on stereoscopy. His style is lucid; the illustrations are many and of first-notch quality.—*John A. Norling*, Loucks & Norling Studios, Inc., 245 W. 45 St., New York 19.

Advances in Electronics and Electron Physics, Vol. 6

Edited by L. Marton. Published (1954) Academic Press Inc., 125 E. 23 St., New York 10. 538 pp. 203 illus. 6 × 9 in. Price $11.80.

In this, the sixth volume of the well-known *Advances in Electronics* series, the title has been changed to include "Electron Physics." This does not mean that the character of the series has been changed, but indicates more properly the scope and nature of the papers. In fact, in the present volume there are no papers on circuitry, and there is as much space devoted to the solid state as to vacuum and gas tubes.

Books of this type generally contain articles of varying level, some suitable for a novice's introduction to the subject, others requiring some background on the part of the reader. This volume is no exception. All the papers were meant to be critical reviews of their subject, and usually a considerable degree of success has been achieved in this direction.

There are three papers related to various aspects of magnetism. E. Abrahams in "Relaxation Processes in Ferromagnetism" presents a succinct, almost nonmathematical, summary of the various ferromagnetic relaxation effects. In addition, the author points out some of the unsolved problems remaining. The reviewer suspects that the beginner would find the going difficult in this article. On the other hand, the other two papers on magnetism, "Physical Properties of Ferrites" by J. Smit and H. P. J. Wijn and "Paramagnetism" by J. Van der Handel, all Dutch authors, generally provide most of the background needed for an understanding of the more difficult sections. The paper on ferrites considers the structure, magnetic properties, methods of production and the use in electronics of these important compounds. The article on paramagnetism begins with an explanation of the atomic bases, describes experimental methods of measuring the susceptibility, and discusses theoretical explanations of the observations. There is a description of the effect of the inner crystalline field on the paramagnetic behavior of some salts, followed by sections on paramagnetic relaxation and paramagnetic resonance. Adiabatic demagnetization and some aspects of antiferromagnetism conclude the paper.

Microwave techniques, used to study the conduction of metals at low temperatures are described by A. G. Pippard in "Metallic Conduction at High Frequencies and Low Temperatures." Since the study of this field has been carried out by a small number of research workers since the war, the summary of results is quite complete. Results, and their interpretation, concerning the surface impedance of the so-called anomalous skin effect and for the superconducting state are adequately presented.

W. M. Webster's paper "A Comparison of Analogous Semiconductor and Gaseous Electronics Devices" reviews the fundamental theory and the actual performance of those semiconductor devices that are most analogous to gas tubes. The first section considers the fundamental conduction processes in semiconductors and gases and discusses the operating principles of junction devices. In the second section, existing semiconductor devices are compared to their equivalent gas tubes. The third section discusses the theoretical limits to voltage, current density and power dissipation in junction devices.

"Space Charge Limited Currents" by H. F. Ivey is an authoritative, extensive detailed account of the subject. The paper discusses not only the problems of current flow for zero initial velocity, for homogeneous initial velocity and for a maxwellian distribution of initial velocities in

vacuum tubes of various geometries, but also the problem of space charge in gases, in electron beams, in double diodes and cavities, and in semiconductors. The author, who has made numerous contributions to the field himself, makes this well-written review even more useful to the worker in the field by correcting a number of mistakes in the original papers of several authors.

The clearly written article by R. G. E. Hutter on "Travelling Wave Tubes" is almost complete and up-to-date, including most of the newer techniques and viewpoints which have proved to be of value. The presentation is largely mathematical, and to some extent more physical explanation of the operation of the tubes would have been desirable. The paper is primarily of value as a good summary for those with some familiarity of the field.

Finally, M. E. Haines in "The Electron Microscope—a Review" describes in detail researches concerning the instrument, and not its applications. Very little mathematical detail is included, the article being mainly explanations of results. It is of particular value to the user of the instrument.—*A. H. Morrish*, University of Minnesota, Minneapolis, Minn.

New Horizons in Color

By Faber Birren. Published (1955) by Reinhold Publishing Corp., 430 Park Ave., New York 22. i-vii + 200 pp. incl. 150 illus., 6 in full color, 2 pp. of color chips. 8¼ × 10, in. Price $10.00.

This book treats of color harmony and aesthetics, with particular regard to architecture and decoration. The text has many illustrations, and is easy to follow. There is an interesting story on the history of color in architecture, Numerous references to other works of a scope similar to that of the text are given in an appendix and a bibliography. There is no specific coverage of either motion-picture or television color practice, and hence the book's usefulness to Society membership may be very limited.—*Bernard D. Plakun*, General Precision Laboratory Inc., Pleasantville, N.Y.

How to Draw in 3rd Dimension

By David Gordon. Published (1955) William-Frederick Press, 313 W. 35 St., New York 1. 16 pp. Color illus. Paper cover. 8½ × 11 in. Price $2.00.

As there is very little instructional copy in the 16 unnumbered pages of this booklet. it might be well to cover the material as encountered by a reader.

Mr. Gordon evidently takes for granted that the reader understands a great deal more about 3D drawing than a purchaser of the booklet looking for just such information would actually have. After following the four points under "Drawing instructions for third dimension," the reader will obtain the result promised, *but* unless he does a lot more outside reading, he will not know enough about the WHY of the process to enable him to do other drawings equally well. There is much left unsaid.

The relationship and ratio of picture plane to infinity, and picture plane forward to practical limits are not clearly defined for aspiring 3D artists, and although Mr. Gordon gives directions for making larger drawings in "Drawing for Various Sizes," he does not show one how to reduce or process them for use on standard stereoscopes and viewers that he mentions in "Hints for your own drawings."

Search of the patent office will show the reader, and Mr. Gordon, mechanical drawing boards or devices which will almost automatically mark off the offset points necessary for the number two drawing using incorporated dimensional guide marks. The devices shift the paper while measuring the shift to or from infinity, and this procedure is much more accurate than any manual method.

The "Gordon Viewing System" describes several variations of a method of viewing objects for 3D effects. One would have to see these devices for honest comment, but personally, and from Mr. Gordons descriptions, I cannot see audiences using these instruments for practical purposes. It seems that anaglyph and polaroid processes are far more economical and practical.

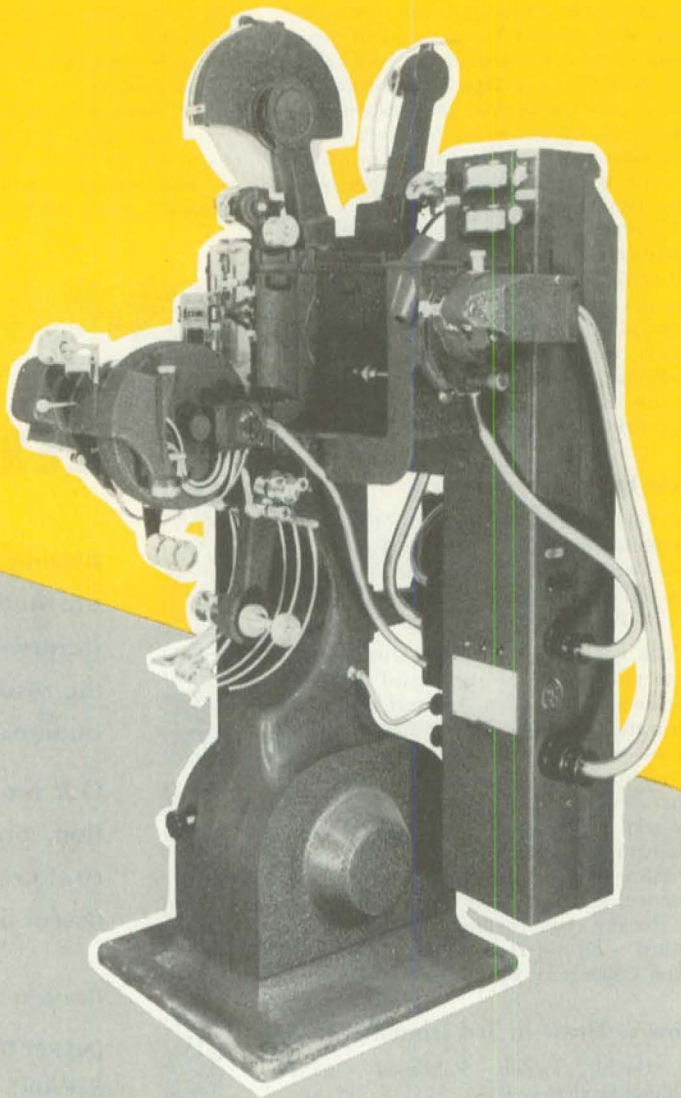
In 29 lines of 10 point copy Mr. Gordon gives a "Short History of Stereo" which mentions a very few of the researchers in 3D. In his "The Future of Dimensional Pictures," Mr. Gordon presents his "the Gordon proposal (patent applied for) of a 3D effect for film and TV without viewing glasses involves predominating alternating frames, using the eye's retention of image to a *single* film strip." I believe every worker in stereo has tried to photograph alternate frames for right-eye, left-eye retentional images. It is possible that Mr. Gordon has overcome the problem involved in such a process wherein the right eye in its retention of images must always skip the alternate frames shown for

MOTION PICTURE EQUIPMENT

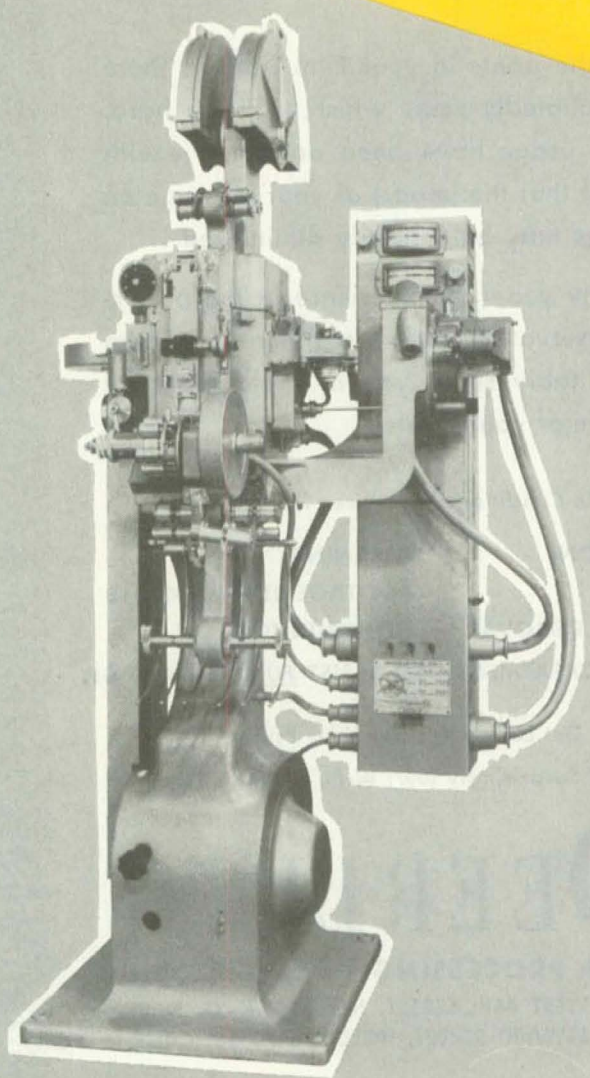
ANDRE DEBRIE

OF AMERICA, INC.

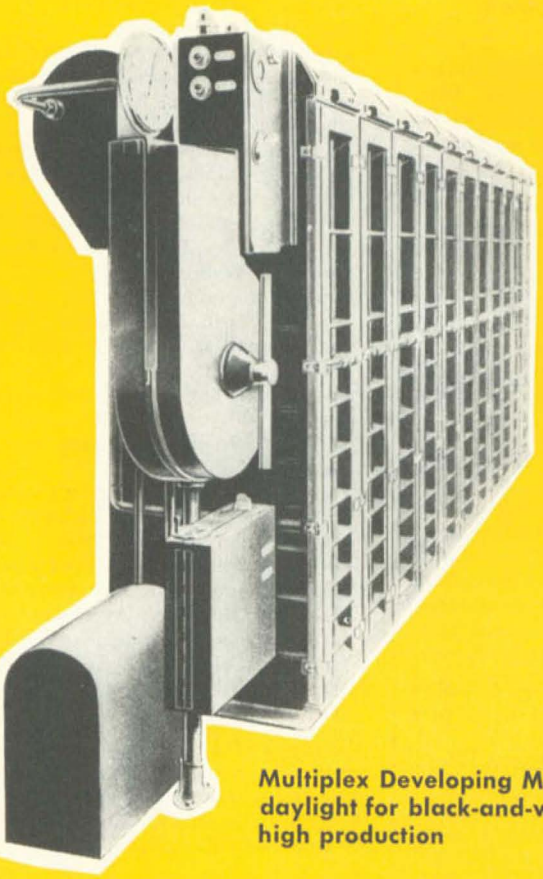
NEW YORK



Tipro Reduction Printer for color and sound one operation

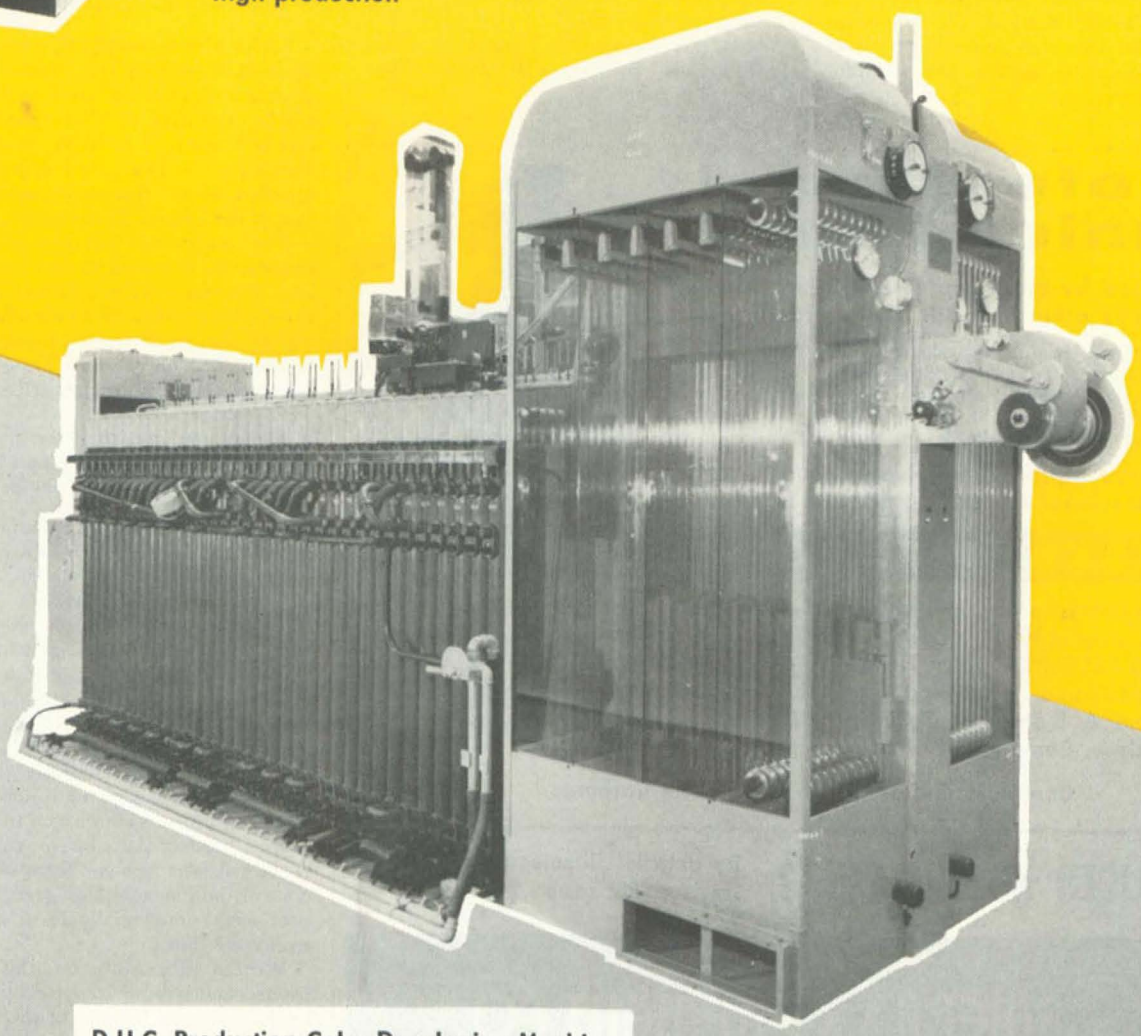


Matipo Color Printer for contact printing additive color and sound one operation



Multiplex Developing Machine
daylight for black-and-white,
high production

Aiglonne High-Speed Developing Machine,
self threading, no leader



D.U.C. Production Color Developing Machine
for multilayer color, such as Eastmancolor,
Anscocolor, etc., 35mm and 16mm combined

the left eye—either mechanically, or by polarization, or what have you. Both eyes can never fuse opposite single-eye pictures into a single image, especially without an aid of some sort.

The chapter on "Stereo Uses" is really a page of sketches showing a few of the existing devices used in various stereo methods.

I do not believe the reader will gain much 3D information from this booklet.—*Prof. Ernest F. Hiser*, University of Oklahoma School of Medicine, Oklahoma City 4, Okla.

Projectionist's Manual

Published (1954) by the Government Printing Office, Washington, D.C., 99 pp. Catalog No. D208.6:P94. Price 65 cents.

This reference manual, originally prepared for Navy projectionists, is equally of use to home operators and is of interest to many audio-visual equipment users. It begins with illustrations of the various kinds of projection equipment — 16mm projectors, the still picture projector, and tape recorders. The subjects covered include the setting up and operation of projection equipment; proper use of equipment; preventive and corrective maintenance for film and equipment and other important questions in the mind of the practicing projectionist. There are numerous detailed illustrations and instructions, plus a helpful glossary of terms.

The Audio-Visual Equipment Directory, 2d Edition

Published (1955) by the National Audio-Visual Assn., Inc., 2540 Eastwood Ave., Evanston, Ill., 179 pp. Illus. 8½ × 11 in. Price $4.00, $3.50 if check sent with order.

This directory lists 365 models of 16mm motion-picture projectors including optical and magnetic sound projectors and silent machines. Specifications are given for each model including date of manufacture, list price, serial number, lens, lamp, reel capacity, rewind information and parts available. Also covered are filmstrip and slide projectors, sound recorders and playbacks, screens, film library equipment and audio-visual accessories.

A 25th Anniversary Number of the *Journal of the Biological Photographic Association* is now in preparation. The first number of the BPA *Journal* appeared in September 1932 and it has continued to be published as a quarterly ever since. The papers to be published in this number are as follows:

"Anthony Van Leeuwenhoek — A Review of His Life and Work," by Sidney Shapiro

"Photocolposcopy" by Leopold Z. Goldstein, M.D.

"Radiographs and Specimen Montages" by Martha Brunings and John J. Beiter (illustrated in color)

"Color Photography of Fluorescent Plant Materials" by Arthur R. Spurr (illustrated in color)

"Making 35mm Transparencies by Projection" by David Danziger

"Differential Optical Staining of Colorless Living Organisms In Macrophotography" by Robert F. Smith (illustrated in color)

"The Use of Cine Extension Tubes for Cinematography of Small Objects" by Mervin W. LaRue, Sr.

"A Simple Preparation of Helminthological Specimens for Photomicrographic Purposes" by Walter Petana

"Stereophotography Utilizing Available 2½ in. × 3½ in. and Larger Equipment" by Kenneth D. Tompkins and John J. Beiter

"Photography of the New Born" by M. W. Bolleter

"Standards In Gross Photography" by Julius Halsman

"Panel On Photomicrography of Medical Specimens" (Oscar W. Richards, Moderator; John J. Beiter, John V. Butterfield and Julius Weber, panel members)

"Medical Photography As a Boon to Trial Lawyers" by Albert Averbach

"Little Known Applications of the Microscope in Science and Technology" by Dr. Fritz Braeutigam (translated by Gerard M. Lindley)

For copies of the Journal or other matters pertaining to the Biological Photographic Association write: Miss Jane H. Waters, Executive Secretary, Box 1668, Grand Central Post Office, New York 17.

Soviet Physics — JETP, a translation of research reports in the Russian language *Journal of Experimental and Thegretical Physics* will be published by The American Institute of Physics, 57 E. 55 St., New York 22. Funds for the first year's operations were supplied by the National Science Foundation of the Federal Government.

The new journal will appear every two months, the first issue to come out in October. The editor is Prof. Robert T. Beyer of Brown University. Editorial offices are being supplied by Brown University. An Advisory Board on Russian Translations has been appointed by the American Institute of Physics.

The annual cost, six issues, has been announced at $30.00 for U.S. and Possessions, Canada and Mexico; $32.00 for all others.

The Development of Automation in Metalworking is the title of a paper given recently by Anderson Ashburn, of *American Machinist*, before the ASME. The paper traces the development of automatic production techniques, including the principles of standardization, interchangeability, the continuous assembly line and the transfer machine. Much of our present automation, the author says, is limited to high volume and inflexible design, but engineers are seeking to restore the wide flexibility of the Spencer cam to automated setups. Most of the effort in this direction is toward tape or some form of numerical control, and noncircular gears have been produced commercially on a shaper controlled by film.

Written discussion on this paper is invited and will be accepted by ASME up to July 1, 1956. Copies of the paper, No. 55-SA-62, may be obtained at 50 cents each from Order Dept., ASME, 29 West 39th St., New York 18.