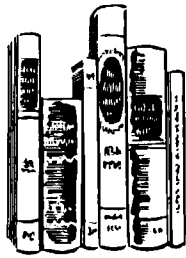


## books reviewed



### Image Dissection in High Speed Photography

By J. S. Courtney-Pratt. Published (1958) in English by Verlag Dr. Othmar Helwich, Darmstadt, Germany. 11¼ by 8 in. 38 pp. incl. 111 Refs. Illus. Price \$3.00.

The book has an excellent bibliography and it presents an updated review of image-dissection systems which have been used in high-speed motion picture photography. The author, Courtney-Pratt, is a recognized expert in this field. For the uninitiated he may have defined the term "image dissection" too briefly in the statement in the Abstract that "in (image dissection) the picture is divided up into a large number of small elements . . . . The elements are spaced out so that (in at least one dimension) each is separated from its

neighbors by a distance that is large compared with the width of the element . . ."

In an unpublished paper by the reviewer, it is stated: "The term 'image dissection' may be parochial and used by only a few experts. Dissected images have proved of value in at least three widely different photographic applications: first, in color photography; second, in stereoscopic photography; and third, in high-speed motion picture photography.

"The general public has had most intimate contact with image dissection in the field of color photography. If color separation images can be recorded and viewed through 'minute focal plane filters,' (then) in a single gross area additive red, green and blue images can be completely intermixed. A given 'point' in the 'scene' may be locally recorded as three adjacent 'points', red, green and blue. When viewed, these points in the recreated 'scene' will appear as single points having proper color because of admixture of red, green and blue light.

"Historically, colored screen plates and colored starch grain plates may well have been the first use of 'dissected images.' A significant innovation in image dissection for color photography was accomplished by optical means in the Berthon (later Keller-Dorian) process when lenticular embossings were used to produce 'minute focal plane filters.' A major advance in 'image dissection' methods of producing color pic-

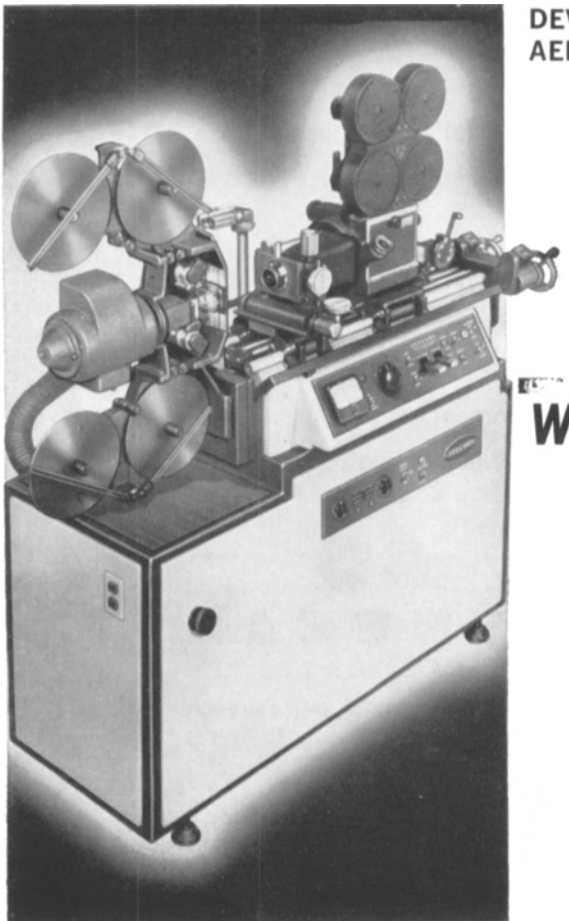
tures resulted from the introduction of the multilayer subtractive color processes which permitted z axis separation rather than x and y displacements of point images."

(This paper, incidentally, went on to recite the possibility that if one could illuminate a scene in rapid succession first with red, then green, and finally blue light one could produce an extremely high speed three-image-sequence motion picture with an ordinary color still camera.)

The Abstract of the Courtney-Pratt book correctly states:

"Image dissection cameras have been built that allow short series of good pictures at rates of 10<sup>7</sup> or 10<sup>8</sup> per second of remote objects and at or near unity magnification, or that allow cinemicrography at 10<sup>8</sup> pictures per second at magnification up to 2000 X. Alternatively, long series of, say 10<sup>6</sup> pictures, of lower resolution are possible. Cameras to achieve these results use only inert optical elements and mechanical components. The use of the deflecting image converter in combination with dissection principles allows one to take short series, of about 50 pictures, of 100-line quality at rates approaching 10<sup>9</sup> per second.

"Spatial resolution and positional accuracy are discussed, and time resolution and stroboscopic effects. The advantages and disadvantages are described, and a number of illustrations presented."—*Fordyce Tuttle*, Eastman Kodak Co., Camera Works, 343 State St., Rochester 4, N.Y.



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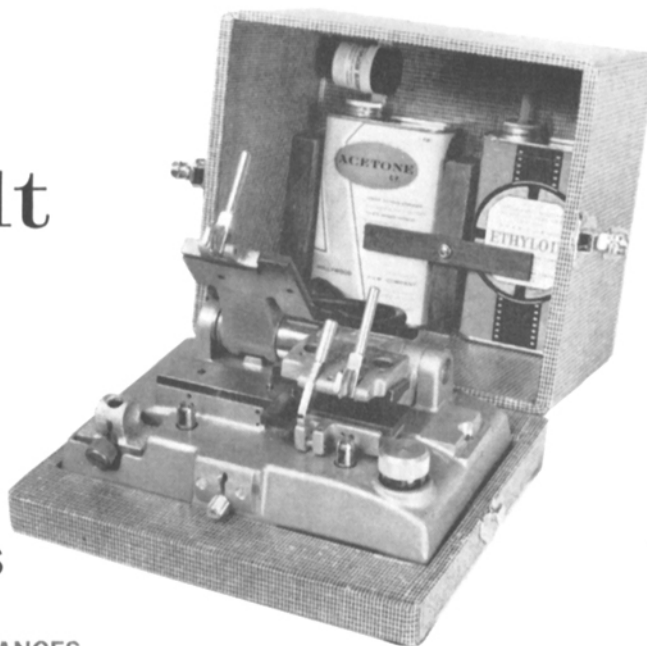
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## Electrical Noise

By William R. Bennett. Published (1960) by McGraw-Hill Book Co., 330 W. 42 St, New York 36. iii-viii + 280 pp. incl. illus. and diagrams. 6 by 9 in. Price \$10.00

Noise is being recognized as a major problem in the arts relating to communication and perception. It is really only noise when audible, but current usage still calls it "noise" when it is in an electrical signal, or in a mechanical displacement, or in a television picture, or even in a temperature fluctuation. There is a fast-growing literature on the subject, and the present volume is a part of it.

The book, by a distinguished contributor to the field, particularly its mathe-

matics, covers especially the noise in the electrical signal used in communications. Much of the material is applicable to other aspects of noise also. The work is an outgrowth of a series of articles in *Electronics* magazine.

The author analyzes the generation of noise in various parts of communications systems, i.e., thermal noise, noise in vacuum tubes and semiconductors, and noise in the radio medium. He discusses noise testing and the design of low-noise equipment, and gives mathematical treatments of noise engineering. The book ends with general studies of noise effects in specific communications systems. The treatment throughout is presented with carefully worked out mathematics so that it is as

basic as possible and yet requires only a moderate knowledge of theoretical physics. Much of it is designed around response through a tuned circuit, and Fourier analysis is reserved for the last hundred pages.

Among the interesting points covered is a fairly extensive discussion of the signal-to-noise performance of a maser. This is not exactly elementary, but the author has gone to great pains to keep it within bounds in its demands on the reader. While the matter may not be of pressing importance to most engineers now, it will become so for long-range television links in the future.

The engineer who has to cope with noise might wish that the author had included the study of more possible sources. Specifically he has not considered noise from contacts, noise induced from paralleling facilities, from static and lightning, from mechanical working of copper conductors, etc. Also he has given but little space to impulse noise.

For engineers, the work is primarily for such of them who look for a fundamental treatment of noise and its properties, and how to design systems in view of it — all with sound but not too advanced mathematics.—*Pierre Mertz*, 66 Leamington St., Lido Beach, L.I., N.Y.

## Focal Encyclopedia of Photography (Desk Edition)

Edited by Frederick Purves. Published (1960) by Focal Press, Ltd., 31 Fitzroy Square, London, W.1. U.S. Publisher, Macmillan Co., 60 Fifth Avenue, New York 11. 1298 pp. 5½ by 8½ in. Line-cut illus. Price \$6.95.

The 1956-7 edition of the *Focal Encyclopedia of Photography* has now been brought out in a desk edition of reduced size. According to the jacket, only the photographs (and some introductory pages) have been omitted, and the format slightly reduced. But the full text and all the pictorial diagrams have been retained. The price is about one-third that of the larger edition.

The earlier edition has been hailed as a monumental work, and this holds for the desk form. An editorial board of 52 members, including consultants on 14 broad subject divisions, is listed. Other contributors bring the total (announced on the jacket) to 197.

Certainly the wide range of topics is extraordinary for a one-volume work. Emphasis is laid on the viewpoint of the practicing photographer — as indicated by a heavy preponderance of consultants on "Applied Photography" and "Camera Subjects" in the 14 subject divisions.

As a result, there are many interesting articles on such subjects as fashion, glamour, theater, freelance, commercial, portrait, child, animal, night, marine, cloud, documentary and cold-weather photography, and there are artistic discussions on perspective, composition, pictorialism, picture quality and judging, color impact, make-up, etc.

But there also is a detailed treatment of photographic history, covering many distinguished names in the field. Further there is extensive treatment of photo-

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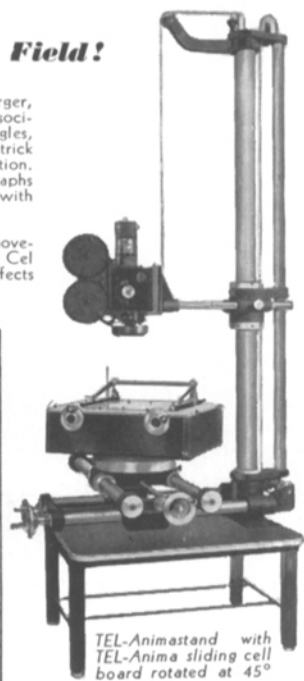
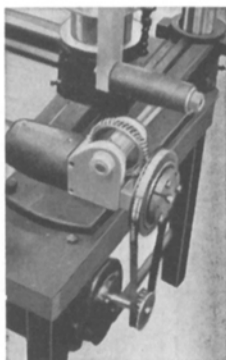
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graphic exposure and processing, ranging from obsolete techniques to color materials. Except in a few cases, however, the discussion is not quite detailed enough to use as a guide in mixing chemicals nor are tables of film speeds given, and the list of flash bulbs has no identification by commercial code numbers.

There is a fairly extensive treatment of elementary optics, scattered among various specific subjects. These run to zoom (called in England "variable focus") lenses and Schmidt optics — but the discussion on such advanced topics is quite sketchy.

Some of the subjects that are really too ambitious are given summary presentations. Thus sound recording is given 2 pages; high-speed photography and cinematography, 5 pages; wide-screen and three-dimensional projection, 2½ pages; "vision," 2½ pages; "electricity" receives 1½ pages, largely confined to house supply and batteries and resistances; and "photography" 15 lines, on the history of the use of the term.

On "projection" (still and cinematographic), it is interesting to note that British ideas of "ideal" screen luminance for private houses in complete black-out, run from 1 to 2 foot lamberts; for daylight and average curtains, 2 to 5 footlamberts, and for cinemas, 9 to 15 footlamberts, the latter being more in accord with our own ideas.

A reader will of course always question the choice of specific items. One can wonder, with space at so high a premium, at the inclusion of such topics as switches, packing and sending photographs, insurance, reproduction fees, and trade in photographic goods.

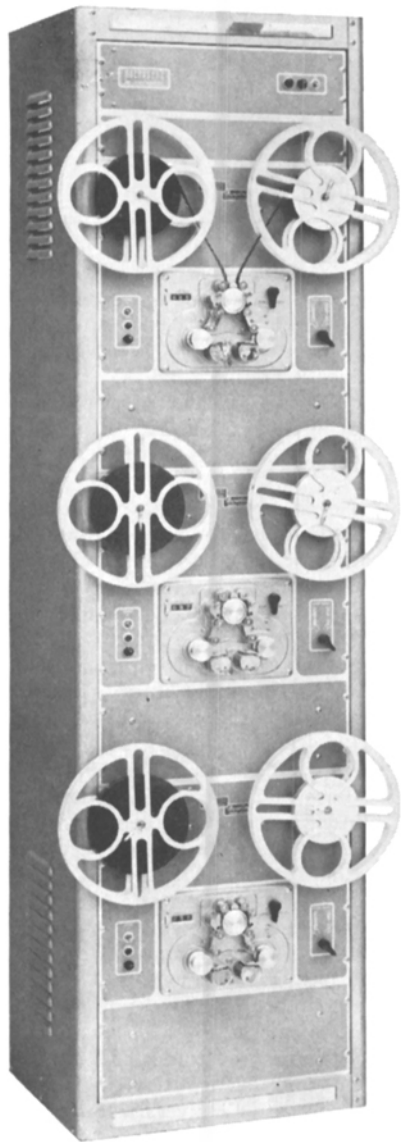
All in all, however, this should be an extremely handy book for general reference.—*Pierre Mertz*, 66 Leamington St., Lido Beach, L.I., N.Y.

### Grundlagen der Breitwand-Filmverfahren

By Dr. E. M. Goldowski. Published (1959) by Fotokinoverlag Halle, Halle (Saale), Germany. (Translation of Russian original published Moscow 1956.) 6 by 8½ in. 148 pp. 45 illus. 22 tables. Price DM 10.80.

This book was originally issued in Moscow, Russia, in 1956 and then translated into German for the present release in 1959. In the process, some of the timeliness of the contents has been lost. The book is, however, a good summarization of practical and historical wide-screen processes going as far back as 1895.

Film width systems discussed include both 35mm and 70mm. The author analyzes objectively the overall merits of modern widescreen systems that have come to use since 1952. He goes into considerable detail on aspect ratios, optimum seating arrangements and good viewing conditions. He discusses the merits of curved screens, and renders a very interesting opinion on light distribution and its permissible falloff at the sides of the screen. A full chapter covers flicker and its perception with particular regard to wide screens and their correspondingly wide viewing angles. Numerous curves and tables enhance the text, and the mathematical treatment is



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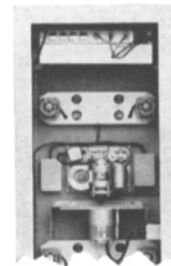
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plain and clear. Recent advances in magnetic multichannel sound reproduction are briefly covered. The book closes with a description of panoramic projection, such as used in Cinerama.

A bibliography shows other sources of information, mostly of Russian, French, British and German origin.

The book offers thorough coverage of wide-screen film processes, much of the material being of a type not previously gathered under the general subject of wide screen. Of significant value is the fresh approach offered by the Eastern European origin of the material.—*Willy Borberg, GPL Div., General Precision, Inc., Pleasantville, N.Y.*

### Eliminating Man-Made Interference

By Jack Darr. Published (1960) by Howard W. Sams & Co., 1720 E. 38 St., Indianapolis 6, Indiana, Paper-bound. 160 pp. illus. 5½ by 8½ in. Price \$2.95.

This book is intended mainly as a guide to the service technician dealing with noise and interference problems in radios, television sets, electromechanical apparatus, etc., in tracing such interference to its source and then eliminating or subduing it. Many of the illustrations (173 in all) show the appearance on TV screens of the various types of interference that plague set owners. The book is divided into 12 chapters, including a chapter on Case Histories and another on the FCC and Its Role in Interference Complaints.

## Nontheatrical Films — Interim Report No. 2

By JOHN FLORY and THOMAS W. HOPE

*This Second Interim Report brings up to date (as of January 1, 1961) and amplifies selected statistics contained in the authors' comprehensive study of the nontheatrical field, "Scope and Nature of Nontheatrical Films in the United States" published in the June 1959 issue of the Journal (pp. 387-392). It supersedes the Interim Report published in the January 1960 issue of the Journal (p. 70).*

ONCE AGAIN, an annual estimate of the U.S. nontheatrical film and audio-visual field shows significant growth. A \$389 million expenditure for 1960 represents a 9% increase over the 1959 readjusted total of \$357 million (Fig. 1).

The past year was noteworthy as the second year during which the full impact of the National Defense Education Act was felt. Increased concern with the aim of improving the scope and quality of the educational system was reflected in increased emphasis on educational film and related media.

This report has been prepared by John Flory, Advisor on Nontheatrical Films, and Thomas W. Hope, Assistant Advisor, Eastman Kodak Co., 343 State St., Rochester 4, N.Y.

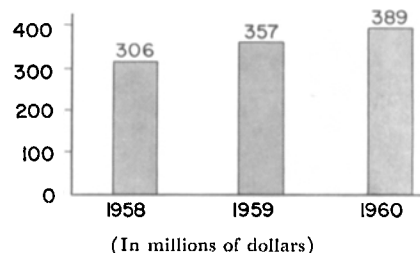


Fig. 1. U.S. audio-visual expenditures in 1960 reach \$389,000,000.

Educational film and AV expenditures for 1960 were ahead of the previous year by more than 32% (Table I).

### New Information Available

Newly acquired information has made it advisable to revise upwards the earlier statistics on dollar expenditures shown in last year's Interim Report.

New data are now available on three facets of the field—filmstrip projectors, university-produced educational films, and 16mm film library distribution. Accordingly, all of the Tables included in this report have been revised to give valid comparisons on an annual basis.

Sales of filmstrips for education and filmstrip projectors especially reflected the impetus given to newer educational media by the NDE Act (Table II).

Filmstrip producers and distributors throughout the country are reporting greatly increased filmstrip sales during the past twelve months. Unit sales of filmstrip projectors were up 59% during the same period.

Preliminary findings of a study being conducted for the U.S. Office of Education by the University Film Foundation indicate that today nearly 100 universities, colleges and public school systems in large cities are regularly engaged in producing motion pictures. Based on these preliminary returns, it is estimated that the total annual educational output of these nonprofit institutions is considerably greater than heretofore generally realized.

The third major factor in the revision of previously evaluated total expenditures is in the area of film distribution. An analysis of the latest U.S. Office of Education directory of 16mm libraries\* reveals that educational institutions and business organizations operate more than half of the libraries (Table III).

Although this government study lists 3660 film libraries, a figure of 5000 would today probably be a more accurate estimate. This would take into consideration normal growth of the field, in addition to hundreds of libraries asking to be excluded from a national directory because they are obliged to restrict service to users within their own school systems.

\* U.S. Office of Education, "A Directory of 3660 16mm Film Libraries," Supt. of Documents, Washington 25, D.C., 1958.

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