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Elektronische Kameraverschlüsse (Electronic Camera Shutters) (p. 264) *H. Frenk*

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Die Kontrastübertragungsfunktion (The Contrast Transfer Function) (p. 411) *Georg Franke*

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35-mm Phot. vol. 6, no. 3, July 1963
Rangefinder and "Standard" Types, Pt. 3 (p. 157) *R. Price*

Tekh. Kino i Televideniya vol. 7, Apr. 1963
Editing Desk and Sound-Recording Apparatus for 16mm Films (in Russian) (p. 72) *Yu. S. Moskalenko*

Abstracts

Abstracts of papers appearing in other journals, chosen for their importance and timeliness, are published in the *Journal* from time to time. Most of these abstracts are translations, chiefly from the U.S.S.R., and are made available to the *Journal* by the Research Laboratories of the Eastman Kodak Company. As a rule, translations are made of the foreign language abstracts, not of the paper itself. The respective complete original texts can be consulted at some libraries. Current issues of *Tekh. Kino i Telev.* are available at the Society's Headquarters Office.

Those requiring definitive and thorough searches of current literature and patents *Science & Engineering Literature (APSE)* published monthly by the Department of Graphics, School of Engineering and Applied Science, Columbia University in the City of New York, with the editorial cooperation of the Society of Photographic Scientists & Engineers. The editorial and business office of *APSE* is at: 632 West 125th Street, New York, N. Y. 10027.

The subject areas are grouped below:

- Cameras and Equipment (Except High-Speed)
- Cinematography
- Instrumentation and High-Speed Photography
- Laboratory Practice
- Projection
- Sound Recording and Reproduction
- Television Tests and Measurements

CAMERAS AND EQUIPMENT (Except High-Speed)

Brit. 926,695 Cinematographic Cameras., J. Bolsey, Filed May 22, 1959, 7 p., 7 pl.

The construction of a miniature cinematographic camera is described. It is closely related to those of British Patent Specifications Nos. 818,586 and 818,813.—H.J.L.

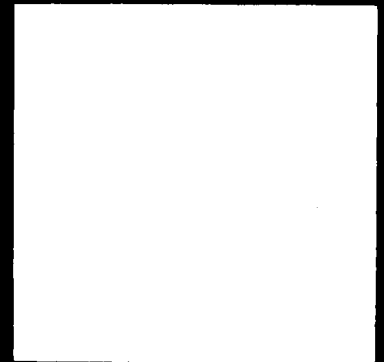
Products from the German Democratic Republic at the IV International Fair in Brno (In German.) *Monatsschr. Feinmech. u. Optik*, 8: 222-30, No. 8, 1962; *Referativnyi Zhur.*, *Fotokinetekhnika*, Abs. No. 4.46.2, 1963.

Information is given about the new photographic, cinematographic, and optical goods released by establishments in the German Democratic Republic. A characteristic feature of many of the still cameras and of the amateur motion-picture cameras shown is their automatization, which simplifies the setting of the camera for exposure. A number of individual exhibits are dealt with in detail.—S.C.G. (Abridged from *Referativnyi Zhur.*, *Fotokinetekhnika*.)

The Pentax System, Pt I, The Cameras; Pt II, The Accessories. G. Crawley. *Brit. J. Phot.*, 110: 398-399, May 10, 1963, 570-575, July 5, 1963.

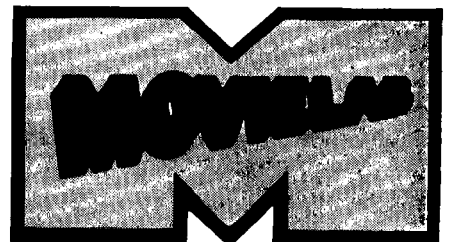
The Pentax S5 and S1a cameras and seven lenses are reviewed in detail. A clip-on exposure meter, a copying stand with a bellows unit and a microscope adaptor are also described. Pentax equipment is manufactured in Japan by the Asahi Co. and distributed in Great Britain by the Rank Organization.—N.W.

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A Soviet Camera Factory, G. Crawley, *Brit. J. Phot.*, 110: 618-621, 624, July 19, 1963.

A brief description is given of the author's visit to the Leningrad Optical and Precision Engineering Works, employing 25,000 workers and manufacturing a range of cameras, still and ciné, and other optical apparatus.—S.C.G.

Flexaret VI Automat., N. Maude, *Amat. Phot.*, 126: 26-27, July 1963.

This twin-lens reflex camera has a Prontor SVS shutter and an 80 mm *f*/3.5 Belar taking lens. The camera takes 6 x 6cm negatives on roll-film, or can be easily converted with standard parts for use with 35-mm film. The manufacturers are Meopta, Czechoslovakia. The camera is distributed in Great Britain by David Williams, (Cine Equipment) Limited and costs less than £30.—N.W.

CINEMATOGRAPHY

Stabilization of Exposure in Cinematography with Variable Frame Frequency (in Russian), Ya. L. Leybov, *Tekh. Kino i Telev.*, 7: 63-6, Apr., 1963.

In cinematography with a variable frame frequency the variation of the exposure time per frame must be compensated for in order to keep a constant exposure. Devices making use of variable neutral wedges, polarizing screens, and liquid filters of variable thickness are described.

An attachment has been designed which can be used with either a liquid filter or with polarizing screens, and which is operated from the frame speed control of the camera.—S.C.G.

Biennial Midyear Meeting of the Research Film Section of the International Scientific Film Association (Jena, May 9-12, 1963), S. Bowler, *Brit. J. Phot.*, 110: 24-28, June 21, 1963.

More than 90 delegates, from 19 countries, attended the meeting, held under the auspices of the German Academy of Sciences, Berlin. Twenty-eight papers on subjects including medical, biological and industrial applications of still and cinematography (in many cases for microscope work), are mentioned.—N.W.

INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

Liquid Explosives with Transparent Detonation Products, H. D. Mallory and R. A. Planson, *Nature (Lond. T)* 199: 58-59, July 6, 1963.

The photographic observation of events behind the shock front of detonating explosives has been hindered in the past by the opacity of the detonation products. A liquid explosive, 18 molal hydrazine mononitrate in hydrazine, has been used successfully, and it is now shown that mixtures of nitromethane and tetranitromethane, can also have transparent detonation products. Some typical results ob-

tained with a high-speed streak camera and a framing camera in studying the detonation of these mixtures are reproduced.—S.C.G.

Cinematography in Research, *Brit. J. Phot.*, 110: 528-529, June 21, 1963.

A third short conference, with the title "Technical Problems Encountered in the Application of Cinematography to Research," organized by the Film Section of the Scientific Film Association, was held at the National Physical Laboratory on Apr. 4-5, 1963. Subjects such as time-lapse studies of plant and animal growth, cinematography of insects and small animals, and high-speed bubble photography are briefly mentioned.—N.W.

An Electromechanical Shutter for a High-Speed Motion-Picture Camera and Its Experimental Investigation (in Russian), S. M. Provornov, O. F. Grebennikov and V. D. Gusev, *Trudy Leningrad. Inst. Kinoizhenerov.*, 43-46, No. 8, 1962; *Referativnyy Zhur.*, *Fotokinetekhnika*, Abstract No. 4.46.97, 1963.

The principles of construction of an electromechanical shutter for the high-speed image-dissection camera, RKS-11, are described. The shutter has two leaves, the time interval between the operation of which, i.e., the time during which the pupil of the objective is open, being determined by electronic means from a control desk and capable of being changed over a wide range. The exact determination of the time of incomplete closing of the shutter, necessary for establishing the strength of the springs driving the leaves, was carried out with the aid of the SKS-1 motion-picture camera, converted for work as a high-speed streak camera. The SKS-1 camera was used also for determining the scatter in time of the beginning of the opening of the shutter as a function on the electrical impulse and for calibrating the scale for control of the time of opening of the shutter.—S.C.G.

(Translated from *Referativnyy Zhur.*, *Fotokinetekhnika*.)

The Photography of Cylindrical Surfaces (in German), G. Zimmer, *Kraftfahrzeugtechnik*, 12: 317-319, No. 8, 1962; *Referativnyy Zhur.*, *Fotokinetekhnika*, Abstract No. 4.46.67, 1963.

A description is given of a unit for the photography of the external surface of cylindrical objects, in which the object is rotated about a vertical axis in front of a stationary camera in which film movement compensates for the movement of the image.—S.C.G.

(Abridged from *Referativnyy Zhur.*, *Fotokinetekhnika*.)

The R.R.E. Satellite Camera, P. Delius, *Brit. J. Phot.*, 110: 634-637 and 650, July 26, 1963.

The field-flattened 24-in. *f*/1 Schmidt Satellite Camera can be set to any predetermined bearing and elevation, and photographs the target track against a star background. The optical system has a flat field of approximately 10 degrees diameter. The shutter for timing the satellite rotates, nominally, at 300 rpm.

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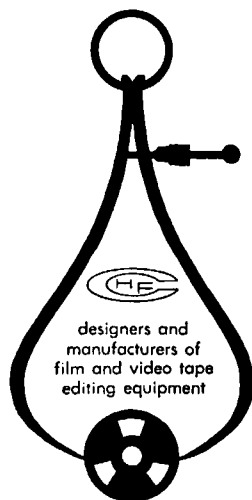
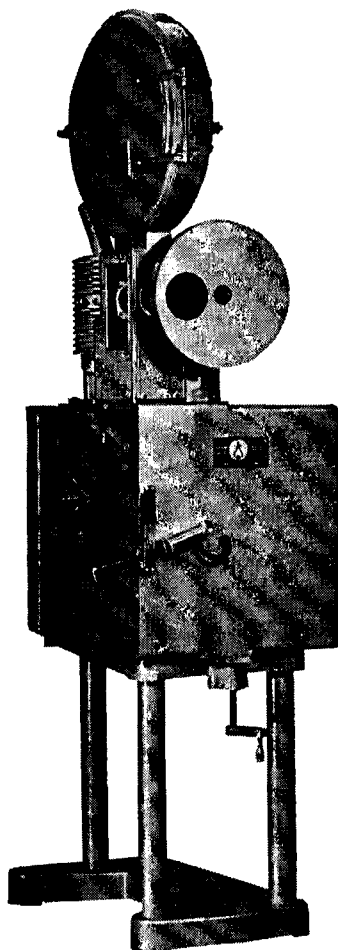
The projector is a converted front shutter Simplex with a two pin intermittent. 16mm or 35/32 film runs at a speed of 144 ft. per minute while 35mm film runs at a speed of 165 ft. per minute.

1. A variac controls the light intensity.
2. A 500 watt lamp is used for 16mm and a 1,000 watt for 35mm (a blower is used to cool the lamphouse).
3. A 2½ inch projection lens is furnished with each unit.
4. A start-stop lever controls the power to the lamp and motor.
5. The magazine and take up core takes up to 3,000 ft. of film.
6. Upper guide rollers are made to handle the film from either direction of the feed reel.
7. A free wheeling take off flange is provided in the magazine.
8. A lamp near the takeup reel permits hand inspection of the film prior to takeup.

NOUVEAU

Le projecteur contient un obturateur Simplex antérieur transformé avec deux clavettes intermittent. Les films de 16mm ou 35/32 tournent avec une vitesse de 144 pieds à la minute, tandis que les films de 35mm tournent avec une vitesse de 165 pieds à la minute.

1. Le regulateur de voltage d'intensité d'éclairage.
2. La lampe de 500 watt est nécessaire pour les films de 16mm, et de 1000 watt, pour les films de 35mm (un ventilateur est mise pour rafraichir la chambre de la lampe).
3. L'objectif de 2½ est installé.
4. La manette de mise en marche et d'arrêt controle en meme temps la lampe et le moteur.
5. La boite de films avec noyau peut contenir 3000 pieds du films.
6. La roue supérieure est construite de manière de recevoir le film dans les deux directions, nourrie par la bobine centrale.
7. Une roue est installée pour libérer rapidement le film de la boite.
8. La lampe se trouve pres de la bobine recepteuse, et donne toute facilité pour inspecter le film a main dans le projecteur.



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1. Controllo manuale della luminosità della lampada.
2. Lampada di 500 watt per 16mm e di 1000 watt per 35mm.
3. Obiettivo di proiezione di 2½".
4. Maniglia per controllo di motore e lampada di proiezione.
5. La cassetta porta pellicola puo contenere 3000 piedi.
6. I rulli superiori di guida sono costruiti per operare con film proveniente di ambi lati della bobina svolgitrice.
7. Disco con montatura sporgente nel magazzino.
8. Una lampadina illumina la bobina avvolgitrice, permettendo l'ispezione manuale del film prima che si avvolga nel proiettore.

NUEVO

Esta máquina es un proyector simplex convertido, obturador al frente y movimiento intermitente a doble grifa. Para 16mm o 35/32mm, la velocidad fija de proyección es de 144 pies por minuto, para 35mm es de 165 pies por minuto.

1. Un reostato controla la intensidad de la lampara de proyección.
2. Para 16mm se usa una lampara de 500 watt, y una de 1000 watt para 35mm (un chorro de aire ventila las lámparas en ambos casos).
3. Cada unidad está provista de un lente de proyección de 2 pulgadas y media.
4. Una palanca de control opera el motor y la lampara simultáneamente.
5. Capacidad de proyección: rollos de hasta 3000'.
6. Los rodillos de guía superiores operan con la película en ambas direcciones.
7. La tapa de la bobina de carga es desenroscable.
8. Una lámpara ubicada junto a la bobina de toma permite la inspección manual de la película antes que se rebobine en la bobina superior del proyector.

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Iford HPS, a high-speed panchromatic emulsion of extreme speed and medium contrast, coated on plate glass and having a rating of 800 ASA in daylight, is used to record these very faint images. The camera is housed in a refrigerated hut and used only at night, every precaution being taken to prevent temperature changes affecting the focusing mechanism. Target position can be measured to an accuracy of 1 sec of arc, and timing to better than 1 m/sec.—N.W.

Testing with the High-Speed Camera (in German). O. Loh. *Klökner-Moeller-Post*, 24-31, No. 1, 1962; *Referativnyi Zhur.*, *Fotokinetikhnika*, Abstract No. 3.46.320, 1963.

An account is given of an experiment in using the high-speed Fastax 16-mm camera in making and testing switches. A study was made of the interaction of the contacts, the motion of the contact bar on switching on, and the process of arc formation on switching off. In photographing the arc better results were obtained on color film, when the temperature of the gasses was estimated from a color scale. In order to obtain the shapes of the parts of the arc-extinguishing chamber, high-intensity lighting had to be used: this was a 7.5 kv xenon lamp, a ring illuminator consisting of eight 750 v incandescent lamps, and sometimes also a theatrical spotlight with a 5 kv incandescent lamp.—S.C.G. (Translated from *Referativnyi Zhur.*, *Fotokinetikhnika*.)

Accessory for Adapting a Single-Crystal Oscillation Camera to Record X-Ray Texture Diagrams on a Moving Film, H. S. Villarreal, *J. Sci. Instrum.*, 40: 336, June, 1963.

A simple accessory for recording x-ray texture diagrams on a moving flat film is described. The accessory is easily fitted to a single-crystal oscillation camera, and the movement of the film is synchronized with the 15° oscillation of the sample. An example of such a texture diagram taken on a sample of native copper is shown. (Author's abstract)

LABORATORY PRACTICE

Processing of 70- and 35-mm Color Motion-Picture Films on the 90P-1 Developing Machine (in Russian), G. Ya. Vyadro. *Tekh. Kino i Telev.*, 7: 60-3, April 1963.

The 90P-1 developing machine is two-sided with an independent drive on each side, intended for the processing of 70- and 35-mm negative and positive color motion-picture film in Soviet studios. A number of defects of the machine in its original form are mentioned, and when these are attended to, the machine is an economic proposition for the processing of long lengths of film, but not for short lengths.—S.C.G.

The Use of a New Automatic Developing Machine for Processing Color and Spectrozonol Aerofilms (in Russian), H.P. Lavrova. *Izvest. Vyssh. Ucheb. Zaved. Geod i Aerofotos'emka*, 121-123, No. 3, 1962; *Referativnyi Zhur.*, *Fotokinetikhnika*, Abstract No. 3.46.313, 1963.

An analysis is made of the sensitometric data of aerofilms developed in the ANPP-4m machine and in a low-speed developing machine of the rewinding type.—S.C.G. (Translated from *Referativnyi Zhur.*, *Fotokinetikhnika*.)

Protective Treatment and Restoration of Films (in Russian), I. M. Fridkin. *Tekh. Kino i Telev.*, 7: 75-9, April 1963.

Several pieces of new apparatus marketed by the West German firm of Holmer Filmvertrieb for the protection and cleaning of 16-, 35-, and 70-mm films are described.—S.C.G.

PROJECTION

A Microscope-Autocollimator Test (For Aligning Motion-Picture Projector Objectives), (in Polish), A. Kolasa. *Kinotechnik*, 15: 3603-04, No. 167, 1962; *Referativnyi Zhur.*, *Fotokinetikhnika*, Abstract No. 3.46.260, 1963.

A method for aligning the objective of a projector with the film gate makes use of an attachment with a reference mark that fits into the gate in such a way that the mark is exactly in the center of the gate. An ordinary autocollimator is provided with an auxiliary lens which converts it into a microscope with an object distance of 73 mm. The mode of operation of the autocollimator in conjunction with the film gate attachment is described.—S.C.G. (Abridged from *Referativnyi Zhur.*, *Fotokinetikhnika*.)

The Curvilinear Film Gate in Motion-Picture Projectors (in Russian) A. M. Bolokhovskii. *Tekh. Kino i Telev.*, 6: 28-34, Apr. 1963.

The quality of a projected picture may be improved by the use of a curved film gate which approximates the curvature of the film to that of the field of the objective. The curved film gate is studied mathematically and it is shown that other factors in the construction of the projectors require departures from a simple radial curvature.—S.C.G.

SOUND RECORDING AND REPRODUCTION

Standards for Synchronizing Tracks for the Synchronization of an Unperforated Sound Carrier (in Russian), V. G. Lukacher. *Tekh. Kino i Telev.*, 7: 56-59, Apr. 1963.

A number of methods of placing a synchronizing signal on 6.25mm magnetic tape are compared, and it is recommended that the standard for Soviet use should specify a synchronizing signal which is sinusoidal and of a nominal frequency of 25 cycles transversely recorded and superimposed on the sound-track with no increase in the width of the latter. The signal should be placed along the axis of

tape and the track should not be greater than 0.5mm in width.—S.C.G.

New Sound Technology Building (in Russian), E. Brill, E. B. Galkin, S. V. Marsov, and E. V. Nikul'skiĭ. *Tekh. Kino i Telev.*, 7: 1-10, Apr. 1963.

The new sound technology building of the Leningrad Newsreel Studios is described. It is fully equipped for the production of soundtracks for all types of wide-screen and panoramic systems.—S.C.G.

The Maintenance of Cinefilm Equipment, Pt 3, Magnetic Sound Recording Equipment, G. Salter, *Brit. Kinemat.*, 42: 112-119, Apr. 1963.

The various problems common to all magnetic sound recording systems are enumerated and methods of checking and overcoming them are explained. The systems specifically in use for recording motion-picture sound are then described and the particular problems associated with each system discussed.—B.M.

The Requirements of a Modern Sound Recording System, G. H. Newberry. *Brit. Kinemat.*, 42: 158-63, and 170-71, May 1963.

Methods of raising the efficiency and reducing the operating costs of a film studio sound department are examined. The points considered include capital expenditure on equipment, flexibility of equipment, efficiency of operation and the ability of the staff.—A.S.C.

TELEVISION

An Experimental Apparatus for Recording Television Signals on Magnetic Tape, F. T. Backers and J. H. Wessels, *Philips Techn. Rev.*, 24: No. 3, 81-83, Feb. 1963.

In the apparatus described the magnetic tape moves in a helical path over a stationary drum and a single rotating recording head moves in a circumferential slit in the drum. With the correct choice of tape speed and recording head rotation speed, one complete picture frame can be recorded on an oblique track across the tape, and the next frame on an adjacent track. The narrow edges of the tape not used in this way are used for synchronization signals and a soundtrack. The same arrangement is used for playback, and the facilities provided by this apparatus include virtual elimination of crosstalk interference and the possibility of playing back the instantaneous picture when the tape is stationary.—H.J.I.

TESTS AND MEASUREMENTS

Measurements of the Acceleration of the Elements of Mechanisms for Discontinuous Displacement of Motion-Picture Film (in Russian), A. Olendzki, *Trudy Leningrad. Inst. Kinoizh.*, No. 8, 47-57, 1962; *Referativnyi Zhur.*, *Fotokinetika*, Abstract No. 3.46.255, 1963.

Reviews the design of small-scale accelerometers intended for the measurement of the acceleration of intermittent mechanisms for displacing motion-picture films. Describes principles of construction of

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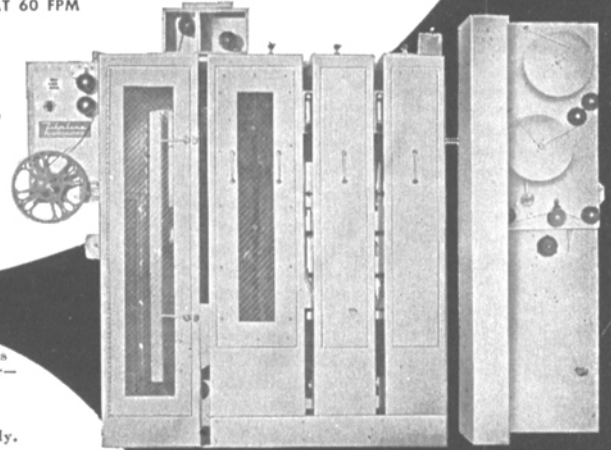
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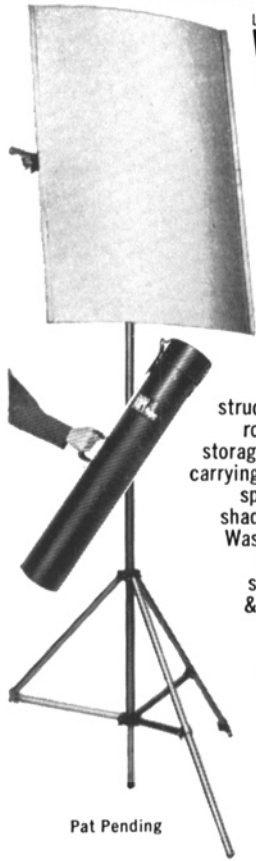
Lighting Directors will find their work made easier with this new SPECTRA instrument. Range, 0 to 300 foot candles, is extended to 3000 foot candles with X10 multiplier slide. Meter scale hand calibrated for extreme accuracy.

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the modern Sun Reflector by Lowel-Light. Portable, lightweight. The Vari flector has a bright even reflection you can soften or diffuse by a finger-operated lever. Mylar and aluminum slat construction is rigid in wind, rolls up in seconds for storage or travel in its own carrying tube. Floods like a spotlight, doubles as a shadowless indoor "fill." Washable, scratch resistant surface. Special stand allows, pan, tilt & height adjustments.

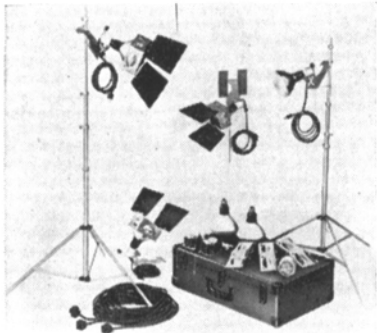
4 x 4 Vari-flector complete with stand and case (7" x 42") ... \$149.50

2 x 2 Vari-flector Hand-hold model \$24.50

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2 x 2 Fiber carry case (4" x 24") \$9.50



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Everything in one compact case 4½" x 27½" x 6½". Six Lowel-Lights. Six Lowel barndoors, two 9 ft., 5-section PIC stands, three 25 ft. extension cables, two 25 amp fuses, 12 yd. roll gaffer tape... complete \$124.50

Lowel-Lights Model K5, five Lowel-Lights with gaffer tape and case \$34.50

Gaffer Tape, 12 yard roll \$1.95, 30 yd. roll \$3.95 Lowel Barndoors \$5.75 each

For further information write:

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PLaza 7-6977

accelerometers and some accelerometers of different types.—S.C.G.

(Translated from *Referativnyi Zhur., Fotokinetekhnika.*)

Apparatus for the Semiautomatic Construction of Graphs of the Fluctuation of an Object Recorded on Motion-Picture Film (in Russian), S. R. Barbanel' and S. M. Pertsev, *Trudy Leningrad. Inst. Kinoizh.*, No. 8, 17-23, 1962; *Referativnyi Zhur., Fotokinetekhnika*, Abstract No. 2.46.-297, 1963.

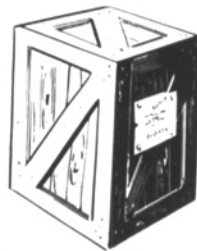
A short description is given of the construction and working principles of the apparatus. The graphs are produced on two paper bands moving separately along the x and y axes, the abscissa being in each

case the time t, determined from the frame frequency.—S.C.G.

(Translated from *Referativnyi Zhur., Fotokinetekhnika.*)

The Use of Densitometers for the Measurement of Higher Densities in Soundtracks (in Russian), E. V. Ksandrov and B. P. Chernyavskii, *Tekh. Kino i Televideniya*, 7: 70-71, Mar. 1963.

A new sound-recording film used in the Soviet Union makes use of densities up to 4, while the densitometers in the authors' film studios measured up to a density of 3 only. A brief account is given of the alterations that were made to a densitometer in order to read the higher densities.—S.C.G.



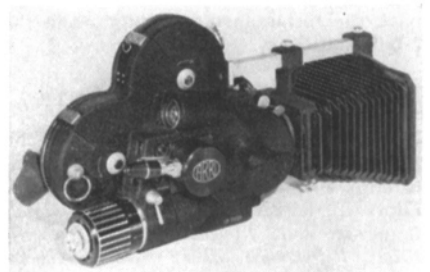
new products

(and developments)

.....
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tions. Black-and-white negatives are then made from the color separations and used in reproducing the color images on black-and-white stock. Thus the colors are recombined by optically printing on a single black-and-white positive film stock to form a reproduction of the original. The optical printing requires no printing dye and another advantage is that it allows for instantaneous color, i.e., correction of scenes without changing the basic and costly printing dyes.

A 35mm multidata high-speed intermittent camera, the Model 705, has been announced by Flight Research, Inc., P.O. Box 1-F, Richmond 1, Va. The camera has been designed for instrumentation and documentary use where steady, high-resolution pictures are required in the range from 25 frames/sec to 300 frames/sec. A newly designed epicyclic film-transport and register-pin mechanism is used to lessen vibration and operation noise. The circular claw movement rotates at constant speed to smooth acceleration and deceleration of the film. The claw and register pins are phased so that the film is under positive control and each perforation is used only once either for pulldown or registration. The film feed and take-up mechanism is all-mechanical for reliability in stop-start operation. The camera is powered by a 2/3-hp motor.



A newly developed strobe flash synchronization installation for all Arriflex-16 cameras has been announced by Arriflex Corp. of America, 257 Park Ave. South, New York 10. The installation is based on a

ERRATUM: The information supplied to the *Journal* and published as an item entitled "Precision Film Editor" on p. 655 of the August issue was misleading. The equipment shown in the illustration is, in fact, the S.O.S. TV Newsfilm Projectola Editing/Timing Outfit, marketed by S.O.S. Photo-Cine-Optics, Inc., 602 West 52 St., New York 10019, at a price of \$679. The description and price under the illustration refer only to the Model S616-2SP Synchronizer, a patented product of Precision Laboratories Div., Precision Cine Equipment Corp., 928-930 East 51 St., Brooklyn 3, N.Y. The synchronizer, priced at \$303, is one element of the S.O.S. Projectola equipment, which is described in the September issue, p. 765.

The first feature length film in Panacolor, *The Castilian*, produced by Sidney Pink for Warner Bros., was premiered in Chicago September 6. The Panacolor process is an economical color film printing method which, in a fully-automatic and continuous 3-stage printing and chemical process produces color release prints on black-and-white positive film stock. The process involves separating the colors of the negative into three positive color separa-