

Mervin W. La Rue, Sr., of Mervin W. La Rue, Inc., is the recipient of an Award of Merit Plaque presented by the Producer Services Dept. of George W. Colburn, Inc., in recognition of over 40 years of high-quality service to the motion-picture industry, especially in the 16mm field. Mr. La Rue is nationally known for his work in the adaptation of film techniques to medical research. He has been an active member of the Society for 35 years and in 1954 was one of 26 honored at the Society's Pioneers Awards Session at Washington, D.C.

Data Services, Inc., Tarzana, Calif., a firm specializing in data reduction and computing services, has been acquired by Benson-Lehner Corp. Los Angeles. Dorothy O. Blaney, President of Data Services and founder of the firm, will act as technical consultant. Miss Blaney is a member of SMPTE. Diana C. Fortune will remain with the division in the capacity of general manager.

Morgan-Swain, Inc., is a new firm formed by the consolidation of the Florida firms of Dramatic Presentations, Inc., and Carey-Swain, Inc. The announcement stated that the new firm would extend its operations nationally, with headquarters at 1938 Laurel St., Sarasota, Fla. President of the new firm is Duncan J. Morgan.

Translated Abstracts From Foreign Journals

The *Journal* is scheduled to publish from time to time groups of abstracts such as these, chiefly from U.S.S.R., from the *Kodak Monthly Abstract Bulletin*.

CAMERAS AND EXPOSURES

Some Problems in a Rational Method of Control by Exposure Meters in Cinematography

The motion-picture cameraman must expose his shots so as to obtain densities within the accepted limits for obtaining good prints (minimum density, 0.05 to 0.3; maximum density, <1.4 to 1.5) with white flesh tones in the region of 0.8 to 1.0. The cameraman may also have his special requirements. Relations between object brightness and image brightness are worked out. The requirements for exposure meters for professional cinematographic use are discussed, together with the construction of exposure calculators. (S. C. G.)—A. N. Moskvina and V. G. Pell; *Tekh. Kino i Televideniya*, pp. 10-23, Mar. 1959.

The 16-SP Cine Camera

After making an investigation of the requirements of a 16mm cinematographic camera for professional use, with the collaboration of practically all the film and television studios in the Soviet Union, the Moscow Constructional Bureau for Cinematographic Apparatus has designed the 16-SP Camera to include as many of the desired features as possible. An experimental model, manufactured by the Moskinap factory, was tested by the Central Television Studios and the Central Studios

for Documentary Films, and is approved for production. Three lenses are mounted in a specially designed turret, and objectives with a range of focal lengths from 10 to 75 mm will be available. Provision is made for taking speeds of 5, 16, 24, 32, 48, and 64 frames/sec. The viewfinder makes use of a mirror surface on the shutter, in conjunction with an optical system giving a 10 X magnification. The camera is designed to be held in the hand but can also be fixed to a stand. It is operated by a d-c motor. (S. C. G.)—E. L. Bychkov, *Tekh. Kino i Televideniya*, pp. 66-69, Apr. 1959.

COLOR PHOTOGRAPHY

"Duping" of Color Film With External Masking

In the system described for duplicating color motion-picture films, masks are prepared by exposing the color negative through color-masking filters onto black-and-white film, which is then developed to a fairly low contrast. The color negative is then combined with each negative, in turn, in a special printer, and printed on black-and-white stock through the appropriate printing filters to give masked color-separation positives. These positives are printed through selective filters onto multilayer color film to give the duplicate negative, from which positives are prepared as from the original negative. The choice of filters for the different stages, the sensitometric characteristics of the process, the choice of the black-and-white materials and their processing and printing conditions are discussed in detail. (S. C. G.)—L. F. Artyushin, T. M. Baikalova, N. S. Ovechkis, and N. F. Semenova, *Tekh. Kino i Televideniya*, 3: 7-16, Jan. 1958.

The Influence of Bleaching (Reducing) on the Quality of Soundtracks on Color Positive Film

Experiments on the effect of bleaching, during the processing of color positive film, on the quality of an optical soundtrack show that even a small degree of bleaching brings about a significant change in effective density of the soundtrack, but if the soundtrack is given a preliminary black-and-white development, little change is observed. Highest-quality soundtracks can only be obtained on color positive film which does not contain colloidal silver as a yellow-filter layer, the bleaching of which has an adverse effect on the soundtrack. In order to eliminate variations in the performance of different photoelectric cells, due to their different color responses, it is desirable to give the soundtrack a preliminary black-and-white development. (S. C. G.)—A. P. Strel'nikova and N. I. Kirillov, *Tekh. Kino i Televideniya*, pp. 46-51, Mar. 1959.

A Study of the Residual Substances in Processed Motion-Picture Film With the Aid of Marked Atoms

Residual thiosulfate and ferricyanide in color prints were measured by a radioactive indicator method and the minimal quantities of residual substances which could and which could not be washed out of the film materials were determined.

(Translated from *Tekh. Kino i Televideniya*, S. C. G.)—I. M. Fridman, K. K. Zaborenko, and Ya. G. Nekhlin, *Trudy Vsesoyuz. Nauch.-Issled. Kinofotoinst.*, pp. 4-10, No. 3 (26), 1958.

Comparative Evaluation of the Quality of Photographic Images in Color

When the possibility of an objective evaluation of picture quality in color photography is considered, it is found that at least 21 parameters must be taken into account: Nine specify the sensitometric properties of the material; nine more the color separation; and not less than three are required to specify the complex of qualities going under the name of "sharpness." To connect these with visual estimates of picture quality in order to derive a means of measuring an "absolute picture quality" is not practical. A study has been made of the possibility of using fewer parameters: for this purpose, 100 exposures were made of a standard scene, with variation in the color balance produced by filtering; and, by viewing prints made from the color negatives, the latter were placed in three classes — printable, not-printable and doubtful — by four observers. At the same time, measurements were made of the "effective" densities of the three layers, defined as "the optical densities of a gray scale in the original, to which there correspond in the negative unit concentrations of dye per unit area." A three-dimensional plot of these quantities then allowed a region to be marked out enclosing the values of the effective densities for printable negatives. (S. C. G.)—L. F. Artyushin and N. D. Nyuberg, *Tekh. Kino i Televideniya*, pp. 11-19, Apr. 1959.

Soundtracks on Multilayer Color Motion-Picture Film

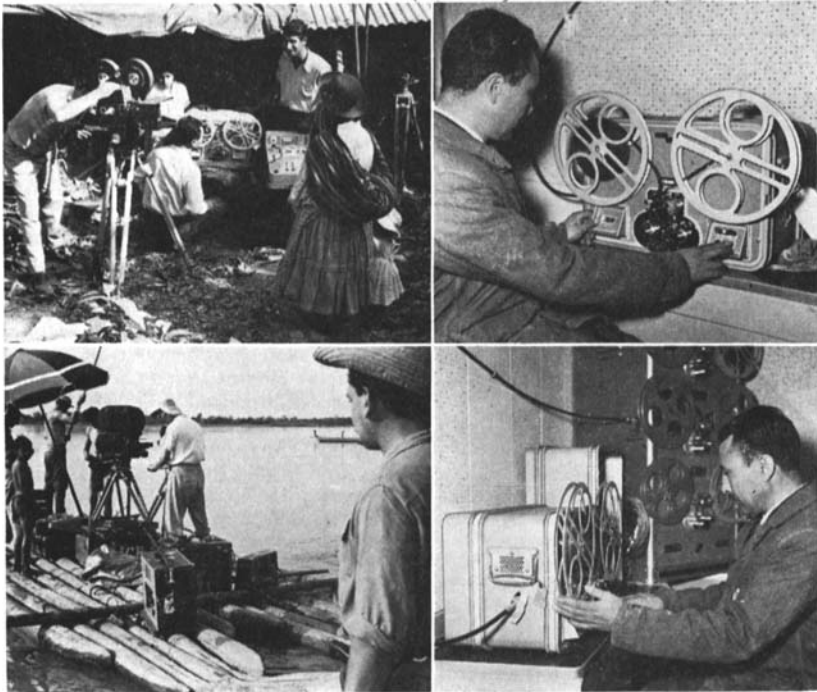
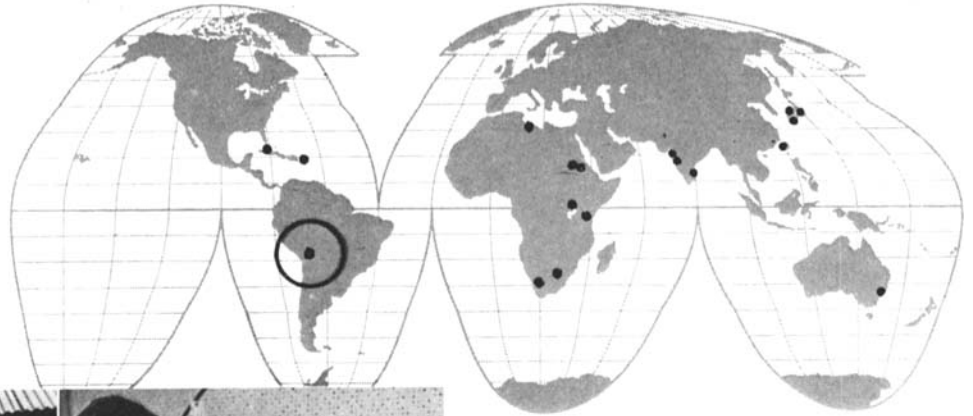
On color film, a soundtrack may be obtained which will be suitable for reproduction by different types of photocell, but only at the cost of greatly complicating the processing. Since about 80 to 90% of the sound projectors in use in the Soviet Union use antimony-cesium cells, it is recommended that a compromise solution be rejected, and that processing be aimed at producing the best soundtrack for this type of cell. For a high-quality soundtrack, the print should be processed with separate bleaching of the picture image. By lowering the soundtrack density, the level of nonlinear distortion may be reduced 2 to 3 times, with improvement in reproduction of the high frequencies. Prints for export, however, should be processed so as to be suitable for all types of photocell; for this purpose, the soundtracks should first be black-and-white ones, developed alone. (S. C. G.)—Z. V. Tsurulina, *Tekh. Kino i Televideniya*, pp. 19-21, May 1959.

HIGH-SPEED PHOTOGRAPHY

Slow-Motion Cinematography With Multiple Reflection

An optical system for ultra-high-speed cinematography achieves a rapid displacement of the image by multiple reflection of the light beam in the wedge-shaped gap formed by plane mirror surfaces, cut in two cones, mounted with parallel axes

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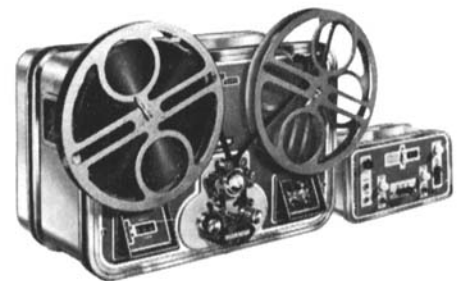
La paz

Studios of the Audiovisual Center of United States Operations Mission in La Paz, Bolivia, were established for production of documentary and educational films for both Bolivia and the U.S. Government. The AV Center sound department, headed by Mr. Rodolfo Soria, has been completely equipped with the internationally famous Magnasync-Magnaphonic Sound Systems by Casa Kavlin, La Paz.

Photo at top left shows the Magnasync Mark IX System in use during a scene from "La Colmena", produced by the AV Center. Lower-left photo is a scene during filming of "La Vertiente", produced by the Instituto Cinematografico Boliviano in the Beni region of the Bolivian jungles. The Magnasync Type 5 recorder performed superbly. Other photos show Rodolfo Soria studio-recording with the Mark IX System.

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6-minute 16MM sound film "Planning an integrated sound system." Available for loan, free, on request.

and rotating in opposite directions. A camera (LV-1) using this system has been built for the photography of detonations and similar phenomena, and was shown at the Brussels Exhibition in 1958. Ten reflections are obtained between the two rotating mirrors, and, after reflection, the moving beam passes through a series of lenses which image it on a moving band of film. In this way, taking frequencies of $33\frac{1}{3}$ million frames/sec are reached. An electronic system has been devised to ensure exact synchronization of the initiation of the phenomenon to be studied with the proper stage in the working of the mirror system. (S. C. G.)—A. S. Dubovik, P. V. Kevlishvili, and G. L. Shnirman, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii*, 4: 12-19, No. 1, Jan.-Feb. 1959.

A Study of Industrial Electrical Detonators by Means of Photography

A study was made of the structure of detonator explosions by means of telephotography carried out with a Leica camera having a 600-mm, *f*/5 objective, at different relative positions of the axes of the camera and detonator, in atmospheres of air, oxygen, carbon dioxide, argon, hydrogen and water. The upper and middle portions of the explosion did not seem to depend on the surrounding atmosphere, even under water. Both portions give a continuous spectrum as a result of the burning of the solid matter. The brightness at the bottom of the explosion increases in argon, is markedly reduced in carbon dioxide, and is completely extinguished in water. Its spectrum consists of a continuous

band and a much broadened sodium line. The luminescence of this portion is the result of the shock wave. (Translated from *Referativnyi Zhur., Fiz.*, S. C. G.)—M. Yojiro, *Rep. Govt. Chem. Indust. Res. Inst., Tokyo*, 52: 219-227, XXV, No. 7, 1957 (in Japanese); *Referativnyi Zhur., Fiz.*, p. 291, No. 7, 1958.

A Study of the Physical Processes in a Shock Tube With the Aid of High-Speed Photography

A method of high-speed shadow photography has been used for the study of phenomena taking place in a shock tube with a stream of gas glowing round a model. The IAB-451 was used as the shadow apparatus. Shots were made with the FP-22 motion-picture camera with a taking speed of 100,000 frames per sec. Constancy of the taking frequency during one shot was secured with an accuracy of greater than 0.2%. The problem of exposure in high-speed filming is considered. A relation between the real time of exposure and the latitude of the film is obtained. On the authors' evaluation, the real time of exposure of a frame for motion-picture films, A₂, D_H, D_K, and A-35, correspond to 1.43, 1.62, 2.04 and 1.54 times less than the full-exposure time. Results have been obtained for the angles of connected discontinuities on a wedge-shaped model and the angles of separation of weak disturbances in the stream. A number of photographs are reproduced. (Translated from *Referativnyi Zhur., Fiz.*, S. C. G.)—L. A. Vasil'ev, S. S. Semenov, and E. A. Tarantov, *Izvestia Akad. Nauk SSSR*, pp. 186-88, No. 11, 1957; *Referativnyi Zhur., Fiz.*, p. 290, No. 7, 1958.

A High-Speed Line Camera With Mirror Scanning

A mathematical analysis is made of a number of rotating-mirror systems used for image displacement in high-speed cameras. It is shown that, from the point of view of the speed of image displacement, it does not matter whether the intermediate lens comes before or after the mirror system; but the rotation of the image plane causes loss of focus which can be minimized by having an even number of mirrors located symmetrically about the intermediate lens. The (Soviet-made) RKS-1 Camera, embodying these findings, is described. It is intended for the high-speed photography of flashlight sources and spark discharges. (S. C. G.)—S. M. Provornov and O. F. Grebennikov, *Tekh. Kino i Televideniya*, pp. 46-51, Feb. 1959.

Kinoscope for the Photography of Rapid Processes

The construction of, and calculations for, a camera for the photography of rapid processes are described. The camera comprises 24 objectives which project images of the object onto different parts of two 9- by 12-cm photographic plates. The shutter is a rotating disc with concentric slits, and is placed between the objectives and the plates. The camera is provided with three types of disc: the normal, which in one revolution opens each objective in turn, a disc for stereoscopic photography, which opens a pair of objectives at a time, and a disc for photography at a higher speed, which opens the 24 objectives in



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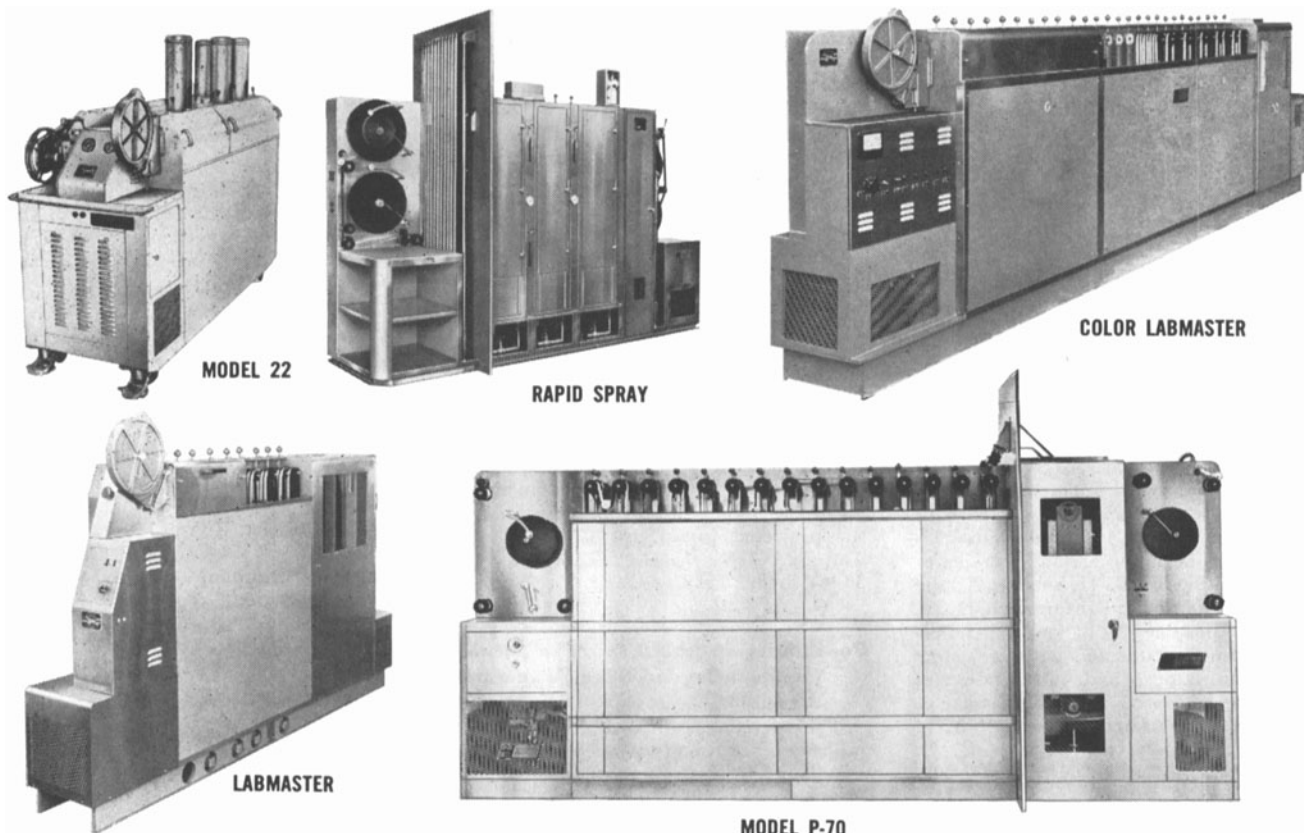
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Labmaster	16mm	B&W	Neg. Pos.	0 to 20
Color Labmaster	16mm	Color	Anscochrome	0 to 15
Color Labmaster	16mm	Color	7255 Ektachrome and Anscochrome	0 to 40
100NPC	16mm	Color	Eastman Neg. Pos.	0 to 100
22BC	16/35mm	B&W	Neg. Pos.	0 to 22
120PN	16/35mm	B&W	Neg. Pos.	0 to 120
RC-30	16/35mm	Color	Ektachrome Anscochrome	0 to 30
NP20C	16/35mm	Color	Ektachrome Neg. Pos.	0 to 20
45NPC	16/35mm	Color	Eastman Neg. Pos.	0 to 45
S120PN Spray	16/35mm	B&W	Neg. Pos.	0 to 150
10C	35mm	B&W	Neg. Pos.	0 to 40
30NPC70	35/70mm	B&W	Neg. Pos.	0 to 30
P-70	70mm	B&W	Neg. Pos.	0 to 20
20RC70P	35/70mm	Color	Ansco Neg. Pos. Rev.	0 to 20
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A-25	5" 9/16"	B&W	Film & Paper	0 to 18
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one-half a revolution. With the disc rotating at the rate of 3000 rpm, the camera can give 1200, 600 and 2400 frames/sec, according to the type of disc. There is also apparatus for synchronizing the camera with other equipment. (Translated from *Referativnyi Zhur., Fiz., S. C. G.*)—V. I. Nekrasov, *Sborn. Leningr. Inst. Inzh. Zh.-D. Transp.*, pp. 116-26, No. 155, 1958.

PROJECTION

Motion-Picture Projection With Xenon Discharge Lamps

Detailed information is given on the performance of two Soviet-produced, high-pressure, xenon discharge lamps for motion-picture projection, one for a-c and one for d-c, and some comparison is made with other light sources used in cinematography. Four Soviet projectors are now fitted with the xenon lamps, one 16mm and three 35-mm. One of the latter is roughly twice as powerful as the B. T. H. model. At the present state of Soviet lighting technology, it will be possible to fit out all small- and medium-sized theaters with projectors with xenon lamps, and more powerful sources are envisaged which will make it possible to use the same type of lighting in the largest theaters. (S. C. G.)—G. L. Irskii, *Tekh. Kino i Televideniya*, 3: 29-44, Jan. 1959.

Automatization of Correction for Film Shrinkage in Motion-Picture Projectors With Optical Compensation

Projectors with optical compensation

instead of intermittent pulldown have come into use in the transmission of films in television programs. In this type of projection, image quality can be affected considerably by shrinkage of the film, which not only varies from film to film, but may not be uniform along a single film. Some form of automatic compensation for the shrinkage is therefore needed, and, after considering the compensating mechanisms at present in use, e.g., in the E.M.I. and Bell Telephone telecine machines, the author describes a simpler system, in which a loop of film containing a standard number of perforations is held in tension by a roller on an axle which moves with variations in the length of the loop, and which actuates the optical system in such a fashion that variations in the size of the frame are compensated for by variations in the magnification of the projected image. (S. C. G.)—A. N. Tarasov, *Tekh. Kino i Televideniya*, pp. 39-44, Mar. 1959.

Possibilities in the Use of a Smooth (Without Banded Edges) Panoramic Screen

The curved screens used for panoramic projection are usually banded at the ends, the bands being turned towards the audience so as to give better viewing conditions. A curved panoramic screen has been designed without these bands. A full, mathematical analysis of the situation is given. (S. C. G.)—E. M. Goldovskii, *Tekh. Kino i Televideniya*, 5-16, Feb. 1959.

Perception of Depth and Distance of Objects in Ordinary (Not Specially Stereoscopic) Motion-Picture Films

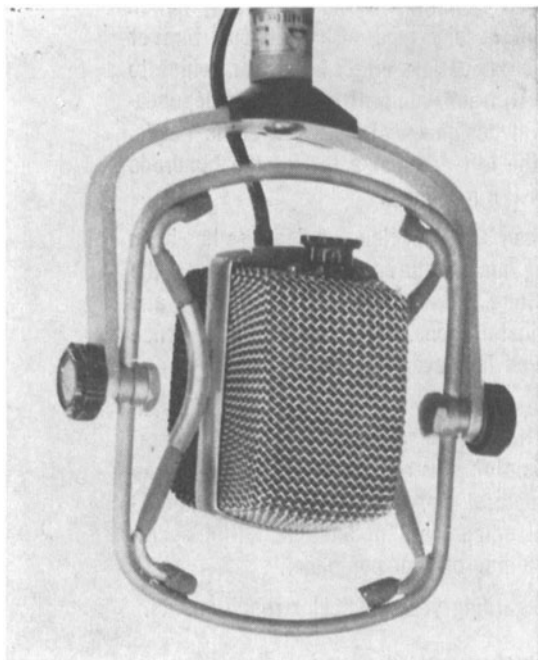
A sensation of distance and relief is often experienced when viewing nonstereoscopic pictures, still or cinematographic. This phenomenon is considered from the point of view of the psychology of Pavlov as developed by Sechenov. (S. C. G.)—V. A. Burgov, *Tekh. Kino i Televideniya*, pp. 5-10, Apr. 1959.

A Study of the Wearing Properties of Film Prints in Use

An investigation into the relation between the wear of black-and-white and color film positives and the number of showings is surveyed, account being taken of the original quality of the film, the type of projector, and the climatic conditions in the district. (Translated from *Tekh. Kino i Televideniya* (S. C. G.))—F. S. Sherman and I. M. Fridman, *Trudy Vsesoyuz. Nauch.-Issled. Kinofotoinst.*, pp. 17-26, No. 3 (26), 1958.

Increasing the Wear Resistance of Motion-Picture Projector Sprocket Drums

It is shown that, in agreement with the hypothesis of I. V. Grebenshchikova, the process of wearing of a drum by motion-picture film is more correctly considered as an intermediate type of process, taking place with abrasion and polishing, together with corrosion phenomena. The different methods of increasing the wear-



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resistance of drums are compared, and the results of tempering them with high-frequency currents and of testing the drums under service conditions are presented. (Translation of Author's Abstract S. C. G.), —O. L. Vakhrameev, *Tekh. Kino i Televideniya*, pp. 44-51, May 1959.

SOUND: Recording and Reproduction

A Single Technology of Magnetic Sound Recording and Editing of Magnetic Soundtracks in the Motion-Picture Industry

One of the main obstacles to the introduction of magnetic soundtracks into the Soviet film industry has been the difficulty of editing. Many studios have adopted

the practice of making a visual, direct-positive intermediate soundtrack from the magnetic track, for editing purposes. Another method, which the authors prefer, is to use as the working soundtrack, a magnetic track carrying a curve showing the sound level at any point, or marked with the beginnings and endings of phrases and even single words. The subject of the most suitable sound-carrier for recording is discussed, the preference being given to 17.5mm film perforated on one edge only. Finally, a scheme for the production of soundtracks, with flow-diagram, is presented. (S. C. G.)—V. L. Trus'ko, M. F. Ottochek, and A. V. Chernochenko, *Tekh. Kino i Televideniya*, pp. 29-35, May 1959.

The Technology of Magnetic Sound Recording for Motion-Picture Films and the Choice of Dimensions of the Sound-Carrier.

P. Veselkov, *Tekh. Kino i Televideniya*, pp. 25-26, Apr. 1959.

Choice of a Rational Technology for Magnetic Sound Recording and Editing of Art Motion-Picture Films

The procedures involved in the preparation of magnetic soundtracks at the Lenfilm studios are described, and points where improvements might be effected are discussed. (S. C. G.)—I. N. Aleksander, *Tekh. Kino i Televideniya*, pp. 20-44, Apr. 1959.

Stability of the Physicomechanical Properties of Ferromagnetic Films

It is shown that the most important factor influencing the keeping properties of ferromagnetic film is atmospheric humidity. (Adapted from *Tekh. Kino i Televideniya* S. C. G.),—F. S. Sherman and F. B. Aronova, *Trudy Vsesoyuz. Nauch.-Issled. Kinofotoinst.*, pp. 53-63, No. 3 (26), 1958.



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books reviewed

Screen Writing and Production Techniques

By Charles W. Curran. Published (1958) by Hastings House Publishers, Inc., 151 E. 50 St., New York 22. 242 pp. including index. Illus. 8½ by 5½ in. Price \$4.95.

The purpose of this book as set forth in the Introduction is to "outline briefly but thoroughly and in everyday nontechnical language, the basic facts about an extremely complicated and technical business — that of producing motion pictures, television programs (filmed, taped or live) and television commercials," and it admirably fulfills its purpose.

Directed particularly to beginning scriptwriters and producers, it contains much of general interest for average readers. The book is divided into three main sections, the Pre-Production Phase, in which the "how-to" of scriptwriting is thoroughly explored; Putting the Subject Into Production; and Screen Production Costs. An especially interesting chapter in the second section is "Recording Sound Pictures on Tape."

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