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A New Method for Measuring Amplitude-to-Phase Modulation Conversion and Amplitude-Modulation Compression (p. 151) *T. Sarkany*

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Heterodyne Receivers for RF-Modulated Light Beams (p. 407) *D. J. Blattner* and *F. Sterzer*

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Motion Picture Studio for Theatrical Films in PKhenian (Korean People's Democratic Republic) (in Russian) (p. 78) *Yu. Ferdman*

The "Mongolkino" Motion-Picture in Ulan-Bator (Mongolian People's Republic) (in Russian) (p. 79) *Yu. Ferdman*

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Pitch Fluctuations and Their Development in Sound Reproduction (in Russian) (p. 36) *E. A. Besschetnov*

no. 6, Nov. 1962

Towards an Improvement in Quality of Amateur Motion-Picture Equipment (in Russian) (p. 65) *P. M. Krimerman* and *V. G. Kudryavtsev*

Correction of Distortion of Localization in Stereophonic Sound Recording of Moving Sources of Sound (in Russian) (p. 23) *C. S. Man'kovskii*

Television Methods of Measuring the Dimensions of Objects (in Russian) (p. 31) *V. S. Polonik*

Pitch Fluctuations and Their Development in Sound Reproduction: Subjective Perception of Pitch Fluctuation in Program Material (in Russian) (p. 36) *E. A. Besschetnov*

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.* can be consulted at, or borrowed from, the Society's Headquarters Office.

Those requiring definitive and thorough searches of current literature and patents are referred to *ABSTRACTS of Photographic 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 27, N.Y.

The subject areas are grouped below:

- Cameras and Equipment (Except High-Speed)
- Cinematography
- Color Photography and Color Development
- Film and Its Properties
- Film Recording (TV)
- History (Surveys)
- Lighting (Light Sources and Screens)
- Optics
- Projection
- Sound Recording and Reproduction
- Studios (Production)
- Television
- Testing and Control
- Theaters

CAMERAS AND EQUIPMENT (Except High-Speed)

The 1KSShR Hand Ciné Camera for 70-mm Film (in Russian), S.I. Nikitin and A.A. Sonov, *Tekh. Kino i Telev.*, *6:* 44–6, Sept. 1962.

The 1KSShR camera is produced by the Kinap factory as a small hand camera using 70mm film for filming under difficult

circumstances where a large degree of camera mobility is required. The technical details of the optics and mechanical system of the camera are discussed.—S.C.G.

The Uses of a Wide-Angle Attachment in Underwater Cinematography with a 16-mm Camera (in Russian), A. S. Lodkin, *Tekh. Kino i Telev., 6:* 67–8, Oct. 1962.

It is pointed out that because of the "haze" experienced in underwater photography, close approach is necessary to obtain reasonable detail in a subject, and for that reason a wide-angle attachment is to be recommended. The design of a wide-angle attachment for a 16-mm camera is briefly discussed and some mention is made of the uses to which a Kiev-16C2 camera provided with such an attachment can be put.—S.C.G.

Towards an Improvement in Quality of Amateur Motion-Picture Equipment (in Russian), P. M. Krimerman and V. G. Kudryavtsev, *Tekh. Kino i Telev., 6:* 65–8, Nov. 1962.

Amateur cinematography is a comparatively recent development in the U.S.S.R. and is being actively encouraged by the production and marketing of an increasing quantity of apparatus for the amateur. A critical survey of Soviet-made amateur equipment is made, with a number of suggestions for its improvement.—S.C.G.

Pentaflex 16 Cine Camera. I.C.P. Test Report No. 25, H. A. Crosswell, *Ind. and Comm. Photographer, 2:* 28–9, No. 8, Dec. 1962.

The Pentaflex 16 ciné camera has a three-lens turret: the standard Jena lenses being a 12.5 mm f/2.8 wide angle, a 25 mm f/1.4 normal, and 50 mm f/1.4 telephoto, and all Pentacon and Praktica lenses can be fitted. The film can be run at a range of speeds up to 96 frames/sec. Other features include a mirror reflex finder, a rotary shutter continuously adjustable during exposure, and quick-change magazines for 100 ft, 200 ft and 400 ft of film. Attachments for special fields (e.g. micro, macro, single-picture taking, slow motion, etc.) are available.—D.M.A.R.

CINEMATOGRAPHY

Image Sharpness in Cinematography (in Russian), V. G. Komar, *Tekh. Kino i Telev., 6:* 1–11, Oct. 1962.

A discussion is given of the problems in evaluating image sharpness with the aid of the frequency-contrast characteristic of the process of cinematography. A new criterion is proposed for the objective evaluation of image sharpness—the critical spatial frequency at which the frequency-contrast function is decreased e times. Problems of the influence of the separate links in the process of cinematography on the resulting image sharpness are discussed. (Author's Abstract)—S.C.G.

A Discussion of the Problem of a Speed Criterion for General-Purpose Photographic Materials, Yu. N. Gorokhovskiĭ, and N. S. Ovechkis, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 7:* 472–474, No. No. 6, Nov.–Dec. 1962.

On the 2nd July 1962 the Commission for Scientific Photography and Cinematography of the Academy of Sciences of the U.S.S.R. held a discussion on the choice of a speed criterion in conjunction with other interested Soviet organizations. The discussion centered round the choice of a density of 0.2 or of 0.85 above fog, and the arguments on both sides are set out. A resolution was finally passed in favour of the determination of speed at a density of 0.85 above fog, with a number of dissentients. It was also resolved that the speed unit should be 10 reciprocal lux-seconds. Speed figures should be determined for the time of development required to obtain the recommended gamma for a given material.—S.C.G.

Third Conference on High-Speed Photography and Cinematography, V. G Pell', *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 7:* 474–76, No. 6, Nov.–Dec. 1962.

The Third [Soviet] Conference on High-Speed Photography and Cinematography was held in Leningrad 4–7 July, 1962. The papers presented are summarized.—S.C.G.

Systems of Cinematography with a Cropped Frame, Comments on the article by L. G. Tarasenko, "Is there a Future for Wide-Screen Cinematography with a Cropped Frame?" (in Russian), E. M. Goldovskiĭ. *Tekh. Kino i Telev., 6:* 69–72, Dec. 1962. Tarasenko's article (*Tekh. Kino i Telev., 6:* 23–32, Feb. 1962) is critically discussed.—S.C.G.

On E. M. Goldovskiĭ's article "Systems of Cinematography with a Cropped Frame" (in Russian), L. G. Tarasenko. *Tekh. Kino i Telev., 6:* 72–3, Dec. 1962.

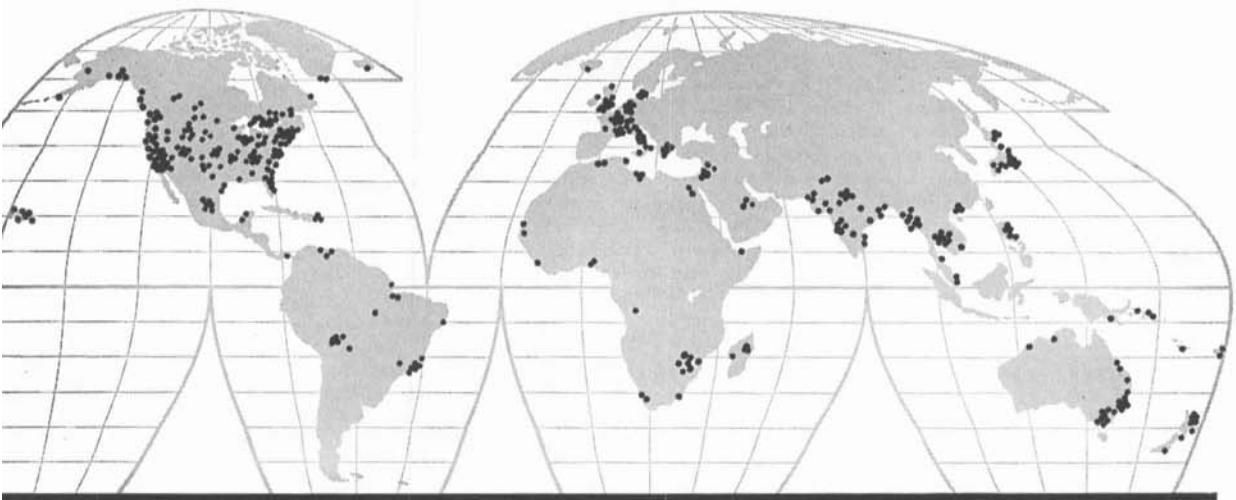
The original author replies to the criticisms of Goldovskiĭ.—S. C. G.

Economics of Cinematography (in Russian), Yu. K. *Tekh. Kino i Telev., 6:* 86–89, Dec. 1962.

Statistics are compiled from official sources for the production of light-sensitive motion-picture materials in capitalist countries including the U.S.A., France, Japan and the Federal German Republic; and for the production of cinematographic apparatus in the U.S.A. and Federal German Republic.—S.C.G.

Open Heart Photography, A. Hollman and P. Stinton, *Med. and Biol. 1 u., 13:* 15. 1F, Jan. 1963 (Author's Abstract).

A camera cradle is described which makes it possible to hold a 35mm camera and electronic flash source at a measured distance above the surgical field. Details of the simple method of operation are also given.



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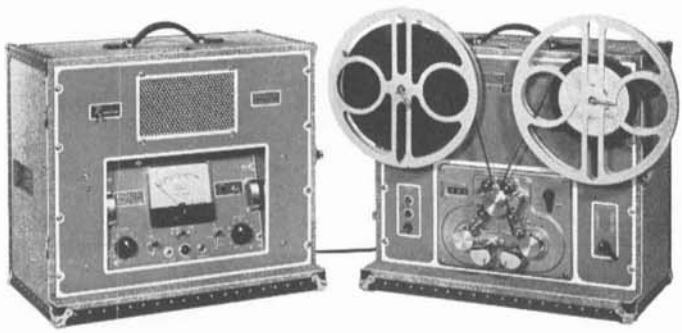

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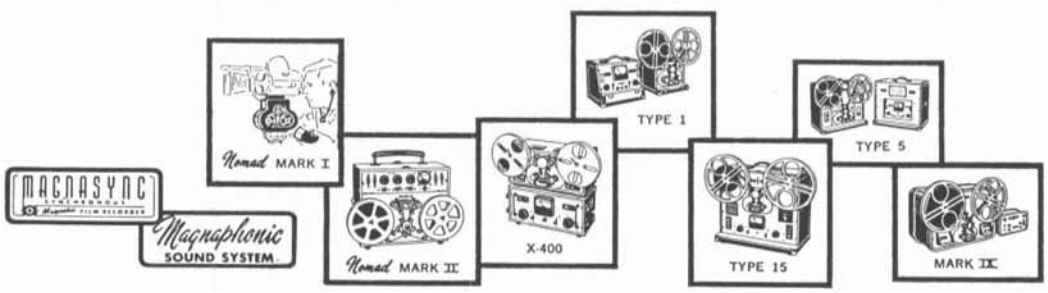

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Reportfilm, di J. M. Schuller
Via Antonio Bertolini 31

Artistic Problems in Wide-Gauge Cinematography (in Russian), L. B. Kosmatov and A. E. Simonov, *Tekh. Kino i Telev., 6:* 33–43, Sept. 1962.

A summary is given of experience gained in making the color wide-format film *Judgment of the Insane* in the Mos'film Studios. The solution of the various technical problems raised by the artistic considerations is discussed—S.C.G.

FILM AND ITS PROPERTIES

8 mm Sound at the Crossroads, R. P. Rigg, *Film User, 16:* 316–318, July 1962.

The problems arising from the proposal to change the perforations on 8mm film made at the Fall 1962 SMPTE Convention are causing concern to both equipment manufacturers and users. The reaction of the Convention to the proposals is given but further consideration has been left to a special committee.—R.G.R.H.

Color Motion-Picture Films (in Russian), Z. K. Averbukh, Yu. D. Vilenskiĭ, I. M. Kilinskiĭ and A. N. Iordanskiĭ, *Tekh. Kino i Telev., 6:* 47–48, Sept. 1962.

During 1962 the Shostka factory in the U.S.S.R., began production of a new set of color motion-picture film stock, consisting of the DS-5 (daylight) and LN-5) (tungsten light) negative stock and the TsP-7 positive stock. They have better color reproduction and give sharper images than the earlier series of films (DS-2, LN-3, and TsP-3). Sensitometric characteristics of the film are tabulated. The negative films use integral masking. The LN-5 negative can be used with daylight or arc light with a special yellow filter. The negative films are issued in three versions: 35mm with standard perforations for normal and for wide-screen cinematography, and 70mm for wide-gauge use.—S.C.G.

The New VCh High-Speed Isopanchromatic Motion-Picture Film (in Russian), V. Makarov and G. G. Shevyakov, *Tekh. Kino i Telev., 6:* 49–50, Sept. 1962.

A new Soviet panchromatic motion-picture negative stock is described and its sensitometric characteristics are compared with those of Kodak Double-X and Tri-X stock. At longer development times somewhat higher speeds and gammas are obtained than those of Tri-X under corresponding conditions. The film is manufactured by the Kazan factory.—S.C.G.

Raising the Speed Resolving Power, and Color Rendition of Color Negative Motion-Picture Films (in Russian), I. N. Kilinskiĭ, Yu. B. Vilenskiĭ and A. N. Iordanskiĭ, *Uspekhi Nauch. Fotografii, 8:* 3–12, 1962.

Over the last few years improved color negative materials have become available in the U.S.S.R. A review is given of the work on which the improvements are based. Methods of improving the speed comprise controlling the rate and number of steps in the precipitation of the emulsion, the addition of thiosulphate during making and ripening, new panchromatic thiocarbocyanine sensitizers, and the substitution of a yellow dye layer for the colloidal silver filter layer. Resolving power can be controlled to some extent by varying the thickness of the coating and concentration of the silver halide, as well as by changing the normal order of the layers.

Work on the improvement of color couplers, including masking couplers, is reviewed. (Bibliography of 24 references)—S.C.G.

The Processing of Color Films for Color Television III A Direct Process of Current Development of Reversal Color Films with Non-Diffusing Couplers (in Japanese), Takahi Takushiro, *Tech. J. Japan Broadcast. Corp., 14:* 105–114, No. 2, 1962; *Referativnyiĭ Zhur., Fiz.*, Abstract No. 12G561, 1962.

A new developer is proposed for reversal films, containing 1g/1 developing agent, anhydrous sulphite, potassium bromide and 3g/1 sodium carbonate. This developer does not develop fog, and hence it is possible to study the behavior of the separate layers during processing of the color image. Changes in the sensitometric characteristics of the film as the nature of the developing agent and the composition of the developer are changed are discussed.—S.C.G.
(Translated from *Referativnyiĭ Zhur., Fiz.*)

FILM RECORDING (TV)

Some Problems in the Technology of Recording Television Programmes on Motion-Picture Film (in Russian), M. Khorvat, *Radio i Televideniya*, 36–38, No. 2, 1962; *Tekh. Kino i Telev., 6:* 83, Aug. 1962.

Some characteristic features of the methods of recording television programmes on motion-picture film are discussed.

A series of experiments has been carried out with the aim of finding a suitable method of increasing the depth of modulation in the transmission of fine details. It is observed that in the telerecorder of the firm High Definition Films Ltd., the advantages of photographing both half frames cannot be completely utilized.

A method is proposed for recording television programmes on motion-picture film which the author regards as the most convenient.—S.C.G.
(Translated from *Tekh. Kino i Telev.*)

Technological Standards in the Production of Television Films (in Russian), V. B. Tomachev, *Tekh. Kino i Telev., 6:* 69–78, Oct. 1962.

A review is given of the technological standards accepted in the production of television films, outside the U.S.S.R (32 references).—S.C.G.

Television Film Recording, D. P. Leggatt, *Perspective, 4:* 77–86 No. 2, 1962.

The various techniques for recording television signals onto motion-picture film are described, and the advantages and

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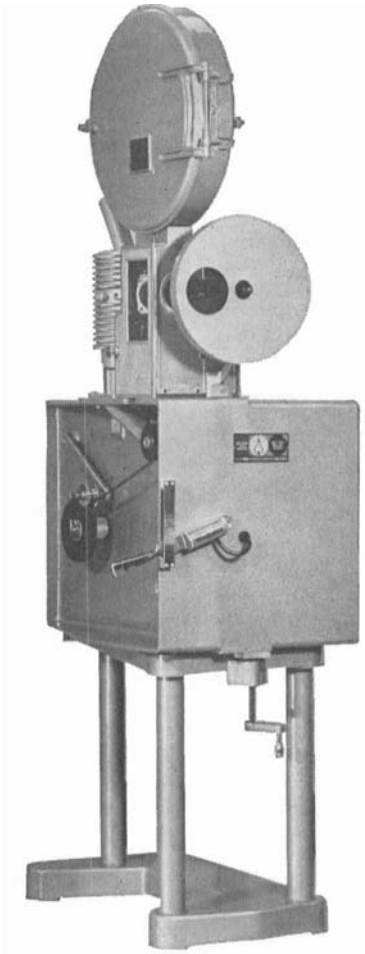
2. A 500 watt lamp is used for 16mm and a 1,000 watt for 35mm (a blower is used to cool the lamphouse).
3. A 2½ inch projection lens is furnished with each unit.
4. A start-stop lever controls the power to the lamp and motor.
5. The magazine and take up core takes up to 3,000 ft. of film.
6. Upper guide 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 anterieur 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 á la minute.

1. Le regulateur de voltage d'intensité d'eclairage.
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 instalé.
4. La manette de mise en marche et d'arret 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 instalée 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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Questi proiettori sono Simplex transformati, otturatore al fronte, meccanismo di scatto di due punte. La velocitá di proiezione in 16 o 35/32mm e di 144 piedi per minuto, e in 35mm, di 165 piedi per minuto.

1. Controllo manuale della luminositá della lampada.
2. Lampada di 500 watt per 16mm e di 1000 watt per 35mm.
3. Obbiettivo 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 construiti per operare con film provenente 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.

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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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disadvantages of film recording as opposed to video-tape recording discussed.—B.M.

HISTORY
(Surveys)

Czechoslovak Cinema Technology in 1961 (in Russian), F. Pilat, *Tekh. Kino i Telev., 6:* 78–81, Aug. 1962.

A brief account is given of the cinema industry in Czechoslovakia in 1961 and some of the equipment designed for it.—S.C.G.

State and Production of Film Equipment in the U.S.S.R. (in Russian), I. B. Gordiychuk, *Tekh. Kino i Telev., 6:* 3–19, Sept. 1962.

Apparatus and equipment for the motion-picture industry manufactured in the U.S.S.R., is reviewed. The items discussed include cameras for 16mm, 35mm, and 70-mm cinematography, lenses, camera cranes and stands, lighting apparatus, sound recording and reproduction apparatus, microphones, magnetic soundtrack coating and printing machinery, film printers and processers, editors, and projectors and other apparatus for the cinema.—S.C.G.

LIGHTING

Light Sources for Kinematography, A. G. Penny, *Phot. J., 102:* 212–217, July 1962.

The history of the use of electric lighting for photography is briefly reviewed and the problems facing the designer of lamps for both scene illumination and projection are stated. Recent trends, including the use of low-voltage projection lamps with integral reflectors, and quartz-iodine lamps, are discussed.—R.G.R.H.

OPTICS

Spectral Transmission of Modern Motion-Picture and Still Objectives (in Russian), A. M. Kuritsyn, *Tekh. Kino i Telev., 6:* 19–25, October 1962.

A photoelectric device has been built for recording the spectral transmission curves of lenses over the wavelength range 320-700mμ. The curves for thirty different lenses are reproduced. The importance of the transmission characteristic of lenses used in color photography is discussed and the errors introduced by the lenses are calculated.—S.C.G.

PROJECTION
(Light Sources and Screens)

Brit. 913,430 Production of Motion-Picture Films, A. G. Boltjansky; Assigned to Kinostudio "Mosfilm," Filed December 8, 1959, 2 p., 1 pl.

Anamorphosis can be removed from motion-picture films by projecting the picture onto a screen at an angle and rephotographing it, the objective nodal points and the intersection of the optic axes with the screen being on an arc of a circle, the angles between the optic axes and the screen being determined by the "anamorphosis factor."—A.S.C.

Screen Brightness—A Fundamental Factor in the Quality of Motion-Picture Projection (in Russian), O. Yakovleva, *Kinomekhanik,* 34–5, Aug. 1962.

The importance of a suitable level of screen brightness and a means of obtaining it are simply discussed.—S.C.G.

Test Films for Motion-Picture Projection Apparatus (in Russian), S. Karipidi, *Kinomekhanik,* 26–32, Sept. 1962.

The various types of test films available for use in Soviet cinemas are described and their uses are explained.—S.C.G.

The Thermal Conditions of a Motion-Picture Projection Objective (in Russian), I. M. Fonar' and L. G. Tarasenko, *Tekh. Kino i Telev., 6:* 26–30, October 1962.

The heating of lenses in projectors, which is greatest in the center of the lens owing to its greater thickness, becomes a greater problem as the power of light sources is increased. Measurements have been made with three Soviet-made projectors in order to study the effect. The data are presented in tables and graphs. With light fluxes of 12,000 lumens and more, it is necessary to take precautionary measures to safeguard the objective. With the higher power light sources now being used it is desirable to raise the allowable temperature of a lens to 100 C. Other solutions are the air cooling of the lens, which is already done in some projectors, and heating the lens mount so as to reduce the temperature difference between the center and the circumference.—S.C.G.

Motion-Picture Projectors and Still Projectors for Teaching Purposes, Exhibition, and Information (in Russian), O. V. Peschanskiĭ, *Tekh. Kino i Telev. 6:* 57–8, Nov. 1962.

Short descriptions are given of the following Soviet-made apparatus. The SKU-16 automated motion-picture projection unit is designed for the demonstration of short-length color and black-and-white films on 16mm stock with optical and magnetic soundtracks. The unit makes use of rear projection. The SKU-35 automatic motion-picture projection unit is the corresponding unit for 35mm film. The DP-1 automatic still projector is for the automatic showing of 35mm stills on a continuous film band.—S.C.G.

In the "Soyuzmul'tfilm" Film Studios: A Triple Film Motion-Picture Projector (in Russian), Ya. I. Belyaev, *Tekh. Kino i Telev., 6:* 63–4, Nov. 1962.

For several purposes in film studios it is necessary to project films simultaneously. A projector of this kind made by the Soyuzmul'tfilm studios is briefly described.—S.C.G.

A Projector for Film Loops (in Russian), E. Krasovskii, *Photomekhanik,* 32–33, Dec. 1962.

A brief description is given of a rear-

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Type 2.11 : 35 mm magnetic film with clear edges.

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projection unit for showing film loops, making use of a standard 16-mm projector. It is intended for use in schools, etc.—S.C.G.

8-mm Sound Motion-Projectors (in Russian), V. G. Pell', *Tekh. Kino i Telev., 6:* 74–6, Dec. 1962.

Recent information on 8-mm sound motion-picture projectors in non-Russian journals is summarized.—S.C.G.

A Stereoscopic Wide-Screen Cinema with Stereophonic Sound (in Russian), M. Vysotskii, *Kinomekhanik*, 24–6, Dec. 1962.

Experiments on wide-screen stereoscopic films, making use of polarized anaglyphs, have been carried out by the NIKFI Research Laboratories in conjunction with the Mosfil'm Studios. An elementary explanation of the production of stereoscopic pictures by means of polarized light is made.—S.C.G.

Toei 8mm Magnetic-Optical Projector *Amat. Cine World, 5:* 120–121, Jan. 24, 1963.

The Toei-8 Magnetic-Optical projector is the first 8-mm stripe projector to appear from Japan and the world's first to provide replaying of 8-mm optical (photographic) tracks. The lens is of 25mm focal length, the lamp a Truflector 21.5v, 150w, the capacitor-induction constant speed motor provides speeds of 16 frames/sec and 24 frames/sec and the spool capacity is 600 ft. The machine will retail at under £100 and is being handled in Britain by Micro Cineprecisions.—D.M.A.R.

SOUND RECORDING AND REPRODUCTION

Taking and Synchronous Stereophonic Sound Recording of Wide-Gauge Motion-Picture Films (in Russian), M. Z. Vysotskiĭ, B. N. Konoplev, and I. M. Urvantsev, *Tekh. Kino i Telev., 6:* 20–32, Sept. 1962.

The Mos'film Studios have now had considerable experience in making films on 70mm stock with stereophonic sound recording. The experience gained with these methods is summarized.—S.C.G.

STUDIOS (PRODUCTION)

The Production and Exhibition of Motion-Picture Films in Hungary (in Russian), I. Kondor, *Tekh. Kino i Telev., 6:* 73–77, Sept. 1962.

The present state of the motion-picture industry in Hungary is reviewed, with some discussion of the studios and cinema network. Some Hungarian-made apparatus for cinemas is described.—S.C.G.

The Main Directions of Development of Polish Motion-Picture Technology (in Russian), M. Sverchinskiĭ, *Tekh. Kino i Telev., 6:* 73–77 Aug. 1962.

Lines of development in Polish film studios and cinemas are discussed, and technical details of a number of Polish-made pieces of equipment are briefly presented.—S.C.G.

Sub-Titling Motion-Picture Films (in Russian), A. Vlasov and V. Rokhtvee, *Kinomekhanik*, 3, Aug. 1962.

Sub-titling and dubbing of motion-picture film is a major problem in the U.S.S.R., owing to the large number of different languages in use within the Union. Some of the equipment available for sub-titling is described.—S.C.G.

TELEVISION

A Two-Station Telecine Projector for Continuous Transmission of Color Motion-Picture Films (in Russian), D. A. Taranets, *Tekh. Kino i Telev., 6:* 45–53, Oct. 1962.

A description is given of a two-station colour telecineprojector for continuous transmission of 35mm motion-picture films, in which are utilized the flying spot principle, continuous film movement and a system of optical splitting of the scanning raster. The optical layout of the projector is discussed together with constructional details of a number of the principle units. (Author's Abstract.)—S.C.G.

The Similarity of Reproduction Characteristics in Television and Photography (in Russian), S. B. Gurevich, *Tekh. Kino i Telev., 6:* 5–15, Nov. 1962.

The characteristics used to evaluate television and photographic systems are discussed, including the signal/noise ratio, contrast and gradation transfer, resolving power and the light-signal characteristic. The possibility of using a common characteristic for both television and photography is discussed from the point of view of information theory. It is concluded that the performance of different systems may be compared by means of the "specific sensitivity" which is a quantity inversely proportional to the radiant energy received for unit quantity of information transmitted to the output of the television or photographic system.—S.C.G.

Color Signals on a Black-and-White Kinescope (in Russian), L. M. Selyakov and V. Ya. Chuev, *Tekh. Kino i Telev., 6:* 14–42, Nov. 1962.

A subjective impression of color can be obtained with the black-and-white channel only of a television system, by presenting black-and-white images in a determined sequence.—S.C.G.

Scale-Model Investigations of Electromagnetic Wave Propagation Over Natural Obstacles, M. P. Bachynski, *RCA Review*, 105–145, March 1963.

Scale-model techniques have been developed whereby the effect of natural obstacles on the propagation of electromagnetic waves over the surface of the earth can be investigated within the laboratory. The major advantage of the scale-model laboratory experiments has been the ease with which control can be exercised

over the pertinent parameters. As a result, the influence of critical factors could be specifically ascertained.

The influence of obstacle shape (crest and profile) and the effect of the orientation of the radiated electromagnetic fields (angles of incidence and polarization) on the received power, as well as various cross-polarization phenomena have been experimentally determined. Comparisons of diffraction by knife edge, wedge, cylindrical and conical obstacles have been made. For obstacles with sharp crests (e.g., knife edges) there is little distinction between vertically and horizontally polarized fields measured at some distance from the obstacle. Profound polarization effects occur for obstacles with large smooth crests, with vertically polarized fields producing more power at the receiver in all cases. The effect of oblique incidence of electromagnetic energy on an obstacle is equivalent to changing its radius of curvature. Some measurements on the effects of ground reflections, rough diffracting surfaces and surface conductivity have also been made.

Finally, a considerable bibliography on theories of diffraction of electromagnetic waves by various obstacles and on field measurements of "obstacle gain" is included.

Comparative Study of Low-VHF, High-VHF, and UHF Television Broadcasting in The New York City Area, Donald W. Peterson, *RCA Review*, 57–93, March 1963.

In 1961, the Federal Communications Commission placed a UHF system in operation in New York City for an extensive study aimed at providing a quantitative measure of the comparative merit of VHF and UHF television transmission in large cities. A comparison between the FCC UHF (Channel 31) transmission from the Empire State Building and existing VHF transmissions has also been made by RCA. A comparative evaluation of picture degradation from multipath propagation and of the availability of useful levels of signal strength in highly built-up parts of Manhattan were the principal objects of study. This was supplemented with similar comparisons in other areas where there was less variability. Surveys of comparative field strength were performed along the smoothest and the roughest available radial profiles.

TESTING AND CONTROL

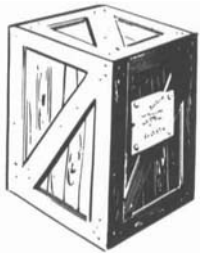
Technical Control in Motion-Picture Establishments (in Russian), *Kinomekhanik*, 22–24, Aug. 1962.

Technical problems requiring control in cinemas are discussed. The main topics are the testing of apparatus to avoid damage to the film, the control of the quality of the image on the screen, and the quality of the sound reproduction.—S.C.G.

THEATERS

Public Safety in the Cinema, H. E. Sully, *Brit. Kinemat., 42:* 4–15, January 1963.

A review is given of the safety precautions required by law in British cinemas, with special reference to the Cinematograph Acts, the Home Office Regulations, and local provisions, such as those of the Middlesex County Council.—S.C.G.



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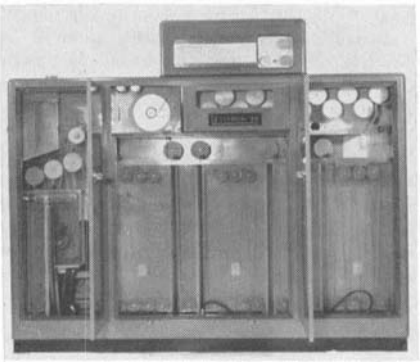

The Houston Fearless Levitron is a 35/70mm black-and-white film processor which uses air and liquid bearings instead of rollers. Announced by Houston Fearless Corp., Westwood Division, 11801 W. Olympic Blvd., Los Angeles 64, Calif., the Levitron was developed by the company's Canadian affiliate, Houston-Schmidt, Ltd. Operating without rollers, clutches, chain drives or elevators, the bearings are stationary cylinders through the sides of which water, air or chemical solutions are ejected at controlled velocities. The film is lifted away from the bearing, and at no time makes physical contact with the machine, thus preventing film scratch. Air bearings guide the film from one tank to the next, eliminating chance of scratches while minimizing liquid carry-over and solution contamination.

Liquid bearings in the chemical and wash tanks eject liquids at controlled velocities to provide a liquid cushion on which the film floats as it is guided through the tanks. This design produces constant agitation, recirculation, and high impingement, A single motor provides constant film speed and a sensing roller makes minor adjustments in speed to ensure that film tension does not exceed 3 oz.

Film speed is 2 to 30 ft/min. The machine is 83 in. long, 19 in. wide and 63 in. high. It weighs 800 lb. The Levitron is designed to process black-and-white, negative, perforated or unperforated, and thin- or thick-base films, including microfilm. The basic machine is priced at $7,500. The Levitron system was displayed and demonstrated at the Equipment Exhibit that was part of the 93rd SMPTE Convention at Atlantic City in April.