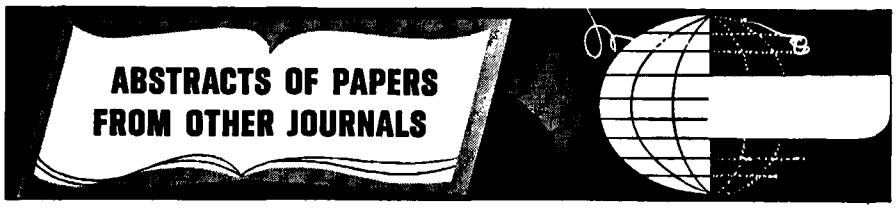


Abstracts of papers appearing in other journals chosen for their importance and possible value to researchers, as well as those of timely interest, are published in the *Journal* from time to time. Many translations of abstracts from foreign journals, chiefly those of the USSR, are made available to the *Journal* by the Research Laboratories of the Eastman Kodak Company. As a rule, translations are made of the abstracts and not of the papers. The journals in which the papers appear can be consulted at some libraries. Current issues of *Tekhnika Kino i Televideniya* 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)*, produced by the Graphic Arts Research Center, College of Graphic Arts and Photography, Rochester Institute of Technology, Rochester, NY 14623, with the editorial cooperation of the Society of Photographic Scientists & Engineers.

The subject areas are grouped below:

Cameras
Cinematography
Film and Its Properties
High-Speed Photography and Instrumentation
Optics
Photographic Theory and Materials
Sound
Television

CAMERAS

The problem of the method of calculating optical and mechanical systems for motion-picture cameras with optical compensation by prisms (in Russian), G. I. Belinskaya and A. A. Kepel'. Filed with VINITI as No. 3346-71 Dep. 17 July 71.

High-speed cameras with continuous film transport and prism compensation have nowadays received an extremely wide distribution abroad (i.e., outside the Soviet Union). In the USSR only one camera of this type is in production, and this does not always come up to modern requirements. A new camera of this kind has therefore been designed in the Institute of the Physics of the Earth of the Academy of Sciences of the USSR. In the construction of the camera, a method of simultaneous calculation of the optical compensator and the film transport mechanism, as described in the article, was used. Formulae for the computations are given and a method is proposed for the determination of the main camera variables, starting out from the requirement of exact agreement between the motion of the film and image. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

A universal system of synchronization, remote control, and operational control of motion-picture cameras with moving film (in Russian), Yu. S. Rybakov and V. A. Yakovlev. *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 404–410, No. 6, Nov./Dec., 1971.

Results are given of work on the setting up of a universal system for the synchronization of the operation of 35mm and 16mm motion-picture moving film cameras with recording apparatus and electronic flash stroboscopic light-sources, and also for the remote control of the cameras and operational control. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

Calculations for motion-picture cameras with prism compensation (in Russian), E. A. Tarantov. *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 17:* 8–16, No. 1, Jan/Feb. 1972.

Theoretical and experimental studies have been carried out on some designs for

high-speed motion-picture cameras with continuous film transport and compensation for image shift by means of a rotating prism. By using more exact elements of the theory of optical-prism compensation, equations have been derived to relate the residual motion of the image and the time of exposure of the frame with the main elements of the prism compensator. The chief methods of masking have been studied and it is shown that with masking by the prism mount, the residual image motion depends on the subject brightness and the characteristics of the photographic material. For the cases of the disc and slit shutters, the most reasonable laws have been found for the distribution of the residual image motion over the angle of rotation of the prism. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

Special cameras for photography from an oscillograph screen (in German), F. Meisnitzer. *Feinwerktekhnik, 75:* 257–260, 262, 263, No. 6, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 10.46.132, 1971.

The Oscillophot apparatus from Steinheil Co. is intended specially for recording from a CRT screen. It can be obtained in several models, the details of which are discussed. — S.C.G. (Abridged from *Ref. Zh. Fotokinotekhnika.*)

CINEMATOGRAPHY

An optical system for observation and cinematography in water (in Russian), P. D. Ivanov, A. M. Kudryashov and L. E. Popov, *Izv. Vyssh. Ucheb. Zavedenii. Priborostroenie, 14:* 88–91, No. 2, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 7.46.95, 1971.

An optical system is given for a wide-angle periscope for the observation and cinematography of subjects in deep water. Some points in the calculation of the variables of the system and problems of illumination of the subject are discussed. — S.C.G. (Translated from *Ref. Zh. Fotokinotekhnika.*)

The interaction of visual and aural information in cinematography and in other forms of spectacle (in Russian), A. F. Veklenko. *Tekh. Kino i Televideniya, 15:* 19–22, Nov. 1971.

The psychological aspects of the interaction of information taken in by the eye and the ear are discussed in relation to the conditions of the cinema, television, and the theater. The bearing of these considerations on the provision of stereophonic sound are discussed. — S.C.G.

The evaluation of the image quality of cinematographic systems by means of information considerations (in Russian), V. G. Komar, *Tekh. Kino i Televideniya, 15:* 9–22, Oct. 1971.

A method is proposed for a qualitative information evaluation of overall cinematographic systems, from shooting to the perception of the image, with the aid of generalized image-quality criteria and with special indices. An information evaluation is made of systems with variable frame format, and of others. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The technology of production and printing of wide-screen films with an anamorphotized image without the use of anamorphotic optics in taking (in Russian), N. D. Bernshteĭn, M. Z. Vysotskiĭ, B. N. Konoplev and A. P. Ivanov, *Tekh. Kino i Televideniya, 15:* 23–29, Oct. 1971.

A description is given of a method for the production and printing of 35mm wide-screen films with an anamorphotized image without the use of anamorphotic optics in taking. The whole width of a 35mm negative is used with a three-perforation frame repeat and with printing in different formats via a 70mm intermediate positive. The system is compared with the Techniscope system. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

FILM AND ITS PROPERTIES

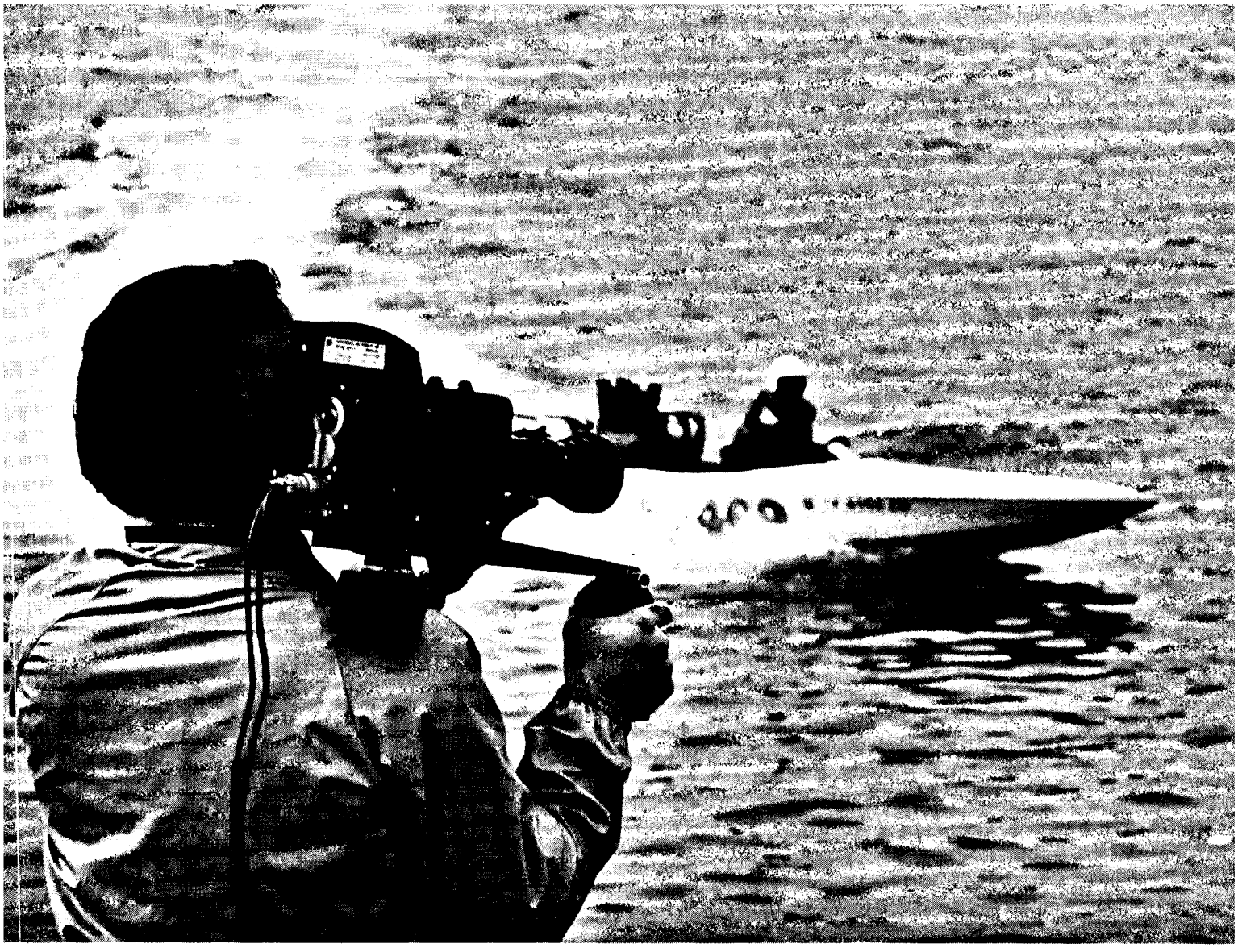
The influence of benzyl alcohol on the development of KP-4U motion-picture film (in Russian), R. M. Maistrovoĭ and R. R. Nechiporenko, *Tekh. Kino i Televideniya, 15:* 74–75, Oct. 1971.

Benzyl alcohol is used as a development accelerator in the colour processing of the Soviet KP-4U motion-picture film, but there is some difference of opinion concerning the uniformity of its action on the different layers of the film. Experiments are described which indicate that at a concentration of 3.5 ml/1 in the developer, benzyl alcohol does in fact intensify the action of the developer, and although its effect on the increase of contrast is not uniform for the different layers, the change in colour contrast balance is insignificant. — S.C.G.

Analysis of test films for the determination of image instability occurring in motion-picture projection (in Russian), E. L. Nel'skiĭ, *Tekh. Kino i Televideniya, 15:* 30–37, Oct. 1971.

Subjective methods are discussed for the determination of image instability in motion-picture projection, and test films for use with them. A method of measurement is proposed for the determination of this parameter. The nature of the errors of test films is discussed. Consideration is given to the improvement of test films. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

A rational method for the evaluation of the physical and mechanical properties of motion-picture film stock (in Russian),



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L. V. Rozental' and O. M. Suchkova, *Tekh. Kino i Televideniya, 15:* 36–39, July 1971.

The characteristics of different methods of determining the mechanical properties of motion-picture materials are discussed with the aim of improving the evaluation of the properties of films under working conditions. A diagram is given of a device made and tested by the authors for rapid conditioning and control of the temperature and relative humidity of the air in apparatus in which the properties of photographic materials are being tested. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The new TsO-22 Color film and its processing (in Russian), N. E. Chebotareva, A. P. Strel'nikova, P. I. Savinova, Z. F. Sharikov and N. V. Starukhina, *Tekh. Kino i Televideniya, 15:* 33–37, Aug. 1971.

The TsO-22 film is a new colour reversal film made in the Soviet Union for amateur daylight cinematography. Its characteristics are described and processing directions are given. — S.C.G.

LN-7 color negative motion-picture film (in Russian), I. M. Kilinskiĭ, *Tekh. Kino i Televideniya, 15:* 3–6, Sept. 1971.

A description is given of a new Soviet negative motion-picture film, and its sensitometric, spectral, color-separating, and resolving properties are presented. The speed of the new film is twice as high and the latitude is 0.9 log units greater than those of the earlier LN-5M film. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The new TsP-10 color positive motion-picture film (in Russian), V. V. Andreyanov, *Tekh. Kino i Televideniya, 15:* 7–10, Sept. 1971.

Technical characteristics of the new Soviet TsP-10 color positive film are compared with those of the TsP-8 film at present in production. Reasons are given for the choice of the composition of the film and of the structure of the elementary emulsion layers. Sensitometric properties are discussed, as well as data on the stability of the color image and the properties of the dyes formed during development. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The calculation of a film-transport mechanism with a closed kinematic circuit (in Russian), V. O. Vyazemskiĭ and V. Yu. Sukodol'skiĭ, *Tekh. Kino i Televideniya, 15:* 43–44, Nov. 1971.

An expression has been obtained for calculating the number of turns of a spool on which a definite quantity of film is being wound and the difference of the number of turns of the feed and take-up spools, related to the initial radius of wound film, the reserve and film thickness. Some results obtained from these formulae are given. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The Kaskad apparatus for the processing of sensitometric strips (in Russian), G. S. Baranov, V. M. Bondarchuk, V. V.

Elizarov, N. S. Ovechkis, Yu. V. Rudanovskiĭ and M. P. Telyatnikova, *Tekh. Kino i Televideniya, 15:* 38–44, Aug. 1971.

A description is given of an automatic processing machine for standardized processing of black-and-white and color sensitometric strips on 35mm film. It is intended for use in film factories, processing laboratories and research institutes. — S.C.G.

The starting-up period of speed stabilizers (in Russian), A. M. Melik-Stepanyan, *Tekh. Kino i Televideniya, 15:* 7–14, Dec. 1971.

A theoretical study is given of the starting-up period of stabilizers of the speed of transport of motion-picture film, and some practical recommendations are given. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

Choice of the value of the friction in a film gate (in Russian), *Tekh. Kino i Televideniya, 15:* 15–17, December 1971.

The friction in a film gate during intermittent motion of the film remains at a practically constant value at different speeds of passage of the films through the guides. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

Film gages: widths and perforations during 77 years of motion pictures — the circle of technical trends to the present day, Baynham Honri, *Brit. J. Photogr. 119:* 526–529, 533, (no. 5840, 1972)

The earliest motion-picture films showed many deviations from standardization of gage. The patents and licensing at the time did not completely prevent piracy, similar to the illegal duping taking place again today. The wide-screen systems are described, also the use of wide film in the camera and various amateur trends. — A.W.

Studies in the field of 4-aminopyrazol-5-ones. IV. The developing action of aminopyrazolone-hydroquinone developers on materials exposed in radiation of the visible or ultraviolet regions (in Russian), T. I. Krestovnikova, N. V. Uvarova and M. S. Khaĭkin, *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 360–361, No. 5, Sept./Oct. 1971.

UF-2T Film (Soviet ultraviolet-sensitive film) was developed in aminopyrazolone-hydroquinone developers in order to clarify the possibility of using 4-aminopyrazolones for the development of photographic materials intended for work in the UV part of the spectrum. It was found that if visible light is used for the exposures a superadditive effect appears, while, on the other hand, for materials exposed to ultraviolet radiation, the development effect is one of subadditivity, apparently as a result of the intensive absorption of the UV-radiation by the silver halides and gelatin. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

An automatic regulator of the level of polymer in a hopper (in Russian), V. T. Smirnov, V. A. Ferenets and M. I. Kiselev, *Tekh. Kino i Televideniya, 15:* 44–46, Aug., 1971.

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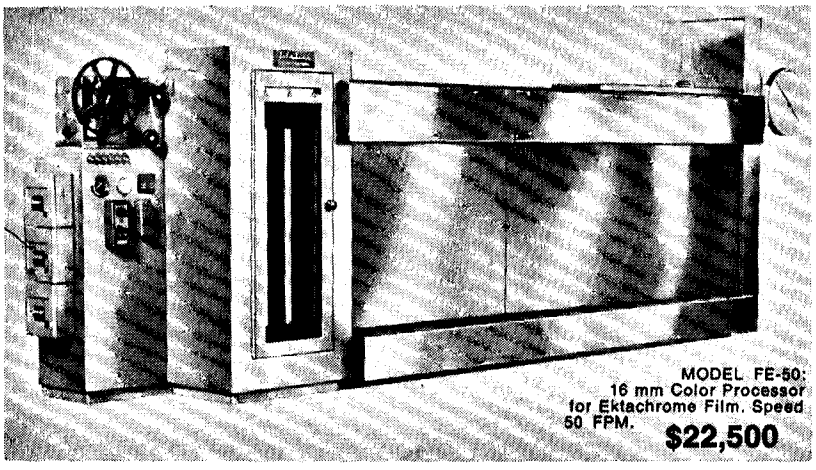

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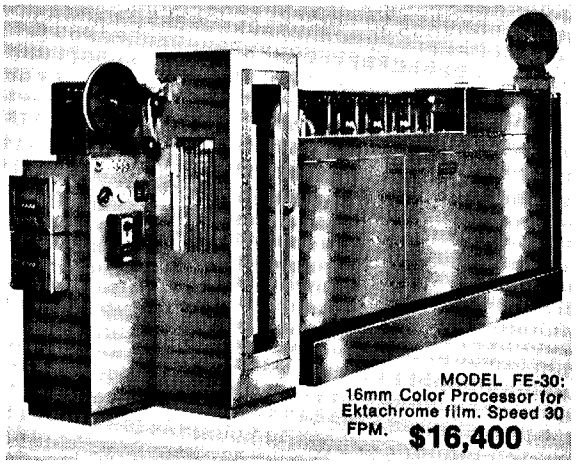

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A description is given of the operating principles of an automatic regulator of the level of a polymer solution in a coating machine in the production of film base, together with details of its construction. Relations are derived for the calculation of the sensitivity of the element of the device. Recommendations are given for its use and results obtained in operation are described. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

HIGH-SPEED PHOTOGRAPHY AND INSTRUMENTATION

A spark light source for frame-by-frame photography (in Russian), V. N. Borisov and G. I. Mishin. *Priboŕy Tekh. Eksp.*, 184–186, No. 3, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 11.46.125, 1971.

A description is given of a spark light source for the frame-by-frame photography of rapidly occurring processes, reaching a taking frequency of 10^6 frames/s, the duration of the light flash being 40 ns at a level of 0.5. The basis of the light source is a circuit in which a high-voltage discharge from a condensor is sent through two spark gaps in series. The number of charged RC elements is determined by the number of light flashes required. A control circuit allows the independent control of the time interval between any two exposures over a range of a single microsecond to hundreds of milliseconds. The circuit may be set in operation by either a positive or a negative signal. The sensitivity of the circuit for signals of a duration of 0.1 μs is about 15 mV. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

Analysis of the wing beat of locusts by means of stereographic high-frequency picture pairs for measurement (in German), W. Nachtigall, *Forschungsfilm, 7:* 193–199, No. 3, 1971; *Fotokinotekhnika,* Abstract No. 10.46.262, 1971.

A method is described for studying the wing motion of locusts in flight with the use of stereoscopic high-speed photography. The wind tunnel and associated equipment are described. The photographs are recorded on a disk of film with diameter of 23 cm cut from sheet film, 50 stereoscopic pairs of images with dimension 10 × 13 mm being obtained on one revolution of the disk. Details of the camera and materials used are given. — S.C.G. (Abridged from *Ref. Zh. Fotokinotekhnika.*)

The time function in high-speed photography (in French), C. Delmare, *One Elect., 50:* 209–212, No. 4, 1970; *Ref. Zh. Fotokinotekhnika,* Abstract No. 8.46.127, 1971.

An analysis is made of the time characteristics of electro-optical shutters used in cameras for the photography of rapid processes. Three types of shutter are discussed: the Kerr cell, the image-converter tube with direct focusing, and the image-converter tube with electrostatic focusing. It is observed that one of the most promising shutters is the image-converter tube with a deflectable electron beam. On the application of a deflecting pulse to the electrodes the electron beam is displaced by the deflecting plates over the surface of a diaphragm, passing through an aperture in the latter. The duration of the exposure is equal to the time taken by the beam in traversing the aperture and can be as small as 0.1 ns. In order that the image on the converter screen should remain stationary during this interval, a pulse is applied to compensating plates, similar to the deflecting plates but in counter-phase. Pulse generator circuits are described for obtaining the high-voltage control signals, as well as synchronizing units with a compensating device. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

An imitator of the motion of a position with photographic recording of the image velocity and the compensating velocity in the camera (in Russian), V. G. Travin and G. S. Chekrisov, *Optiko-Mekh. Prom.*, 30–33, No. 2, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 7.46.185, 1971.

Apparatus has been designed for laboratory tests of cameras, particularly slit cameras, for the photographic recording of continuously moving subjects. The recording system provides for recording on a photographic film of the average values of velocities compensating for image movement with an error of 0.06 to 0.5% and average values of the velocity of image motion with an error of 0.2 to 0.4%. When framing cameras are tested, the recording system allows the average value of the compensating velocity to be obtained on film with an error of 0.06 to 0.5%, at the moment of exposure of duration not less than 0.004 s. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

A method of estimating the instability of a frame for high-speed motion-picture camera with a prism compensator (in Russian), I. V. Venatovskiĭ, *Izv. Vŷssh. Ucheb. Zavedenii. Pribostroenie; Ref. Zh., Fotokinotekhnika,* Abstract No. 7.46.227, 1971.

A device is discussed for the indirect estimation of the magnitude of the frame instability in high-speed cameras along the whole length of the exposed materials by means of photographic recording on film of the change in the magnitude of instability. Results are given of a statistical treatment of the data obtained. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

The present state of high-speed raster photography (in Russian), O. F. Grebennikov, V. P. Gusev, A. S. Dubovik, S. M. Provornov and N. M. Sitsinskaya, *Tekh. Kino i Televideniya,* 15: 18–23, Dec. 1971.

Methods of constructing high-speed raster cameras are classified. A short description is given of raster apparatus made in the Soviet Union and abroad, and the technical characteristics are discussed. — S.C.G. (Translated rrom *Tekh. Kino i Televideniya.*)

A small-scale high-speed raster camera based on a standard camera (in Russian), V. V. Garnov and N. M. Sitsins-

kaya, *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 17:* 17–21, No. 1, Jan. Feb. 1972.

Raster cameras with mechanical image dissection are discussed. Their special points are noted and their positive properties and defects are considered. Starting from an analysis of existing raster cameras with mechanical image dissection, it is proposed that new forms of recording behind the lens raster should be used to allow the size of the disc to be decreased 5 to 10 times. The combination of a small disc with an air turbine gives the possibility of considerably decreasing the size of the camera and simplifying the dissecting mechanism to the limit. As an example, a description is given of a raster camera with a taking frequency of up to 60,000 frames/s, designed on the basis of the standard Moskva-5 camera. A camera of this type is the smallest and simplest of all the high-speed cameras known at present. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

Recording the structure of laser radiation in the 10.6 μm range on thin magnetic film (in Russian), L. M. Klyukin, B. M. Stepanov, V. A. Fabrikov, I. A. Khripchenko, E. A. Chernov and B. B. Shvartsman, *Zh. Nauch. i. Prikl. Fotogr. i Kinematogr., 16:* 369–370, No. 5, Sept./Oct. 1971.

A method of recording laser radiation in the infrared which cannot be recorded photographically, makes use of thermal effects on a sheet of thin magnetic film with a banded domain structure. The composition of the film is 83% Ni and 17% Fe, and it may be used direct or with a thin application of soot to improve absorption. The record may be viewed visually by treating the surface with suitable magnetic materials and directing light on it at an appropriate angle. — S.C.G.

Cameras using control-electrode tubes (in French), P. Cuniberti and M. Domalain *Onde Élect., 50:* 313–316, No. 4, 1970; *Ref. Zh. Fotokinotekhnika,* Abstract No. 8.46.125, 1971.

Two types of high-speed camera using image-converter tubes are described. In one, with slit scanning, the image formed on the front screen is only transmitted to the rear, fluorescent, screen during a brief voltage pulse on the control electrode. In the other type several frames of the image are formed with a time-separation of a few tens of nanoseconds, and the images are displaced on the screen by stepped voltages on the deflecting plates. — S.C.G. (Abridged from *Ref. Zh., Fotokinotekhnika.*)

Cameras and apparatus using Kerr cell shutters (in French), M. Blanchet. *Onde Élect., 50:* 302–308, No. 4, 1970; *Ref. Zh., Fotokinotekhnika,* Abstract No. 8.46.126, 1971.

The use of the Kerr cell in high-speed cameras allows photographic records to be obtained of rapid processes with exposures of the order of a few ns. The characteristics of different Kerr cells are given. N-ethylacetamide is recommended as the electro-optical substance, its Kerr constant being 2.5 times as high as that of nitrobenzene. With small exposure times the parasitic capacity of the cell must be brought to a minimum by means of sophisticated construction and high quality of the wiring of the power circuit. Circuits are given for control pulse generators producing square-wave pulses of 1–5 ns in duration, and with an operating potential of 15–25 kV. In some types of generator the pulse frequency is 5–10 kHz. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

Development and prospects of rapid photography by electronic systems, M. Leduc, *Onde Élect., 50:* 282–285, No. 4, 1970; *Ref. Zh., Fotokinotekhnika,* Abstract No. 8.46.128, 1971.

The possibility is discussed of using the following types of electronic shutters in high-speed photography: the Kerr cell, the image-converter tube with direct focusing, and the image-converter with deflector and diaphragm. The choice of shutter depends on the characteristics of the phenomenon under study, among which are the speed at which the process being recorded takes place, and the brightness of the subject. At brightnesses corresponding to a temperature of 4000 K and higher the Kerr cell is used, giving a time resolution of up to 0.1 ns. The main disadvantage of the Kerr cell is the small luminous efficiency, which reaches only 10% in the best cases. At lower brightnesses a shutter based on the image-converter tube with direct focusing is used, the minimum exposure time then being 1 ns. The working principles are described and data on the operational characteristics of high-speed cameras are given. It is noted that the operational characteristics of streak cameras are determined mainly by the technological level of the manufacture of the electronic shutters. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

Variants in photographic CRT recording (in German), W. Stein, *Messen und Prüfen, 7:* 199–201, No. 5, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 10,46.133, 1971.

Descriptions are given of photographic apparatus for photography from a CRT screen, from a simple system with fixed objective lens and single image size to complex apparatus with mirror viewing, variable scale, and slit or electromagnetic shutters. Apparatus available for specialized jobs is discussed. — S.C.G. (Abridged from *Ref. Zh., Fotokinotekhnika.*)

Direct recording of rapid vibrational processes (in German), Anon., *Messen und Prüfen, 7:* 202–204, No. 5, 1971; *Ref. Zh., Fotokinotekhnika,* Abstract No. 10.46.135, 1971.

A number of photographic units and cathode-ray tubes for the examination of vibrational and other dynamic processes are described. — S.C.G. (Abridged from *Ref. Zh., Fotokinotekhnika.*)

OPTICS

The relation between the resolving power of photographic materials and lens aperture (in Russian), P. Kh. Pruss and L. V. Matsievich. *Zh. Nauch. i Prikl.*

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Fotogr. i Kinematogr., 16: 445–447, No. 6, Nov./Dec. 1971.

The resolving-power instruments used in the USSR are a projection type making use of a microscope objective. It is shown that as the aperture of the objective is increased, the measurable resolving power becomes greater. — S.C.G.

The new LKP luxmeter for motion-picture projection (in Russian), A. M. Kuritsyn, *Tekh. Kino i Televideniya, 15:* 23–29, November 1971.

The LKP luxmeter has been designed to meet the growing need for more accurate measurement of Soviet optical equipment. The performance of the new instrument is discussed. — S.C.G.

Zoom motion-picture projection objectives (in Russian), D. S. Volosov, N. A. Lebedeva and M. V. Tsivkin, *Tekh. Kino i Televideniya, 15:* 3–6, Dec. 1971.

The principles of zoom lenses are outlined, and the design and characteristics of the Soviet Vario-Likar objectives for professional and amateur motion-picture projection are discussed. — S.C.G.

PHOTOGRAPHIC THEORY AND MATERIALS

The problem of the mechanism of the diffusion method of hardening photographic emulsion layers (in Russian), S. M. Levi, *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 368–369, No. 5, Sept./Oct., 1971.

The author has previously suggested that the mechanism of the hardening of a hardener diffusing into a set gelatin (or emulsion) layer is one in which the gelatin molecules are rendered immovable by setting and so make it easier for the hardener molecues to form bridges between them. Data reported by other workers are held to support this view. — S.C.G.

A study of the structure and mechanism of formation of an image in a thermoplastic material (in Russian), I. D. Sizova, I. A. Malakhova, and M. S. Borodkina. *Trudy Vsesoyuz. Nauch.-Issled. i Proekt. Inst. Khim. Fotogr. Prom.*, 145–152, No. 6, 1971; *Ref. Zh., Fotokinotekhnika*, Abstract No. 11.46.65, 1971.

A process for obtaining a matt receiving layer of photosensitive polymer is discussed. It is shown that the structure of the thermosensitive layer depends on the initial ratio of solvent and non-solvent. A mechanism is suggested for the formation of an image on a thermosensitive layer. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)

A new method of transmitting holograms over a communications channel (in Russian), G. Kh. Fridman, E. R. Tsvetov, V. F. Los' and V. V. Galushchenko, *Tekh. Kino i Televideniya, 15:* 42–43, Sept. 1971.

A method is discussed for transmitting holograms, based on the modulation analysis of the spatial frequency spectra of the holographic interference at the transmitting end and a stroboscopic synthesis of these frequencies at the receiving end with the aid of grids with a synchronized variation in period and orientation of the lines. The advantages of the proposed method over the usual methods of transmission by elements, which require apparatus with high resolution are shown. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

The true angle of photometry of a spot brightness meter (in Russian), G. Z. Chernilovskaya, *Tekh. Kino i Televideniya, 15:* 23–27 Aug. 1971.

A relation is derived for the dependence of the actual angular dimensions of the subject of photometry and its distance, both in general and for particular cases of the focusing of the brightness meter objective. The question of the choice of a constant focal length of the objective suitable for projection and taking brightness meters is discussed. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

Some features in the action of laser radiation on photographic materials (in Russian), A. L. Kartuzhanskii, M. D. Kruglova, V. A. Sokolova, and B. P. Soltitskii (Leningrad Institute of Soviet Trade). *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 377–380, No. 5, Sept./Oct. 1971.

The covering power of an emulsion layer exposed to radiation of wavelength $\lambda = 633$ mμ from a He + Ne laser is smaller than that produced by light of the same wavelength from an incandescent source. The difference between the characteristic curves obtained with the two types of light-source (that with the laser is steeper) is practically completely due to this difference in covering power. This and other evidence is held to be consistent with a two-photon process occurring with laser light, giving rise directly to a two-atom center. — S.C.G.

A simple system for obtaining holographic interference pictures in real time (in Russian), M. M. Butusov and Yu. G. Turkevich. *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 303–304, No. 4, July/Aug. 1971.

Systems are described for viewing a transparent moving subject, such as a gas stream, through a hologram so as to study variations in the interference patterns as they occur. — S.C.G.

The transfer of small detail in successive images (in Russian), T. M. Guryanova and I. B. Blyumberg, *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 17:* 3–7, No. 1, Jan./Feb. 1972.

A test has been carried out on the agreement of calculated and experimental determinations of modulation-transfer functions of the motion-picture process. In order to obtain the former, the MTFs of the films and printing machines were determined. Comparison showed a discrep-

ancy between the calculated and experimentally found MTFs which becomes larger as the number of successive images is increased and for the second image is already about 10 per cent. It is suggested that the discrepancy arises because in calculating the MFTs no account is taken of the increase of contrast due to the influence of compensation in printing and the increased contrast of the negative due to selective absorption. The results lead to the conclusion that the use of computational methods in this case give only a coarse approximation to the experimental facts. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

The influence of projection noise on sound reproduction quality in motion-picture exhibition (in Russian), K. G. Ershov, *Tekh. Kino i Televideniya, 15:* 27–31, July 1971.

The influence of projector noise on the quality of sound reproduction is discussed for different film formats. Attention is mainly directed to the deterioration of speech. Results are given for the measurement of noise levels, and methods of diminishing them are presented. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

SOUND

The reproduction of magnetothermoplastic records (in Russian), V. M. Kotlyarskiĭ, *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 362–364, No. 5, Sept./Oct. 1971.

Results are given of experiments on the optical and magnetic reproduction of magnetothermoplastic records. The contrast in optical reproduction of the signal tracks with a recording density of 4 lines/mm is 0.5. The output of the magnetic head in magnetic reproduction is equal to 25–30 mV. From the value of the output of the magnetic head an estimate can be made of the ponderomotive forces acting in the working layer of the carrier, while the change of form of the reproduced signal during development is an indication of changes in the structure of the signal track. — S.C.G. (Translated from *Zh. Nauch. i Prikl. Fotogr. i Kinematogr.*)

Frequency-contrast characteristics of the sound units of motion-picture printing apparatus (in Russian), I. N. Esipenko, *Tekh. Kino i Televideniya, 15:* 30–35, Nov. 1971.

An MTF method of studying the influence of different methods of contact printing of soundtracks with given differences of film shrinkage, on the quality of the positive is described. MTFs of the sound units have been determined experimentally. The factors influencing the quality of the positive image have been evaluated. Determinations have been made of the MTFs due to the relative displacement of the films at the moment of exposure. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

TELEVISION

The measurement of color fields of a subject of observation (in Russian), N. I. Dushkevich, *Tekh. Kino i Televideniya, 15:* 64–65, Aug. 1971.

The possibility is discussed of the use of television methods for the measurement of the color fields of a subject of observation. A simple automatic television system for the measurement of a field of a given color is described. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

Color separation of teleciné projectors (in Russian), L. F. Artyushin, V. N. Bratchenko and N. V. Alekseeva, *Tekh. Kino i Televideniya, 15:* 14–18, Nov. 1971.

Test color scales have been designed and made for the experimental determination of the color separation characteristics of teleciné projectors and other forms of television apparatus. A method has been designed and tested in practice for color separation testing of cinételevision apparatus, and also special devices which give increased accuracy in these tests. — S.C.G. (Translated from *Tekh. Kino i Televideniya.*)

Reflection halation in photographic materials and television screens (in Russian), G. G. Gribakin and K. G. Predko *Zh. Nauch. i Prikl. Fotogr. i Kinematogr., 16:* 98–107, No. 2, Mar./Apr., 1971.

A mathematical analysis has been made of the halation arising from reflection from the support in both photographic materials and television screens. The variation of the halation with the characteristics of the support and sensitive layer — thickness, optical density, relative refractive index, coefficient of diffuse transmission, and coefficient of reflection — is calculated. Contrast function, line spread function and modulation transfer function are derived, taking into account the additional illumination due to reflection halation. The effect of additional illumination due to the aluminum film of a luminescent television screen is studied. Recommendations are made for taking account of the halation and avoiding errors due to it in the determination MTFs.—S.C.G.

A study of noise in a model of the stages of gradation of the color photographic process (in Russian), V. N. Bratchenko, *Trudy Ucheb. Inst. Svyazi. Ministersvo Svyazi SSSR,* 157–164, No. 51, 1970; *Ref. Zh., Fotokinotekhnika,* Abstract No. 5.46.232, 1971.

A study has been made of a television system modeling the stages of gradation in the color television from the point of view of the noisiness of the image. It was found that this system of modeling leads to a considerable noisiness of the image. It is suggested that a nonlinear approximation be used for the transfer function of multilayer colour films, the parameters of which are determined from the averaged functions. An improvement in SNR is observed when such an approximation is used.—S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika.*)