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Abstracts

Abstracts from other Journals, chosen for importance and timeliness, are published in the *Journal* from time to time. The greater number of these abstracts are translations, chiefly from the U.S.S.R., and made available by the *Kodak Monthly Abstract Bulletin.*

The subject areas are grouped below:
Aerial Photography
Cameras and Equipment
(Except High-Speed)
Color Photography and Color Development

AERIAL PHOTOGRAPHY

The Resolving Power of Objectives for Aerial Photography (in Russian), E. G. Obraztsova, *Sbor. Statei Leningrad. Inst. Tochnoĭ Mekh. i Optiki.*, No. 27, 148–151, 1958.

Results are given for the analysis of material, over a period of ten years, on the photographic resolving power in the center of the field of a series of wide-angle objectives from the Northwest Aerogeodesic Enterprise: Russar-30 120mm, *f*/7.2; Russar-33 100mm, *f*/6.8; Russar-29 70mm, *f*/6.8; and Russar-39 35mm, *f*/6.8. The resolving power of the specimens on Pankhrom-10 film varied within the limits, ±9%. A decrease in the longitudinal spherical aberration from 2.4 to 0.9 mm at a relative aperture of *f*/6.8 leads to an increase in the resolving power from 28 to 36 lines/mm. On stopping the lens down to *f*/9, the resolving power rises by 16 to 30%, and further stopping down to *f*/16 gives practically no change. Graphs and tables show the relation between resolving power and the magnitude of longitudinal spherical aberration.—S. C. G. (Translated from *Referat. Zhur., Fiz.*)

Rapid Methods of Processing Aerial Photographic Materials

A short review is given of a number of methods of rapid processing of photographic materials suitable for aerial photography. Data are given on methods connected with the use of viscous (containing agar-agar, starch, polyvinyl alcohol or Tylose) or alcoholic ethylene glycol, (glycerin)—aqueous processing solutions for processing aerial photographic paper. At temperatures of 40–60 C., the time of processing prints with satisfactory discrimination of detail requires 20 to 30 sec. For obtaining aerial negatives simultaneously with positives, it is possible to use a rapid one-stage development of the Land type, while a better result is given with the so-called "deep" variant, in which the positive image is formed, not in the surface of the developer on the positive material, but in a special receptive layer of a film-forming substance which is insoluble in water. At 20C., development of the negative is, in general, finished after 1 min., and the positive after 2 to 3 min. The negative is characterized by low values of gamma (0.4–0.45) and $D_{max.}$ (0.85–0.95), while the positive in gamma and $D_{max.}$ directly corresponds to glossy paper No. 2 and exhibits a fairly low resolution (22 to 24 lines/mm), so differing from the negative. A defect of this method of obtaining

the image is the unavoidable narrowing of the useful exposure range. (S. C. G.)—[Translated from *Referetivnyi Zhur., Fiz.*] V. A. Veidenbakh. *Trudy Labor. Aerometodov. Akad. Nauk. S.S.S.R.*, 7:32–6, 1959 (in Russian).

CAMERAS AND EQUIPMENT (Except High-Speed)

Some Methods of Eliminating Camera Flicker, I. A. Chernitskiĭ, *Tekh. Kino i Televideniya, 4:* 58–60, Mar. 1960.

Camera flicker is noticed in projection as a periodic variation in screen brightness and is due to a periodic variation in the exposure of the film in the motion-picture camera. In this paper, attention is directed to only one of the possible causes, namely, the uneven rotation of the shutter. A method of recognizing this defect and several possible methods of eliminating it are described.—S.C.G.

Russian Pat. 133,962. An Optical System for Panoramic Cinematography With Several Fixed Objectives (in Russian), A. A. Lapauri. Filed Apr. 5, 1956. Abstracted in *Tekh. Kino i Televideniya, 4:* 88, Mar. 1960.

A prismatic mirror device is proposed consisting of several uniform reflecting faces disposed in the form of a pyramid. The device turns the light beams going to each of the objectives through 90° and makes the virtual images of the pupils of all the objectives, constantly focused for infinity, coincide in a single point. It is shown that a camera with the optical system described with a constant position of all the elements, and adjusted for the coincidence of the virtual images of the centers of the pupils of all the objectives, ensures the absence of overlapping and splitting in the general panoramic picture.—S. C. G. (Translated from *Tekh. Kino i Televideniya.*)

Russian Pat. 177,027, An Optical System for Panoramic Cinematography (in Russian), A. A. Lapauri. Filed July 29, 1957. Abstracted in *Tekh. Kino i Televideniya, 4:* 88, Mar. 1960.

In known optical systems for panoramic cinematography with the aid of several objectives, the optical axes of the objectives intercept in a general point situated in the object space, as a consequence of which the centers of the objectives do not coincide among themselves. This leads to overlapping or loss of part of the space where the images coincide.

By using mirrors or prisms in front of the objectives, it is possible to bring about coincidence of the virtual images of the objective pupils, but only for one focal distance; passing beyond the focus of the objectives gives once more a noncoincidence, owing to the change in magnitude of the horizontal angle of the field of view of the objectives. To keep the angle horizontal, it is proposed to focus not by the motion of the objectives along the optical axis, but by changing the main focal length of the objective. For this purpose objectives are used having movable lenses in the objectives themselves or in the back components.— S. C. G. (Translated from *Tekh. Kino i Televideniya.*)

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Russian Pat. 113,918. An Anamorphotic Direct-Vision Viewfinder for Motion-Picture Cameras, F. S. Novik. Filed June 23, 1955. Abstracted in *Tekh. Kino i Televideniya, 4:* 87, Mar. 1960.

In an anamorphotic direct-vision viewfinder for a motion-picture camera, consisting of an objective with cylindrical components and an ocular with spherical components, symmetrical systems of the aplanat type with crossed cylindrical lenses are used as components of the objective. It is shown that this leads to a minimum of optical defects, for example distortion, meridional curvature, etc., thus improving the image quality in the field of view.—S. C. G. (Translated from *Tekh. Kino i Televideniya.*)

Russian Pat. 117,993. A Wide-Angle Viewfinder for a Motion-Picture Camera, M. M. Rusinov and F. S. Novik. Filed Nov. 20, 1957. Abstracted in *Tekh. Kino i Televideniya, 4:* 88, Mar. 1960.

A motion-picture camera viewfinder is proposed in the form of an optical system projecting onto a matte screen an image of the object which is being photographed, observation of this image being made through the back of the screen by means of an ocular. In particular, the objective of the viewfinder is in the form of a plano-parabolic lens, which widens the field of view up to about 120° and allows the viewfinder to be used for photography on wide-format film. It is shown that, when the plano-parabolic lens is made from K-8 glass having a refractive index of 1.5163, distortion of the edge of the field does not exceed 3.5% for an angle of 120°.—S. C. G. (Translated from *Tekh. Kino i Televideni a.*)

Russian Pat. 117,977. A Wide-Angle Viewfinder for a Motion-Picture Camera, F. S. Novik, V. I. Omelin and M. M. Rusinov. Filed Oct. 9, 1957. Abstracted in *Tekh. Kino i Televideniya, 4:* 87–88, Mar. 1960.

The proposed wide-angle viewfinder for a motion-picture camera consists of an aggregate of three single parallel optical systems forming, for all the systems, one general image of the taking objective on a matte surface, observation of the back of the ground-glass screen being made through an ocular. To obtain an angle of vision of the order of 120–150°, half-pentaprisms are placed in front of the objectives of the extreme optical systems, and a compensating plane-parallel plate is placed in front of the objective of the middle optical system. During exposures with vertical panning, distortion of horizontal lines may occur in the viewfinder. This distortion is eliminated by rotating both half-pentaprisms around the optical axis.—S. C. G. (Translated from *Tekh. Kino i Televideniya.*)

Efficient Use of Electrical Energy in Motion-Picture Studios (in Russian), V. G. Pell' and Kh. A. Rabinovich, *Tekh. Kino i Televideniya, 4:* 22–27, Apr. 1960.

There is at present, in the Soviet Union, a drive for the more efficient use of electrical power. A survey is made of the use of electricity in lighting for motion-picture studios and a number of recommendations are made for increasing the efficiency.—S. C. G.

Some Aspects of Illumination in Underwater Cinematography, I. B. Gordiĭchuk, *Tekh. Kino i Televideniya, 4:* 62–69, May 1960.

In underwater cinematography by natural light, the intensity of illumination is, in general, below that at the surface, owing to the optical properties of the water. The factors discussed are the inclination of the sun's rays to the surface of the water, and the spectral absorption, scattering, and transparency of the water. As a result of these factors, the lighting conditions vary according to depth. In addition, the thickness of the water between the camera objective and the subject being photographed must be taken into account. Some recommendations for underwater cinematography are given.—S. C. G.

Technological Developments in the Manufacture of Motion-Picture Apparatus at the Lenkinap Factory, S. M. Kuznetsov and R. M. Kasherininov, *Tekh. Kino i Televideniya, 4:* 56–61, May 1960.

The Lenikinap factory is playing an important part in the present drive for the extension of the motion-picture network in the Soviet Union. Modernization is also called for and it is predicted that, within three years, the factory will have no lines first produced earlier than 1959, except for spare parts for existing machines. The year 1959 saw the introduction of the regular production of new printers, processing machines, film-restoring machines, and sound-recording apparatus. Further items exist as prototypes and experimental models. Attention has been paid to improving the quality and finish of apparatus. At present, considerable attention is being paid to the development of apparatus for wide-format (70mm) cinematography. On the other hand, apparatus for narrow-gage cinematography, which has been somewhat neglected in the Soviet Union, is being developed. Some aspects of the collaboration with other organizations, such as the NIKFI Research Institute and the Central Construction Bureau of the Ministry of Culture, are discussed.—S. C. G.

COLOR PHOTOGRAPHY AND COLOR DEVELOPMENT

Spray-Dyeing of Matrices in the Imbibition Printing of Color Films (in Russian), G. G. Bagaeva, I. B. Blyumberg and A. S. Fedoseeva, *Trudy Leningrad. Inst. Kinoinzhener,* No. 5, 219–225, 1959.

A description is given of experimental equipment for the spray-dyeing of matrices, with results of an investigation of the effects of separate factors (dye concentration, temperature of solutions, conditions of applying the dye solution) on the density. It is concluded that spray-dyeing of the matrices is a much more effective method than dyeing by bathing in a solution of the dye.—S. C. G. (Translated from *Tekh Kino i Televideniya.*)