When the Movies Came From Niles, describing the studios of Essanay Productions from 1908 through 1916.—Lawrence Weiland, *Secretary-Treasurer*, c/o Ampex Corp., 2385 Bay Rd., 8–12, Redwood City, Calif.

The use of television and motion-picture techniques in x-ray diagnosis was described for the **San Francisco Section** at the meeting September 15 at the University of California Medical Center. Presenting the program were Dr. Earl R. Miller, professor of radiology at the Center, and Alan Cline, Dr. Miller's engineering aide. A question-and-answer period followed the meeting.—Lawrence Weiland, *Secretary-Treasurer*, c/o Ampex Corp., 2385 Bay Rd., 8–12, Redwood City, Calif.

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; also of possible interest to some readers may be three papers which have been translated from the Russian and are available as manuscripts on loan from Society Headquarters:

(1) L. G. Golshtein, I. Ya. Levin and T. I. Maksinrov, "Optical printer," *Tekhnika kino i telev.*, *3*, No. 10, 58–62, (1959).

(2) M. M. Lisogor, "The 'Rossiya' Universal Cine Theater," *Tekhnika kino i telev.*, *6*, No. 5, 1–8, (1962).

(3) I. B. Gordiichuk, "The present state of the manufacture of cine apparatus in the USSR," *Tekhnika kino i telev.*, *6*, No. 5, 3–19, (1962).

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 Engineering Index, Inc., 345 East 47 St., New York, N.Y. 10017, with the editorial cooperation of the Society of Photographic Scientists & Engineers.

The subject areas are grouped below:

- High-Speed Photography
- Lenses and Shutters
- Light Sources
- Miscellaneous Apparatus
- Motion Pictures
- Photogrammetry
- Photographic Theory and Materials
- Physics and Chemistry
- Printing Equipment
- Processing Equipment
- Projectors and Viewers
- Radiography and Nuclear Photography
- Special Applications
- Standardization
- Television

HIGH-SPEED PHOTOGRAPHY

Photoelectric synchronizing apparatus for high-speed photography (in Russian), D. Kh. Kakimov and A. I. Kil'deev. *Mekhaniz. Khlopkovodstva*, No. 8, 19–20, 1963; *Referativnyĭ Zhur., Fotokinotekhnika.* Abstract No. 1.46.205, 1964.

It is reported that the department of machine parts of TIIIMSKh have used a synchronizing apparatus for automatically operating the shutter of a camera used in the photography of cotton wool transported by an air-stream in a tube. The apparatus works with the main types of photomultiplier even with voltage fluctuations in the circuit of up to ±15%. The electrical circuit of the synchronizer consists of a photoamplifier, which amplies the photocurrent, and a solenoid which opens the camera shutter. The photoamplifier is mounted on a metallic chassis with dimensions of 200 by 250 by 100 mm. A SEU-2 single-stage photomultiplier was used as the sensitive element. In order to decrease the influence of the constant light, the photocell is contained in the camera body. The power requirements of the apparatus do not exceed 25 watts.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

A study of the phenomenon of the exploding wire by schlieren photography with a Kerr cell (in Russian), W. Müller, in *Vzryvayushchiesya provolochki*, Izdot. In. Lit., Moscow, 1963, pp. 170–188; *Refera-*

tivnyĭ Zhur., Fotokinotekhnika, Abstract No. 1.46.210, 1964.

For studying the phenomenon of the exploding wire, a method of schlieren photography with a Kerr cell has been used. In the experiment an arrangement was used consisting of a camera, a high-tension pulse generator and its power supply, a high-voltage xenon electronic flashlamp for schlieren work and the control apparatus.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

High-speed laser camera, Anon., *Eng. and Sci., 26:* No. 4, 11–13, 1963; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 1.46.202, 1964.

A description is given of a high-speed motion-picture camera with stroboscopic illumination by a beam of light from a ruby laser with a frequency of 5×10^5 frames/sec, the exposure of each frame being of the order of 10^{-12} sec. The camera is used in cinemicrography for the study of cavitation in the flow of a liquid and for investigation of the causes of its destructive action. Modulation of the light in the laser is brought about by the use of a Kerr cell which ensures the regularity and equal intensity of the flash generated by the laser.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Shock speed measurement by a modified streak camera, T. Akamatsu, *J. Sci. Instr., 41:* 508–509, Aug. 1964.

By use of a rotating-drum camera in conjunction with a stack of 32 rotating mirrors, it is shown that the effect of small local changes of shock speed can be greatly enhanced if the mirrors are run at a speed such that the image of the undisturbed shock appears stationary. Streak photographs are presented of luminous one-dimensional shock waves under conditions of natural attenuation and under the action of a radial magnetic field. (Author's abstract.)

The use of high-speed spectral motion-picture photography for the study of rapid self-luminous processes (in Russian), L. I. Grechikhin and L. Ya. Min'ko, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 9:* 114–116, Mar.–Apr. 1964.

A brief description is given of a combination of a Soviet-made spectrometer and high-speed motion-picture camera. The apparatus has been used for studying the plasma jet of a flash discharge in air at atmospheric pressure. Some spectrograms and photographs of the plasma are reproduced.—S.C.G.

Visualization of the hydrodynamic process in a coal pump by high-speed cinematography (in Russian), A. I. Borisov, M. N. Negodaev and V. A. Tat'kov, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 9:* 168–171, No. 3, May-June 1964.

A description is given of experiments in which the functioning of a coal pump, a centrifugal pump in which small pieces of coal are carried in a fluid medium, was studied by the high-speed cinematography of a transparent model.—S.C.G.

Improvements in or relating to optical image transmission devices (British Pat. 961,441), J. N. Whyte; assigned to Secretary of State for the War Department, London, filed July 12, 1960; 2 pp., 1 plate.

The streak camera described consists of a slit, a collimating lens so arranged that light from the slit falls on a parallel beam on a four-sided rectangular glass prism, the internal diagonal of which is made reflective. Light reflected at the internal diagonal is received on an annular concave mirror concentric with it and is reflected to a ring of film on a drum also concentric with it. All elements are fixed except the prism which is rotated so as to present successive records of the slit to the film. Because the light is made parallel no aberrations are introduced by the prism.—E.W.H.S.

LENSES AND SHUTTERS

New cine lenses from Rathenow (in German), A. Lehr, *Feingerätetechnik, 12:* No. 7, 333–335, 1963; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 1.46.12, 1964.

At the Spring Fair, 1963, the Rathenow nationalized optical undertaking showed new types of cine lenses. In particular, there were exhibited the Rectimascop 80/2× cylindrical lens attachment designed for photography on 35mm film and having a number of advantages in comparison with mirror and prism anamorphotic attachments; the Neoluxim *f*/1.6, 75mm objective for 70mm film; and an interference reflector intended for motion-picture projection. The advantages of showing 70mm films in comparison with 35mm films are discussed and their exhibition in cinemas in Berlin and Leipzig are mentioned.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

A synchronizing element for the MZV-1 aerial photographic shutter (in Russian), I. M. Pavlov, *Izvest. Vyssh. Uchebn. Zavadeniĭ Geod. i Aerofotos'emka*, 117–120, No. 3, 1963; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 3.46.65, 1964.

A description is given of the construction of a contactless synchronizing element for the MZV-1 shutter, which is simple in structure, reliable in operation, and allows automatic developing and setting of the timing mechanism on a decatron time counter, and in practice does not introduce errors into the results of measurement. Fixing an additional plate (the light modulator) to the shutter blade does not lead to any noticeable change in its working dynamics. This conclusion is based on the consistency of working of the shutters of two aerial cameras after 12,000 cycles.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

LIGHT SOURCES

The use of xenon light in cinemicrography (in German), E. Heyse, *Forschungsfilm, 4:*

No. 5, 476–481, 1963; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.186, 1964.

The advantages of a xenon lamp over other forms of lighting for cinemicrography are discussed. A number of practical points arising in the use of xenon lamps in this kind of work are considered.—S.C.G. (Abridged from *Referativnyĭ Zhur., Fotokinotekhnika.*)

The use of xenon electronic flash as a source of background ultraviolet in the quantitative spectral study of a flame with photographic recording of the spectrum (in Russian), A. V. Sheklein and V. A. Popov, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 9:* 192–197, No. 3, May–June 1964.

Quartz xenon electronic flashlamps are found to be very suitable for use as sources of continuous ultraviolet radiation in spectral absorption studies. At a wavelength of around 3,000 A photographic exposures are 6 to 7 orders less than with the more powerful continuously acting hydrogen lamp.—S.C.G.

MISCELLANEOUS APPARATUS

Equipment for photography on 16mm film (in Polish), R. Kryser, *Kinotechnik, 16:* No. 180–181, 3913–3914, 1963; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.130.

Descriptions are given of the Arriflex 16mm motion-picture camera, the Blimp-Universal 16 sound-absorbing box, and the Arribloc developing machine for 16mm film.—S.C.G. (Abridged from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Film threader (British Pat. 956,663), J. Walterscheid and B. Walterscheid-Muller, filed Dec. 7, 1962; 2 pp., 1 plate.

A device to facilitate threading of cine film onto a spool consists of a clip which surrounds the center core of the spool and forms a funnel leading to the slit into which the film is to be threaded.—H.J.L.

Underwater photography, Part I, Principles of underwater camera housing construction, J. Lucas, *Skin Diver Mag., 12:* 14–16, No. 8, 1963; Part II, Box-type underwater camera housing, J. Down, *ibid., 17;* Part III, Cylindrical underwater camera housing, Anon., *ibid.,* 18–20; Part IV, Underwater flash attachment, E. Brutsch, *ibid.,* 21–23. *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract Nos. 3.46.222-3.46.225, 1964. (Title only.)

Claw-to-gate distance in 8mm spool-loading cinematograph equipment (B.S. 3747: 1964), *BSI News, 27,* July 1964.

Specifies the registering perforation with respect to the image on 8mm motion-picture film, and is applicable to spool-loading cameras, projectors and step-printers.—(BSI News.)

MOTION PICTURES

The dimensions of the cine screen (in Russian), E. Goldovskiĭ, *Kinomekhanik,* 24–29, Aug. 1963.

Practical data are given for sizes of screen, ordinary and wide types, appropriate for cinemas of different dimensions.—S.C.G.

The first wide-screen stereoscopic film (in Russian), B. Ivanov, F. Okolelov and D. Khanukaev, *Kinomekhanik,* 35–38, Jan. 1964.

Following development work in the All-Union Research Institute for Cinematography and Photography (NIKFI) in collaboration with the Mosfil'm studios, the latter has produced a stereoscopic, wide-screen film with the title of *Spring in Moscow.* The wide picture is obtained by a standard anamorphotic system and the stereoscopic pairs are obtained with the aid of polarizing filters. The adaptations to existing equipment which were necessary are described.—S.C.G.

PHOTOGRAMMETRY

Photographic measurement of light tracks and practical applications in exterior ballistics (in German), H. Lukanow, *Wehrtechn. Monotsh., 59:* No. 11, 459–471, 1962; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.222, 1964.

A discussion is given of a method of determining trajectories with the use of two phototheodolites or cameras, the axes of which are parallel or set at a right angle. Since in using a photogrammetrical method of determining a trajectory it is necessary to carry out photography at a single moment of time, differently constructed shutters are used. The principles of use and construction of the disc shutter, the between-lens shutter and the venetian-blind shutter are discussed. It is shown that when the shutter is placed in front of the objective, i.e., not in the plane of the aperture diaphragm, considerable errors are possible in determining the moment of exposure, as a result of which the use of a shutter of the between-lens or venetian-blind type is preferable. The problem of photography in daytime is studied and theoretical calculations are carried out which allow a connection to be established between the time of exposure, the relative aperture of the objective used and the distance from the subject. Some photographs are reproduced which were obtained in the measurement of the trajectories of artillery rockets, and the determination of their rotation in flight is discussed, together with a graph of the speed of a rocket constructed after processing the data.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Photogrammetric measurement of a ship's course with the miniature camera (in German), Pichl, *Vermessungstech. Rundschau, 25:* 329–336, 338–344, 353, No. 9, 1963; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.223, 1964.

Depending on the position of a vessel and its speed, data are obtained for evaluating the efficiency of controlling the movement of vessels in narrow reaches of a river. Photography of a moving vessel is carried out with time synchronization at intervals of 30 to 60 sec from two separated and orientated places. A miniature reflex camera is used and is attached with the

aid of a control device to a Zeiss level. Both cameras have interchangeable lenses and crosswires on the matte glass.—S.C.G. (Abridged from *Referativnyĭ Zhur., Fotokinotekhnika.*)

PHOTOGRAPHIC THEORY AND MATERIALS

The action of ultrasonics on exposed and unexposed photographic materials (in Russian), M. E. Arkhangel'skiĭ, *Akust. Zhur., 9:* No. 3, 376–378, 1963; *Tekhnika kino i telev., 7:* 90, Feb. 1964.

Results of a study of the action of ultrasonics on exposed and unexposed photographic materials are reported. A relation between the density of a photographic paper (Unibrom. No. 3 glossy) and a plate (lantern, high-contrast) and the magnitude of the light exposure, in the absence of sound and under the action of sound, at a frequency of 3 mc/sec and an intensity of 2.6 w/cm² suggests that the growth of density from the action of ultrasonics on a differentially exposed photographic layer will be greater for those parts of the layer that develop at a greater rate. On irradiating an unexposed material in water or developer with high-intensity ultrasonics, with cavitation, a latent image can actually arise from ultrasonic luminescence even with small exposures to sound (on the order of a few minutes). When the action is carried out with ultrasonics at an intensity below the threshold of cavitation, an image can be obtained in a developer only in times on the order of tens of minutes. In this case the "latent image" is the result of an acceleration of fogging of the layer in the ultrasonic field, in the absence of which it proceeds with appreciable slowness.—S.C.G. (Translated from *Tekhnika kino i telev.*)

8mm breaks sound barrier, G. W. Stanwix, *Visual, 2:* No. 1, 9–12, Apr. 1964.

Eight-mm film has increased in popularity since its introduction in 1932. Improvement in equipment and the introduction of a soundtrack have extended the use of 8mm film to the professional field. Difficulties in the application and use of a magnetic stripe on 8mm film are described. Photographic sound systems are cheaper but give inferior results. Motion-picture laboratories have developed methods for producing 8mm copies of 16- and 35mm sound films, and Ilford Limited has introduced a precoated 16mm film, perforated for double 8mm. Use of 8mm sound films and a variety of new equipment is increasing in industry, commerce, education and medicine as well as home entertainment.—N.W.

Methods of determining the characteristics of optical filters used in color photography (in Serbo-Croat), E. Drvodelić, *Kemija u industriji, 12:* No. 5, 336–338, 1963; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.117, 1964.

The accurate quantitative determination of the total transmission of optical filters for color photography is of particular importance for filters used in sensitometry. The total transmission of filters may be determined by calculation from their spectrophotometric curves (relation between transmission and wavelength) or on the basis of experimental measurements with a known spectral distribution of radiant energy from the light source and a known spectral sensitivity of the receiver. A short description is given of computational methods of determining the total transmission.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Some points in the manufacture of "thin-layer" films (in Russian), V. L. Zelikman and V. A. Dmitrieva, *Tekhnika kino i telev., 7:* 7–14, Mar. 1964.

Photographic materials with an emulsion-layer thickness of 4 to 12 μ have a number of advantages over materials with emulsion coatings of the usual thickness. The reduced thickness is obtained by greatly reducing the amount of gelatin in the emulsion. A review is given of the main points arising in the making of photographic negative emulsions with a high silver concentration and low gelatin content, and also the manufacture and special properties of motion-picture films particularly suitable for use with high-speed methods of processing. Some factors in the kinetics of development of such "thin-layer" films (the so-called "stop-gamma" effect) are discussed and data are presented to show the influence of various technological factors on this effect. (Bibliography of 26 references.)—S.C.G.

COLOR PROCESSES

New spectrozonal negative films (in Russian), A. N. Iordanskiĭ, *Zhur. Nauch. i Priklad. Fotografii i Kinematografii, 9:* 210–211, No. 3, May-June 1964.

Two new Soviet films for aerial photography are described. The SM-5 film has an upper layer sensitive to infrared radiation in the region of 670 to 800 mμ with a maximum at about 740 mμ. The lower layer is orthochromatically sensitive to 500 to 600 mμ with a maximum at about 550 mμ. Color couplers in the layers develop to give cyan in the upper layer and magenta in the lower. The SM-23 film has three layers: an infrared sensitive top layer with a spectral sensitivity similar to that of the SM-5 film, a panchromatic middle layer sensitive to 580 to 680 mμ with a maximum at about 660 mμ, and a lower layer orthochromatically sensitized to 500 to 600 mμ with a maximum at about 550 mμ. The top layer develops cyan, the middle magenta and the bottom yellow. Both films are used with a yellow filter cutting off all radiation with a wavelength shorter than 500 mμ. The films are used as negative materials and are printed on 3-layer positive films or paper and also on a special spectrozonal paper.—S.C.G.

PRINTING EQUIPMENT

Electronics and photography (in French), G. Robert, *Sci. et enseignem, Sci.,* No. 24, 24–32, 1963; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.84, 1964.

The author describes an electronic

apparatus for the automatic setting of exposure in printing pictures from negatives obtained in aerial photography. The light source is a cathode-ray tube, the beam of which is projected onto the negative and the positive paper. The beam, moving in an Lissajous figure, traverses the whole surface of the negative. The density of the different parts of the negative is automatically analyzed with the aid of a photomultiplier placed behind the negative in the path of the beam. The intensity of the electron beam is automatically altered within the necessary limits, depending on the density. The analysis is carried out by comparing the signal from the first photomultiplier with a signal from a control photomultiplier illuminated through a portion of the negative with a standard density. The diameter of the light spot on the negative is chosen according to the dimensions of the detail in the picture (in practice from 2 to 15 mm). This method of printing can also be used in industrial and medical radiography and in electron microscopy.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Improvement in or relating to holders for photographic negatives and the like (British Patent 960,431); assigned to Pictorial Machinery Ltd., field Sept. 25, 1959; 5 pp., 7 plates.

A vacuum plate-holder, designed for use in a step-and-repeat machine, or other printing apparatus, consists of an inner frame, movable relative to an outer frame, so that the plate may be brought level with the latter, which carries a resilient flange for making airtight contact with the surface to be printed. The frames are linked by an airtight flexible diaphragm which permits this relative movement, and makes the application of vacuum possible between the plate and the light-sensitive surface. The outer frame carries adjustable means for locating the frame in a number of positions on the printing apparatus.—M.I.

PROCESSING EQUIPMENT

A device for removing surface moisture from film in a developing machine (in Russian), A. M. Kudrubov and E. M. Khaĭmovich, *Tekhnika kino i telev., 7:* 33–34, Feb. 1964.

The device described works on the roller squeegee principle and is intended for use with processing machines at a Kharkov film laboratory. It is claimed to work more efficiently than an air squeegee.—S.C.G.

The Sencomet method of sensitometric control (in Russian), E. Bures, J. Moravek and L. Stejskal, *Tekhnika kino i telev., 7:* 20–32, Feb. 1964.

The Sencomet method, intended for the objective control of color-film printing, has been worked out in the VUZORT research institute of Czechoslovakia. It is based on monochromatic density of the color negatives, and unlike more usual processes in which the density measurements are used to control the processing, in Sencomet the densities are used in conjunction with tables and nomograms to give the printing filter densities required, and hence to control the quality of the print.—S.C.G.

Simultaneous developing and fixing (in Russian), N. I. Kirillov, N. G. Maslenkova and A. P. Strel'nikova, *Tekhnika kino i telev., 7:* 76–84, Feb. 1964.

Non-Russian literature over the past few years on simultaneous developing and fixing is reviewed.—S.C.G.

Tensional forces in a band transported in a photographic solution by a loop transport mechanism (in Russian), I. S. Golod, *Tekhnika kino i telev., 8:* 30–34, Mar. 1964.

A mathematical discussion is given of the tensions in loops of film passing through photographic processing solutions.—S.C.G.

PROJECTORS AND VIEWERS

Automatic loading of film in the motion-picture projector (in Russian), M. Tarasenko, *Kinomekhanik*, 23–27, Oct. 1963.

Automatic loading and film-threading devices on some modern motion-picture projectors are reviewed.—S.C.G.

Background screen illumination and picture quality (in Russian), V. Petrov, *Kinomekhanik*, 30–35, Aug. 1963.

The effect of unwanted background illumination on the quality of a projected picture is outlined and means of reducing it are discussed.—S.C.G.

The dimensions and shape of the screen and the placing of the audience (in Russian), V. Kotov and V. Popov, *Kinomekhanik*, 25–30, Sept. 1964.

An outline is given of the distortions undergone by a cine picture projected onto a wide screen, curved or planar, according to the angle of projection and the position of the viewer. Recommendations are made on the shape and size of the screen and the position of the audience.—S.C.G.

Eumig's new stripe projector, P. Jenkins, *Amateur Cine World, 7:* 732–735, May 28, 1964.

The Eumig Mark 8 8mm stripe projector (now in trial production) has a seven-component, *f*/1.3 projection lens with a 13 to 25mm zoom range. Details of the self-contained sound reproduction unit, which has an automatic control for mixing speech and music, are given. Film threading is partly automatic and a gear-driven mechanism gives running speeds of 16, 18 or 24 frames/sec. The novel film-transport system uses only one up-and-down movement of the claw for each frame, not three, and gives quieter running.—N.W.

Framing devices in motion-picture projectors (in German), K. Luck, *Wiss. Z. Hochschule Elektrotech. Ilmenau, 8:* No. 5, 495–503, 1962; *Referativnyĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.155, 1964.

Devices for centering the picture in the frame in standard and narrow-gage motion-picture projectors are reviewed.—S.C.G. (Abridged from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Improvements relating to photographic projection screens (British Pat. 958,953), H. A. Luke; filed Aug. 18, 1959; 2 pp., 1 plate.

A projection screen consisting essentially of a mirror whose front (nonsilvered) surface is rendered translucent by etching (for example by hydrofluoric acid) reflects cinematographic pictures with great clarity. —H.J.L.

The Kolos cine projector for country cinemas (in Russian), V. Bykovskii and M. Grinberg, *Kinomekhanik*, 32–39, Oct. 1963.

The Kolos (35-SK-1) projector has been designed and made in Odessa for the showing of 35mm films in village cinemas holding 60 to 100 patrons. Descriptions are given of its mechanical and optical construction and of its sound system.—S.C.G.

Leitz Cinorid 8mm projector (ACW Test Report), Anon., *Amateur Cine World*, *7:* 636–639, May 7, 1964.

This 8mm ciné projector is the first to be produced by Leitz of Wetzlar. It has automatic threading and pushbutton controls. An induction motor gives quiet running at speeds of 18 and 24 frames/sec, and forward or reverse drive. Power for the motor and the 8-v SOW integral mirror lamp is supplied by a transformer. Either an 18mm $f/1.3$ or a 20mm $f/1.2$ Leitz Elkinon lens is fitted. The book-form gate has a rear-sprung pressure plate, and the film is located horizontally by an unusual arrangement of film guides. A double claw provides film transport at the +2 position and a second claw at the +3 position which operates only if the first fails.—N.W.

Motion-picture projection (British Pat. 960,422), L. W. Wells; assigned to L. Bronesky, filed July 25, 1960 (addition to Pat. 860,180, July 21, 1958); 8 pp., 3 plates.

In British Pat. 860,180 an optical device was described by which a wide-angle picture was projected on 35mm film on which the picture had been recorded in two halves, rotated ±90° from their original side-by-side positions and then brought edge-to-edge. In order to avoid damage and other difficulties raised by the closeness to the film of the image-rotating prisms of the projection system, the new system uses an image-relaying lens which forms a real image of the film on the entrance faces of the prisms.—E.W.H.S.

New equipment for the cinema (in German), Anon., *Filmvorfuhrer*, *10:* No. 6, 2–3, 1963; *Referativnyĭ Zhur., Fotokinoteknika*, Abstract No. 1.46.147, 1964.

Two projectors made by Debrie and exhibited at Photokina and the German Industrial Exhibition at Hanover are briefly reviewed.—S.C.G. (Abridged from *Referativnyĭ Zhur., Fotokinotekhnika.*)

A new standard [for Soviet motion-picture projectors] (in Russian), I. Fonar', *Kinomekhanik*, 22–25, Nov. 1963.

The provisions of the Soviet standard GOST 2639-62 (a revision of GOST 2639-56) on projectors of 35mm and 70mm motion-picture film are discussed.—S.C.G.

A projector different from all others, J. T. Jardine, *Film User*, *18:* 346–348, July 1964.

Possible uses of 8mm cassette projectors in teaching are described. A permanently installed projector in each classroom and a variety of readily available short, inexpensive films would give many advantages. The films could easily be made by the teachers themselves to suit a particular syllabus. The use of such films in teaching physics and the technique of shooting these films are discussed.—N.W.

Silma Compact 8 (ACW Test Report), Anon., *Amateur Cine World*, *8:* 20–23, July 2, 1964.

This 8mm cine projector is made by the Italian firm which made the Cirse series. It has an $f/1.5$ 15 to 20mm Japanese-made Silma-Pallux zoom projection lens, an 8-v, 50-w integral-mirror lamp, press-button controls, reverse running and a still-picture device. Threading is fully automatic and film transport is by a double claw working at the +1 and +2 positions.—N.W.

The 16-KPZL-3 motion-picture projector (in Russian), V. Korovkin, *Kinomekhanik*, 31–32, Sept. 1963.

The 16-KPZL-3 is a 16mm motion-picture projector made in Moscow for amateur use, and designed for the showing of sound or silient films in small auditoriums. A short description, with circuit diagram, is given.—S.C.G.

Synchronized shooting and synchronized projection (in Russian), H. Panfilov, *Kinomekhanik*, 40–42, Oct. 1963.

Two synchronizing attachments made in Russia for the synchronization of sound with 8mm films in amateur projectors are described.—S.C.G.

You will project in daylight toward the auditorium (in French), Anon., *Bull. Assoc. internat. documentalistes*, *1:* No. 1, 1962; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 1.46.165, 1964.

The "overhead" projection apparatus designed by the company Minnesota de France allows a transparency to be projected in daylight and does not need a special screen. The transparency is prepared from any original on a thermocopying apparatus.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

Zonal Videotronic 8 continuous projector, Anon., *Conf. and Exhibit*, *30:* Aug. 1963; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 1.46.151, 1964.

A description is given of a portable 8mm sound motion-picture projector in the form of a suitcase and containing a built-in folding screen. It is intended for projecting a 15-min film.—S.C.G. (Abridged from *Reerativnyĭ Zhur., Fotokinotekhnika.*)

RADIOGRAPHY AND NUCLEAR PHOTOGRAPHY

An assessment of the use of the 70mm camera in radiological practice, E. Samuel and M. D. Sumerling, *Brit. J. Radiol.*, *37:* 620–624, Aug. 1964.

A 70mm camera is used in conjunction

with the 9-in. Philips image intensifier to give a resulting film image 63 mm in diameter. The maximum exposure time at 6 frames/sec is 0.023 sec and at 3 frames/sec is 0.06 sec. This technique is applied to barium studies, angiography and photography of paranasal sinuses and bone diseases. The main reason for introducing the technique is to reduce the rising costs of labor and film.—R.H.H.

High-resolution cathode-ray tubes. L. S. Allard, *Med. and Biol. Ill.*, *14:* 184–190, No. 3, July 1964.

Cathode-ray tubes have been developed which have spot sizes as small as 0.001-in. diameter over a 4-in. diameter tube. This has been made possible by improvements in electron-gun design and in the phosphor surface. To obtain this performance the focusing-coil current must be stabilized to 0.1% and the E.H.T. voltage to 0.25%. It is thought that further development could reduce the spot size to 0.00025 in., but the light output would be greatly reduced; this could be overcome to some extent by the use of fiber-optic faceplates.—R.A.W.

High-speed radiography, D. J. Davis and D. C. Laval, *Ind. Electronics, 8:* 386–390, Aug. 1964.

A short review is given of the theoretical and technical principles of the field-emission cold-cathode tube which is used in the Fexitron flash x-ray system. This system is capable of radiographing or "freezing" objects moving at velocities of up to 40,000 ft/sec, using pulses of 30 to 100 nanoseconds. Some of the industrial applications of this system are quoted, such as the study of the dynamic characteristics of engine components and fuel systems; shock tests and inpact conditions; turbine blades in motion; explosions; and systems under stress and vibration.—R.H.H.

SPECIAL APPLICATIONS

The technique of aerial photography (in Swedish), S. G. Möller, *Svenska lantmäteritidskr., 54:* No. 5, 438–445, 1962; *Referativnŷĭ Zhur., Fotokinotekhnika,* Abstract No. 1.46.221, 1964.

The aerial photographic process is defined as a means of obtaining quantitative and qualitative information with the aid of aerial photographs. Mention is made of three forms of processing photographs: reading, analysis and decoding. It is emphasized that some loss is unavoidable in the transfer of information through a channel (the atmosphere, the camera, the human eye) which has a finite resolving power. The properties of the photographic materials and instruments also have an influence on the quality of the information. The elements of the landscape as subject of aerial photography are classified according to their dimensions and reflecting power. Repeated aerial photography makes it possible to judge changes in the landscape with time. The possibilities of aerial photography in geology, land works, forestry, engineering trials and civil engineering, etc., are discussed.—S.C.G. (Translated from *Referativnŷĭ Zhur., Fotokinotekhnika.*)

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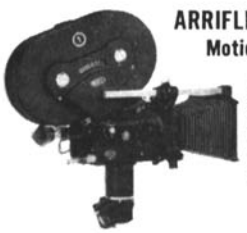

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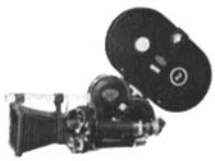

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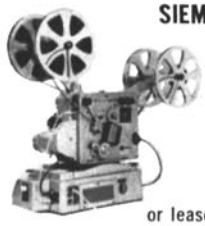

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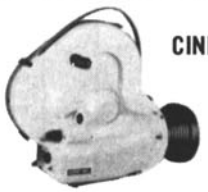

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Undersea photography in marine research, R. E. Craig, R. Priestley and G. G. Wynne, Dept. of Agriculture and Fisheries for Scotaland, *Marine Research*, No. 1, 1963, Edinburgh, H.M.S.O., 1963, 24 pp.

Techniques developed at the Marine Research Laboratory of the Department of Agriculture and Fisheries for Scotland, in Aberdeen, for undersea photography in fishery research are described. Details of cameras, optics, pressure cases, lighting and electrical equipment are given, with notes on the need for correction of a camera lens used with a plane window underwater and the design of the underwater Unilite lens.—N.W.

STANDARDIZATION

Special industries [Standardization in the motion-picture and photographic industry] (in French), Anon., *Courrier normalis*, *30:* No. 172, 421–423, 1963; *Referativnyĭ Zhur., Fotokinotekhnika*, Abstract No. 1.46.1, 1964.

A review is given of recent advances in standardization in the field of photography and cinématography. Draft standards have been proposed for ratification on film spools for the 6 by 9, 4 by 6.5 and 4 by 4 cm sizes, transparency mounts, projector lamps, and also sensitometric standards. Draft standards on the resolving power of objectives, on x-ray films and on 35mm films for 24 by 36 mm cassettes have been issued for comment. Some drafts are being considered in connection with the new ISO recommendations. A number of

standards, recommended by ISO, have been accepted, including methods of determination of residual thiosulphate, marking of exposure times and relative apertures of objectives, stability of the image on the film, transparencies, etc. In the field of cinématography new standards are being worked out for 55- and 70mm film. Some standards and a number of drafts have been accepted: magnetic soundtracks on 8mm film, recording heads for 16mm perforated film, 35mm film with one magnetic soundtrack, methods of measuring parasitic illumination, etc. However, some ISO recommendations that conflict with those accepted in the standardizing country have been rejected.—S.C.G. (Translated from *Referativnyĭ Zhur., Fotokinotekhnika.*)

TELEVISION

A multicamera system for shooting television films (in Russian), A. Suskiĭ, *Tekhnika kino i telev., 7:* 35–41, Feb. 1964.

A description is given of a system in use at the Kiev Television Studios for making films. Three combined film and television cameras are connected by a television link with a control desk where the director views three monitoring screens and telephones instructions to the cameramen. He simultaneously carries out a preliminary editing of the film. The method cuts down the production time of a half-hour film from 2 to 3 days to 2 to 3 hours.—S.C.G.

An objective approach to film making for television, C. Fox and J. Venis, *Brit. Kinematog., 44:* 127–339, Apr. 1964.

Television broadcasts of films have often proved unsatisfactory. This is because the requirements of the British Television System are not always fully appreciated by all the people engaged in the many facets of film production. This paper shows the limitations of the Television System and suggests a method whereby consistent and predictable telecine broadcasts may be obtained by standardizing procedures and by incorporating a reference black and white within each scene.—G.I.P.L.

Projection of television pictures onto large screens (in Russian), L. Shlyakter, *Kinomekhanik,* 32–37, Sept. 1963.

Methods that have been tried to project a television picture onto a screen of the size used in motion-picture work are reviewed. They include the direct magnification of the image on the tube, which is unsuccessful because of insufficient light; cinematography of the kinescope with rapid processing and projection of the film; the use of a special crystalline screen that varies in opacity as the electron beam falls on it, and that serves as a variable transparency for projection; and the Eidophor system.—S.C.G.

The use of 8mm film in television, E. Lloyd, *Brit. Kinematog., 44:* 140–41, Apr. 1964.

Considerable attention is being given to the development of 8mm film for use in television work. There are difficulties such as increased noise and the relative unsteadiness and dirtiness of the picture to be overcome. It is supposed that magnetic striped prints will be used.—G.I.P.L.