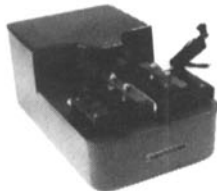
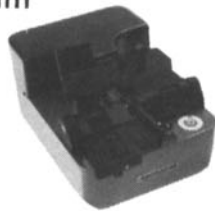


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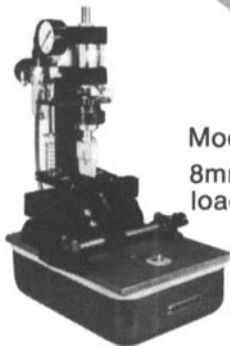
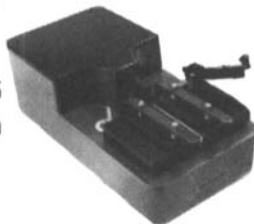
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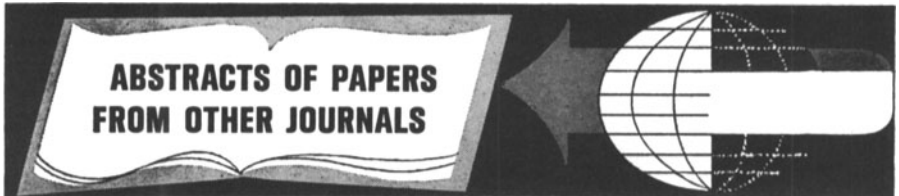
continuity or changing camera position." Both these terms are "new" — or, at least new to this glossary. The first edition, published in 1959 as *The ABCs of Camera Repair* (reviewed in the November 1960 issue of the *Journal*) began with "ac" and ended with "zoetrope."

Designed specifically for camera repair specialists, it can also be useful to students and may well serve as a convenient reference book for professionals.

The terms included in the glossary range over a wide field, some of them seeming almost too elementary even for a "do-it-yourself" repairman, and others

reaching an almost abstruse level. For example, there is "Blade, screwdriver — the end of a screwdriver bit which actually engages the slot in the screw" and then, for contrast, there is "Doppler effect"; "Motion, Newton's laws"; "Katoptrical"; and many other scientific terms explained briefly but adequately.

This glossary is undoubtedly useful. As the authors note in the Preface, "An effort has been made to provide current usage and certainly to indicate the ever-increasing relationships between the sciences that are to be found in photographic equipment." — *Edit.*



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.

The subject areas are grouped below:

- Cinematography
- General
- High-Speed Photography and Instrumentation
- Holography
- Optics
- Photographic Theory and Materials
- Sound
- Television

CINEMATOGRAPHY

A study of the causes of errors in linear measurements and the frame frequency necessary for the filming of subjects moving in a three-dimensional space (in Russian), V. V. Vasnedovich, S. P. Podual'nyi, and F. I. Rybakevich. In *Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya*, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Metrologii Bystroprotekhayushchikh Protseessov." *Tezisy Dokl*, Moscow, 1972, pp. 114-115; *Ref. Zh., Fotokinetekhnika*, Abstract No. 8.46.239, 1973.

Formulae are given for calculating absolute and relative magnitudes of errors in plane and perspective cinematography, and also formulae for calculating the frame frequency in plane motion pictures. — S.C.G. (Translated from *Ref. Zh., Fotokinetekhnika*.)

The use of cinematography for meteorology for the study of the general circulation of the atmosphere (in Russian), V. M. Mikhel', in *Vsesoyuznaya Nauchno-Tekhnicheskaya*

Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Kinematografii i Metrologii Bystroprotekhayushchikh Protseessov." *Tezisy Dokl*, Moscow, 1972, pp. 92-93; *Ref. Zh., Fotokinetekhnika*, Abstract No. 8.46.238, 1973.

An experiment has been made to study atmospheric synoptic processes by making a motion picture of them in the form of a narrow-gage color cartoon film based on material from weather charts. It is noted that this method of filming synoptic processes makes it possible to analyze the large-scale spatial and temporal features of atmospheric circulation. — S.C.G. (Translated from *Ref. Zh., Fotokinetekhnika*.)

GENERAL

Training for the film industry, Colin Young, *BKSTS Jour.*, 56: 83-84, Apr. 1974.

In the last 20 years there have been two very different approaches to the provision of training for the film industry. In the socialist countries systematic training was possible because their film production industry was under government administration as were the film schools; there was no difficulty in arranging for the graduates to secure employment after training. It was all part of a planned system. In the capitalist countries of Europe there was little systematic training until quite recently when Denmark, Sweden and Britain have all been able to find national support for training institutions and devise some means of collaboration between the training schemes and the working profession though they cannot guarantee employment for those who have been trained. The solutions differ widely and no one scheme would be suitable for all countries.

HIGH-SPEED PHOTOGRAPHY AND INSTRUMENTATION

The use of high-speed cinematography for the study of the breaking of ceramic materials (in Russian), V. G. Bravinskii and M. V. Osipov. in *Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya*, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Ki-

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nematografii i Metrologii Bystroprotekhayushchikh Protseessov," *Tezisy Dokl*, Moscow, 1972, pp. 94-95; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.255, 1973.

A method and equipment have been devised for using a high-speed streak camera to allow the initiation and development of cracks in ceramic samples to be recorded. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika*.)

The use of laser interferometry and high-speed cinematography for the study of flow round permeable surfaces at low rates of flow (in Russian), N. O. Myartkovskii, A. A. Orlov, and V. N. Kharchenko, in *Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Kinematografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 86-87, 1972; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.256, 1973.

A discussion is given of the method and results of tests carried out with the aim of studying flows with the injection of gases of interest in connection with problems of heat protection of a surface from the action of convective and radiative heat losses. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika*.)

A study of the propagation of a flame front with the aid of high-speed cinematography (in Russian), L. A. Gussak and E. N. Sprinskina, in *Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Kinematografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 88-89; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.252, 1973.

Töpler high-speed cinematography has been used to study the stability of propagation of a flame front in a propane-air mixture with compositions with an air excess factor of 0.475 to 1.34 with initial pressures of 1 to 9 atm. Recording was carried out with an SKS-1M camera on 16mm film with a frame frequency of 4200-4600/s, using a schlieren method. The results are discussed. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika*.)

A study of the spreading of metallic melts by high-speed cinematography (in Russian), Yu. V. Naidich, G. M. Nevodnik, and V. M. Perevertailo, in *Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Kinematografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 99-100; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.254, 1973.

A study has been made of the process of nonequilibrium spreading of metallic melts on solid surfaces. Measurements were made of the instantaneous value of edge wetting angles and the diameter of the spreading drop. Studies were carried out in a vacuum of 1×10^{-5} mm Hg with specially constructed equipment. Results are discussed. — S.C.G. (Translated from *Ref. Zh., Fotokinotekhnika*.)

A study of errors in time in motion pictures for scientific measurements (in Russian), I. D. Petunina, S. P. Podval'nyi and E. I. Rybakevich, In *"Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 112-113; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.240, 1973.

Reference is made to the presence of errors in data introduced in the operating instructions of the SKS-1 camera. Methods for calculating the errors are given, which allow the working tempo to be considerably reduced without loss in accuracy of the time data.

A study of errors in time in motion pictures for scientific measurements (in Russian), I. D. Petunina, S. P. Podval'nyi and E. I. Rybakevich, In *"Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 112-113; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.240, 1973.

A study of errors in time in motion pictures for scientific measurements (in Russian), I. D. Petunina, S. P. Podval'nyi and E. I. Rybakevich, In *"Vsesoyuznaya Nauchno-Tekhnicheskaya Konferentsiya, "Sovremennoe Sostoyanie i Perspektivy Vysokoskorostnoi Fotografii i Metrologii Bystroprotekhayushchikh Protseessov," Tezisy Dokl*, Moscow, 1972, pp. 112-113; *Ref. Zh., Fotokinotekhnika*, Abstract No. 8.46.240, 1973.

Reference is made to the presence of errors in data introduced in the operating instructions of the SKS-1 camera. Methods for calculating the errors are given, which allow the working tempo to be considerably reduced without loss in accuracy of the time data.

HOLOGRAPHY

A method for obtaining three-dimensional optical images with minimal primary distortion from microwave holograms, D. G. Jones and A. P. Anderson, *Radio and Electronic Eng.*, 3: 167-172, Mar. 1974.

A new method is presented for the reconstruction of almost distortionless three-dimensional optical images from microwave (or other long wavelength) holograms. The strategy for overcoming the axial elongation of an optical image from a long wavelength hologram scaled down by a factor less than the ratio of the two wavelengths used, is demonstrated using a computer simulated microwave hologram.

Analysis of wave-front aberrations caused by deformation hologram media, M. Matsumura, *J. Opt. Soc. Am.*, 64: 677-681, May 1974.

Analytical expressions for the wave-front aberration caused by deformation of the hologram medium have been derived. These expressions are used for the determination of allowable tolerance of deformation. In the case of nearly diffraction-limited imaging, the tolerance is determined by evaluating the wave-front aberration. For other cases, in which more aberration is allowed, the tolerance is determined by evaluating the geometrical aberration. The dependence of deformation tolerance upon the type of hologram, the size of hologram, and the recording arrangement, especially that of the object and the reference beam, is shown. For small-size holograms, which are attractive for high-density information storage, the tolerance depends mainly upon the recording arrangement and not upon the type of hologram. For larger-sized holo-

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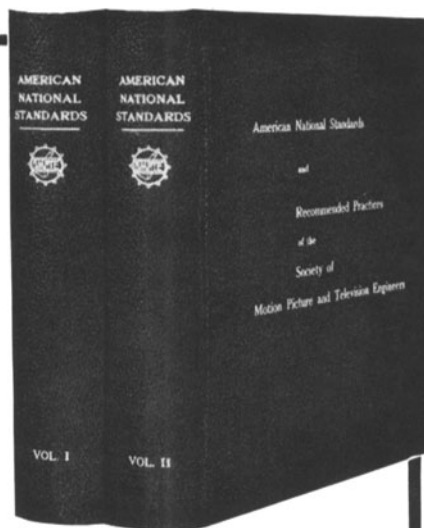
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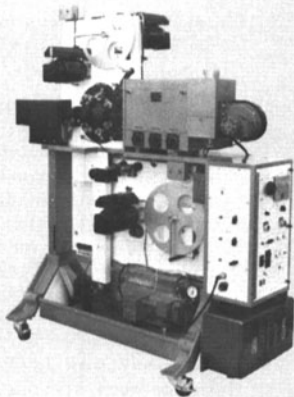
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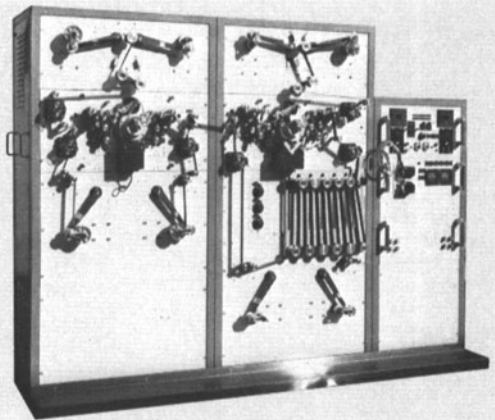


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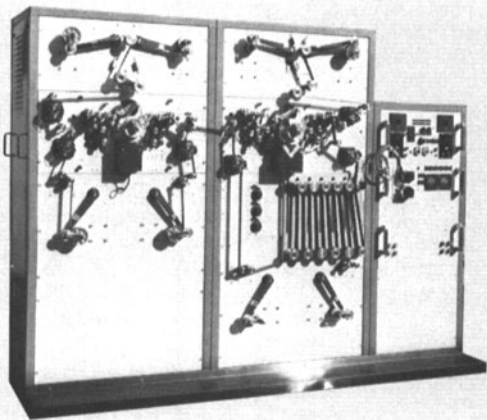
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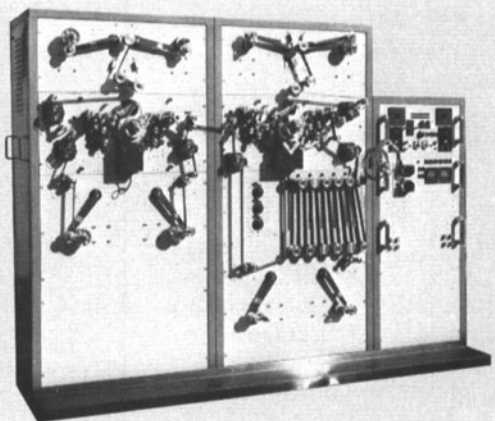
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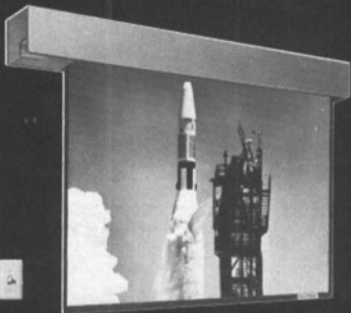
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grams, Fourier-transform holograms with parallel reference beams are the best, with regard to deformation tolerance. Numerical examples of the tolerance are given for nearly diffraction-limited imaging, using the Rayleigh criterion.

Development effects and the MTF of high-resolution photographic materials for holography, Klaus Biedermann and Stefan Johansson, *J. Opt. Soc. Am.*, 64: 862-870, June 1974.

Modulation transfer functions (MTFs) of high-resolution plates Agfa-Gevaert Scientia 8E70, 8E75, 8E75B and 10E75 have been determined. A strong influence of the development conditions was found and studied. Observations and models given in the literature on adjacency effects at low spatial frequencies were extended and verified for spatial frequencies up to 1500 Hz/mm. This was possible by the use of a new type of microdensitometer (MSSM) and because the optical MTF of these plates is close to 1. By use of very weak developers, an apparent increase of the MTF by factors up to 2 could be achieved. Because the enhancement occurred only in connection with very low γ , there is no gain of contrast in applications to microreproduction. The diffraction efficiency of holograms was not improved but exposure latitude was increased. Development effects may alter reconstructed wavefields and spatial filters may deviate considerably from their designs, especially when low- γ development is used to obtain wide latitude.

OPTICS

Faster LASL lens design program, Berlyn Brixner, *Applied Optics*, 12: 2703-2708, Nov. 1973.

Certain improvements have made the LASL lens design system much faster though less versatile and have maintained the calculation accuracy: an increment-vector damping technique optimized by a search procedure, analytic differentiation, simultaneous design on all variables, reliable convergence criteria, vignette control by biased violation errors, bounds for the variables and an enlarged weighting procedure. The designing system optimizes the sizes and positions of many-ray image spots without considering the classical aberrations. As a sample problem the symposium lens has been redesigned.

PHOTOGRAPHIC THEORY AND MATERIALS

Regeneration of ferricyanide bleach with sodium bromite, David K. Bulloch, *Phot. Sci. Eng.*, 17: 524-527, Nov./Dec. 1973.

A new chemical method is described for the conversion of ferrocyanide to ferricyanide in a photographic bleach by oxidation with sodium bromite. The method is simple to use and overcomes some of the disadvantages of the persulfate method.

Fast method of determining the MTF of photographic materials, H. T. Buschmann, *Phot. Sci. Eng.*, 18: 29-32, Jan./Feb. 1974.

Usually the MTF of a photographic material is determined by scanning sinusoidal test patterns of suitable spatial frequencies. The test patterns are imprinted onto the films and the images scanned by microphotometers. For electrical communication systems random

noise is used often to measure the frequency response of the system. In analogy to such systems it is possible to produce random noise optically by using the laser speckle pattern.

Analysis of double-exposure speckle photography with two-beam illumination, Karl A. Stetson, *J. Opt. Soc. Am.*, 64: 857-861, June 1974.

Speckle photography offers a technique for measuring small strains on an object in the presence of large displacements. An analysis is presented of this technique which accounts for the phenomena observed and predicts its capabilities and limitations. The analysis is sufficiently general to describe either of two related techniques, one that permits measurement of strains in the absence of large displacements and one that permits measurements of large displacements alone.

Detecting and monitoring oil slicks with aerial photos, Kalman N. Vizy, *Photogrammetric Eng.*, XL: 697-708, June 1974.

The presence of large quantities of oil on ocean, lake and river waters has become a major ecological concern. Agencies in charge of detecting and monitoring these oil slicks are looking for more efficient and reliable reconnaissance techniques. The spectral characteristics of oils and waters indicate that aerial photography could be a useful tool in oil-pollution detection. Photographs of diesel fuel, gasoline and spent lubricating oils licks on barrels of Genesee River water in Rochester, N.Y., were used to define the brightness contrast between these oils and the water. The effects of types of oil, spectral region and solar altitude on the photography were evaluated statistically. Significant detection capability was found in the ultraviolet and blue regions of the spectrum, less in the near infrared and almost none in the green and red. A method for detecting oil slicks by aerial photographic reconnaissance is presented utilizing standard black-and-white aerial film.

SOUND

Experimental investigation of sound-system-room feedback, William K. Connor, *J. Audio Eng. Soc.*, 21: 27-32, Jan./Feb. 1973.

A sound system in a room forms a closed electroacoustical loop which may oscillate or howl at frequencies for which loop parameters meet certain criteria. In an experimental program carried out in both reverberant and well-damped rooms, howl points were determined by direct measurement of loop gain and phase. The results agreed well with those obtained by causing the system to howl spontaneously. The number of howl points present at a given gain level and the effects of air temperature and microphone placement were explored. The results have a practical bearing upon sound system design and equalization.

Field-type acoustic wattmeter, Harry F. Olson, *J. Audio Eng. Soc.*, 22: 321-328, June 1974.

The field-type acoustic wattmeter consists of a pressure microphone responding to the sound pressure, a velocity microphone responding to the particle velocity, and an electronic system for combining the voltage outputs of the microphones so the ultimate output indicates acoustic energy flow in a sound

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field. The field-type acoustic wattmeter may be used to measure, for example, the sound output of loudspeakers, the noise output of machines, the sound absorption of walls, ceiling and floor of an enclosure and the acoustic performance of sound reproducing systems in rooms.

Miniaturization of directional condenser microphone, A. Mizoguchi, *NHK Technical Monograph*: pp. 3-31, No. 20, Dec. 1972.

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current literature



The Editors present for convenient reference a list of articles dealing with subjects cognate to motion-picture engineering published in a number of selected journals. Photostatic or microfilm copies of articles in magazines that are available may be obtained from The Library of Congress, Washington, D.C., or from the New York Public Library, New York, N.Y., at prevailing rates.

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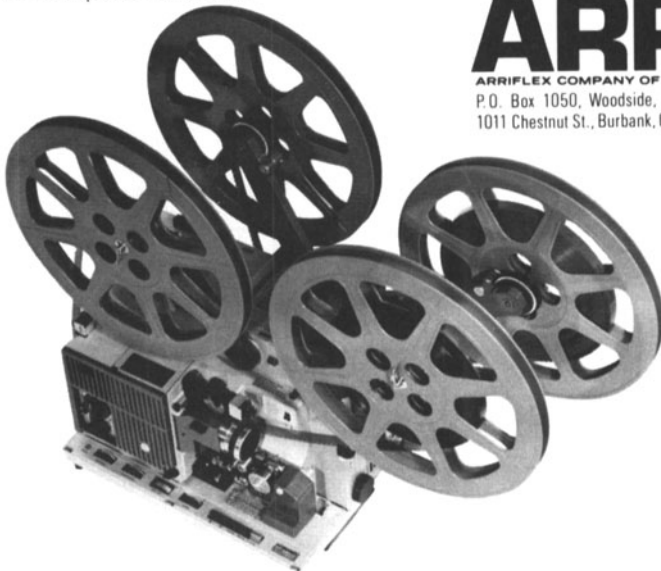
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