



Mole-Richardson Lighting, an 8-page booklet containing illustrations of Mole-Richardson products, is available from Mole-Richardson Co., 937 N. Sycamore Ave., Hollywood, CA 90038. The booklet also contains more than 30 photographs of M-R equipment in use in studios and on location.

Spectra photometric instruments are described and illustrated in a folder available from Photo Research Corp., 3000 North Hollywood Way, Burbank, CA 91502. Instruments described include footcandle meters, the Pritchard photometer and the Spectra brightness spot meter.

The Studer Model 089 console is illustrated and described in a 32-page brochure available from Gotham Audio Corp., 2 W. 46 St., New York, NY 10036. Model 089 is a compact 12-input, 3-channel studio and remote console of modular plug-in construction in silicon solid-state technology. It can be operated from power lines of any voltage available anywhere in the world, or from external batteries.

A new Physics Catalog Supplement which describes physics laboratory apparatus is available from Macalaster Scientific Co., Box R, Dept. RPR, Nashua, NH 03060. The supplement includes both alphabetical and numerical indexes, a correlation chart to identify equipment required for particular topical studies and a complete price list.

Video monitor Type 121, a solid-state TV monitor with an 11-in picture tube, is described and illustrated in Bulletin TD 95-265 available from Westinghouse Electric Corp., P.O. Box 868, Pittsburgh, PA 15230. The monitor is designed for general use in closed-circuit systems. Using the 525-line standard it works from a composite video signal of positive polarity.

Image-orthicon cameras for closed-circuit systems are described and illustrated in Bulletin DB 95-152 available from Westinghouse Electric Corp., P.O. Box 868, Pittsburgh, PA 15230. The cameras can be used for applications where light levels are low. Model STV-401 camera is described in the bulletin and significant design features are listed.

RCA Learning Laboratory systems are illustrated and described in a booklet (3J5224) available upon request from RCA Corp. Professional Electronic Systems, Bldg. 15-5, Camden, NJ 08102. The booklet shows learning equipments from consoles and student position to headsets

and lesson sources and illustrates how each is used by both teacher and student.

Quad-Eight consoles and accessories are illustrated and described in a set of data sheets available from Quad-Eight Electronics, 11810 Vose St., North Hollywood, CA 91605. Quad-Eight audio consoles are designed for professional use. The data sheets include descriptions, specifications, diagrams and price lists.

The SEAL Special Effects Catalog contains illustrations and descriptions of such special-effects equipments as color organs that convert sound to light; projected kaleidoscopes; electronic flashing strobes of various sizes; bubble, flash, fog and smoke machines; mirror balls that revolve and other special effects for all purposes. A rental list is included. The catalog is available upon request from Stage Equipment and Lighting, Inc., 12231 N.E. 13th Court, North Miami, FL 33161.

The Titlefile, a versatile TV tilting system, is described and illustrated in an 8-page brochure available from Visual Electronics Corp., 356 W. 40 St., New York, NY 10018. The Titlefile system stores up to 30,000 characters of preprogrammed information. The machine is a random-access magnetic loop information storage and retrieval device specifically designed for interface with Visual Electronic Corp.'s display control units.

Slide and filmstrip services "from script to screen" are listed and described in a brochure available from Calvin Productions-Kentucky, P.O. Box 20126, Louisville, KY 40299. In addition to supplying scripts services include original photography, film processing, slide mounting, narration recording, music and sound effects, sound mixing and editing, programing and audio-visual hardware sales and rental.

Professional lighting equipments of all types and sizes are illustrated with brief accompanying descriptions in an 8-page (newspaper size) folder available from Mole-Richardson Co., 937 N. Sycamore Ave., Hollywood, CA 90038. The firm was founded in 1927 and has devoted its research and manufacturing facilities to the production of lighting and power equipment for motion-picture, television and studio photographic industries. Also available is a 10-page folder, *New News From Mole-Richardson*, which shows photographs of lights and fixtures in use on location and in studios.

The C-S Mark III Motion Analysis Projector, second generation model, is described and illustrated in a data sheet available from Irondequoit Industries, P.O. Box 7637, Rochester, NY 14622. The projector is designed for qualitative examination of films taken by high-speed, time-lapse, memo-motion, instrumentation or normal cine motion-picture cameras.

Infrared Handbook, a 128-page manual published by Optical Coating Laboratory, Inc., 2789 Giffen Ave., P.O. Box 1599,

Santa Rosa, CA 95403, contains such information as a glossary of terms commonly used to specify spectral characteristics of filters; environmental and geometrical specifications; effects of angle and temperature on filter characteristics; data on sources, typical detectors and common infrared substances; and the handling and care of coated elements. The book contains 91 charts and graphs and a number of equations and formulas. It is priced at \$10.

Voice of the Theatre Speaker Systems are described in an illustrated brochure available upon request from Altec Lansing, 1515 S. Manchester Ave., Anaheim, CA 92803. The speaker systems are available in various models for large and small theaters and shopping centers.

The KB-3AT 16mm Aircraft Gun Camera and Pantel lenses are illustrated and described in data sheets available from Traid Corp., 777 Flower St., Glendale, CA 91201. The camera is used in both ground and airborne installations. The Pantel series of lenses has been expanded to include high-resolution optics up to 80 in focal length. Illustrated data sheets are also available on film movements, drives and take-ups.

Time-lapse videotape recording systems are described in an illustrated brochure available from Odetics, Inc., Video Products Div., 1845 S. Manchester Ave., Anaheim, CA 92802. The brochure describes how a videotape recorder is modified to record pictures at a staggered rate and then play them back at a faster rate, "compressing" an 8-hour workday into 16 min of playback. The system is used for surveillance, time-and-motion study, medical observation and other applications.

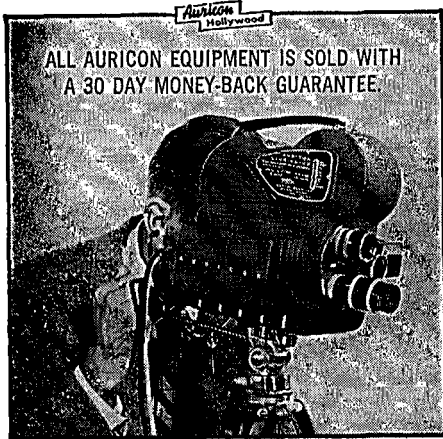
The Ampex VS600, a solid-state video switcher system, is described in a data sheet (V264) available from Ampex Corp., M.S. 7-13, 401 Broadway, Redwood City, CA 94063. A list of specifications and a diagram of the control panel are included.

The Ampex BR series of omnidirectional and directional UHF antennas for commercial and educational broadcasters is described in a brochure available from Ampex Corp., Mail Stop 7-13, 401 Broadway, Redwood City, CA 94063. A list of specifications and diagrams of the antennas are contained in the brochure.

The FR-10 magnetic film recorder/reproducer is described in an illustrated brochure available from RCA Corp., Film Recording, 2700 W. Olive Ave., Burbank, CA 91505. The machine is fully solid-state in design and has plug-in sprocket and head assemblies to permit quick changeover from 16mm to 35mm modes.

Series 137/138 random-access projector accessories are described and illustrated in a 4-page brochure available from Mast Development Co., 2212 E. 12 St., Davenport, IA 52803. Random-access projectors, multiple-control and dual-projection systems, a panel mounting kit and a rear-projector

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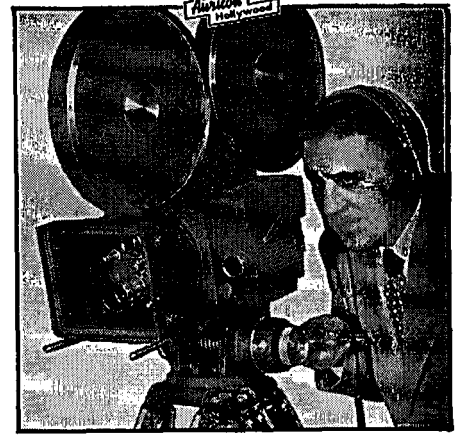


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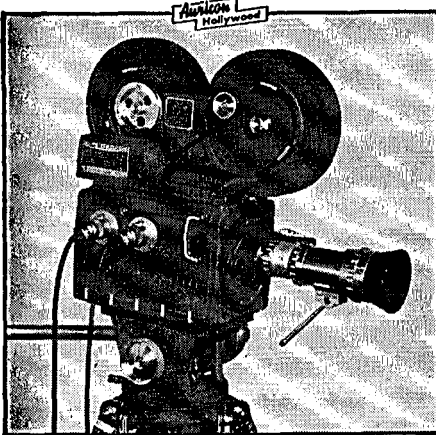
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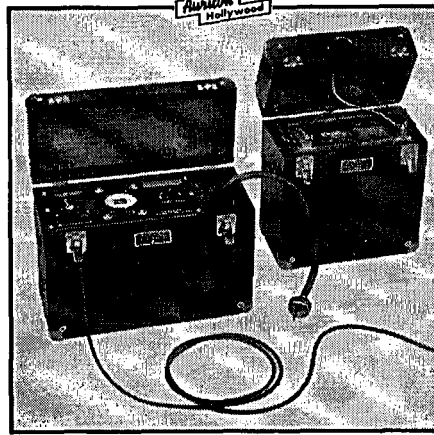
"AURICON PRO-600" 16mm Optical Sound-On-Film Camera.
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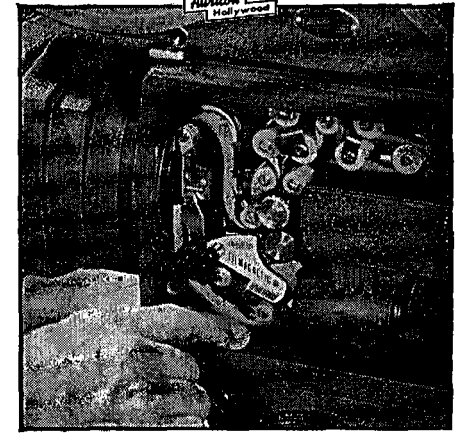
"SUPER 1200" 16 mm Optical Sound-On-Film Camera.
 ★ 1200 ft. film capacity for 33 minutes of recording. ★ \$6425.00 (and up) complete for "High-Fidelity" Talking Pictures.



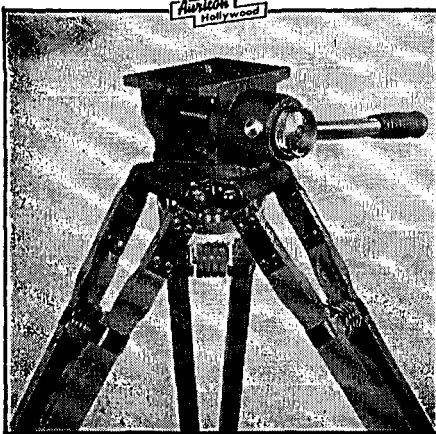
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with pedestal are among the adaptations of Kodak RA-950 and RA-960 Carousel projectors which are discussed.

A list of Kodak publications (Audiovisual and Motion Picture) is available from Dept. 454, Eastman Kodak Co., 343 State St., Rochester NY 14650. The list includes Kodak technical pamphlets, books and specialty items. Prices are given.

Technical Bulletin #6 in a series of bulletins on prototype, production and master cams contains a detailed explanation of the measurement of contours by the sweep method. It is available from Cam Technology, Inc., 10 Havens St., Elmsford, NY 10523. Bulletin #6 deals with parallel curves and their application to cam surface definition generation and measurement. It outlines the sweep method of parallel curves and gives the special inspection techniques to follow when parallel curves are not available. It also reviews the various tolerance systems used in specifying contours and corresponding sweep method procedures.

Pio-Sonic sound insulating doors and frames are described in a 4-page brochure available from Pioneer Industries, 401 Washington Ave., Carlstadt, NJ 07072. The firm manufactures hollow metal products for the architectural and construction industries.

Model ABR-10/ABR-15 series of recorders/reproducers is described in a data sheet (Bulletin A390) available from

Ampex Corp., Mail Stop 7-13, 401 Broadway, Redwood City, CA 94063. The bidirectional broadcast recorder features a new electronic servo direct-drive system for improved tape speed and reduced flutter.

Lenses for various applications, and other motion-picture equipments are described in illustrated data sheets available from Century Precision Cine/Optics, 10661 Burbank Blvd., North Hollywood, CA 91601. Telephoto lenses (Tele-Athenar and Radar Bore-sight), Angenieux zoom and split field diopter lenses are among the lenses described. Other equipments includes sound blimps for Beaulieu cameras and the Duplikin III for filming 16mm scenes from 35mm color slides.

The Solitron 1970 Condensed Catalog listing electronic components is available upon request from Solitron Devices, Inc., 256 Oak Tree Rd., Tappan, NY 10983. The 208-page catalog is illustrated and describes numerous categories of components.

The Ampex CC-450 viewfinder television camera system designed for closed-circuit TV production is described in a brochure (V69-23) available from Ampex Corp., Educational and Industrial Products Div., 2201 Estes Ave, Elk Grove Village, IL 60007.

Portable solid-state monitors, designed for use in closed-circuit TV systems are de-

scribed and illustrated in a new bulletin (TD 95-262) available from Westinghouse Electric Corp., P.O. Box 868, Pittsburgh, PA 15230. The 9.7-lb monitors, used for daylight or outside applications, have 37 in² of viewing area. They can be operated from a battery pack when the regular 120-V, 60-Hz ac power is not available. Applications and design features are described in the bulletin.

A new edition of **Technicolor's Sound Film Loop Source Directory** is available from Technicolor, Inc., Commercial and Educational Div., 1300 Frawley Dr., Costa Mesa, CA 92627. The directory lists some 1,300 super 8 optical sound film titles available from 67 different producers. The films, ranging up to 29 min in length, are all packaged in instant-loading cartridges for use in Technicolor movie projectors. Also available is the *Silent Film Loop Source Directory* which lists some 6,600 titles available in 8mm and super 8 cartridges.

The ISA Instrumentation Publications Catalog — 1970, a comprehensive source of data on current instrumentation publications covering all areas of science and industry is available from the Instrumentation Society of America. The new catalog contains descriptions, prices and ordering information on proceedings of ISA-sponsored or cosponsored conferences and symposia, standards and recommended practices, books, monographs and references, etc.

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riodicals and educational and training aids. Free copies may be obtained from the Instrument Society of America, Publications Dept., 530 William Penn Place, Pittsburgh, PA 15219.

The Spring 1970 Motion Picture, TV & Theatre Directory is published by M.P.E. Publications, Tarrytown, NY 10591. The listings cover professional cinematographers, motion-picture and theater producers, engineers in the fields of theatrical, television and industrial motion-picture production, film laboratories, audio-visual departments, television stations, schools, government departments, advertising and public relations organizations. It's priced at \$2.00.

Film movements, drives and take-ups are described in eight data sheets available from Traid Corp., 777 Flower St., Glendale, CA 91201, listing film handling components developed during the last 25 years. The data sheets also show a number of special models developed to supplement Traid's standard line of 16mm, 35mm and 70mm pin-registered film movements.

V69-28, a price list, giving model numbers, descriptions and suggested list prices for one-inch helical scan closed-circuit videotape recorders and players, television cameras, monitors/receivers, videotape, television camera lenses and video accessories, is now available from the Ampex Corp. Educational and Industrial Products Div., 2201 Estes Ave., Elk Grove Village, IL 60007.

A 12-page brochure and series of catalog sheets detailing the complete complement of color TV equipment offered by RCA's Professional Electronic Systems Dept. has recently been issued. The brochure provides an overview of new color cameras priced under \$10,000. Color film systems and videotape recorders are also described. Several typical TV systems for instructional and training applications are depicted. For copies, write RCA Professional Electronic Systems, Building 15-5, Camden, NJ 08102. Request Form 3J5558.

A 44-page catalog from Trompeter Electronics, 8936 Comanche Ave, Chatsworth, CA 91311, describes with full color illustrations a complete line of coax, twinax, triax and quadax connectors, patch panels, plugs, jacks, patch cords and accessories. The information in the brochure details high- and low-frequency coax switches and matrices employed in TV broadcast, CATV, CCTV, ETV communications, Telemetry, Telephone, Nuclear Instrumentation and Information Retrieval. Included is a technical discussion by E. Trompeter on "Noise in Cable Systems," which will assist in the design of instrumentation, communication and data systems.

Instrumentation Marketing Corp. has announced a 16-page illustrated catalog presenting descriptions, applications features and specifications of Vanguard photographic motion analyzers and automatic printout equipment for 16mm, 35mm and 70mm motion-picture film, and up to

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5.5-in sheet film, including projection heads, analysis projectors, stands and accessories. The catalog is available from Instrumentation Marketing Corp., 820 S. Mariposa St., Burbank, CA 91506.

Model 500 RF Voltmeter is described in an illustrated data sheet available from High Frequency Engineering Co., 2626 Frontage Rd., Mountain View, CA 94040. The self-contained instrument handles the frequency range of 20 kHz to 500 MHz over a potential range of 200 mV to 15 V. The instrument has a low-capacitance bifurcated probe which increases accuracy and simplifies measurements.

Photooptical system engineering capability is described in a brochure available from Perkin-Elmer Corp., Photo-Optical Systems, South Wilton, CT 06897. The 16-page brochure describes the Photo-Optical Science Laboratory and the instruments developed for evaluating optical imaging systems. It includes a description of an edge gradient analysis (EGA) procedure for obtaining the optical transfer function of any optical imaging system.

A super-8 educational film source directory is available upon request to Fairchild Industrial Products, 75 Mall Dr., Commack, NY 11725. The catalog contains more than 5,000 educational super-8 titles in magnetic sound and in 18-frame format to be used with the new Fairchild cartridges and the new Eastman Kodak cassettes.

A new **tape recorder/reproducer** (Model 1000) is described in Bulletin TA260 available from Tape-Athon Corp., 502 Isis Ave., Inglewood, CA 90301. Features of Model 1000 include a drive system consisting of three motors and two solenoid-controlled capstans. A tape-lift mechanism lifts the tape toward the pickup heads or away from the head. It can be activated either manually or automatically.

The Educom RP-9511, a reel-to-reel automatic recycling remote program source for learning laboratories, is described and illustrated in a data sheet available from Visual Educom Inc., Michigan City, IN 46360. The machine can be controlled manually or by remote control. Rewinding is automatic.

The Educom 620P portable tape recorder, a recorder/amplifier/speaker system, is described and illustrated in a data sheet available from Visual Educom Inc., Michigan City, IN 46360. Features include a single rotary control for Rewind, Stop, Play and Fast Forward operation, and an automatic record interlock. A Pause Control enables an instructor to interrupt the lesson at any point for comments. A front panel VU meter provides a visual means for monitoring and adjusting program audio levels.

A lens reference chart, available from Pacific Optical Div. of Bourns/CAI, Inc.,

5221 W. 102 St., Los Angeles, CA 90045, shows 30 available stock lens designs. The chart gives focal length, angle, $f/\text{no.}$, spectral range and prime application for each of the various lenses. The list ranges from lenses for aerial reconnaissance through L³ TV to finite conjugate optics for CRT displays. Also available is a lens check list prepared especially for engineers specifying optics in OEM applications.

Optical test instruments and data systems are illustrated and described in data sheets available from Cintra Inc., 440 Logue Ave., Dept. R, Mountain View, CA 94040. Numerous instruments are listed, among them the Model 150 Digital Photometer, a digital seven decade autoranging photometer designed to monitor the luminous output of incandescent, laser, gas discharge, solid-state and other sources.

The National arc igniter for motion-picture theater projectors is described and illustrated in a 2-page bulletin (A-3205) available from Union Carbide Corp., Carbon Products Div., 270 Park Ave., New York, NY 10017. The bulletin explains how the new igniter eliminates the inconvenience of the manual start-up. The bulletin includes a table that shows the six sizes of igniters available for use with projectors of various arc gaps.

The AC-116 vertical interval switcher/fader special-effects generator is described in a specification sheet available from

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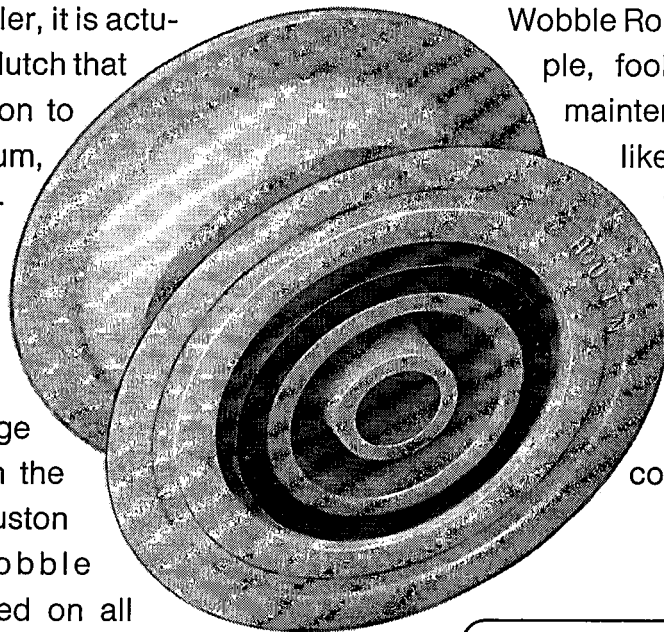


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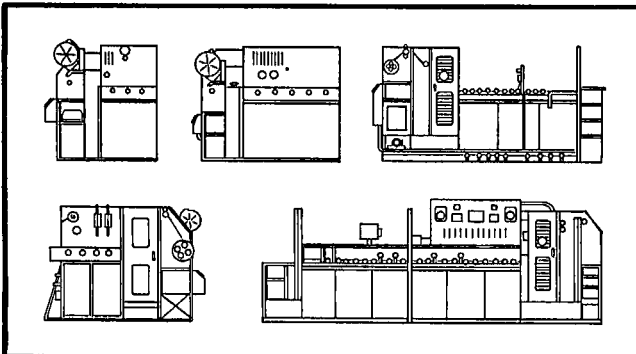
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Ampex Corp., Educational and Industrial Products Div., 2201 Estes Ave., Elk Grove Village, IL 60007. The generator was designed primarily for use with the Ampex CC-450 camera and all Ampex closed-circuit videotape recorders.

The CVI 1970 Short-Form Catalog, available from Colorado Video, Inc., P.O. Box 928, Boulder, CO 80302, lists various video equipments. Included are data display devices, video analyzers, video disc recorders, special effects, image enhancers, test and sync generators and TV-to-computer interface equipment.

The Ampex Model BC-230 color TV camera for studio and remote origination is described and illustrated in color in brochure V285, a 4-page brochure available from Ampex Corp., M.S. 7-13, 401 Broadway, Redwood City, CA 94063. The camera, designed for educational as well as for commercial use weighs 50 lb (77 lb with viewfinder and lens).

Handbook of Semiconductor Electronics (3d ed.) Ed. Lloyd P. Hunter is a manual covering the physics, technology and applications of transistors, diodes and other semiconductor devices in conventional and integrated circuits. It is available from McGraw-Hill Book Co., 330 W. 42 St., New York, NY 10036. It is priced at \$27.50. Most sections of the earlier edition have been rewritten and material on two new developments is included. Two new sec-

tions are given to the subject of integrated circuits, one on the physics of integrated circuits and another on the technology of circuit design. Computer-aided circuit design is the subject of another new section.

Current Film Periodicals in English, a compilation of relevant data on more than 100 film periodicals, is available from Adam Reilly, Room 4200, 405 Lexington Ave., New York, NY 10017. It is priced at \$1.25 (\$1.75 overseas). The data include complete subscription information and other pertinent facts of publication, a brief description of each periodical's content and orientation and writers mart information. An appendix contains a classification of the periodicals by readers' interest and by place of origin.

Proceedings of the First National Conference on Electronics in Medicine compiled by the Electronics Management Center is available from McGraw-Hill Book Co., 330 W. 42 St., New York, NY 10036. It is priced at \$14.50. The conference was sponsored by three magazines, *Electronics*, *Medical World News* and *Modern Hospital* to provide an opportunity for doctors and engineers to exchange ideas pertinent to both professions. The *Proceedings* contains 212 pages and is illustrated.

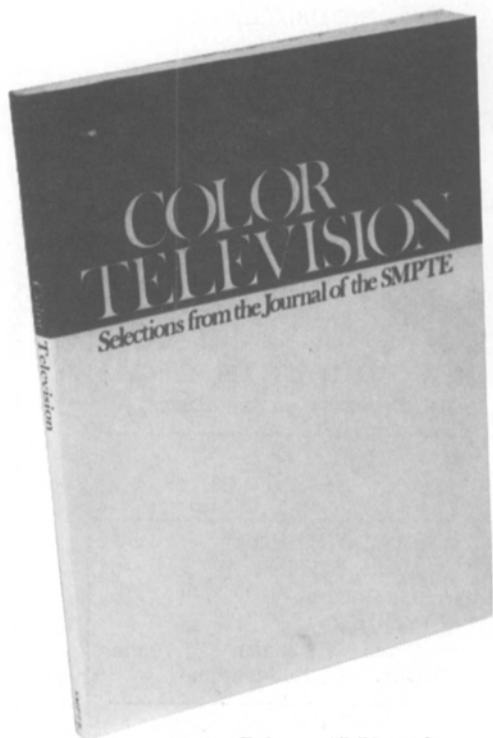
Chromascreen CS-140, a rear-projection screen, is described and illustrated in a 2-page data sheet available from Panel-graphic Corp., 10 Henderson Drive, West

Caldwell, NJ 07006. The data sheet contains technical information on the composition of Chromascreen and a typical specification is included. Tests for measurements of the more important characteristics are described.

AMF Versatran Industrial Robots are described and illustrated in color in brochure #4925 available from AMF Versatran, 85 Beechwood Ave., New Rochelle, NY 10801. Text and illustrations explain the design and function of solid-state automatic programmer/controllers, robot handling systems, user programming requirements and production line integration and operation.

Theater 16, an automated motion-picture entertainment system for small theaters is described and illustrated in Bulletin A-16, available from Bell & Howell, 360 Sierra Madre Villa, Pasadena, CA 91109. Theater 16 is designed to control house lights, curtain, intermission music, lens and lamp changes, focusing and film rewinding from a remote control panel.

Synthesis of RC Active Filter Networks by S. S. Haykin, presents a detailed study of the circuit properties of negative impedance converters, amplifiers and gyrators and of their uses in the synthesis of inductorless filters. The book also contains detailed synthesis procedures for low-pass, high-pass and band-pass filters with emphasis on problems of sensitivity and sta-



Color Television Selections from the Journal

Here, in one convenient volume, is a collection of *Journal* papers covering fundamental aspects of color-television technology. Emphasis has been given to papers covering important principles and concepts which change relatively slowly, if at all, compared to the rapid evolution of technical equipment. The book is of use as both a tutorial and a reference volume.

Prepared by a special committee comprised of the following members of the Society: Robert W. Byloff, D. Lisle Conway, Richard S. O'Brien, Richard E. Putman, Irving S. Rosner, Rodger J. Ross, James L. Wilson.

Supplementing the reprinted papers is a complete index of all other papers on color television which have been published in the *Journal* to date. The coverage is rounded out by the inclusion of pertinent SMPTE-sponsored United States Standards and SMPTE Recommended Practices, together with an index of all current Standards and Recommended Practices.

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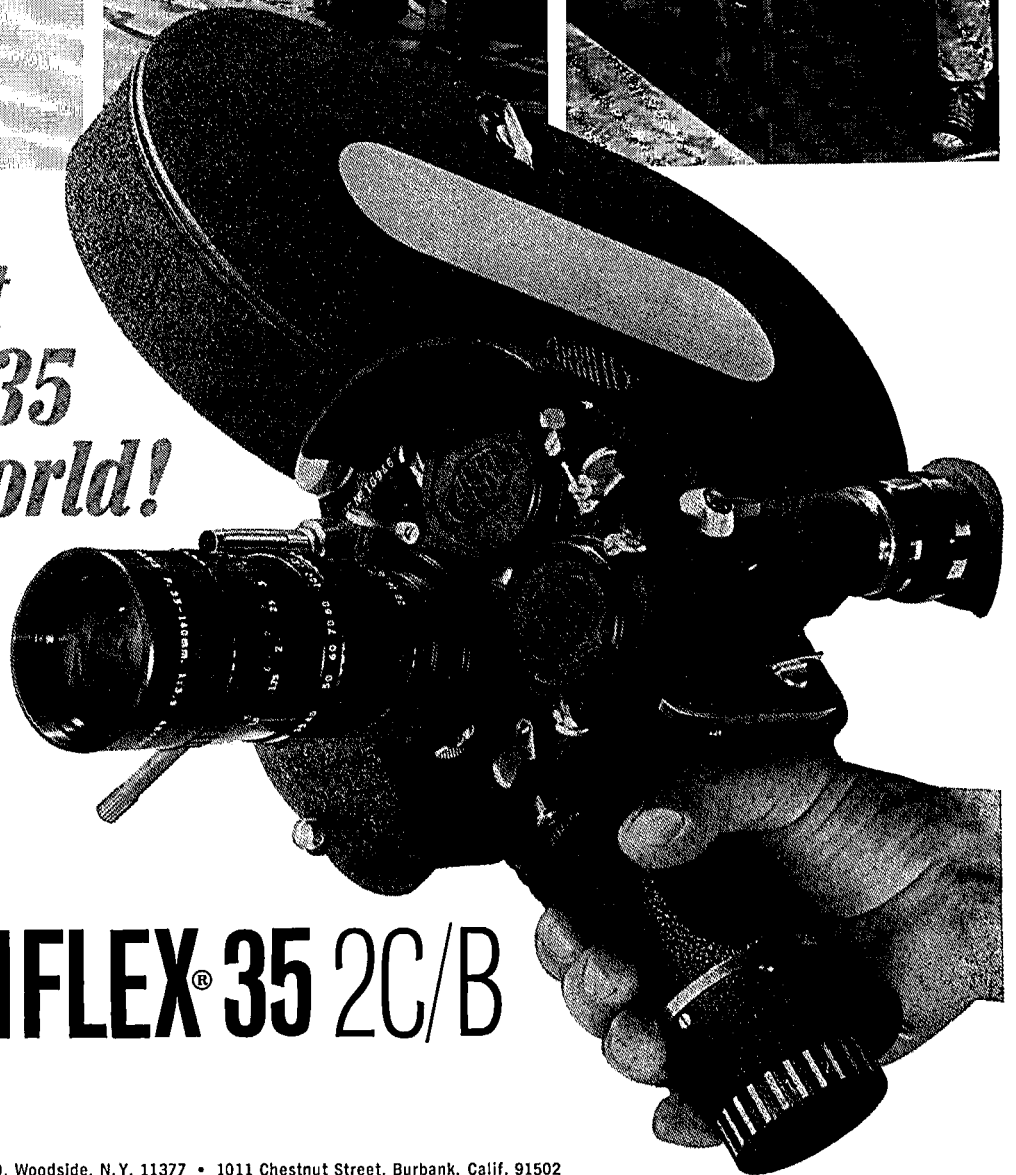
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bility. It is available from the publisher, McGraw-Hill Book Co, 330 W. 42 St., New York, NY 10036. It is priced at \$12.00.

The 1969 Supplement to the Film Reference Guide for Medicine and Allied Sciences is available from the Superintendent of Documents, Government Printing Office, Washington, DC 20402 (Order No. FS 2.211:968/supp. 969) at a price of 75 cents. The supplement includes titles of audio-visual teaching materials not included in the 1968 edition and also lists distributors. The Supplement also includes several pages of corrigenda to correct and update listing and distributors in the earlier edition of the book.

Arriflex at Work is a 40-page illustrated booklet that describes some of the difficult cinematographic assignments for which Arriflex cameras were used. Arriflex cameras have been used for underwater research, close-ups of dental treatment, macrocinematographic filming for the Moody Institute of Science film, *City of the Bees*, various cinema verité films and a number of other unusual and difficult assignments. The booklet is available upon request from Arriflex Corp. of America, P.O. Box 1050, Woodside, NY 11377.

EMC Films 1970-1972, a rental catalog listing 2,869 educational 16mm films on subjects ranging from aerospace science to zoology, is available upon request from the University of California Extension

Media Center, Berkeley, CA 94720. All of the films described in the 362-page catalog may be rented and many of them may also be purchased. A revised and updated index provides copious cross-references and lists each film under a number of appropriate categories.

The Camera Mart Rental Catalog listing thousands of items for the professional filmmaker is available upon request from Camera Mart Inc., 456 W. 55 St., New York, NY 10019. The 40-page catalog lists such equipments as 16mm and 35mm cameras, lenses and optics, and equipments for sound, lighting, film editing, production accessories and audio-visual equipment.

Jack Pill and Associates have announced publication of the *Professional Motion Picture Catalog and Handbook*. The pocket-sized catalog lists rental rates for 16mm and 35mm cameras and accessories, editing equipment, lighting equipment, sound equipment and projection equipment. The catalog also contains 16 pages of charts and tables of production information. It is available upon request from Jack Pill and Associates, 1135 N. Highland Ave., Hollywood, CA 90038.

TV cameras, both color and black-and-white, videotape recorders, telecine systems, audio equipment, switching systems and transmitters are illustrated in color and described in a booklet available from Commercial Electronics Systems Division,

RCA Corp., Front and Cooper Streets, Camden, NJ 08102. Included in the booklet are descriptions of the TK-44A 3-tube color camera, the PK-730 1-tube color camera and the PK-330-L, a low-cost, lead-oxide tube black-and-white camera.

Clearinghouse Publications

The publications listed below are presently available from National Technical Information Service, Operation Div., Springfield, Va. 22151. Unless otherwise noted each report is \$3.00 (microfiche 65 cents).

For the convenience of the reader, titles and brief descriptions of the publications have been grouped under nine categories.

Acoustics

AD-695 674, *Ultrasonic Holographic Imaging in Solids*, J. L. Kreuzer, 39 pp. Investigates ultrasonic holographic imaging of the interior of solids immersed in water.

Automation

AD-696 601, *Learning Control Systems - Review and Outlook*, K. S. Fu, 58 pp. Introduces the basic concept of learning control and reviews the following learning schemes: (1) trainable controllers using pattern classifiers, (2) reinforcement learning control systems, (3) Bayesian estimation, (4) stochastic approximation and (5) stochastic automata models. Potential applications and problems for further research in learning control are outlined.



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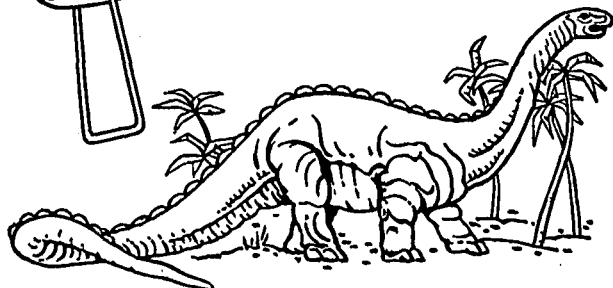
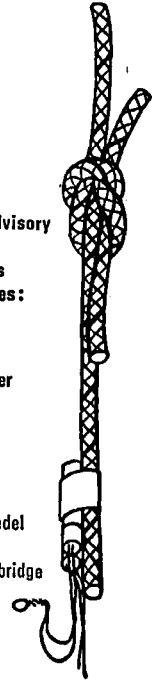
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Frank P. Clark

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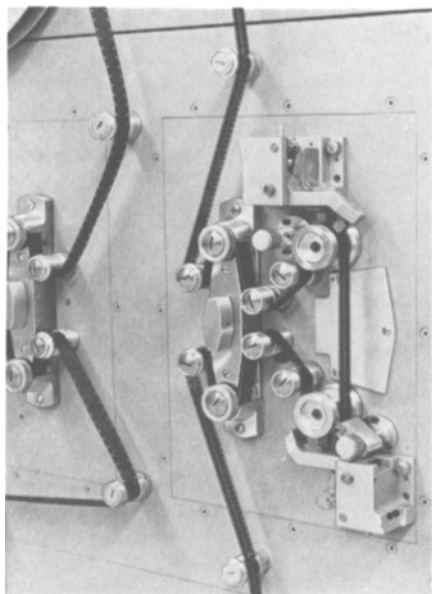
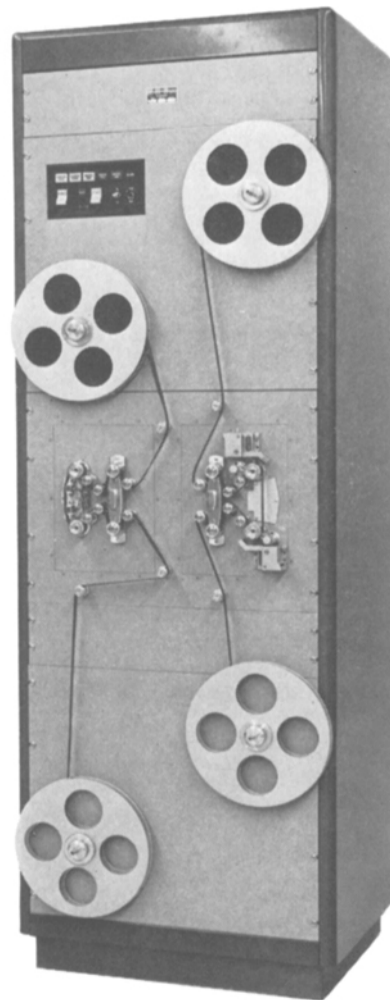
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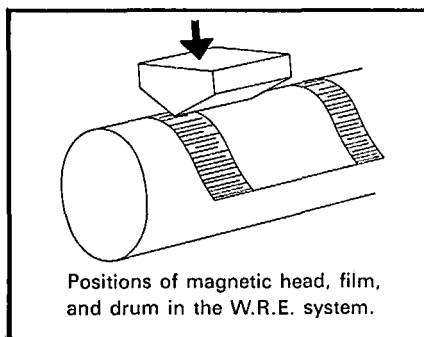
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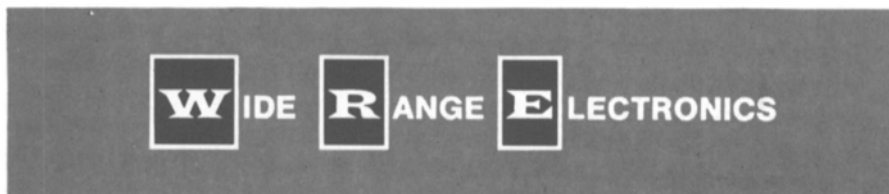
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N69-39957, *Future Fields of Control Application, Scientific and Technical Div.*, NASA, 144 pp. Papers presented at a symposium held at MIT, Cambridge, Mass., Feb. 10-11, 1969. Papers discuss the nature of problems existing and anticipated in the transportation, biomedical, economic, social, production and communication areas.

PB-188 760, *A Comparison of the Legibility of Three Types of Electronic Digital Display*, G. C. Simpson, 12 pp. Examines cold-cathode, side-illumination and straight-projection types under conditions of varying light level and viewing position.

Communications

AD-698 719, *CATV System Operation*, J. W. Stilwell, 12 pp.

AD-698 655, *New Wiring Techniques in Metropolitan Areas*, H. J. Schlafly, Teleprompter Corp., 10 pp.

AD-698 607, *Electrically Welded Thin Aluminum Envelopes and Their Use in Communications Cable Designs*, E. Scheffler et al, 11 pp. Describes a process for welding aluminum strip of a thickness less than 0.25 mm on cable core diameters up to 75 mm.

PB-184 114, *Theoretical and Experimental Study of the Transmission of Laser Radiation Through Water*, K. R. Hessel and A. H. LaGrone, 132 pp.

AD-685 819, *Experiments With a New Message Format for Digital Encoding of Pictorial Information*, B. Lippel, 56 pp.

AD-692 268, *Communication Satellites and Their Possible Influence on the Auto-*

mobile, J. L. Hult, 36 pp. Summarizes progress of communication satellites and their future technological potential. Report discusses use of UHF satellites for mobile communication services, including new concepts permitting intense sharing of these frequencies with satellites without penalizing the established and allocated usage. The future of travel and the automobile is discussed, and some new ideas about future automobiles, a freeway express transit, and an automated urban local transportation utility are presented.

AD-700 244, *The Mathematics of Signal Recovery*, D. L. Chaffee and R. D. Benning, Civil Engineering Lab., Port Hueneme, Calif., 61 pp. Investigates mathematical methods of separation and identification to recover the intelligence portion of recorded noisy signals when the wanted signals provide only a small fraction of the total signal energy. A model for the mathematical solution of the problem is developed and a computer program realizing the mathematical relationships is presented.

AD-855 393, *Mobile Switching and Multiplex Terminal*, D. Green et al, 82 pp. Describes a new type of memory cell circuit with which four modes of operation are possible, making it especially useful for communication systems.

AD-689 847, *The Fast Fourier Transform and Its Application in Noise Signal Analysis*, R. C. Young, 60 pp. Discusses the fast Fourier transform and its application in the direct method of power spectrum analysis. A routine is presented which estimates the first-order linear system through

which white noise is introduced to create colored noise.

PB-184 438, *Reports on Selected Topics in Telecommunications*, Committee on Telecommunications, National Academy of Engineering, Washington, D.C., 159 pp. Discusses satellites and other long-haul transmission modes, electromagnetic compatibility and urban communications.

AD-698 522, *Speech Research*, 182 pp. Gives status and progress of studies on the nature of speech, instrumentation for its investigation and practical applications.

PB-185 979, *X-Radiation Control Programs in The Color Television Industry*, D. R. Smith et al, 29 pp. Summarizes efforts being made in design of television receivers for reduction of x-ray emissions. Procedures used by manufacturers for measuring x-radiation from color television receivers and components under plant conditions are discussed.

AD-684 793, *Specifications for Electronic Image-Forming Devices*, L. M. Biberman, 41 pp.

Control Systems and Instrumentation

AD-701 943, *Development of a High Speed Solenoid and Drive Amplifier*, T. Shoosmith, 52 pp. Describes a solenoid and drive amplifier capable of rapid operation (1-2 ms) and suitable for operating control valves in high-speed pneumatic and hydraulic servo mechanisms.

Data Processing

AD-699 930, *Case Study in Interactive Graphics Programming: A Circuit Drawing and Editing Program For Use With a Storage-Tube Display Terminal*, J. W. Brackett et al, 102 pp. Presents concepts involved in building and manipulating a data structure through graphical interaction, using the drawing and editing of electrical circuits as a vehicle.

N70-10724, *Cinematic - Fortran Subprograms for Automatic Computer Microfilm Plotting*, R. G. Kannenberg, 50 pp.

AD-692 200, *Computer Recognition of Three-Dimensional Objects in a Visual Scene*, A. Guzman-Arenas, 290 pp.

Information Technology

PB-184 811, *Progress Toward a Chemical Registry System at Chemical Abstracts Service*, Chemical Abstracts Service, American Chemical Society, 195 pp. Describes present status and operation of the Chemical Registry System, an information-handling system to organize and file information about chemical substances. The Registry System files structural data, molecular formulas, names, and bibliographic citations in a set of interrelated manual and machine files, making possible the quick retrieval of various items of data about the substances filed.

PB-185 294, *AKWIC (Author and Key Work in Context)*, S. Juhasz, et al, 11 pp. Describes an experimental information display system (AKWIC) and compares an AKWIC mockup with the corresponding WADEX (Word Author Index) and KWIC (Key Word In Context) systems.

PB-188 957, *Information Storage and Retrieval*, G. Salton et al, 496 pp. Describes research in automatic information storage and retrieval. Report covers system design, text processing and analysis experi-


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ments, user feedback procedures, and document and query clustering methods.

PB-186 400, *Progress in Scientific and Technical Communications* — 1968, Committee on Scientific and Technical Information, Federal Council for Science and Technology, 99 pp. Covers activities of the Committee on Scientific and Technical Information (COSATI) for the calendar year 1968. Report reflects the continued expansion of scientific and technical information activities within the United States Government, and describes advances made in the communication of such information. Significant achievements of the Federal agencies as well as of the panels and task groups of COSATI are detailed.

AD-697 403, *Statistical Information Retrieval System*, N. M. DiFondi, 56 pp. Develops an information retrieval system using technical word occurrences as a basis for classification.

PB-187, 857, *Factor Analysis of Selected Information Science Curricula*, M. E. Dexter, 33 pp. Uses automatic indexing and factor analysis techniques to identify basic concepts present in information science curricula.

AD-698 181, *A General Index to the Library of Congress Classification*, L. Newman, 14 pp.

PB-187 983, *Information Science: Toward the Development of a True Scientific Discipline*, M. C. Yovits, 30 pp.

PB-184 137, *Video Communication Program*, L. S. Haynes, 25 pp. Describes a video terminal system that can be connected to a main computer to provide rapid natural communication between the user and the system.

Optics

AD-696 429, *A Technique for Dissecting and Recording Holographic Information*, P. F. Krzykowski and J. J. Pucilowski, 10 pp. Presents techniques of optically imaging a hologram on the photocathode of a camera tube, dissecting this two-dimensional pattern into TV-type serial information for electrical transmission to another location, and reconstituting the serial information into a holographic pattern with the aid of a very-high-resolution cathode-ray tube at the remote location.

AD-691 131, *Holographic Interferometry — Techniques and Applications*, R. J. Iversen and J. W. McGarvey, 28 pp. Presents three applications of holographic interferometry which are useful as design and inspection techniques for a wide variety of military hardware.

AD-689 233, *Optical Absorption Meter*, G. D. Gilbert et al, 64 pp. Describes a second-generation optical absorption meter than can be used by an oceanographic technician in daylight (i.e., near the surface) or in depths of at least 600 ft.

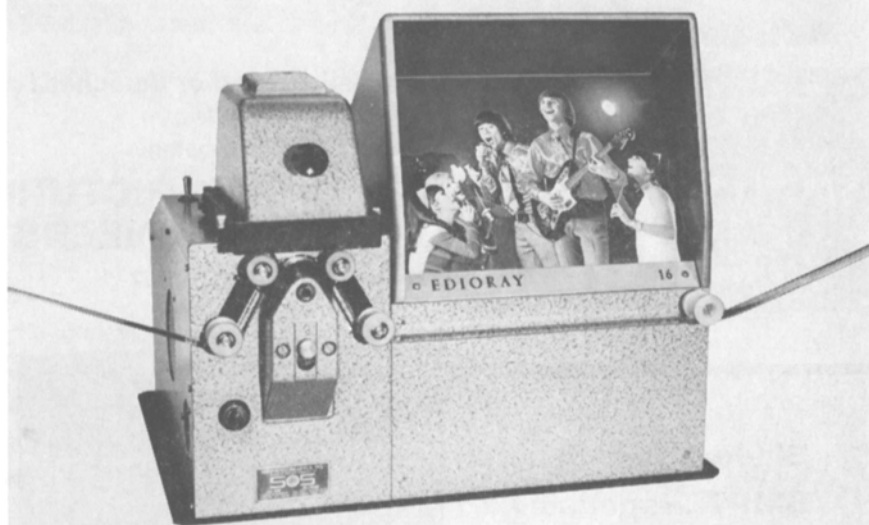
AD-691 267, *Applications of Coherent Optics to Geological Imagery*, R. H. Mitchell and F. B. Rotz, 58 pp. Discusses determination of the two-dimensional power spectrum of water waves, detection of linear geological features in aerial photographs, and water motion detection and measurement.

AD-691 589, *Modulation and Deflection of Laser Beams*, M. J. Dore, 154 pp. Discusses design and performance of electrooptic modulators. Report describes a practical modulator using ADP which re-

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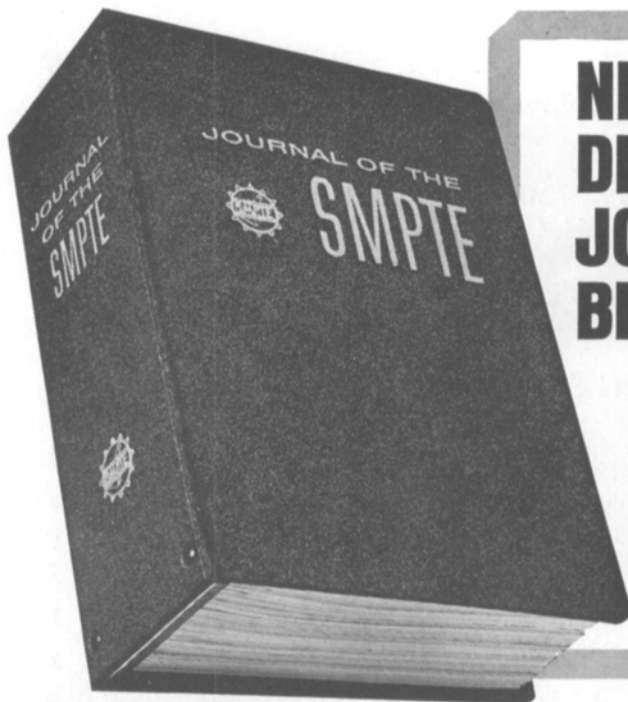
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PB-183 844, *X-Ray Optics*, J. Magnus, 70 pp. Develops a technique to improve the spatial resolving power of a Type 1 x-ray telescope while reducing its size and weight by an appreciable amount. The same basic optical manipulations, with minor modification, can be applied in the field of x-ray microscopy.

N70-12093, *Investigation of Laser Frequency Stabilization*, V. J. Corcoran et al, 63 pp. Investigates stabilization of a far infrared laser. Both phase stabilization and frequency stabilization are considered.

AD-694 035, *Acoustic Imaging by Holography*, R. B. MacAnally and C. Yeh, 249 pp. Describes a scanning technique for generating acoustic holograms of underwater objects.

AD-698 259, *Progress in Image Processing Techniques and Equipment*, B. L. McGlamery et al, 84 pp. Compares performance of different methods of image restoration as a function of noise level in the degraded image and noise characteristics of several different sensors used for recording images. Capabilities of the computer system used for image processing are described.

AD-699 601, *Separation of Additive and Subtractive Moiré Patterns*, J. S. Clark and A. J. Durelli, 25 pp. Describes a spatial filtering technique for observing several different moiré patterns in the same image of superposed gratings and for separating them at will.

Printing, Graphic Arts, Photography

N69-40812, *The Effect of Object Motion in Fraunhofer Holography With Application to Velocity Measurements*, W. P. Dotson, Jr., 23 pp. Analyzes the in-line Fraunhofer hologram with the assumption that the object moves a significant distance during the observation time. An equation is derived which predicts the effect that object motion has upon the recorded fringe pattern.

AD-698 338, *AR-109 Viewer-Printer, Projection, Photographic*, W. M. Emlen, 40 pp. Describes development and operational capabilities of a combination direct/rear projection viewer and a quick printer.

HASL-208, *Ground Plane Printed Circuit Boards by Refracted Photographic Method*, F. Wilson, 9 pp.

N69-33322, *Evaluation of Motion-Degraded Images*, 178 pp. Proceedings of a seminar held in Cambridge, Mass., Dec. 3-5, 1968.

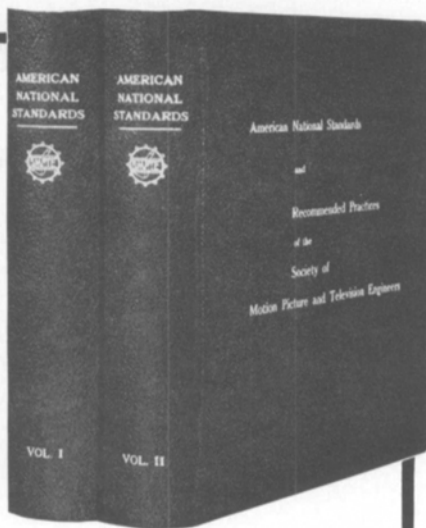
AD-688 196, *An Underwater Radiance Distribution Camera System*, R. C. Smith and R. W. Austin, 25 pp. Describes an instrument consisting of two back-to-back cameras equipped with 180° field-of-view lenses packaged to take photographs underwater upon command from the surface. From the films obtained, it is possible to determine the values of underwater radiance by means of photographic photometry.

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Camera for Diffraction Studies, J. J. Kelly and R. A. Douglas, 45 pp. Describes a camera that includes an initial optical relay system, a continuous streaking system based on a rotation optical polygon, and terminal optics in the form of a conventional camera with rectangular format that permits Polaroid use.

N69-15381, *An Optical System for Recording Schlieren Images With a Continuous-Ultra-High-Speed Framing Camera*, L. E. Mauldin III and E. C. Compton, 33 pp. Describes development of a square-wave-pulse light generator and specialized schlieren system. The integrated system comprising the ultra-high-speed camera, the f/8 Z-light-path schlieren system, the focusing lenses, the square-wave-pulse light generator, and the two-beam knife-edge assembly, affords up to 72 consecutive schlieren photographs at a recording rate up to 1,200,000 frames/s. The generator provides selectable pulse durations of 60, 250, and 1000 μ s.

AD-688 895, *Holography and Stereoscopy*, N. George and J. T. McCrickered, 28 pp. Describes stereoscopic photography and viewing and details the holographic stereogram including scaling, resolution, filling-in, and spacing between component photographs.

AD-690 887, *Interactive Computer-Mediated Animation*, R. M. Baecker, 352 pp. Investigates the use of interactive computer graphics in the construction of animated visual displays.

AD-695 182, *Holography and Stereoscopy*, N. George and J. T. McCrickered, 32 pp. Discusses application of holography to stereoscopy (the holographic stereogram), describes the two-lens stereo-viewer, reviews two basic types of the holographic stereogram, and illustrates image formation and scaling using geometrical optics.

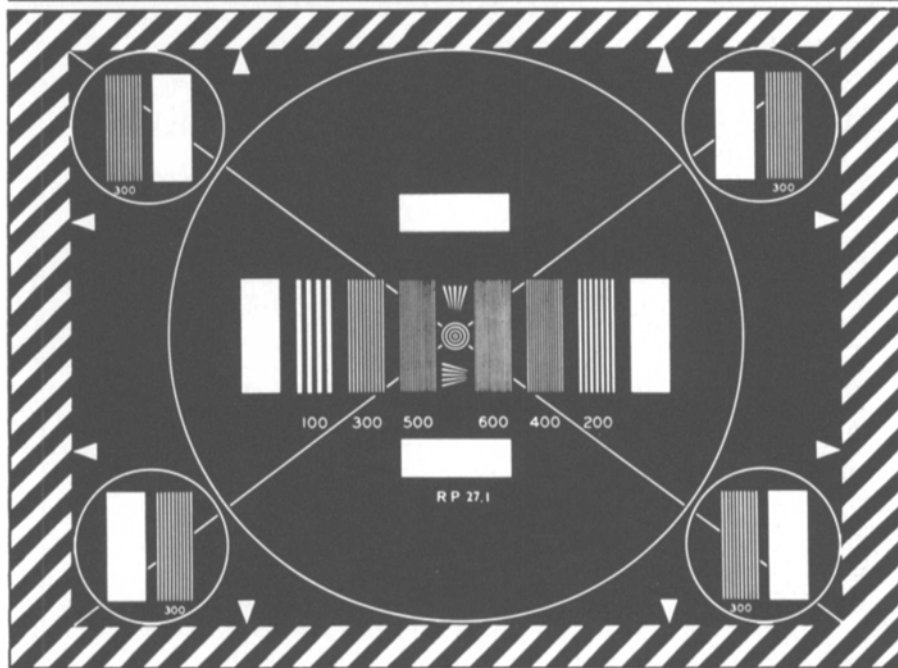
AD-692 477, *Fundamentals of Holographic Velocimetry*, F. M. Schofner et al, 78 pp. Presents experimental and theoretical considerations of the application of Fraunhofer holography to measurement of three-dimensional flow-field velocity components.

Space Technology

N70-10030, *Initial Scientific Observations Resulting From Man's First Trip to the Moon*, NASA, 204 pp. The report discusses the experiments that were conducted as part of the Apollo 11 Mission, and includes a section written by the astronauts concerning their landing and ascent, the general surface characteristics of the lunar surface (color, craters, rock fragments, soil characteristics), sampling operations, and physiological effects, such as the effect that the lunar gravity field has on Earth-learned skills. Results of preliminary physical, chemical, and biological analyses of the lunar material brought back to Earth are discussed. Many clear, detailed photographs of the lunar samples and of the astronauts performing their experiments on the lunar surface are included.

N69-36501, *Project Gemini — Technology and Operations (a Chronology)*, J. M. Grimwood et al, paper copy \$2.75 (microfiche 65 cents), 324 pp. A NASA Historical Series report, written for the informed, but not necessarily technically competent, layman.

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