Advance Program

This program is as complete and accurate as was possible at press time. It may contain errors, and changes and additions are expected before the Final Program is printed for the Conference. If very brief Conference attendance has to be planned to hear only one session or a specific paper or papers, members are advised to inquire the week before the Conference by telephoning Society Headquarters in New York (212 TN7-5410) or Program Chairman *John J. Kowalak* at MOVIELAB, Inc., in New York (212 JUdson 6-0360).

Outline of Program

Sunday

10:00–4:00 Registration

Monday

8:00 Registration
9:00 Instrumentation and High-Speed Photography
12:15 Get-Together Luncheon—Guest Speaker
2:30 Space Technology
8:00 NASA Presentation

Tuesday

9:00 CONCURRENT SESSIONS
Laboratory Practices; 8mm and Small-Format Films; Sound Recording
Panel Discussion—Education in Instrumentation and High-Speed Photography
2:00 Laboratory Practices; 8mm and Small-Format Films; Sound Recording
8:00 Presentation of Awards

Wednesday

9:00 Equipment Papers and Demonstrations
2:00 New Techniques for World's Fair Projection
5:00 World's Fair Boat Trip and Buffet

Thursday

9:00 Television Engineering and Production
2:00 Television Engineering and Production
8:00 Tours of CBS Technical Facilities

Friday

9:00 Motion Pictures and Television in Medicine
2:00 Motion Pictures and Television for Education

Association of Cinema Laboratories

Fall Meeting, September 26, 1964
Commodore Hotel, New York

8:00 Breakfast Meeting for ACL Board of Directors—Parlor D.
10:00 Meeting of ACL Members—Parlor A.
12:00 Luncheon—Windsor Court.
1:30 Equipment and Techniques Forum—Parlor A. (This Forum is open to SMPTE members.)
6:30 Reception and Dinner—Parlors B and C. Presentation by *Industrial Photography* of its sixth annual industrial film awards.

SUNDAY—SEPTEMBER 27

10:00–4:00 REGISTRATION

MONDAY MORNING—SEPTEMBER 28

8:00 REGISTRATION

9:00 INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

Rectification of Oblique Photographs to Obtain Base-Surge Contours

D. E. PHILLIPS, U.S. Naval Ordnance Laboratory, Silver Spring, Md.

Rectification of oblique aerial photographs is one means used to obtain contours of the base surge formed by an underwater nuclear explosion. An analytic photogrammetric method of rectification, based on the visible horizon and altitude of the photo aircraft, is described. This method gives the position of any point on the photograph in terms of its coordinates in a rectangular grid system on the water surface. The supplemental information needed to rectify an oblique photograph also is discussed.

High-Accuracy Plastic-Replica Optics

HERBERT MEYER, Electro-Optical Systems, Inc., Pasadena, Calif.

Optical components, specifically reflective elements, have been fabricated by various processes. A method of considerable promise is described which allows reproduction of the surface and shape of a conventionally fabricated optical master with high accuracy utilizing plastic materials and processing techniques. While present efforts are confined to the replication of mirror optics, the extension of this process to the production of refractive optical elements appears basically feasible. Environmental test results and optical performance characteristics of typical replicated parts are described. Application aspects are discussed, with some reference to motion-picture and television uses.

Electronic Lens-Characteristic Measurements Using a Nonscanning Method

PAUL PARGAS, LogEtronics, Inc., Alexandria, Va.

Utilizing the light distribution changes in the image plane as the image of a high-contrast target goes through focus, many characteristics of a lens can be evaluated using a nonscanning method. A photoconductive surface in the image plane evaluates the information in the image, without the operator having to resort to conventional photographic techniques. Among the characteristics that can be measured are the variations in focal length at various wave lengths in the visible and in part of the infrared region, flange distances, the resolving ability of the lens, and some aberrations. Basically, the instrument measures sharpness of image. No direct relationship to the absolute values of the modulation transfer function has been established as yet. The basic instrument, the Focatron 122, and associated components are described.

An Explosive Light Source of Low Energy for 30-Nanosecond Schlieren or Shadowgram Photography

T. P. LIDDIARD, JR., S. J. JACOBS and I. KABIK, U. S. Naval Ordnance Laboratory, White Oak, Silver Spring, Md.

A short-duration light source to substitute for a spark gap in schlieren or shadowgram photography is described. Having a spot diameter of 4.4 mm, the flash delivers 90% of its total illumination in about 30 nanosec. The explosive system is equivalent to a small electric detonator containing 0.1–0.3 gram of PETN. The total energy of 500–1500 j is sufficiently small to allow handling with relative safety. A simple container to protect operator and equipment during use is described. The short flash-duration and uniformly reproducible spot size of this type of light source is attractive for stopping the motion of fast objects and shock waves.

Undersea Instrumentation for Photographic and Video Documentation

JAMES F. SELVIDIO, U. S. Navy Underwater Sound Laboratory, New London, Conn.

Photoinstrumentation in undersea exploration is discussed with particular reference to the U. S. Navy's recent success with Project Sealab I.

12:15 GET-TOGETHER LUNCHEON

Guest Speaker:
George Stevens, Jr.,
Director, Motion Picture Service,
U.S. Information Agency

MONDAY AFTERNOON

2:15 BUSINESS MEETING

2:30 SPACE TECHNOLOGY

A Video-Modulation Test System for Space Television

GLEN R. SOUTHWORTH, Ball Brothers Research Corp., Boulder, Colo.

Transmission of video information from lunar and translunar distances requires narrow bandwidths and highly efficient modulation techniques. In the majority of instances, this requires slow-scan television cameras with frame times of several seconds or longer. A video modulation test system has been designed to be a high-quality, flexible laboratory tool in investigations of parameter variations and trade-offs involved in implementing optimum space television systems. Frame times variable from 1 sec to 30 min, bandwidth from 100 cycles to 8 kilocycles, and resolution from 100 × 100 picture elements to greater than 1000 × 1000 picture elements are featured. Resolution is controlled digitally on both axes, and analog-to-digital conversion equipment allows encoding with precisions of from 1 to 8 bits.

A high-resolution 1½-in. vidicon camera head is used for the input device and achieves 40% amplitude response at 1000 lines. Either opaque or transparent subjects may be viewed. Aperture correction, gamma correction, and test signal circuitry are included in the camera control. Narrow-band TV images are photographically reconstructed by means of a high-resolution kinescope recorder employing a 5-in. cathode-ray tube and an oscilloscope camera. Excellent resolution, gray scale, and freedom from fog effects are obtained. Special circuitry in both the camera and the kinescope recorder allows the simulation of unusual scan patterns when required for experimental purposes. A unique feature of the system is the fact that the video signal is first generated as a wide-band real-time signal, then is converted to the desired bandwidth by means of high-speed sampling techniques. This approach provides an unusual degree of performance and operational flexibility, overcoming the major limitations of conventional slow-scan systems. Examples of system performance are shown, and various design factors are discussed.

Photographic Quality in Developing

HERBERT A. STARBIRD, RCA Service Co., Patrick AFB, Fla.

Photographic quality in developing-quality and developing-process control, based on statistical methods, is discussed. The product quality implications of a normal system and of deviations from the normal are illustrated. The performance of an Ektachrome Commercial developing process over a one-year period is used to illustrate process quality and its relationship to product quality.

The Television Camera System for the Apollo Command Module

J. L. LOWRANCE and PAUL ZUCCHINO, RCA Astro-Electronics Div., Princeton, N.J.

The three-man voyage to the moon will be covered by television, with a three-fold system requirement: observation of the astronauts' behavior and performance during launch; monitoring of the astronauts as they perform various functions in the command module work area, and their reaction to the space environment; and, in handheld operation, the taking of pictures of the earth and moon during orbits around either and during midcourse. Factors such as dynamic range of illumination and operation requirements with a narrow-angle zoom lens are discussed. The camera circuit design, using integrated circuits, is outlined, along with a discussion of the design problems and circuit performance.

A Cine Spectrograph for Reentry Measurements

BERNARD D. PLAKUN and WILLIAM C. SCHUPP, Barnes Engineering Co., Stamford, Conn.

The cine spectrograph records a reentry event as a consecutive series of spectrographic records. Wavelength and time resolution, wavelength coverage and running time are the principal performance factors. Frame rates of from 10 to 30 frames/sec and a capacity of 1,800 frames are considered adequate for reentry observations. Spectral performance is affected by target size and the accuracy of target tracking. A dispersion element using a pierced grating and prism combination enables considerably improved spectral resolution over a grating alone.

Photographic Instrumentation for Reentry Measurements

W. G. PLANET, Barnes Engineering Co., Stamford, Conn.

Photographic instruments have aided immeasurably in the acquisition of data during the reentry phase of ballistic missile tests. These include ballistic cameras for trajectory determination, spectral cameras for chemical and thermal studies, and an assortment of non-dispersive, high-resolution or high-speed cine cameras for spatial and aerodynamic studies. Some typical photographic systems used on these tests and details of their choice by function and performance capabilities are discussed.

A Visual Instrumentation System for a Lunar Orbiter

F. J. BINGLEY, RCA Astro-Electronics Div., Princeton, N.J.

A camera system for use on a lunar orbiter is described. To provide information concerning the topography of the lunar surface, the camera system provides stereoscopic pairs of images. Methods of achieving stereoscopy at the desired resolution are discussed. The relation between orbital parameters and the extent of lunar surface surveyed is considered in relation to available sensor resolution. The optical system requirements are described in terms of aperture and focal length necessary to perform the mission under the conditions of illumination, lunar albedo, resolution and signal-to-noise ratio.

An Experimental Photo-Tape Frame-Camera System

W. J. POCH, RCA Astro-Electronics Div., Princeton, N.J.

The basic principles and advantages of recording and storing optical images in the form of equivalent electrical charge patterns on a special kind of flexible tape are presented. An experimental model of a frame-type camera system, which was designed to demonstrate the feasibility of this method of recording, is described. Characteristics of the camera and its method of operation are discussed. This discussion includes a description of the "prepare" or "erase" process, the "writing" or recording process, and the "read-out" process. Results of preliminary tests are reported which verify the validity of the basic concepts involved in this kind of video recording system.

Engineering Photography Methods for the Titan II Research and Development Flight Program

ARCH D. SMITH, Martin Co., Cocoa Beach, Fla.

Techniques of photographic instrumentation for the Titan II program are surveyed. It is noted that a "fringe benefit" of photographic techniques is their potentiality for recording the unexpected.

Closed-Circuit Television for Data Acquisition

GORDON D. HILL, U.S. Naval Missile Center, Point Mugu, Calif.

The use of photography in missile test and evaluation is generally recognized as an optimum means of preserving test results for study and analysis, for remote recording under conditions dangerous or impossible to permit viewing by an observer, and for obtaining and preserving action too rapid for the eye to discern. Although photography *per se* supplies many answers, a valuable adjunct to data acquisition can be provided by closed-circuit television, which, in conjunction with the photographic medium, extends and accelerates pictorial data acquisition. Described are some of the methods through which closed-circuit television has been used with magnetic and photographic recording equipment in missile system testing and related research projects at the Naval Missile Center, Point Mugu, Calif.

MONDAY EVENING

8:00 NASA PRESENTATION

The Use of Motion Pictures in the Space Age—Present and Future

JOHN R. BRINKMANN, Chief, Photographic Div., NASA Manned Spacecraft Center, Houston, Tex.

TUESDAY MORNING—SEPTEMBER 29
CONCURRENT SESSIONS

9:00 LABORATORY PRACTICES; 8MM AND SMALL-FORMAT FILMS; SOUND RECORDING

Motion-Picture Film—Its Size and Dimensional Characteristics

A. J. MILLER and A. C. ROBERTSON, SMPTE Film Dimensions Subcommittee

A New Fine-Grain Duplicating Positive Film

W. H. BAHLER, R. A. MORRIS and F. W. SPANGLER, Eastman Kodak Co., Rochester, N.Y.

A new duplicating positive film, Eastman Fine Grain Duplicating Positive Film, Types 5366 (35mm) and 7366 (16mm), has been designed to give a 4× increase in printing speed over that of Eastman Fine Grain Duplicating Positive Film, Types 5365 (35mm) and 7365 (16mm), with no sacrifice in grain or picture sharpness. The new film also has high-temperature processing capability. The characteristics of the film are discussed, and a picture demonstration is presented.

A New Low-Speed Black-and-White Camera Negative Film

W. H. BAHLER, M. L. JUDD, F. W. SPANGLER and A. L. WILLIAMS, Eastman Kodak Co., Rochester, N.Y.

A new low-speed camera negative film, Eastman XT Panchromatic Negative Film, Types 5220 (35mm) and 7220 (16mm), has been designed to give improved sharpness in the projected print. The new film has approximately one-third the speed of Eastman Plus-X Panchromatic Negative Film, Types 4231 (35mm) and 7231 (16mm), and should be useful in exterior motion-picture photography. Processing and printing procedures are compatible with those used for Types 4231 and 7231. The characteristics of the film are discussed, and a picture demonstration is presented.

Systems for Producing 16mm Color Prints

C. M. WALL and J. W. ZUIDEMA, Eastman Kodak Co., Rochester, N.Y.

Systems for making 16mm prints from 16mm reversal color originals and reversal intermediates are described and demonstrated. Features and applications of the various systems are discussed with reference to the orientation problem that results when reversal intermediates are intercut with reversal originals.

A New High-Speed Black-and-White Camera Negative Film

W. H. BAHLER, M. L. JUDD, F. W. SPANGLER and A. L. WILLIAMS, Eastman Kodak Co., Rochester, N.Y.

A new camera negative film, Eastman Four-X Panchromatic Negative Film, Types 5224 (35mm) and 7224 (16mm), has been designed to give approximately one camera stop more speed than that of Eastman Tri-X Panchromatic Negative Film, Types 5233 (35mm) and 7233 (16mm), with very little increase in the graininess of the projected print. The new film should find wide application for motion-picture photography under available light conditions. Processing and printing procedures are compatible with those used for Types 5233 and 7233. The characteristics of the film are discussed and a picture demonstration is presented.

A New 16mm Fine-Grain Release Positive Film

W. H. BAHLER, R. A. MORRIS and F. W. SPANGLER, Eastman Kodak Co., Rochester, N.Y.

A new release positive film, Eastman Fine Grain Release Positive Film, Type 7303, has been designed to provide increased sharpness in 16mm projection prints with no sacrifice in printing speed. The characteristics of the film are discussed, and a picture demonstration is presented.

A Daylight Processing Laboratory

STELLAN DAHLSTEDT, Akustik-Konsult AB, Lidingö, Sweden

At the laboratory of Film-Teknik AB, Solna, Sweden, the development of daylight machines for the printing and processing of motion-picture films has been brought to a conclusion. Working conditions have been considerably improved, supervision and control of work have been facilitated, and a higher-quality product has been achieved.

Portable Interlock for 16mm Projection

JOSEF BOHMER, IBM Data Systems Div., Poughkeepsie, N.Y.

The Bell & Howell Model 302 projector can be used for interlock showings without physical changes. Synchronization is achieved by threading picture film and soundtrack over one common sprocket reel. This system also can be used (if the projector has a magnetic head) for recording narration for approval showings.

The Splice Simulator — A Motion-Picture Film and Video-Tape Editing Device

DAVID W. R. BROWN, Laurel, Md.

The present technique of editing film and video tape is time consuming, inexact and has not kept pace with other advances in the industry. A device is described that reduces editing to a fraction of the time formerly required and yet allows the editor to take an even greater creative and more precise approach to his work.

A New Improved Reversal Color Print Film

HERBERT L. REES, DEANE S. THOMAS, JR., and ROBERT C. LOVICK, Eastman Kodak Co., Rochester, N.Y.

CONCURRENT SESSION

9:00 PANEL DISCUSSION—EDUCATION IN INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

WILLIAM G. HYZER, Consultant and Chairman of Instrumentation and High-Speed Photography Committee, *Moderator;* DR. N. T. GRISAMORE, Assistant Dean for Research, George Washington University School of Engineering and Applied Science; PROF. CASS HURC

Secretary, Wisconsin Registration Board for Professional Engineers; DR. J. S. COURTNEY-PRATT, Bell Telephone Laboratories; DEAN C. B. NEBLETTE, College of Graphic Arts and Photography, Rochester Institute of Technology; MAX BEARD, U. S. Naval Ordnance Laboratory, White Oak, Md., and Advisor to the President for Instrumentation and High-Speed Photography.

TUESDAY AFTERNOON

2:00 LABORATORY PRACTICES; 8MM AND SMALL-FORMAT FILMS; SOUND RECORDING

Synchronous-Sound Filming With the New Autonomous Cameras and Recorders

J. P. CARSON, Eclair Corp. of America, Los Angeles

After a statement of norms for synchronous-sound filming, past methods and their relative advantages and disadvantages are discussed. Features of new equipment—unblimped cameras with either crystal-oscillator power supplies or constant-speed motor-generated sync pulses, used together with self-powered ¼-in. tape recorders and wireless microphones—are outlined. Techniques of sync marking and identification with the new equipments are presented.

A Fiber-Optics Printer Using the Bell & Howell Additive Lamphouse

ARTHUR J. MILLER and ROBERT HARTSHORNE, Du Art Film Laboratories, Inc., New York

The combination of a fiber-optics bundle and the Bell and Howell additive-color lamphouse permits the construction of a motion-picture printer with unique advantages. The use of the fiber-optics bundle greatly reduces the tendency to reproduce negative defects such as occurs when printing with specular light. The Bell and Howell lamphouse provides accurate scene-to-scene color balancing at release printing speed of 180 ft/min. Several other advantages are discussed.

16mm Double-Rank Printing and Developing System for Black-and-White and Color Motion-Picture Films

JOHN J. KOWALAK and SAUL JEFFEE, MOVIELAB, Inc., New York

An 8mm 400-ft Sprocketless Projector With Skip-Frame Film Advance

ROBERT J. ROMAN, ROBERT B. JOHNSON and BION W. McCLELLAN, Eastman Kodak Co., Apparatus and Optical Div., Rochester, N.Y.

The simplification of mechanism inherent in the sprocketless approach to motion-picture projection enables the designer to provide new and useful features economically. The Kodak Caralux 8 Projector, an unusual low-format projector, has an exceptionally steady pulldown mechanism that provides three film speeds forward and three reverse with no change in illumination. Some of the engineering problems associated with the design are reviewed, and the solutions described.

Unique Applications of 8mm Magnetic Sound Film to Audio-Visual Systems

T. H. HENNESSEY, Fairchild Camera and Instrument Corp., Plainview, L. I., N. Y.

A variety of system applications are detailed to give evidence of the flexibility possible with 8mm sound film as an information storage and playback medium. Ranging from simple remoting to sophisticated multiplex and dial systems, the applications described are actual and cover both educational and industrial usage.

Magnetic Soundtrack Addition Without Loss of Optical Track Playback

MAXWELL A. KERR, Melbourne Beach, Fla.

Two methods are detailed for adding new soundtracks to existing prints, without loss of the original optical tracks. The twin-stripe system uses a narrow magnetic stripe on each side of, and partly covering, the optical track; it allows playback on standard projectors, without modification. The Lewin System also is discussed, and new data are given concerning the infrared transparency of magnetic coatings and motion-picture film bases.

A New Universal Synchronizer

DON McLAUGHLIN, Radio Corp. of America, Burbank, Calif.

The Unilock (*uni*versal inter*lock*) synchronizer is intended to fill a need of long standing. The popularity of tape in sound and video recording has made it desirable for use in conjunction with "sprocketed" materials, and the Unilock has been designed to interlock nonsprocketed and sprocketed media.

Special-Case Apparatus for Photographic Effects

WALLY GENTLEMAN, National Film Board, Montreal, Que., Canada

The adaptation of a conventional motion-picture camera geared head for an ultra-slow pan and tilt movement for time-lapse cloud photography is discussed. This assembly enables scenes to be filmed with a camera action that creates a sense of further dimension in time-lapse sequences. An apparatus designed at the National Film Board of Canada to create an apparent additional dimension in model photography by rotation of the entire camera also is described.

The G-Number — A Useful Lens-Aperture Designation

ALLEN STIMSON, Preliminary Product Development, Eastman Kodak Co., Apparatus and Optical Div., Rochester, N.Y.

The *relative photometric aperture* or *G*-number is a more realistic and accurate measure of lens capability than the relative geometric aperture, or $1/(f\text{-number})$. The *G*-number is the ratio of the field luminance to the focal-plane illuminance. It is a single-number measurable quantity that expresses the exposure effectiveness of a lens opening taking into account all lens and mounting variables. The *G*-number is easy to measure, use, explain and understand. It simplifies exposure calculations and the manufacture of automatic cameras. The lens efficiency is $1/G$.

A Motion-Picture Slide Copier

WILLIAM NIEDERAUER, Bankers Trust Co., New York

A motion-picture slide copier has been designed to transfer 35mm slides to 16mm motion-picture film. A follow-focus variable-length lens system and automatic panning and zooming features create an illusion of motion. The copier is programed to keep a predetermined count of frames taken, and each 100-ft roll of 16mm film evolves synchronized to a prerecorded soundtrack.

TUESDAY EVENING

8:00 PRESENTATION OF AWARDS

SMPTE President Reid H. Ray will preside over the Awards Program, during which the chairmen of awards and honors committees will present the citations.

WEDNESDAY MORNING—SEPTEMBER 30

9:00 EQUIPMENT PAPERS AND DEMONSTRATIONS

Synchronous Magnetic Film Recorder (Demonstration)

WILLIAM H. STUTZ, *Amega Corp., Sun Valley, Calif.*

The Arriflex Story—Film

VICTOR JAMES, *Arriflex Corp. of America, New York*

Alpa 35mm Reflex Camera; Kinoptik Apochromat Lenses (Paper)

YVONNE BRANDES, *Karl Heitz, Inc., New York*

Gemini Tape/Film System and MGM Video-Tape Editing Device (Paper)

WARREN SMITH, *MGM Telestudios, Inc., New York*

New Quartz Lighting Equipment (Demonstration)

HAROLD KOVNER, *Novatech Corp., New York*

WF 30 Fastax Camera (Paper and Demonstration)

FRED M. EMENS, *Revere-Wollensak Div., 3M Co., Rochester, N.Y.*

Sylvania Q 1 Light (Demonstration)

EDWARD A. GILCHRIST, *Sylvania Electric Products, Inc., New York*

WEDNESDAY AFTERNOON

2:00 NEW TECHNIQUES FOR WORLD'S FAIR PROJECTION

Panel Discussion—Coordination of Production, Projection and Design for *To Be Alive*

BOSLEY CROWTHER, The New York Times, *Moderator;* FRANCIS THOMPSON and ALEXANDER HAMMID, Francis Thompson, Inc.; JOHN J. KOWALAK, MOVIELAB, Inc.; WILLIAM SZABO, Reevesound Co., Inc., and LEWIS S. GOODFRIEND, Lewis S. Goodfriend & Associates.

Auto-Technology in the Theater

ROBERT T. VOGEL, Wheel-Garon, Inc., New York

A presentation at the New York World's Fair required a combination of live performers and life-size projected figures, along with careful coordination of the projector, movable projection screens, stage lighting and sound. The problems of coordination were resolved through an automated switching complex.

Unusual Production and Projection Techniques for *The Searching Eye*

SY WEXLER, Wexler Film Productions, and LARRY YUST, Saul Bass & Associates

Time-lapse, high-speed, underwater, aerial and microphotographic techniques are combined in a unusual motion picture at the Eastman Kodak Pavilion. The film is shown by a specially designed system that includes two 35/70mm projectors, electrically interlocked to permit one machine to show 35mm film while its mate shows 70mm. A new tilting, swinging camera lens used in the filming is described, as well as the projection and sound system used in the presentation.

A 65-Projector 16mm System With Synchronized Monaural Sound

DAVID MINTZ, Producer

A 1,000-chair ride takes visitors to the Bell System Pavilion through a "cavern" lined with rear-projected 16mm motion pictures and slides, interspersed with three-dimensional stage settings. Each chair is equipped with a special monaural sound system that is synchronized with both the ride and the visual presentations. Sixty-five special projectors show continuous motion pictures and slides.

5:00 WORLD'S FAIR BOAT TRIP AND BUFFET

(See p. 679 for details.)

THURSDAY MORNING—OCTOBER 1

9:00 TELEVISION ENGINEERING AND PRODUCTION

Television Mobile-Unit Design

I. S. ROSNER, Rosner Television Systems, Inc., New York

Television mobile units may be classified in three main groups: large, completely self-contained control centers with full production facilities; medium-sized, live-camera units with audio facilities and microwave transmitter or small video-tape recorder; and small, highly mobile one-camera units with microphone input and microwave transmitter or small video-tape recorder. All of these units have utilized conventional electronic components and carrier vehicles. Designs featuring new integrated electronic and vehicle packaging are proposed.

TV Facilities for the 1964 Political Conventions

MERLE C. WORSTER, American Broadcasting Co., New York

Television facilities used in covering the 1964 political conventions, along with new techniques and facilities currently being used to facilitate more efficient and flexible operation, are discussed. These facilities include transistorized r-f camera chains, all solid-state miniaturized image-orthicon cameras, a portable video switching system using reed relays, an r-f system for locking remote sync generators, station-wagon mobile video-tape units and solid-state microwave equipment.

Electronic Magnification for 3-In. Image Orthicons

FRED HIMELFARB, National Broadcasting Co., New York

A Film: Lighting for Television

J. A. FLAHERTY, CBS Television Network, New York

The film describes and demonstrates techniques of television lighting used by the CBS Television Network. Actual scenes and practical situations are used to illustrate an approach to lighting that not only insures proper TV camera exposure, but also provides artistically motivated light to help create moods, to add visual interest to settings, to model performers, and to produce an illusion of reality and depth in an otherwise flat picture. Special emphasis is given to outlining the basic principles of television lighting and to relating them to day-to-day operating problems. The procedures relate to lighting for all types of existing television cameras — 3- and 4½-in. image orthicons, vidicons, and Plumbicons.

An Introduction to Separate-Luminance Color-Camera Systems

KOICHI SADASHIGE, Radio Corp. of America, Camden, N.J.

With present-day television camera tubes and the associated components and circuitry, the conventional three-primary-color camera system can suffer from significant performance degradations. A separate-luminance system can be designed to offer substantial improvements in picture sharpness, sensitivity and contrast range accommodation over the conventional approach. Quantitative analysis of the system substantiates the operational results that have been achieved.

THURSDAY AFTERNOON

2:00 TELEVISION ENGINEERING AND PRODUCTION

A Technique for the Cutting and Splicing of Video Tape With Electronic Location and Display of the Edit Pulse

STEPHEN F. TEMMER, Gotham Audio Corp., New York

Background and need for rapid means of splicing video tape are discussed. Current optical methods are reviewed against advantages to be gained from the electronic method. Engineering and technological details of the splicer are discussed together with operational procedure.

Animation on TV Tape

NORMAN F. BOUNSALL, Ampex Corp., Redwood City, Calif.

An Operational Analysis of Electronic Editing Techniques

DONALD R. COLLINS, Videotape Center, New York

The state of the art of electronic editing is explored. Specialized equipment and production techniques developed for the optimum utilization of the electronic editing process are discussed. Full animation, time-lapse photography and other programed, electronically edited effects are demonstrated.

New CBS Broadcast Center Facilities

R. S. O'BRIEN, K. B. BENSON, J. A. FLAHERTY, and JOHN WHITTAKER, Columbia Broadcasting System, New York

THURSDAY EVENING

8:00 TOURS OF CBS TECHNICAL FACILITIES

FRIDAY MORNING—OCTOBER 2

9:00 MEDICAL MOTION PICTURES AND TELEVISION

Cine and TV Methods of Plotting Search Courses in Roentgen Diagnosis

MAJIC S. POTSAID, M.D., Massachusetts General Hospital, Boston

A Westgate motion-picture camera mounted on a helmet has been used to record simultaneously the scene being viewed by the wearer as well as the point of eye fixation on that scene. The technique has been developed as a means of demonstrating search courses in the survey and interpretation of x-ray films. The analysis of the examiner's eye movements during fluoroscopy has been of value in trying to explain the increase in depth awareness brought about by object rotation.

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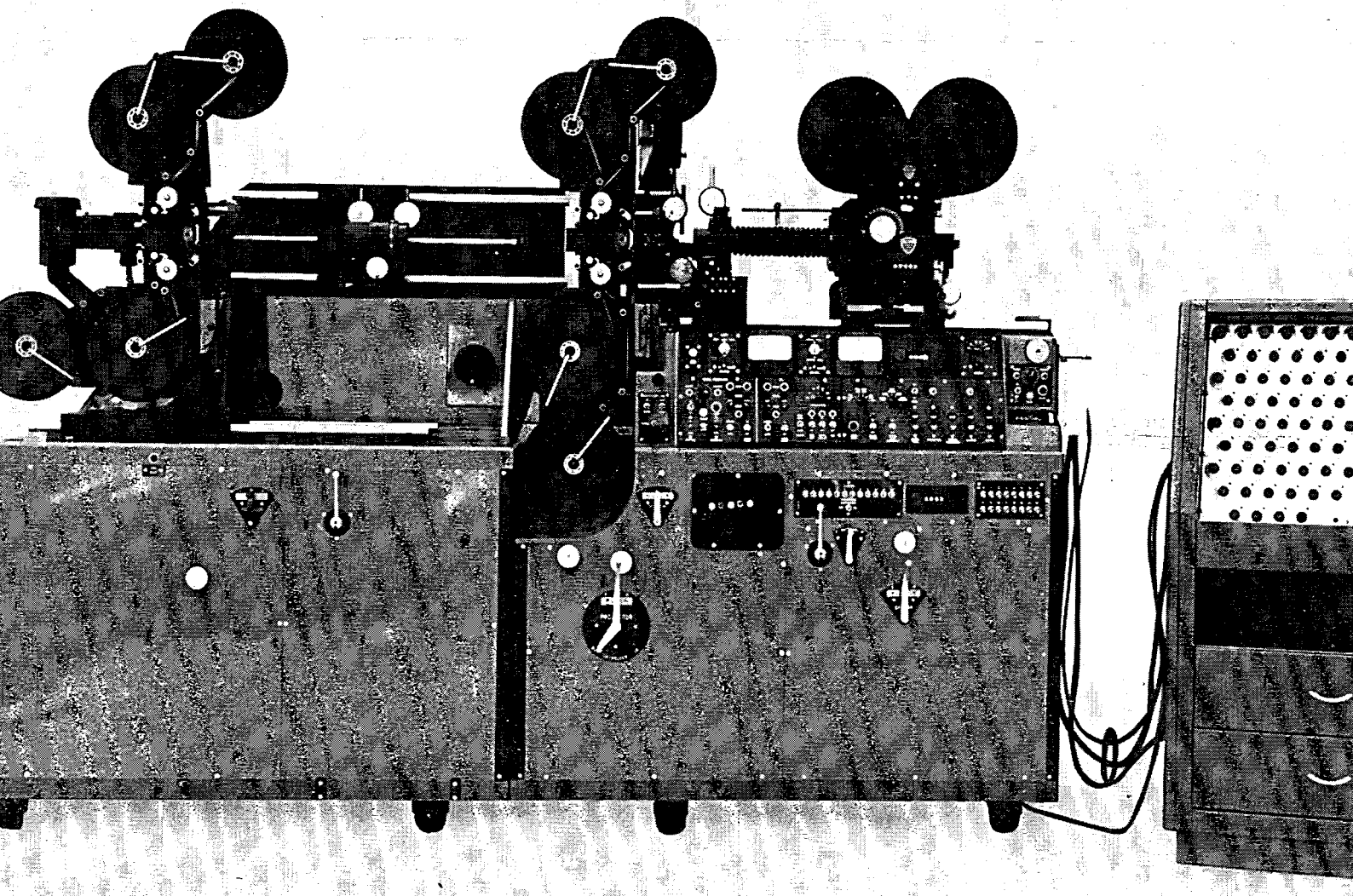

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The Application of Motion Pictures and Television to Medical Education

RALPH P. CREER, Medical Motion Pictures and Television, American Medical Assn., Chicago

An overview is presented of the utilization of television and motion pictures in communicating information to physicians in practice, medical students, nurses and other ancillary medical personnel. The approximate numbers of films and projectors used by medical schools, medical societies and hospitals are outlined, and areas in which equipment can be improved or developed to meet the special needs of the medical profession are suggested.

Roentgen Cinematography and Television Fluoroscopy: Practice and Prospectus

THEODORE A. TRISTAN, M.D., and ROBERT D. EPPERSON, School of Medicine, University of Pennsylvania, Philadelphia

Four separate television fluoroscopic installations with intrinsic roentgen cinefluorographic equipment are installed at the Hospital of the University of Pennsylvania. The installations include image intensifiers, vidicon cameras, and both 16mm and 35mm motion-picture cameras. A TV tape recorder is also employed. Comparisons of the radiation dose rates and relative qualities of the materials employed are shown. Some possible future applications involving storage devices and spot-film cameras are discussed.

Retinal Cinematography in the Hyperbaric Chamber

LEONARD M. HART, Medical Illustration Service, Veterans Administration Hospital, Durham, N.C.

The taking of 16mm color motion pictures of the retina has been accomplished by combining a modified binocular ophthalmoscope with a motion-picture camera. To make this equipment safe for use at 3 to 4 atmospheres of pressure in a large hyperbaric chamber, several changes were required. Additionally, the photographer had to learn to make motion pictures under the handicap of his sluggish, inefficient reactions at high pressures.

Cinemicrophotography of Living Tissues in Medical Research and Teaching

SUMNER WOOD, JR., M.D., Johns Hopkins Hospital, Baltimore

Experimental cinemicrophotographic studies have been made of the intravascular dissemination of cancer cells in rabbits. In some of the experiments, rabbits have been fitted with plastic and glass ear chambers, which provide thin layers of living tissue that can be photographed microscopically without anesthesia.

Motion Pictures in Psychiatric Research and Education

F. D. WALLACE, Veterans Administration Hospital, Lexington, Ky.

Television—Versatile Servant of the Health Sciences

MICHAEL T. ROMANO, M.D., University of Kentucky, Lexington, Ky.

FRIDAY AFTERNOON

2:00 MOTION PICTURES AND TELEVISION FOR EDUCATION

International Developments in 8mm Film in Education

LOUIS FORSDALE, Teachers College, Columbia University, New York

A Case Study in the Use of Film in Medical Education: Atrial Septal Secundum Defect Patterns

LEO L. LEVERIDGE, M.D., New York University Medical Center, New York

Eight Years of Instructional Television in Washington County

WILLIAM E. BRISH, Washington County (Maryland) Schools

The CBC Philosophy of Educational Television

FRED B. RAINSBERRY, Canadian Broadcasting Corp., Toronto

The Technological Revolution in Education

JAMES D. FINN, University of Southern California, Los Angeles