

ADVANCE PROGRAM

It is expected that the Convention will come off as outlined below — however, there may be some changes in timing of papers and a very few papers may be deleted or substitutions made.

All practical efforts are made to present a substantial and timely program of papers and demonstrations, even at the risk of some last-minute changes.

If you are interested in a very few specific papers, you should inquire a week before the Convention by telephoning either to Petro Vlahos, Program Chairman, c/o Motion Picture Research Council, 6660 Santa Monica Blvd., Los Angeles 38 (Hollywood 3-3201), or to Society headquarters (LONgacre 5-0172).

SUNDAY—OCTOBER 7

Registration will open at 2:00 P.M. in the Ambassador Hotel.

MONDAY — OCTOBER 8
Convention Registration
Opening Remarks John G. Frayne, SMPTE President

GET-TOGETHER LUNCHEON
GEORGE SIDNEY, President, Screen Dir. Guild

MONDAY AFTERNOON

Motion Picture Practice I

The Analysis of Background Process Screens

ARMIN J. HILL, Motion Picture Research Council, Hollywood

Development of improved translucent screens for process projection has resulted from improved manufacturing techniques which have been accompanied by a systematic study of the characteristics of these screens and improved instrumentation for measuring and controlling these characteristics. This paper discusses the "semidiffuse" transmission of light by translucent screens, using an empirical approach which has been found very useful in the analysis of these screens and which can readily be adapted to reflective screens as well. Applications of this method to the analysis of screen characteristics are considered and a way of rating screen performance against the optimum which might be expected for a given type of screen is indicated.

Distortion of Anamorphosed Images

WALTER WALLIN, Panavision, Inc., Los Angeles

The distortions of an anamorphosed image are algebraically analyzed and classified as nonrectilinearity (pincushion or barrel); nonlinear compression or expansion, and asymmetry. It is shown that some types of distortion are subject to control by the designer, while others depend only on the angular field and the amount of anamorphosis, with any of the known types of anamorphosers. The analysis points to techniques that lead to imagery, that is more nearly distortion-free.

The New Paramount Double-Frame Triple-Head Transparency Background Projector

FARCIOT EDOUARD, Paramount Pictures Corp., Hollywood
The new double-frame triple-head transparency background projection equipment has been designed for background composite photography to use the high quality double-frame prints made from VistaVision double-frame negatives. This new precision engineered equipment provides a marked increase in total light output which in turn permits the use of

larger transparency screens, or the ability to carry more depth of focus. The improved quality of double-frame prints, together with new, higher quality projection lenses and optical relay elements, produces sharper, clearer transparency background images which further enhances the quality of VistaVision releases. The basic features of this design are discussed in this paper.

An Improved Optical System for Large-Frame Process Projectors

ARMIN J. HILL, Motion Picture Research Council, Hollywood

The Motion Picture Research Council was asked to assist in designing the optical system for a process projector which would deliver approximately four times the light to a process screen as had hitherto been available. The successful solutions of the several interesting problems involved in this design, and several interesting new features which were incorporated in the completed projectors are discussed in this paper.

One More Take!—WHY?

KARL FREUND, Photo Research Corp., Hollywood

MONDAY EVENING

Motion Picture Practice II

Sharpness and Contrast in Projected Pictures

RALPH M. EVANS, Eastman Kodak Co., Rochester, N.Y.

It is found that the apparent overall contrast of a picture, particularly one projected in a darkened room, depends on the contrast of the fine detail in the picture to as great an extent as it does on the large area contrast. The two effects are independent of each other to a considerable extent. A sharper picture appears to have more contrast just as a more contrasty picture appears sharper. The eye adapts to the contrast of a picture and only sudden changes are particularly noticeable. The effects are extensively illustrated and the causes and implications discussed briefly.

TUESDAY MORNING — OCTOBER 9

Laboratory Practice I

The Use of 35/32mm Films for 16mm Black-and-White and Color Prints

WILLIAM E. GEPHART, Jr., General Film Laboratories, Inc., Hollywood

A description of 35/32mm film and the method of its use in producing 16mm prints is given. Slides of the equipment designed and used for handling 35/32mm films are shown and this equipment is described. The advantages of this method of producing 16mm prints are given and demonstrated with a 16mm film.

Combination Printing of 35/32 and 16mm Films

C. J. WILLIAMS and A. L. FORD, Jr., Unicorn Engineering Corp., Hollywood

The problem of printing on 35/32mm films from 16mm negatives and the other combinations of these two film sizes in negative or positive position is discussed. Sprocket, aperture plate, roller, film feed and film take-up modifications are described which permit single printing machines to accomplish any of the above operations.

The Slitting of 35/32mm Films

C. J. WILLIAMS and H. L. BAUMBACH, Unicorn Engineering Corp., Hollywood

The problem of precision slitting of a strand of 35/32mm film into two 16mm films is discussed. The machines which were designed and constructed for this purpose are described in detail. These machines are fully automatic in operation and incorporate gauging devices, micrometer adjustments and safety features. Measurement of the slit films on an optical comparator and quality control procedures are described.

Coating of 32-35 mm Soundtrack on Eastman Color Positive

HENRY GOLDFARB, DeLuxe Laboratories, Los Angeles

New Anscochrome 16mm Reversal

JOHN L. FORREST, Ansco, Binghamton, N.Y.

A Scene Counter for Laboratory Projection Rooms and Some Other Improvements in Laboratory Methods and Control Devices

TED HIRSCH, EDWARD H. REICHARD, CARL W. HAUGE, SIDNEY P. SOLOW, Consolidated Film Industries, Hollywood

Improved laboratory devices, some of which make use of electronic circuits, are described and demonstrated. These include an illuminated scene counter for projection rooms, contact and proximity cueing systems for printing machines, a break alarm for developing machines, a solution level control, punched film programming for printing machines, integrated color and intensity matte for color printing, and self-identifying leaders for television prints.

Silicone Waxing for Release Prints

HARRY P. BRUEGGEMANN, Pathe Laboratories, Inc., Hollywood

Paraffin is commonly used as a film lubricant. It is applied to the film in solution, the solvent being either toxic, inflammable or expensive, and has a tendency to cause streaks on the film. A new silicone of the nonfogging variety can be applied to the film in a water suspension just before the film enters the drying cabinet. This system eliminates the disadvantages of paraffin, and also gives better lubrication.

A High-Speed Velvet Cleaner for Color Negative

JOHN W. HARPER, Pathe Laboratories, Inc., Hollywood

This device incorporates four velvet-covered wheels mounted in opposed positions in between which the negative passes. The first pair of wheels is driven at 1400 rpm in a direction opposite to that in which the negative travels. The second pair moves in the same direction as the film, and is not powered. The wheels are enclosed in a chamber that has a vacuum cleaner attached. This cleaning method virtually eliminates subsequent drum cleaning after the initial cleaning.

The Recovery and Re-Use of Developing Solutions Used in the Kodachrome Process

BURTON SMITH and RAYMOND VANDERZANDEN, Sawyer's, Inc., Portland, Ore.

This paper describes the methods used at Sawyer's, Inc. for the recovery and re-use of specific chemicals and the subsequent development of methods enabling complete re-use of all but one solution used in the Kodachrome process. A short discussion of other experiments that explore the potentiality of this field is included.

**TUESDAY AFTERNOON
Laboratory Practice II**

A New Contact Printer for Direct Dupe Color Negatives

PAUL RAIBAUD, Etablissements Andre Debrie, Paris

This paper describes the new Debrie Matipo contact printer. Factors involved in the successful printing of dupe color negatives, including color correction and registration, color balance, constant color temperature, remote light control and automatic fading, are discussed.

Automatic Printer Operation From Punched Tape and Punched Cards

H. M. LITTLE and H. L. BAUMBACH, Unicorn Engineering Corp., Hollywood

Standard punched tape units have been recoded and modified to bring about automatic operation of film-printing equipment. Punched tape performs the functions of discrete scene-to-scene light changes, dissolve-shutter operation and automatic stopping of equipment, while cards automatically adjust light level and printer characteristics for any particular job.

Complex printer operations may be performed with great accuracy at high speed by the use of these items.

A New Intermediate Positive-Duplicate Negative System

H. J. BELLO, C. E. OSBORNE, and D. M. ZWICK, Eastman Kodak Co., Rochester, N.Y.

A new color film for making duplicate negatives from Eastman Color Negative Film, Type 5248, is described. A color duplicating positive is first made on this material, from which a duplicate negative can be prepared on the same film stock. This film may also be used to make duplicate negatives from black-and-white color separation positives. Sensitometric processing and printing characteristics are described.

Film Processing Machines of Modular Design

W. ENKELMANN, Unicorn Engineering Corp., Hollywood

The familiar building-block system has been applied to motion-picture film-processing machine design. A high degree of flexibility is achieved which enables the modern laboratory to adjust the machine to its needs and to keep pace with film improvements as they appear on the market. The new machine incorporates a dynamically balanced drive, precise film-speed control, and an easily threaded impingement drying unit as part of the modular design.

Applications of a Full-Frame Densitometer and Scanning Densitometer

JOHN FRITZEN, Pathe Laboratories, Inc., Hollywood

A description of a means enabling the close matching of duplicate negatives to original material for use in cut-in effects is given. The instruments, a full frame densitometer and a scanning densitometer are described. An outline of the procedures used is given.

**TUESDAY EVENING
AWARDS**

Dr. W. H. Pickering, California Institute of Technology, will speak on "Project Vanguard—The Earth Satellite"

**WEDNESDAY MORNING — OCTOBER 10
A CONCURRENT SESSION
Instrumentation and High Speed Photography I**

Requirements for Cameras in Guided Missiles

ROBERT M. BETTY, Lockheed Aircraft Corp., Van Nuys, Calif.

This paper discusses the environmental conditions, photographic requirements and accessory and control equipment for cameras used as airborne instrumentation in missiles in the past, present and future. A comparison of developments in performance between vehicles and photographic equipment is made and the missiles systems' requirements of industry described.

High-Speed Photography at the Air Force Flight Test Center

WILLIS E. HARRISON, U.S. Air Force, Edwards Air Force Base, Calif.

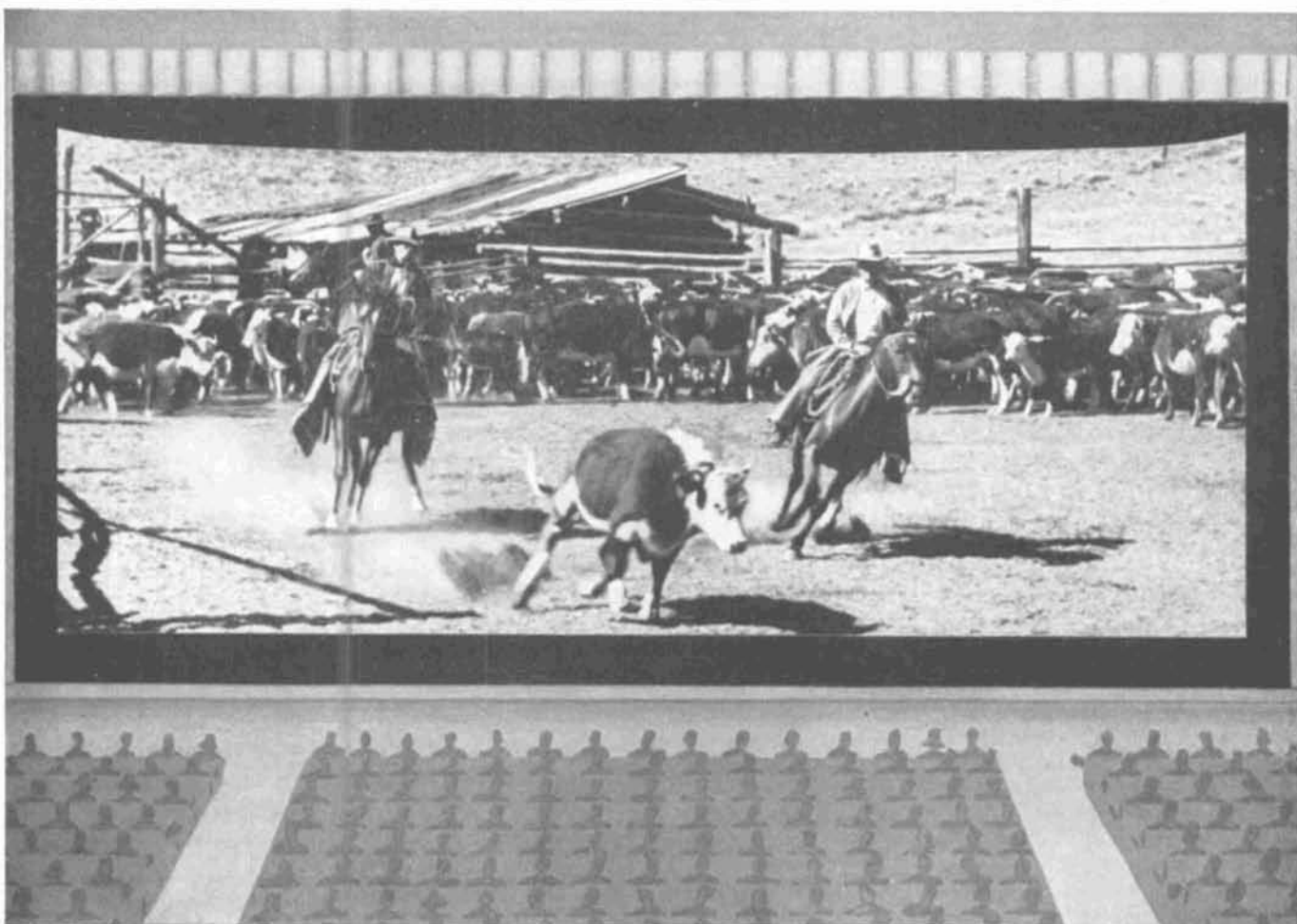
After brief introductory remarks, this presentation will consist entirely of a 16mm narrated color motion picture showing activities such as high-speed track testing, aircraft testing and rocket engine testing. Some spectacular test shots of sleds going through the barrier and actual sound effects of the sonic boom, etc., will be included.

Photographic Instrumentation—Project SMART

DARRELL LASSITER and WILLIAM KRUPP, Coleman Engineering Co., Hurricane, Utah

Project SMART, Supersonic Military Air Research Track, is a 12,000-ft supersonic sled track designed and built for the Air Force by Coleman Engineering Co. Inc., Los Angeles, Calif. The track is located and operated to simulate pilot escape systems of high-speed aircraft. Photographic instrumentation of this site is described.

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STUDIO
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SOUND
SYSTEMS

Portable Power Supply for High-Speed Cameras

DONALD H. PETERSON and NEIL G. CURRIE, North American Aviation, Los Angeles

This paper describes use of "systems" approach in the design of a portable power and control unit for high-speed motion picture cameras. The unit is complete with controls, timing device and remote panel from which the cameraman controls lighting, cameras, test event and other instrumentation. Ability to move quickly to test site, obtain all power from a single connection to plant supply and establish a reliable, accurate program control increases the usefulness of the high-speed camera as an engineering tool in aviation development.

WEDNESDAY MORNING — OCTOBER 10 A CONCURRENT SESSION Projection & Viewing

A Cold-Focus Gate

VICTOR MERRILL, Tarc Electronics, Inc., Westbury, N.Y.

At higher values of radiant-energy flux, the effects of heat-on-film appear, such as in-and-out of focus, brittleness, embossing and distortion, on film used to project motion pictures, when still picture projection is attempted melting and/or complete combustion of the film results. The Cahill-Merrill Cold Focus Gate removes all effects of heat-on-film. Every frame is in perfect focus and undamaged during the entire projection cycle, which may be $1/48$ of a second or of many hours' duration.

The Adjustable Motion-Picture Screen Frame

HAL GOLDSTEIN and DEAN GRIFFIN, G & G Specialties, Los Angeles, Calif.

The movement to change screen sizes and ratios began a few years ago and the exhibitor was immediately involved. Greatly varying screen frames were installed all over the world. Some were as big as they could be and flat; others, as big as they could go curved; then came the installation of deep-curved frames. To meet exhibitors' demands in for varying projection possibilities, the adjustable screen frame was developed.

Heat-Reflecting Filters—Their Properties and Use in Carbon-Arc Projection Systems

RUDOLPH FISHER and MARTIN PLOKE, Zeiss Ikon, Kiel, Germany

The High-Pressure Xenon Lamp for Motion-Picture Theater Projection

HEINZ ULFFERS, Zeiss Ikon, Kiel, Germany

Improved High Intensity Rotating Positive Carbons for Motion-Picture Projection

R. B. DULL, J. G. KEMP, Jr., and E. A. NEEL, Jr., National Carbon Co., Fostoria, Ohio

Improved 10mm and 11mm High Intensity Projector carbons have been developed for rotating positive carbon type motion-picture projection lamps. These carbons, designed for 95—110 and 110—129 amp respectively, give substantial increases in light and efficiency, and operate more steadily and with greater stability than former carbons of the same size and type. Performance data are presented.

Minimizing the Effects of Ambient Light on Image Reproduction

G. L. BEERS, Radio Corp. of America, Camden, N. J.

One of the important factors in determining the quality of either a television or motion-picture image is the ambient light to which the image is subjected and the effect of this light on the reproduced picture. Some of the means which have been employed to minimize the effects of ambient light on picture reproduction are discussed. A method has been developed which under favorable conditions has produced startling results in permitting the reproduction of both television and motion-picture images under adverse ambient-light conditions. The paper describes this method and gives experimental data illustrating its effectiveness under typical conditions. Some of its limitations are indicated. A demonstration will be given showing the application of the method to the reproduction of motion pictures.

Effect of Gate and Shutter Characteristics on Screen-Image Quality

WILLY BORBERG, General Precision Laboratory Inc., Pleasantville, N. Y.

Comparative measurements demonstrating the film behavior in curved and straight projector gates are given. The analysis takes account of operation under high light levels with two- and three-bladed shutters.

WEDNESDAY AFTERNOON A CONCURRENT SESSION Instrumentation and High Speed Photography II

Photography of the Deep Sea Floor

CARL SHIPEK, U.S. Navy Electronics Laboratory, San Diego

A High-Intensity Electronic Light Source for High-Speed Cameras

WILLIAM C. GRIFFIN, U.S. Naval Ordnance Test Station, China Lake, Calif.

Illumination for high speed photography has been provided by various methods including the Argon flash, photoflash lamps, flash powder, carbon arcs, incandescent sources and electronic flash. The electronic flash as used by Hinz, Main and Muhl, has advantages over other methods. However, the shape of the light pulse is far from uniform. A method of shaping the pulse of light is described.

High Frame-Rate Argon Flash for Field Photography

R. C. SEWELL, U.S. Naval Ordnance Test Station, China Lake, Calif.

The Third International Congress on High-Speed Photography

RICHARD O. PAINTER, General Motors Proving Ground, Detroit, Mich.

The Third International Congress on High-Speed Photography—A Report

CARLOS H. ELMER, U. S. Naval Ordnance Test Station China Lake, Calif.

The Third International Congress on High-Speed Photography will be held under sponsorship of the British Department of Scientific and Industrial Research in London from September 10 to September 15, 1956. The author will describe the proceedings of the Congress, and will briefly review the papers presented. The author will bring to the SMPTE meeting copies of all papers presented at the Congress, and will discuss these papers with interested persons following adjournment of the session.

WEDNESDAY AFTERNOON A CONCURRENT SESSION Sound Recording

Recent Developments in Multichannel Stereophonic Recording Systems

E. W. TEMPLIN, Westrex Corp., Hollywood

The development of new facilities for deluxe large-scale motion-picture presentations has stimulated a commensurate advance in the realism of the reproduced sound. The paper discusses the significant advances in equipment performance and operating technique found desirable in the six- and seven-channel stereophonic systems associated with these presentations, and describes the recording, re-recording and electrical printing facilities developed for such usage in several of the major Hollywood studios.

Replaceable Pole Tip Caps for Cinemascope Magnetic Reproduce Heads

MICHAEL RETTINGER, Radio Corp. of America, Hollywood
Ring-type magnetic recording and reproducing heads are contacted by the abrasive medium, and hence their useful life is shortened by a wear process. The subject replaceable pole tip cap consists of a pair of brass holders in which the

laminated tips of the cores are plasticized. The cap is fastened to the main housing assembly by means of two 1-72 screws, and locating pins are employed to assure correct azimuth on the part of the precision-aligned pole cap.

When the cores of a cap are worn, the cap is removed by unfastening the two mounting screws and detaching the cap, after which a new cap may be substituted. For reproduce heads, the tips as well as the cores are made of laminated Permalloy. For recording heads, in order to lower bias current requirements, the tips are made of laminated Permalloy and the cores of solid ferrite.

Improved Magnetic Recording and Re-Recording Facilities

G. R. CRANE, Westrex Corp., Hollywood

Recent advances in studio use of multichannel magnetic recording and reproducing have required the development of specially designed film transport mechanisms. This paper describes a basic design with sufficient versatility to meet all the varied requirements imposed by film widths ranging from 16mm to 70mm, and by a wide range of film speeds. A choice of magnetic heads and transmission facilities provides for single or multitrack operation with up to 7 channels. Versions for optical or magnetic operation and magnetic printing are also included.

Bulk Magnetic Film Demagnetizing Practices

KENNETH B. LAMBERT, M-G-M Studios, Culver City, Calif.

This paper will be a very brief summary of practices used in the several Hollywood studios. Significant factors which have been observed, and problems which are encountered, will be mentioned.

WEDNESDAY EVENING Cocktail Party and Aquacade Banquet and Hawaiian Entertainment

THURSDAY MORNING — OCTOBER 11 Instrumentation and High-Speed Photography full-day field trip to U.S. Navy Electronics Laboratory, San Diego

TELEVISION I

A New Animation Stand

JOSEPH A. TANNEY and ALAN C. MACAULEY, S.O.S. Cinema Supply Corp., New York

This paper describes the Tel-Animastand, a small animation stand embodying all the basic movements required in such equipment and capable of achieving optical effects such as pans, angles, zooms or quick closeups. A sliding cell board with Acme pegs, a 360° calibrated compound table and an east/west/north/south movement and zoom mechanism are also discussed.

A Compact Hot Press Title Machine

JOSEPH A. TANNEY and ALAN C. MACAULEY, S.O.S. Cinema Supply Corp., New York

The Tel-Animaprint, a compact hot press which heats its own type, prints dry in any color, horizontally, vertically or at any angle is described. The equipment is accompanied by an Acme peg bar lineboard for imprinting acetate cells, paper or cardboard. Uses are given for titles, superimpositions, three-dimensional drop shadow effects, advertising copy and TV commercials.

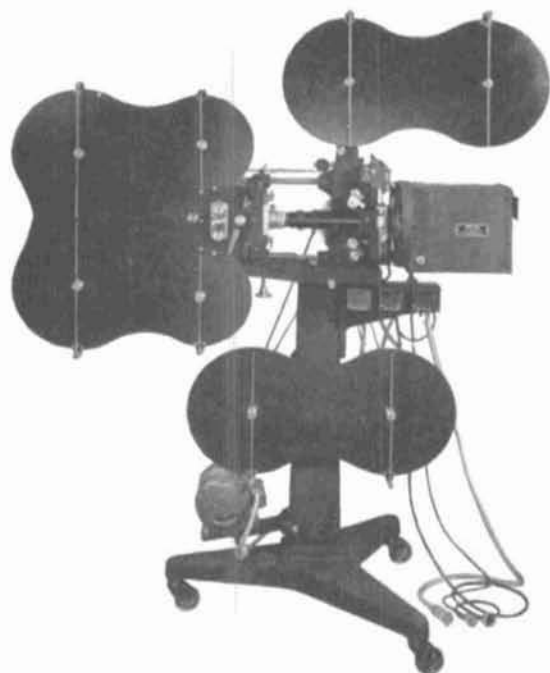
Automatic Television Film Editing

ROBERT GRUNWALD and RICHARD WALLACE, The Harwald Co., Evanston, Ill.

The requirements for film editing and inspection in a television-station film operation are quite different from those encountered in any other branch of the motion-picture industry. Inspection must be very accurate and ranges from mechanical inspection of high accuracy to checking lip sync. Heretofore,

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there has been no complete equipment which was designed to perform all of these necessary operations simultaneously. The INSPECT-O-FILM Editor has been developed to meet this need. Operating details of this machine are discussed with particular emphasis on how it may be used in actual operation.

An Automatic Rewinding and Cleaning Machine for Motion-Picture Films

A. L. FORD, Jr., Unicorn Engineering Corp., Hollywood

This paper describes an automatic machine in which motion-picture film rolls are rewound and cleaned in one operation at 360 ft/min. A new type of combination air and vacuum squeegee permits cleaning of 3000-ft rolls at this speed. Use of the machine in production permits successive printing of negatives without other periodic wet cleaning techniques.

Covering the News in Color

ARTHUR E. HOLCH, NBC News, New York

THURSDAY AFTERNOON TELEVISION II

Production Standards for TV Film Commercials

EDWARD W. BALLENTINE, Acme Film Laboratories, Hollywood

A discussion of the need for better coordination and production planning of television film commercials from the standpoint of the film-processing laboratory. Such planning can eliminate a major portion of these problems by the correct use of (a) various types of raw stock used in the picture; (b) recording voice track, lip sync track and music at proper levels in terms of gamma for laboratory handling, viz., whether music source is original, dupe of a track, transcription from a disc, re-recording from a tape, or a blend of all of these at miscellaneous speeds; (d) optical effects and titles; (e) coordination of these essentials for good editing. This planning is vital in order for the laboratory to deliver prints of the highest standards to networks and stations for good TV transmission.

A 2 x 2 Slide Projector for Color Television Film Systems

R. D. HOUCK and A. E. JACKSON, Radio Corp. of America, Camden, N. J.

Color television film system requirements for a slide projector are more rigid than those of a monochrome television film system. The slide projector described in this paper was designed to fulfill the color requirements. In addition this projector includes operational features which exceed the essential broadcast needs as defined by a survey of representative television stations.

Slide capacity is more than doubled over that of projectors currently in wide usage. Easily loaded drum type slide holders are used in conjunction with dual slide channels. Internal optical multiplexing permits continuous slide programming. Color balance problems between slide channels are eliminated by the unique optical and multiplex systems. Evenness of slide illumination exceeds that of currently available projectors and light output meets all requirements for vidicon film camera systems. The unit is designed to work with currently available equipment as well as to replace units in older monochrome or color film system installations.

Camera Tubes Used in Color-Television Broadcast Service

R. G. NEUHAUSER, Radio Corp. of America, Lancaster, Pa.

A brief review is made of tubes currently used in television camera systems and of tubes which have been found basically unsuitable for color camera work. General requirements of tubes for color-television pickup are discussed, and basic performance characteristics that limit the pickup field to several tubes for color television are evaluated. The performance characteristics of vidicons and image orthicons now used are compared with the required characteristics. Quality problems encountered in color pickup are discussed, and methods used to overcome these problems are described. Operating devices used to improve performance are evaluated.

Color TV Program Recording Employing Lenticular Film

R. D. KELL, JOHN BRUMBAUGH, RCA Camden, and E. D. GOODALE, NBC New York



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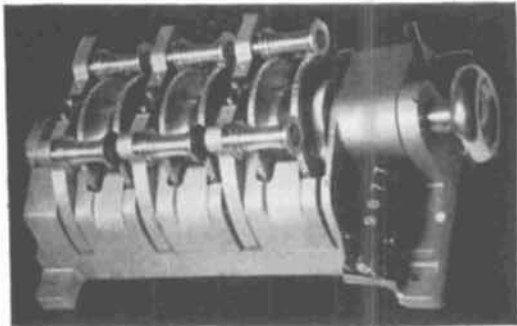
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AUTOMATIC FADE UNIT new and improved, easily installed in your model "J" or "D" printer, for a complete range of fades from 20 to 180 frames.

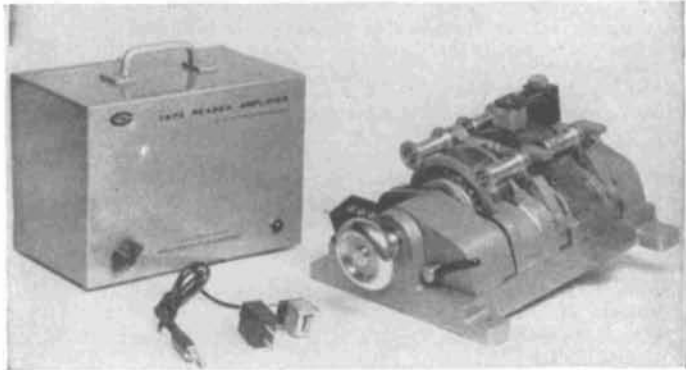
ELECTRONIC CUEING SYSTEM will save your negatives and give positive control of both printer light and filters or fade.



SYNCHRONIZER HEAVEN



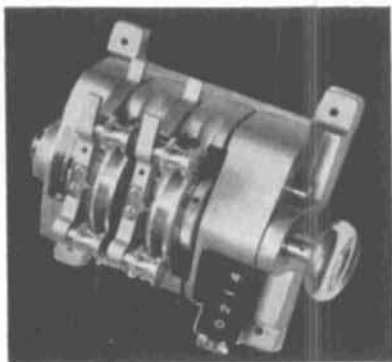
35mm 3-Way Synchronizer \$165.00



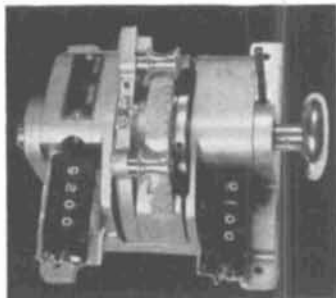
1. Fastens to roller arm of synchronizer.
2. Sync dailies quickly without using editing machine.
3. Ideal for checking sound track for words or effects to be replaced.
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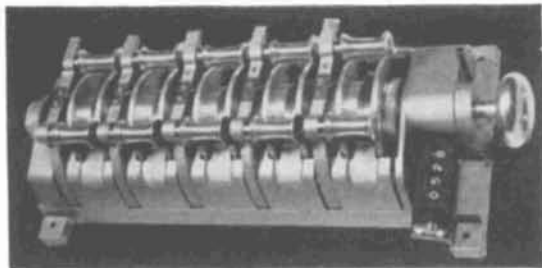
HFC Magnetic Tape Reader Synchronizer attachment	\$34.50
HFC Magnetic Tape Reader Amplifier	55.00
Complete Unit	89.50



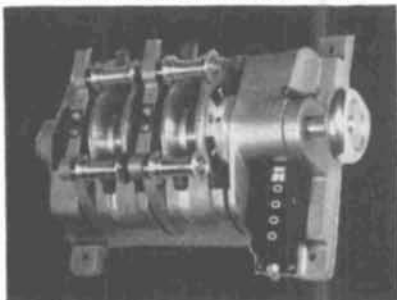
16mm 2-Way Synchronizer \$125.00



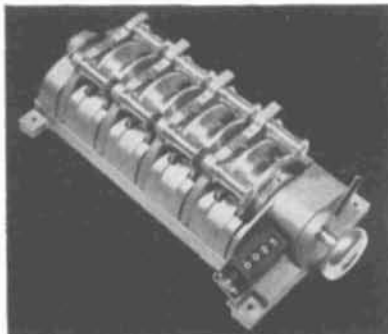
16mm Special Measuring Machine. Counts in 16 & 35mm Footage. \$160.00



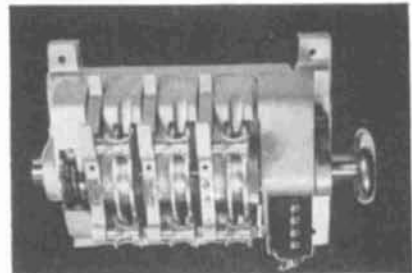
35mm 5-Way Synchronizer \$225.00



35mm 2-Way Vistavision Synchronizer with Footage & Frame Counter \$160.00



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Densitometry of Eastman Embossed Kinescope Recording Film

W. R. J. BROWN, C. S. COMBS, and R. B. SMITH, Eastman Kodak Co., Rochester, N.Y.

The requirements for image analysis of Eastman Embossed Kinescope Recording Film, Type 5209, are discussed. The actual distribution of density of the embossed film image is shown. The optical requirements necessary to analyze these images are similar to those used in projection. It is further shown that these requirements can be made by a comparatively simple modification of an ERPI Densitometer. The results of sensitometric evaluation of satisfactory color images measured on this modified instrument are shown.

THURSDAY EVENING TELEVISION III

The Ampex Videotape Recording System—A Symposium of 3 Papers

CHARLES P. GINSBURG, CHARLES E. ANDERSON and RAY M. DOLBY

FRIDAY MORNING — OCTOBER 12 TRANSISTORS I

The Transistor

R. D. MIDDLEBROOK, California Inst. of Technology, Pasadena, Calif.

A general qualitative introduction to the semiconductor diode and transistor is presented. The wartime development of the point contact rectifier led to the discovery of the point contact transistor, which was followed by the invention of the junction diode and transistor having many superior properties. The basic physical principles of operation and various commercial devices are discussed. High frequency effects, and modified forms of the original transistor which

improve the high frequency performance, are described. Several methods of transistor manufacture are described. Demonstrations and many slides illustrate the talk.

The Role of Transistors in Electronics

RICHARD B. HURLEY, Convair Div., General Dynamics Corp., Pomona, Calif.

While the vacuum tube dominated the early decades of electronics, events centering around the turn of this century indicate a swing to solid state electronics. In particular, the junction transistor (and diode) with support from the saturable magnetic core appears capable of a strong invasion of almost all branches of electronics.

Although transistors suffer a disadvantage (compared to tubes) in temperative sensitivity, their advantages include ruggedness, long life, lack of heater supply, and high circuit efficiency. They can operate on an analogous basis to tubes, a dual basis and in yet different modes. As a switch, they are superior to tubes and offer many advantages over electro-mechanical relays. In conjunction with saturable cores they can compete successfully with certain rotating machines as well as offering a large class of almost unexplored electronic circuits.

Magnetic amplifiers have been increasing in importance steadily, dielectric amplifiers have entered the electronics picture, but the transistor and other semiconductor devices are making the revolutionary strides. Considering the advantages and the various modes of operation of junction transistors, the two carrier polarities possible, the myriad of other present and future types of transistors, and support from new "VR" and rectifying diodes and saturable cores, the transistor should soon be the principal active circuit element. It appears that the transistor will play the leading role in communications, control and computation as well as in measurement and power-supply-circuits.

FRIDAY AFTERNOON TRANSISTORS II

Applications of the Transistor to Motion Pictures and Television

H. J. WOLL, Radio Corp. of America, Camden, N.J.

Transistor Amplifiers for Mixing Magnetic Recording and Reproduction

WILLIAM V. STENCIL, Stencil-Hoffman Corp., Hollywood

Taking advantage of the compactness and efficiency of transistors, a complete recording channel has been developed which offers the same performance as vacuum-tube circuitry. While the signal-to-noise may be 3 db above tubes operated under ideal laboratory conditions, the transistors, in practice, perform better since there is no hum and microphonics.

The equipment to be demonstrated will include microphone preamplifiers, bridging, recording and playback amplifiers and a 60-kc bias oscillator. All units are on printed cards of plug-in design.

A Transistorized Seven-Position Portable Mixer

KURT SINGER, Radio Corp. of America, Hollywood, Calif.

This paper deals with the description of a seven-position portable mixer, which has been transistorized throughout. Its electrical facilities and mechanical construction are described fully. A detailed circuit description of the individual transistorized amplifiers, together with explanation of constructional features, is also given. Excellent stability, low distortion and a very good signal-to-noise ratio have been obtained in this equipment.

FRIDAY EVENING Demonstration of M-G-M 65mm system and 6-channel stereophonic sound at Stage 2, M-G-M Studios

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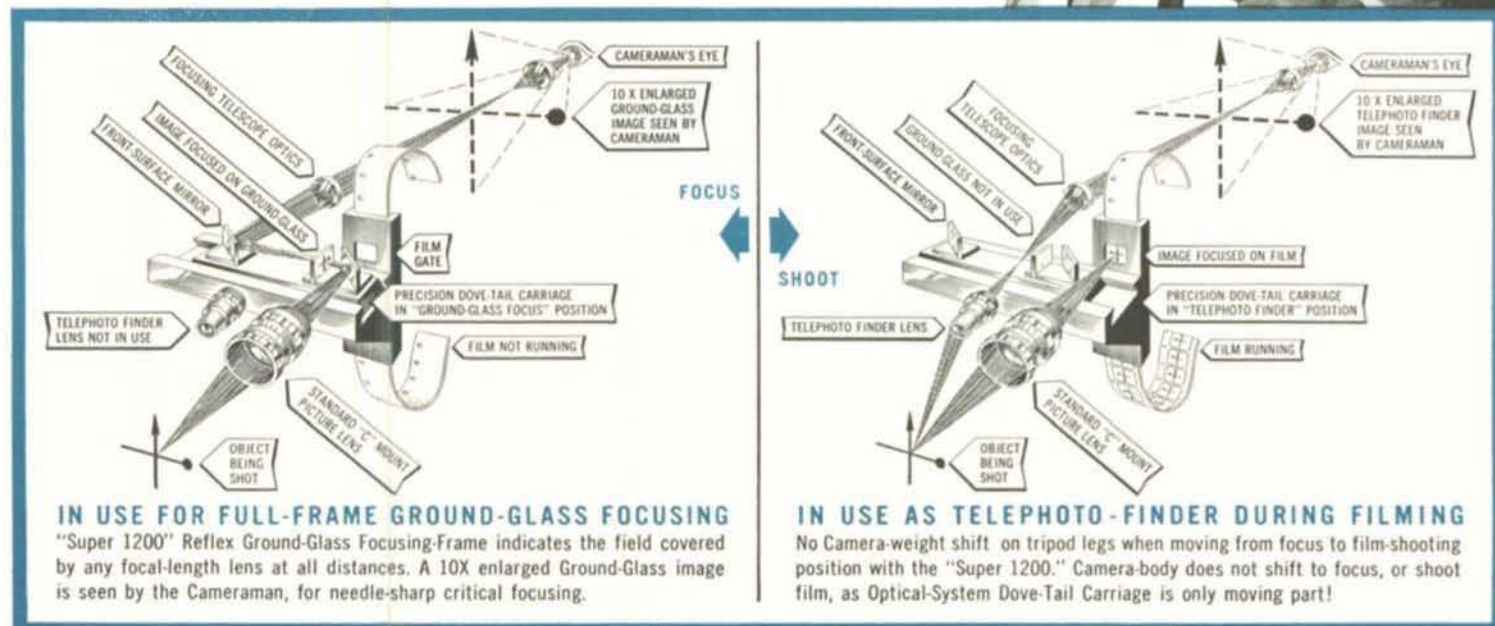
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