

ADVANCE PROGRAM

The schedule is now set with but a few last-minute changes possible in the Final Program, which you will receive at the Registration Desk. If you must pinpoint your time for a single session or a group of papers, better check in advance with the Program Chairman, Glenn E. Matthews, Research Laboratories, Bldg. 59, Kodak Park, Rochester 4, N.Y., or with Society Headquarters. Expectations are that it will be a full week for most registrants because the sessions are all substantial and the recreation opportunities and entertainment events will be a welcome balance.

EQUIPMENT EXHIBITS

Convention Vice-President Roudabush has announced that there will be space available to authors at the entrance to the Sessions Room for exhibits, which are to be put up only during the session. The space will be in relation to the papers, and all signs must relate to papers, not to companies.

SMPTE 78th Convention

October 2-7 1955 — Lake Placid

SUNDAY OCTOBER 2

Registration for the Convention will be opened early — at 2:00 P. M., in the Lake Placid Club's Octagonal Bay overlooking the Lake. 8:00 P. M., Wide-Screen Pre-Release

MONDAY OCTOBER 3

9:00 A.M., Convention Registration

9:30 A.M. Opening Remarks

JOHN G. FRAYNE, SMPTE President

BUSINESS MEETING

9:45 A.M. MATERIALS AND STANDARDS SESSION

Polyester Photographic Film Base

D. R. WHITE, C. J. GASS and E. MESCHTER, E. I. du Pont de Nemours & Co., Inc., Parlin, N.J.

Properties of "Cronar" polyester photographic film base are outlined. The utility and importance of these characteristics in the use of photographic films, especially cine films, are discussed. Optical clarity, high wear and tear resistance, low moisture sensitivity and relatively high stiffness modulus combine to make this base an excellent one for general use, and particularly useful in certain demanding situations.

Science and Technology in Color Motion-Picture Photography

C. J. STAUD, Eastman Kodak Co., Rochester, N.Y.

A brief review is given of some of the technological problems which confront those doing development work in the field of films for color motion-picture photography. An outline is given of a few of the fundamental problems related to this field from the standpoint of the science of color photography.

A Chairman Looks at Stockholm

AXEL G. JENSEN, Bell Telephone Laboratories, Inc., Murray Hill, N.J.

Dr. Jensen was Chairman of the Cinematography Sessions and a member of Technical Committee 36 at the International Standardization Organization Meeting in Stockholm, June 11-16, 1955.

Progress Toward International Motion-Picture Standards

D. R. WHITE, E. I. du Pont de Nemours and Co., Inc., Parlin, N.J.

Dr. White headed the United States delegation of Technical Committee 36 at Stockholm.

12:00 NOON, PANORAMA PHOTOGRAPH will be made of the Convention Group

2:00 P.M., STUDIO PRACTICE SESSION

An Evaluation of Certain Methods of Using Exposure Meters

L. SOREM, Eastman Kodak Co., Rochester, N.Y.

Five methods of measuring some aspect of scene luminance or illumination have been used in photographing sixteen outdoor and eight indoor scenes. An exposure series was made for each scene on two motion-picture negative films. By comparing the exposures which yielded optimum print quality with those indicated by the five different exposure meter techniques, each technique was evaluated and the consistency with which high-quality results could be obtained was determined.

A 225-Ampere Motion-Picture Studio Carbon for Use With 3200-3400 K Color Film

F. P. HOLLOWAY, C. A. PLASKETT and R. B. DULL, National Carbon Co., Fostoria, Ohio; and C. W. HANDLEY, National Carbon Co., Los Angeles.

A 16mm Super H. I. Color-Modified Studio carbon, designed for use with 3200-3400 K color film, has been developed for set lighting and process projection in motion-picture studios. At 225 amp the new carbon has a spectral energy distribution approximating that of the 3350 K incandescent lamp. No filters are needed when a set is illuminated entirely by the color-modified carbon, as proper balance can be obtained during film processing. Only a light filter is required to absorb an excess of near ultraviolet radiation to permit the use of mixed incandescent and arc light on motion-picture sets. No filtering is needed for process projection when a relay condenser type optical system is employed.

Production Evaluation of the 225-Amp Low Color Temperature Carbon

W. F. KELLEY, Motion Picture Research Council, Los Angeles.

Color in Television Studio Lighting

R. G. WILLIAMS, Century Lighting Inc., New York.

Control of the spectral quality of television studio lighting will be discussed as a means of producing accurate color rendition in the television picture. Spectral distribution of light in relation to vision, color perception and picture color rendition will be explained. Spectral characteristics of certain light sources in relation to studio lighting will be reviewed. The unsuitability of degrees Kelvin as a guide to spectral quality will be proposed. The possibilities of "variable color" in studio lighting will be outlined.

A New Hand-Held Lightweight Double-Frame VistaVision Camera

Paramount Pictures Corp., Hollywood.

ROUNDTABLE DISCUSSION: Color Motion-Picture Production Problems

Speakers:

W. A. MUELLER, Warner Bros. Pictures, Burbank, Calif.

L. L. RYDER, Paramount Pictures Corp., Hollywood

DOUGLAS SHEARER, Metro-Goldwyn-Mayer Studios, Culver City, Calif.

Tentative Schedule of Committee Meetings During Convention

Monday, October 3

1:30 P.M. PH22

3:30 P.M. 16 & 8mm

Tuesday, October 4

10:00 A.M. Television

10:00 A.M. 79th Convention Arrangements

1:30 P.M. Color

1:30 P.M. 80th Convention Arrangements

3:30 P.M. Film Dimensions

Wednesday, October 5

10:00 A.M. Magnetic Recording

10:00 A.M. Papers/79th Convention Sound

3:30 P.M. Film-Projection Practice

Thursday, October 6

10:00 A.M. High-Speed Photography

1:30 P.M. Laboratory Practice

Friday, October 7

10:00 A.M. Screen Brightness

Final schedule will be listed in the Convention Program and meeting notices will be mailed directly to committee members.

E. I. SPONABLE, 20th Century-Fox Film Corp., New York

Economic, operational and engineering aspects of recent changes in major studio production practices brought about by wide-screen presentations, and in some cases conversion for large scale television film production, will be analyzed by several of Hollywood's leading engineers as contributing members of this panel.

MONDAY EVENING

6:00 P.M., Treasure Hunt and Barbecue

TUESDAY MORNING OCTOBER 4

9:00 A.M., PROJECTION AND VIEWING SESSION

New Concepts of Perspecta Sound and Projection Control Practice

R. A. HAINES, Far East Army and Air Force Motion Picture Service, APO 500 (Tokyo, Japan) San Francisco, Calif.

Development concepts and assembly details are described for new custom-designed perspecta integrators and projection control devices being employed throughout the largest overseas American military theater circuit serving in the Far East. Featuring capability of full-time employment of 3-channel directional sound reproduction in operation from any photographic film-track or other signal source, the integrators combine provisions for simplified operation, complete emergency switching to prevent sound failure, and extreme service accessibility. The new semiautomatic dual pushbutton controller is an original, unique idea which achieves maximum centralization of all operational controls to facilitate handling by one military projectionist. More than one hundred sets of these equipments are being installed in Far East Army and Air Force Theaters.

New Field Developments for Military Theater Circuit Modernization

R. A. HAINES, Far East Army and Air Force Motion Picture Service, APO 500 (Tokyo, Japan) San Francisco, Calif.

In planning and implementing a comprehensive program of 35mm equipment modernization for the largest overseas U.S. military theater organization, several new and unique field

developments have been undertaken successfully. Sincere, studied efforts were made to raise exhibition standards to equal or exceed best present practices while, simultaneously, simplifying and centralizing operational requirements for military projectionists to assure professional presentations. Bases for the selection of standards, and some details of practical application of the special equipment are described as practiced by the 120-theater Far East Army and Air Force circuit. Application of some of these achievements, if not necessarily commercial in present form, could provide useful prototype guideposts to possible trends of the future.

A Noncommercial Participation-Type Theater
ARTHUR L. SMITH, *Colonial Williamsburg, Williamsburg, Va.*

A New 8mm Copper-Coated Carbon for Motion-Picture Projection
F. P. HOLLOWAY and R. B. DULL, *The National Carbon Co., Fostoria, Ohio.*

A new 8mm, copper-coated, nonrotating positive carbon for motion-picture projection, designed for 60-70 amp operation, gives a substantial increase in light and efficiency, and an improvement in steadiness of light, over the old 8mm carbon. Light, efficiency and steadiness of the new carbon are compared with those of the old.

This Is Cinerama

W. ROBERT DRESSER, *Cinerama Inc., New York.*

Since the introduction of Cinerama nearly three years ago, the motion-picture industry has been eager to take a new look at the film frame and to reevaluate its potentialities. The industry, as well as the public, has been rewarded by the introduction of new film presentations and sound techniques. This paper outlines the physiological factors required to give the feeling of audience participation in photographed scenes, and describes the mechanisms employed in the Cinerama process for accomplishing a desired result.

Report of the Committee on 16mm and 8mm Motion Pictures
M. G. TOWNSLEY, Chairman

The New Paramount Double-Frame, Triple-Head Transparency Background Projector
FARCIOT EDOUARD, *Paramount Pictures Corp., Hollywood.*

TUESDAY AFTERNOON **2:00 P.M., PROJECTION AND VIEWING SESSION**

Todd-AO Motion-Picture System

BRIAN O'BRIEN, *American Optical Co., Southbridge, Mass.*

The Todd-AO System utilizes either 65 or 70mm film of identical perforation operating at 30 frames/sec. Cameras weigh only slightly more than corresponding 35mm units, and are equipped with a complement of lenses of angular coverage ranging from 16° to 132°, with relative aperture ranging from $f/2.8$ to $f/2.0$. Picture aspect ratio is approximately 2 to 1, and projection is upon a large deeply curved screen with sagitta approximately $\frac{1}{4}$ the chord. The screen is illuminated by a single projector located in the rear of the theater, and of relatively conventional design with certain special features and special projection lenses to achieve very high quality images from the large film. Composite sound is provided by six high quality magnetic channels on the 70mm release print.

Perception of Color in Projected and Televised Pictures

D. I. MACADAM, *Eastman Kodak Co., Rochester, N.Y.*

Many color photographs are taken in daylight and projected with tungsten lamps. On the other hand, commercial motion pictures made with tungsten studio lamps are almost always projected with arcs that resemble daylight.

Color television receivers produce "white" of daylight quality or even bluer, although most of the scenes televised are tungsten-lighted. Hence the question: "How should a color in one quality of illumination be reproduced for viewing with some other quality?" An investigation undertaken to answer this question will be described, and the results will be discussed.

The simple answer suggested by von Kries' law of coefficients appears to be only a first approximation. Closer analysis of the behavior of the eye seems to indicate that human color vision is served by at least four and probably by five or even six different photosensitive processes, having different spectral sensitivities and different degrees of adaptation to various qualities of illumination.

These findings do not call into question the trichromatic character of color perception, on which color photography and color television are based. Apparently the visual nervous system provides only three channels, capable of handling only three independent responses. But each of these responses appears to be stimulated by a combination of two or more photosensitive processes in the eye.

Effects of Visual Angle on Visual Perception

S. M. NEWHALI, *Eastman Kodak Co., Rochester, N.Y.*

If the visual angle subtended by an object is varied, as by varying the viewing distance, the perception or appearance of the object may also change. Appropriate comparisons can reveal obvious changes as in perceived size, perceptible detail, eye-comfort, apparent color and realistic effect. There are, however, several factors in commercial motion-picture viewing situations which tend to minimize differential effects of visual angle on motion-picture perceptions.

ROUNDTABLE DISCUSSION: Projecting for the Wide Screen

Speakers:

G. C. HIGGINS, *Eastman Kodak Co., Rochester, N.Y.*

A. E. NEUMER, *Wollensak Optical Co., Rochester, N.Y.*

W. BORBERG, *General Precision Laboratory, Pleasantville, N.Y.*

G. GAGLIARDI, *Stanley Warner Theaters, Englewood, N.J.*

Current trends toward larger projected images and toward a closer integration of the audience with the picture have emphasized many projection problems. Panel members will review the contributions of print image structure, mechanical film handling, and optical design to the final projected picture, considering both the theoretical approach and the practical evaluation. It is hoped that questions and floor discussion will enrich and amplify important considerations and evaluate methods of solution.

TUESDAY EVENING **8:00 P.M., PRESENTATION OF AWARDS** **Wide-Screen Pre-Release**

WEDNESDAY MORNING OCTOBER 5 **9:00 A.M., LABORATORY PRACTICE** **SESSION**

The Testing of Plastics for Use in Contact With Photographic Processing Solutions

B. A. HUTCHINS, *Eastman Kodak Co., Rochester, N.Y.*

The discussion will outline the considerations involved in the design and interpretation of experiments to evaluate plastic materials for use in contact with photographic processing solutions. Some of these considerations are: selection of plastic surface-area to volume ratio, preparation of the plastic sample for testing, designing the photographic evaluation and interpreting the results in a non-statistical manner. Information will be made available summarizing the results of similar tests which have been run.

The Chemist Reduces Cost and Improves Quality of Processing

L. E. WEST, *Eastman Kodak Co., Rochester, N.Y.*

Photographic processing involves many individual chemical processes, such as assuring adequate quality of chemicals, determining optimum storage conditions for these chemicals before and after solution preparation, assuring the maintenance of standard chemical concentrations, and "trouble shooting". Costs can be reduced by recovery of expensive chemicals and reuse of solutions after suitable treatments and concentration adjustments. Illustrations are given showing how the principles of chemistry and chemical engineering applied to the processing of motion picture film might result in low cost with high photographic quality of the products.

A Quality Control Program for Motion-Picture Laboratories

C. L. GRAHAM and R. T. RYAN, *Eastman Kodak Co., Rochester, N.Y.*

A quality control program for motion picture laboratories is proposed. Methods of controlling sensitometers, densitometers and printers and processing machines are described and simple graphical procedures for recording and evaluating sensitometric and chemical data are presented. The selection and storage of exposed and unexposed control stock is discussed. Some sample process control data from operating laboratories are given.

WEDNESDAY AFTERNOON **2:00 P.M., LABORATORY PRACTICE** **SESSION**

Cleaning Motion-Picture Film

D. W. FASSETT, F. KOLB, JR., and E. M. WEIGEL, *Eastman Kodak Co., Rochester, N.Y.*

A Uniform Blackbody Light Source Excited by Radio Frequency

S. C. PEFK, *Sylvania Electric Products Inc., Salem, Mass.*

The need for a new light source of greater stability, higher brightness and better uniformity is mentioned. The development program which resulted in such a lamp (which has black body radiation) is then discussed. Actual performance in a 35mm printer and a 16mm projector is presented with mention of other possible applications.

The Design of Color Motion-Picture Printers

J. G. STREIFFERT, *Eastman Kodak Co., Rochester, N.Y.*

The basic design considerations that must be met in designing a printer for making color release prints are outlined, placing particular emphasis on the film handling aspect, the optical aspect, and the illumination control.

Professional Printing Techniques for Ansco

Color Negative-Positive Motion-Picture Film
KARL SCHADLICH, *Ansco, Binghamton, N.Y.*

Printing from Ansco color negative onto Ansco positive is relatively simple, but it does require certain changes in technique, equipment and timing. These requirements are described. The technique of timing for color printing with color correction filters is described with particular attention to some of the reasons why anticipated results are not always attained.

Processing Anscochrome Motion-Picture Films for Industrial and Scientific Applications

JOHN FORREST, *Ansco, Binghamton, N.Y.*
Anscochrome is a new 16mm reversal motion-picture film with an exposure index of 32. The film can be processed by the regular Ansco color process in the field or in the laboratories of the

manufacturer. Higher speeds can be secured for scientific and industrial applications at a sacrifice of fineness of grain and color balance by modifying the process. The processing procedure is described.

Report of the Color Committee
J. P. WEISS, *Chairman*

WEDNESDAY EVENING

8:00 P.M., "Camera Trails Along Nature Trails," an illustrated talk by Dick Bird, of Regina, Saskatchewan, Canada, outstanding photographer of birds and small animal life in North America.

THURSDAY MORNING OCTOBER 6

9:00 A.M., **ROUNDTABLE DISCUSSION: Problems of Network Broadcasting in Monochrome and Color**

Speakers:

R. E. SHELBY, *National Broadcasting Co., New York*

W. L. LODGE, *CBS Television, New York*

FRANK MARX, *American Broadcasting Co., New York*

F. A. COWAN, *American Telephone and Telegraph Co., New York*

P. B. LAESER, *WTMJ-TV, The Journal Co., Milwaukee, Wis.*

The advent of color television broadcasting and program distribution necessitated many changes in studio equipment, lighting, and techniques. Procedures had been well established for black-and-white television, but it became necessary for networks to approach large-scale color TV operations from an entirely different viewpoint. These points of view will be discussed by three prominent authorities from the major networks. The problem of transmitting color signals over a nationwide network required technological changes in every-day operations, which will be outlined and discussed in detail.

After the originating station has produced a color TV program and the common carrier has distributed it, many situations are encountered by the outlying stations. It is the responsibility of these stations to deliver adequate color signals to the ultimate user of a color receiver or a compatible signal which can be viewed on a black-and-white receiver. These problems will be discussed by a station representative who has had considerable experience and success in this field.

THURSDAY AFTERNOON - CONCURRENT SESSIONS

2:00 P.M., **SYMPOSIUM ON HIGH SPEED PHOTOGRAPHY**

A group of seven papers to make one or two sessions is planned by chairman John H. Waddell, with emphasis on film evaluation.

2:00 P.M., **TELEVISION PRACTICE SESSION**

A New Look at Colorimetry

D. L. MacADAM, *Eastman Kodak Co., Rochester, N.Y.*

This will be a report on the proceedings of the International Commission on Illumination (CIE) which met in Zurich, Switzerland, from June 13 to 22, 1955. The status of the revision of the standard data for colorimetry will be explained and discussed. The present FCC standards for color television are specified in terms of colorimetric data adopted by the CIE in 1931. Most quantitative work on color, during the past 24 years, has been based on the CIE data. The significance of the proposed revisions in relation to that work and future work and specifications will be discussed.

Colorimetric Problems in the Use of Film for Color Television

H. N. KOZANOWSKI and S. I. BENDELL, *Radio Corp. of America, Camden, N.J.*

Increasing use of film for color telecasting has emphasized the need for a more critical view of the capabilities of both the film and the television system, and for a greater understanding of the colorimetric behavior of the combination. A discussion of the main problems is presented, in which operational requirements of present-day broadcasting are considered. Various attempts at the solution of these problems are examined and recommendations are suggested for further improvement in the art.

Grainless Phosphor Screens for Television Tubes and the Light Amplifier

F. J. STUDER, *General Electric Research Laboratory, Schenectady, N.Y.*

A luminescent coating deposited as a grainless layer avoids the diffusely scattered light associated with a conventional powder phosphor in television tubes. Such transparent phosphor screens of zinc sulfide can be made by a vapor phase reaction as will be described. With a screen of this kind, higher resolution and contrast are possible. Phosphor layers produced in this way may also be used as light amplifying screens.

Television Vertical Aperture Compensation

A. C. SCHROEDER and W. G. GIBSON, *RCA Laboratories Div., Princeton, N.J.*

The known ways of compensating in the vertical direction for a scanning aperture are reviewed. A new method is presented. This consists of wobbling the scanning aperture in and out of focus at a rapid rate yielding high and low resolution signals. The low resolution signal is subtracted from the high resolution signal yielding an aperture compensated, or edge enhanced, picture independent of the scanning direction. A similar method using vertical deflection wobble rather than focus wobble results in vertical aperture compensation alone. Pictures are shown to illustrate the subjective improvements obtainable using vertical aperture compensation.

The Electronicam TV-Film System

T. T. GOLDSMITH and J. CADDIGAN, *Allen B. Du Mont Laboratories, Inc., Clifton, N.J.*

The Electronicam TV-Film System is a scientific alliance of motion picture and television techniques created to meet the pressing need for an improved modern method of making sound films economically, speedily and with improved artistry. The basic association of the two arts is accomplished technically as follows: (1) The studio TV camera and the motion picture camera are mounted in juxtaposition to each other so that they share a common lens system, thus eliminating parallax problems. (2) An optical light-sharing device enables both cameras to receive the correct proportioned amount of light from the scene, while the two image planes are maintained in accurate focal relationship. (3) Concurrently with the recording of the scene on film, the picture is continuously monitored by the utilization of standard TV electronic monitoring techniques. The director selects his shots from each camera as if he were controlling a regular TV program. Thus, he accomplishes instantaneous editing of the whole program as it proceeds. (4) Video recording equipment simultaneously records the TV version of the program on film as a tele-transcription or kinescope. This then becomes the editing master, complete with bloom marks, wipes, fades and other effects, etc. (5) Special editing equipment enables the film from the individual cameras to be cut according to the kinescope editing master. Release prints are then made from this edited version. The equipment to be described will include both 16 and 35mm Electronicam apparatus—In addition to the technical aspects, the programming techniques will be discussed.

THURSDAY EVENING

6:30 P.M., **COCKTAIL PARTY**

8:00 P.M., **DINNER**

9:30 P.M.—12:30 A.M., **COUNTRY DANCE**

FRIDAY MORNING OCTOBER 7

9:30 A.M., **EDUCATIONAL TELEVISION**

Are We Educating by Television?

G. G. BRODERICK, *U. S. Office of Education, Dept. of Health, Education and Welfare, Washington 25, D. C.*

"Educational TV Growing Into Mass Movement" was the reassuring headline in VARIETY a few months ago, with a subhead adding "170 Off-the-Air Courses." Reason for the article stemmed from the release by the American Council on Education's Television Committee of a report of a survey showing a total enrollment of 12,000 students taking 170 regular academic courses of the air, as they were offered for credit by 44 different colleges and universities. The report further disclosed that in addition to accredited students, there were estimated audiences of 75,000 to 100,000 for some of the courses, bringing the total to a probable astronomical 10,000,000. This is but one illustration of the myriads of ways in which viewers today are being exposed, and are responding, to programs of genuine educational merit. There is a temptation to project this progress into a forecast of great dimensions. But our enthusiasms have already confused our colleagues and we must concentrate on the day by day progress in experimentation and assessment.

Activities of the Joint Committee on Educational Television

E. A. HUNGERFORD, JR., *Metropolitan Educational Television Assoc., Inc., New York.*

The Joint Committee on Educational Television is the best known organization in Educational Television circles. Its program of service to educators who wish to harness television for educational purposes extends back to 1950. It began as an *ad hoc* committee to present education's case to the FCC in a bid for reserved channels. How the Joint Committee on Educational Television acts to protect these 257 channels from encroachment, provide legal and engineering consultation to new and operating educational television stations, organizes state, regional and national conferences on educational television, provides speakers and consultants for such meetings, and distributes regular publications of news and substantive information.

A National Educational Television Program Service

A. M. DeLAND and L. M. NELSON, *Educational Television and Radio Center, Ann Arbor, Mich.*

Educational television today serves across the nation through sixteen non-commercial stations. The "Center" is their main source of recorded programs. In brief, the Center has a well-defined philosophy of educational television, of its own operation and of programming. The Center plans program series within the framework of an educationally sound, balanced-program structure, utilizing three basic sources for recorded programs. Maintaining and improving technical standards has been a primary object of the Center staff and program producers. To help assure high standards, the Center maintains an engineering consulting service available to TVR producers. To maintain an adequate distribution pattern, the Center has combined some audio-visual practices with the best of film editing and handling techniques.



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10:45 A.M., TELEVISION EQUIPMENT

Optical Multiplexing in Television Film Equipment

A. H. LIND and B. F. MELCHIONI, *Radio Corp. of America, Camden, N.J.*

The primary reason for multiplexing TV film cameras and TV film projectors is economy of equipment and/or space. A further reason can be the insurance of standby protection, at a nominal cost, when continuity of programming assumes a high order of importance. The optical multiplexer described in this paper can readily satisfy both requirements when integrated into a TV Film pickup system. Technical details of the design parameters and operating characteristics are discussed.

Inquiry Into Density Standards for Television Slides

R. H. HILL, *Williams and Hill Ltd., Toronto.*
Characteristics of the television system—automatic distortions and compensations, alignment of equipment and the video operator, conception of the perfect waveform are reviewed. The following subjects will be considered: density characteristics of slides giving most perfect wave when chain is aligned to SMPTE test film, mean and extreme densities, balanced distribution of tonal areas, density characteristics of slide producing unsatisfactory waveforms when chain is aligned to SMPTE test film, automatic distortions and its effect on general and specific levels, limitations of reproduction irrespective of further adjustment. Controls necessary for the production of TV slides to a consistent standard will be described.

A Remote Control Multi-Scene Switching Preset System

E. F. KOOK and F. M. WOLFF, *Century Lighting, Inc., New York.*

This paper describes a remote control multi-scene switching preset system for control of lighting circuits. The system incorporates both mechanical and electrical "memories". These permit a large number of circuit condition combinations to be "preset", then introduced simultaneously by depressing a single button. Combinations may also be added to one another, cancelled, or corrected as desired. The control console for a 100 circuit system is approximately the size of a standard office desk and requires only control current wiring.

FRIDAY AFTERNOON

2:00 P.M., TELEVISION AND SOUND SESSION

Television Studio Practices Relative to Kinescope Recording

HAROLD WRIGHT, *Canadian Broadcasting Corp., Toronto, Ontario, Canada.*

If television studio practices are controlled, using the transmission waveform as the guide, consistent kinescope recording quality may be maintained. The waveform approach must be one which takes into account both peak-to-peak voltage conditions and waveform area balance. Inclusion of reference black and white in all possible shots will ensure consistent picture voltages to the kinescope recorder and permit retention of mood when the recording is reproduced. Careful attention to tonal balance of shots will produce balanced waveform areas. This is essential to stable reproduction on receivers not equipped with d-c restoration.

The Conversion From Optical to Magnetic Sound in Television Systems

H. C. WOHLRAB, *Siemens & Halske A. G., Karlsruhe, Germany.*

The quality improvements of magnetic sound compared with optical being well known, the differences in handling and processing will be explained. Converting optical to magnetic sound raises problems in system, equipment and organization. Ways to resolve them in already working TV systems are proposed.

The Process of Magnetization in Magnetic Tapes

WAITER GUCKENBURG, *Institute of Technical Acoustics, Technical University, Berlin-Charlottenburg, Germany.*

Making visible the recording on magnetic tapes by causing the layer to swell or by spreading a ferromagnetic suspension over it and an additional magnetic influencing opens a way for a better knowledge of the process of magnetization in detail. The principal method and the way of working will be explained by showing several slides.

"Sprocketape" Recording System

C. E. BEACHELL, *National Film Board of Canada, Ottawa.*

A recording system employing perforated quarter inch tape is described and demonstrated. The recorder may be buttoned-on to or interlocked with a picture camera or used as a synchronous recorder for double system. Frequency range is 30 to 9000 cycles/sec \pm 1 decibel. Flutter is less than 0.1%; speed, 36 ft./min. reversible. Weight of the recorder is 12½ lb. and may be carried in a brief case. Playback monitoring during recording and a silent turnover synchronizing system is provided. Recorder may be loaded with either 400 to 1200-ft. tapes mounted on cores. Techniques and equipment for editing quarter inch perforated tape are also described.

Set Temperatures With Heat Control Coatings

G. T. HOWARD, *General Electric Co., Cleveland, Ohio*; A. F. TURNER and H. H. SCHROEDER, *Bausch & Lomb Optical Co., Rochester, N. Y.*

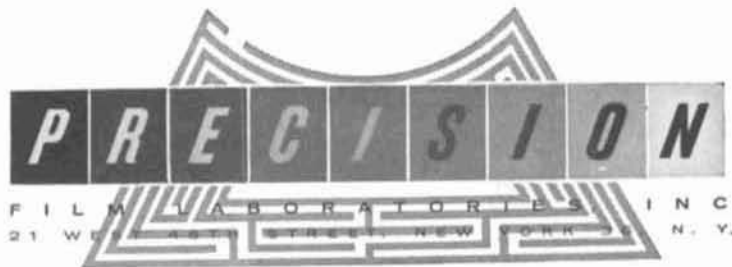
FRIDAY EVENING 8:00 P.M., WIDE-SCREEN, PRE-RELEASE FEATURE



The maze—of details involved in expert film processing presents no problem at Precision. Skilled technicians, exclusive equipment, and expert research groups team up constantly to keep performance at the highest possible level. Precision-processed film is recognized by industry leaders—producers, directors, cameramen—as the finest in the field.

Just one example of advanced film printing methods is the individual Printing Control Strip technique—available only at Precision. This Strip permits complete printing control without notching or altering the original film in any way—and may be filed for later precise duplication.

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