news and reports

77th Convention Local Arrangements at Chicago, April 18–22

The roster of chairmen who are making all the arrangements and who will pull all the strings, except for the deliveries of the technical speakers, has been announced by Byron Roudabush, Convention Vice-President:

Local Arrangements Chairman, James L. Wassell
Administrative Assistants, Robert G. Herbst, Harold W. Kinzle, Charles E. Lager, Robert L. McIntyre, John S. Powers and David W. Ridgway
Registration, Kenneth M. Mason
Hotel Arrangements, Lawrence S. P. Hanchek
Projection, I. F. Jacobsen
Public Address and Recording, Robert P. Burns
Motion-Picture Short Subjects, Kenneth M. Mason
Hospitality, Geo. W. Colburn
Exhibits, George L. Oakley
Transportation, George M. Ives
Publicity, Edward H. Seguin
Luncheon, Henry Ushijima
Banquet, Jerome C. Diebold
Membership, Harry W. Lange
Ladies Committee: Cohostesses – Mrs. Geo. W. Colburn and Mrs. Malcolm G. Townsley; Mrs. Jerome C. Diebold, Mrs. Lawrence S. P. Hanchek, Mrs. C. E. Heppberger, Mrs. George M. Ives, Mrs. Kenneth M. Mason, Mrs. Reid H. Ray, Mrs. Henry Ushijima and Mrs. James L. Wassell

Early interest has been great for the booths arranged by George Oakley to provide an equipment and services exhibition in The Drake during the Convention.

The postal announcement was mailed to all members on February 23. In addition to the general outline of technical sessions and papers, it provided the usual tear-off postal for making reservations at The Drake. And something new was added by Jim Wassell: a postal to be used by members for advance registration. It gives Registration Chairman Mason all the information so that a member's registration can be all ready, just waiting for him to step up and pay his fees.

The Advance Program, arranged by Program Chairman Heppberger and the Papers Committee, appears below.

Ken Mason, chairman for motion-picture short subjects, reports: Several films of unusual interest have been procured by the convention committee for showing at the technical sessions. Among these are:

Oddities in Farming, Reid H. Ray Film Industries
Highway by the Sea, Ford Motor Co.
500,000 to 1, Atlas Film Corp.
The Big Track, The Calvin Company
Pee Wee Reese, Emerson Yorke
It's All in Knowing How, Chicago Film Studios

Tentative Schedule of Committee Meetings During Convention

Monday, April 18
1:30 P.M. Film Dimensions

Tuesday, April 19
10:00 A.M. Color
10:00 A.M. Papers/78th Convention
1:30 P.M. PH22 *and* Standards, *joint meeting*

Wednesday, April 20
10:00 A.M. High-Speed Photography
1:30 P.M. Magnetic Recording
3:30 P.M. Sound

Thursday, April 21
10:00 A.M. Film-Projection Practice
1:30 P.M. Television
3:30 P.M. Television-Studio Lighting

Friday, April 22
10:00 A.M. Screen Brightness
1:30 P.M. 16 & 8mm

ADVANCE PROGRAM

A convention announcement with two return post cards, one for your hotel room reservation addressed to The Drake, and the other for advance convention registration addressed to Ken Mason, registration chairman, were mailed to the members on February 23. Here follows the Advance Program, giving the schedule of papers, sessions and special events.

The general line-up is set. But since a number of additional papers are not yet approved, a few minor changes will likely be made before printing the Final Program which you pick up at the Registration desk. If it's necessary to pinpoint your time for a single session or group of papers, better double check after the first week of April with Program Chairman C. E. Heppberger or his assistant, J. E. Moran, National Carbon Company, Financial 6-3300, Chicago, or with Society Headquarters.

CONVENTION EXHIBIT

Note that the convention includes as an added feature, an equipment exhibit scheduled to present the latest in motion-picture and television equipment by two dozen or more manufacturers and distributors. Exhibit booths will center in The Drake's Walton Room right next door to the Technical Sessions and will be open to all who register for the convention. All sessions will be held in the hotel, except the Friday morning one on VistaVision.

COMMITTEE MEETINGS

The 11 Engineering Committee meetings and the Papers/78th Convention committee meeting are listed above.

SMPTE 77th Convention
April 18-22 — Chicago

SUNDAY APRIL 17

Registration for the Convention will be opened in the afternoon in The Drake's French Room Foyer.

MONDAY APRIL 18

9:30 A.M., Convention Registration, The Drake's French Room Foyer

12:20 P.M., Get-Together Luncheon, with Guest Speaker Charles H. Percy, Gold Coast Room

3:00 P.M., SOUND SESSION

Some Practical Elements of 16mm Motion-Picture Sound Recording
ALLEN JACOBS, *The Calvin Company, Kansas City, Mo.*

Nomenclature from "engineer" through "specialist" to "production engineer" and their "tiers" of knowledge will be reviewed. Theoretical and practical knowledge to adequately evaluate and adapt research developments is required to approach the day-to-day job of recording sound. The theory of sound recording, including these factors — the original sound to be recorded, acoustical conditions, microphones, recording machines, recording materials and production techniques — is important to the degree it aids the improvement of motion-picture sound quality.

A Versatile 16mm Magnetic Recording System
R. W. CURTIS and R. J. BEAUDRY, *National Film Board of Canada, Ottawa*

The National Film Board of Canada has developed a versatile, two-case 16mm magnetic recording system which is intended for use on locations where the equipment carried must be kept to the very minimum. The mixer unit may be powered from either the line or from dry batteries, while the recorder unit, together with a suitable picture camera, may be supplied from a single 6-v vibrator source. Portability, flexibility of operation and high standards in recording quality have been attained in the system. The mechanical and electrical designs are fully described and the system is demonstrated.

Sound Effects Track Noise-Suppressor
J. F. BRYD, *Radio Corp. of America, Camden, N.J.*

A simplified noise-suppressor for the effects track in CinemaScope reproduction is described. The

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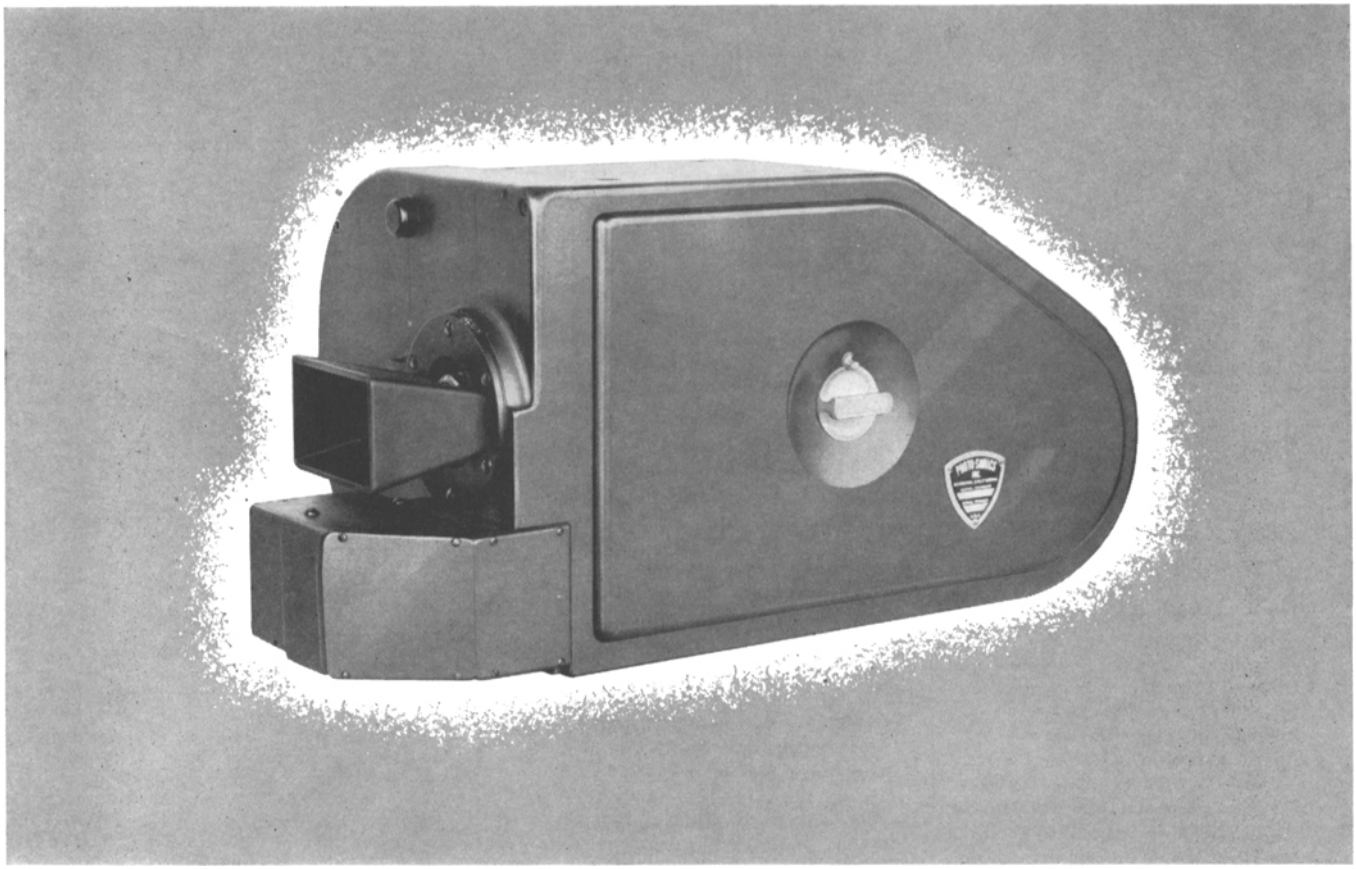

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For Professional Results on 70MM Film

60 Frames per second
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FRAME SIZE: .218 x 2.25 inches
MAX. FRAME RATE: 400 frames per sec.
FILM LOAD: 400 or 1000 ft. magazine

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For Aircraft Use
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FILM LOAD: 400 ft. daylight loading

70MM-5B
FRAME SIZE: 1.156 x 2.25 inches
MAX. FRAME RATE: 80 frames per sec.
FILM LOAD: 400 or 1000 ft. magazine

70MM-10A
FRAME SIZE: 2.25 x 2.25 inches
MAX. FRAME RATE: 60 frames per sec.
FILM LOAD: 400 or 1000 ft. magazine

Additional information on request

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- Rate Digests, Personnel & Other Data
- Canadian, Mexican Border
- Television Networks
- Rates, Personnel and Data
- TV Stations in Foreign Countries
- National Sales Representatives
- Television Program Sources
- Advertising Agency Directory
- Annual Volume of Advertising in U.S.
- Network TV & Radio Billings: 1949-54
- Revenues, Expenses and Earnings of TV-Radio Stations: 1946-53 (FCC)
- Top 100 Network Advertisers
- Television Status of U.S. Households
- Ownership of Stations by Categories
- CPs Outstanding for New Stations
- With Probable Starting Dates
- Applications Pending
- TV Allocations Tables
- Television Stations by Call Letters
- Sales & Transfers of TV Stations
- Stations Which Have Gone Off Air
- Theatre-TV Organizations
- Subscription-TV Promoters & Firms
- Armed Forces TV Stations
- British Television Networks
- FCC TV Color Standards: Full Text
- FCC Technical Standards, as Amended
- Color Status of Network Stations
- TV-Radio Manufacturers: Financial Data
- Manufacturers of TV Receivers
- Picture & Receiving Tube Manufacturers
- Receiving Antenna Manufacturers
- Tuner & UHF Converter Manufacturers
- Phonograph & Record Manufacturers
- TV Set Production: Monthly, 1947-54
- TV-Radio Sales & Inventories: Monthly
- TV Shipments by States: 1950-54
- Cathode Ray Tube Sales: 1947-54
- Receiving Tube Sales: 1949-54
- Manufacturers of Telecasting Equipment
- RETMA: Executives & Committees
- Electronics Research Laboratories
- British TV-Radio Industry
- RCA: Officers and Executives
- CBS Inc.: Officers and Executives
- FCC Personnel Directory
- Attorneys Practicing Before the FCC
- TV-Radio Consulting Engineers
- Network Engineering Departments
- Miscellaneous Consulting Services
- TV-Radio Station Brokers
- Associations in TV & Related Fields
- Market Research Organizations
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- Publications in TV & Related Fields
- Labor Unions & Guilds in TV Fields
- Community Antenna Systems

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unit operates in the speaker line, thus using the full gain of the system, and uses two tuned circuits: one accepts and rectifies the 12-kc control tone to operate a speaker relay, and the other rejects the 12-kc tone from the wanted program material in the effects speakers. The unit uses no tubes or power supply.

Status Report on Magnetic Sound Standards
E. W. D'ARCY, *Chicago*

Arricord 35, a New Double-System 35mm Camera
ROBERT RICHTER, *Arnold & Richter Co., Munich*
The Arricord 35 consists essentially of an Arriflex 35, Model IIa, camera with 400-ft magazine, mechanically synchronized with a magnetic recorder, also of 400-ft capacity, using 17½mm perforated film. The complete unit is housed in a compact sound blimp with external controls. Either a 110-v a-c synchronous motor or a governor-controlled d-c motor is used to drive camera and recorder simultaneously. Motors are readily interchangeable.

MONDAY EVENING

NONTHEATRICAL MOTION PICTURES

Film on Animation Techniques
JOHN OXBERRY, *The Animation Equipment Corp., New Rochelle, N.Y.*
A 35mm film (to be released in 16mm sound) has been made to demonstrate techniques of animation with the use of the Oxberry Stand and Compound. It employs live action and technical animation, using appropriate commercials to illustrate given features. Some of the techniques covered are: (1) fast live action effect zooms at low cost; (2) lots of action with few cels by bi-motion and tri-motion; and (3) free-wheeling with the use of a Pantograph Finder. The film also treats quality control and economy.

Two Animation Stands of New Design
E. H. BOWLDS, *E. H. Bowlds Engineering, Los Angeles*
This paper describes the design of two new stands for 16mm or 35mm single-frame or continuous photography of animated sequences. One stand features extremely flexible movements coupled with a precise system of calibrations. Provision is made for interchangeable, electrically operated platens for normal and oversize art work. For wide-screen processes, this stand is built to accommodate a special anamorphic lens. A second new model animation stand, of greatly simplified design to meet the demands of TV stations, industrial studios and non-theatrical producers, is also described.

Use of CinemaScope in 16mm Nontheatrical Films
JERRY FAIRBANKS, *Jerry Fairbanks Productions, Hollywood*
This paper deals with the problems encountered and the solutions in the filming of 16mm CinemaScope films for industrial and educational use. The methods of exhibition also are discussed.

Some Basic Elements of 16mm Projector Design
M. G. TOWNSLEY, *Bell & Howell Co., Chicago*
The basic elements which make up a 16mm motion-picture projector are identified and their purpose and essential characteristics described. Some of the design requirements which must be met in a successful projector are listed and typical performance values given.

Arc Lamps for 16mm Projectors
ROBERT S. FREEMAN, *Strong Electric Corp., Toledo, Ohio*
The use of arc lamps with 16mm projection equipment can extend the screen size, permit projection in rooms that cannot be entirely darkened, and allow greater picture detail to be

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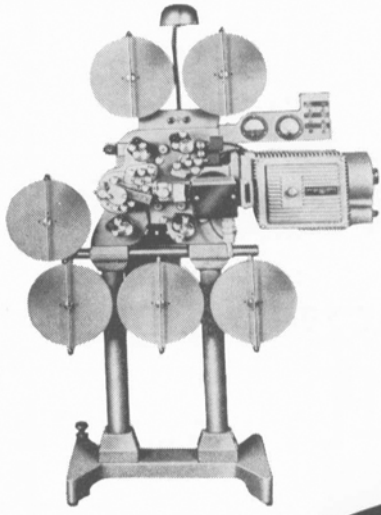
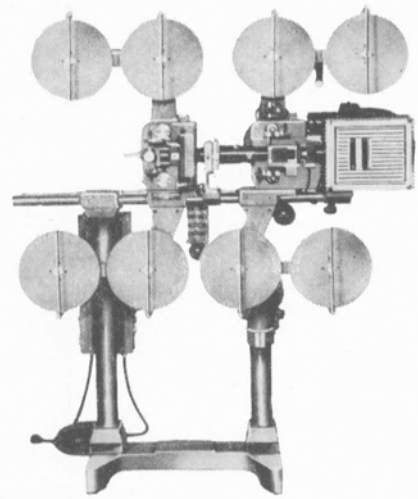


PETERSON CONTINUOUS DOUBLE-HEAD CONTACT PRINTER
MODEL 16-C-60-16MM
MODEL 35-C-60-35MM



PETERSON OPTICAL PRINTER MODEL 300

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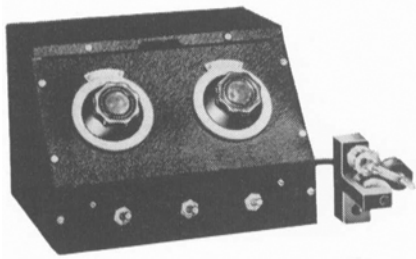
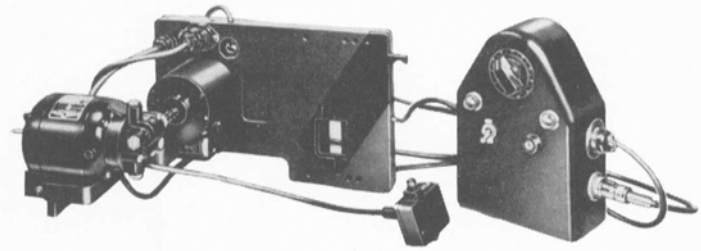
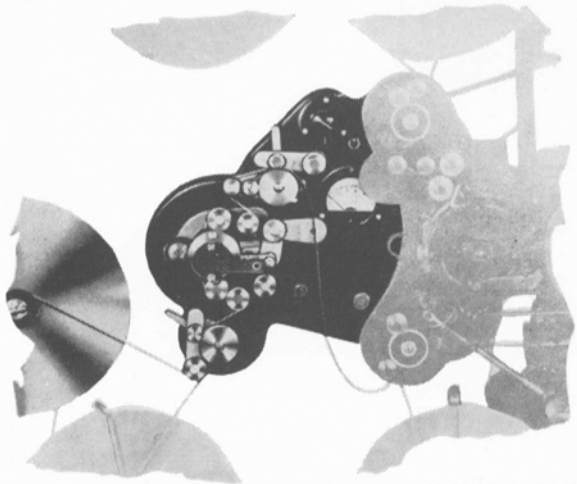
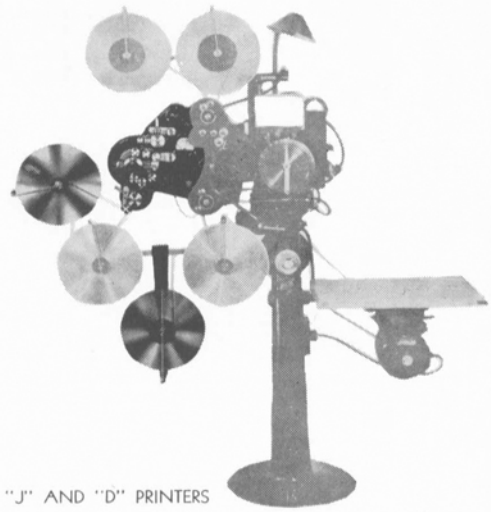


PETERSON ELECTRONIC CUEING SYSTEM FOR ALL PRINTERS



PETERSON AUTOMATIC FADE FOR MODEL "J" AND "D" PRINTERS





PETERSON SOUND PRINTING HEAD FOR MODEL "J" AND "D" PRINTERS

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observed due to the higher screen brightness. A brief description of the various arc lamps and their associated power supplies is presented in this paper.

Screens and Rooms
GERHARD LESSMAN, *Bell & Howell Co., Chicago*
Characteristics of commercially available screens are reviewed and their selection to suit some typical projection conditions is discussed. The effect of surrounds and ambient illumination is considered. Effective relationship of the screen instructor and seating arrangement is discussed. Desirable possible advances in screen design and their implications for future projection practices are then outlined briefly, with a note of caution regarding premature omission of ambient light control devices in classrooms.

TUESDAY MORNING APRIL 19
NONTHEATRICAL MOTION PICTURES

Film Cataloging at Moody Institute of Science
LEWIS H. HUMPHREY, *Moody Institute of Science, Los Angeles*
Because of the need of an extensive stock film library, Moody Institute of Science has developed a very effective classification and cataloging system. Modeled after the Dewey Decimal System used by public libraries, this system enables a cataloguer to group similar material and make it readily available to film editors with a minimum of effort.

Multiple Camera Control
IRWIN A. MOON and F. ALTON EVEREST, *Moody Institute of Science, Los Angeles*
In the photographic phase of certain types of motion-picture film production, multiple camera operation is of great economic value. This paper describes a simplified system by which three (or more) standard blimped cameras may, by pushbutton control, be started and stopped at will during sound takes with automatic head and tail synchronizing marks. Short cut editing procedures utilizing the film from such multiple camera operation are also described.

Selected Set Construction Techniques
HERBERT MEYER, *Motion Picture Research Council, Hollywood*
Motion-picture production on major studio lots has access to extensive fabricating facilities and know-how for the creation of sets, props and special effects. An attempt is made to aid those engaged in the production of commercial and educational motion pictures with their respective problems by supplying information regarding materials and processes selected to suit lower budgets, smaller facilities and lesser technical skills.

16mm Away From Hollywood
RUDY SWANSON, *Rudy Swanson Productions, Appleton, Wis.*
Due to the problems of equipment and personnel, located far away from large production centers, the independent producer must make good use of outstanding advances in 16mm equipment and techniques. The successful small film maker is a "do-it-yourself" expert, applying production advantages skillfully in the industrial field. High-quality product is essential for continued patronage from limited clientele.

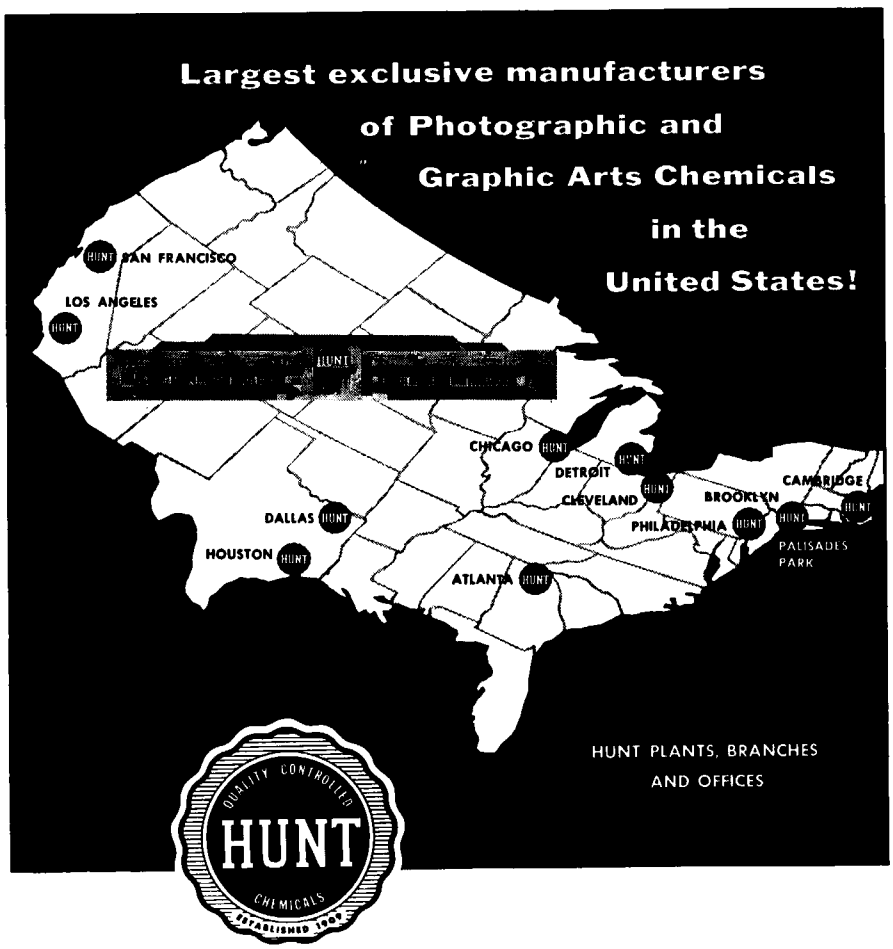
TUESDAY AFTERNOON
NONTHEATRICAL MOTION PICTURES

Analysis of Cost Characteristics of Business Motion Pictures
JOHN W. FLORY, *Eastman Kodak Co., Rochester, N.Y.*
This paper reports salient findings of a recent study by the Association of National Advertisers that provides heretofore confidential data on actual production, print and distribution costs, and methods, for advertising and public relations films produced by 67 leading companies. It gives a picture of the current costs of producing and circulating such a film; information about the type of films being produced, with target audiences, film size and type, number of release prints, average running time, etc.

A Survey of the Distribution of Nontheatrical Motion Pictures
HERBERT E. FARMER, *Dept. of Cinema, Univ. Southern California, Los Angeles*
Between the production of a motion picture and its availability for showing lies the very essential step of distribution or circulation by which the potential user learns of its availability and acquires it for his use. This paper briefly reviews the history and growth of the field of film distribution; analyzes the various channels and procedures used today by film distribution agencies; and surveys representative distributors, libraries and user groups correlating the business and fiscal policies under which their subjects are acquired and circulated.

Theory and Application of Pre-Production Testing for 16mm Nontheatrical Films
NICHOLAS ROSE, *Dept. of Cinema, Univ. Southern California, Los Angeles*
The 16mm nontheatrical film considered from the viewpoint of a communication device. A discussion of the theoretical aspects of a 16mm film as part of a communication situation. Some necessary considerations which need to be met for pre-production testing to be a valid prediction for the intended audience are indicated. Story board and non-story board pre-production models are discussed.

A Film Age for Education
P. A. JACOBSEN, *Univ. of Washington, Seattle*



Hunt Chemicals for both color and black and white motion picture processing conform to the photographic specifications of the American Standards Association.

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THOMAS T. HILL, *Director Photographic Research*

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CHARLES F. LO BALBO, *Motion Picture Technical Advisor*

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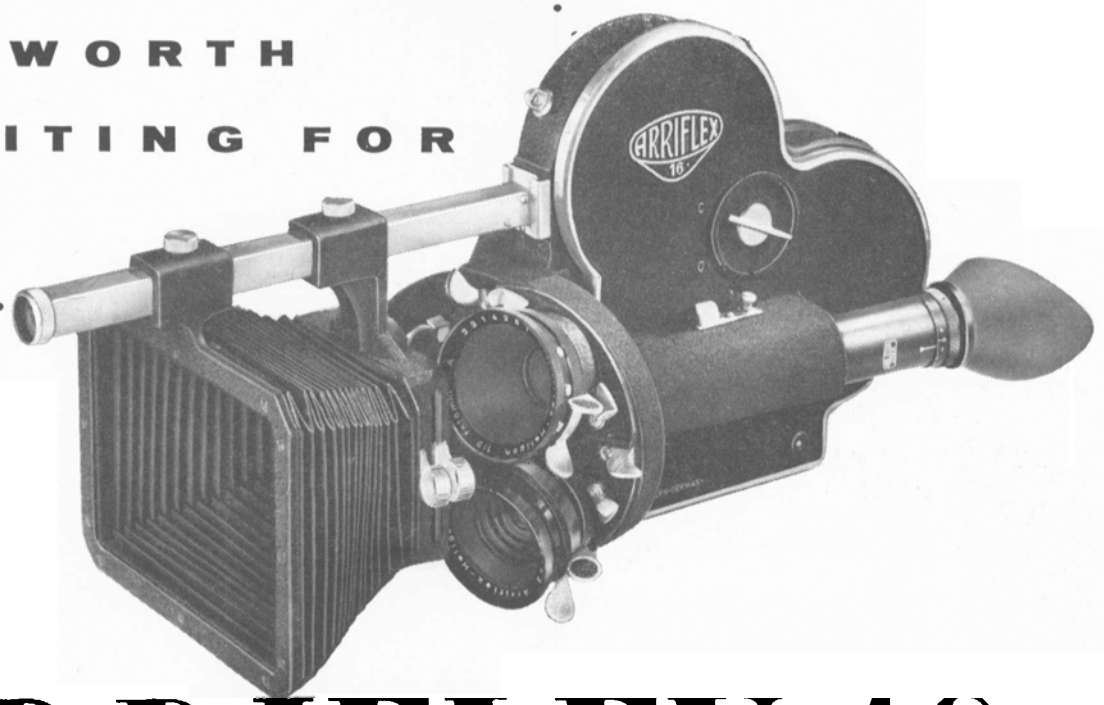

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TUESDAY EVENING

NONTHEATRICAL MOTION PICTURES

Filming an Educational Television Series

REID H. RAY, *Reid H. Ray Film Industries, St. Paul*

Production techniques used in filming 39 half-hour television shows by a commercial film company are described. An educational-type program (originally televised "live," but not kinescoped) required a format unlike the entertainment television film. Studio set design, preproduction conferences, lighting, camera procedures, props, and special effects peculiar to these films are outlined in this paper.

Infrared Motion-Picture Technique in Observing Audience Reactions

BERNARD R. KANTOR, *Dept. of Cinema, Univ. Southern California, Los Angeles*

Taking infrared motion pictures of an audience while they are viewing a motion picture is feasible. This paper describes the theater installation necessary, the type of bulbs used, the preparation of a coating for these bulbs, specifications for exposure and development of the infrared film. The accompanying 16mm film shows the installations used plus examples of audience reactions.

How Walt Disney's Naturalist-Photographers Film Wildlife for the True-Life Adventures

ALFRED MILOTTE, *Walt Disney Productions, Burbank, Calif.*

How the famous wildlife photographers who help Walt Disney produce his True-Life Adventures carry out their field operations on the world's animal frontiers is explained in this report about their unique and exciting profession. It relates how these photo-naturalists and Disney's production team have opened up entirely new vistas on living creation for informative entertainment in the theater, television and nontheatrical fields.

WEDNESDAY MORNING APRIL 20

TELEVISION

New 16mm Television Magnetic Optical Sound Projector for the Limited Budget

JOHN S. POWERS and GEORGE F. KRTOUS, *Bell & Howell Co., Chicago*

The increasing use of the vidicon camera as the pickup means in a television film chain has opened the field for a new 16mm magnetic and optical television projector designed for dependable high-quality picture and sound reproduction. This paper describes a projector suitable for film telecasting, using the vidicon camera.

Experimental Considerations for 8mm Kinescope Recording

GEO. W. COLBURN, *Geo. W. Colburn Laboratory, Inc., Chicago*

This paper describes a method for "canning" a half-hour television show in a space of $\frac{1}{2} \times 7 \times 7$ in., the picture and sound being recorded from an ordinary home receiver.

Low-Power Telecasting by the Armed Forces

LT-COL MEL WILLIAMSON and MAJ STANLEY E. RODBY, *Office of Armed Forces Information and Education, Dept. of Defense, Washington*

This paper discusses some of the problems and procedures connected with the establishment of low power telecasting by the Armed Forces for the entertainment, information and education of service personnel in isolated areas of the United States and in overseas areas where English language television programming is not available. It traces the development of the concept of Armed Forces Television and discusses "package" equipment requirements, programming, personnel requirements and costs of installation and training, with brief discussion of other aspects of television and its application to the Armed Forces.

Film Problems in Television Newscasting

SPENCER M. ALLEN, *WGN-TV, Chicago*

This is a semitechnical review of the problems confronting a television news editor who has had little or no experience with motion-picture film, and how he has learned to utilize the motion-picture art to develop a new type of journalism. It outlines the principal differences between old-style theater newsreel reporting and modern-day television news reporting. It points up some of the devices used in attempting to overcome the shortcomings of orthodox pan films, single-system soundtracks, developing and light problems, etc. It recommends needs and improvement in film techniques and associated equipment to keep up with the fast pace of the television art.

WEDNESDAY AFTERNOON

TELEVISION

Television Studio-Lighting Committee Report

H. M. GURIN, *Committee Chairman, National Broadcasting Co., New York*

Since the inception of the Television Studio-Lighting Committee, there has been considerable activity among the major television network broadcasters in attempting to codify terminology, measurements and equipment. More recently, the experience gained by smaller stations presents a fruitful source of information which should be utilized to the mutual advantage of the entire industry. Accordingly, steps are being taken to include their independent findings and submit an analysis and evaluation of the progress made as a committee effort for promoting the future growth and efficient utilization of television studio-lighting techniques. This report will outline the objectives of the committee and the proposed steps to achieve these aims.

Control of Light Intensity in Television Projectors

B. F. MELCHIONNI and K. SADASHIGE, *Radio Corp. of America, Camden, N.J.*

RCA's television projectors used with vidicon film cameras are equipped with a light-intensity

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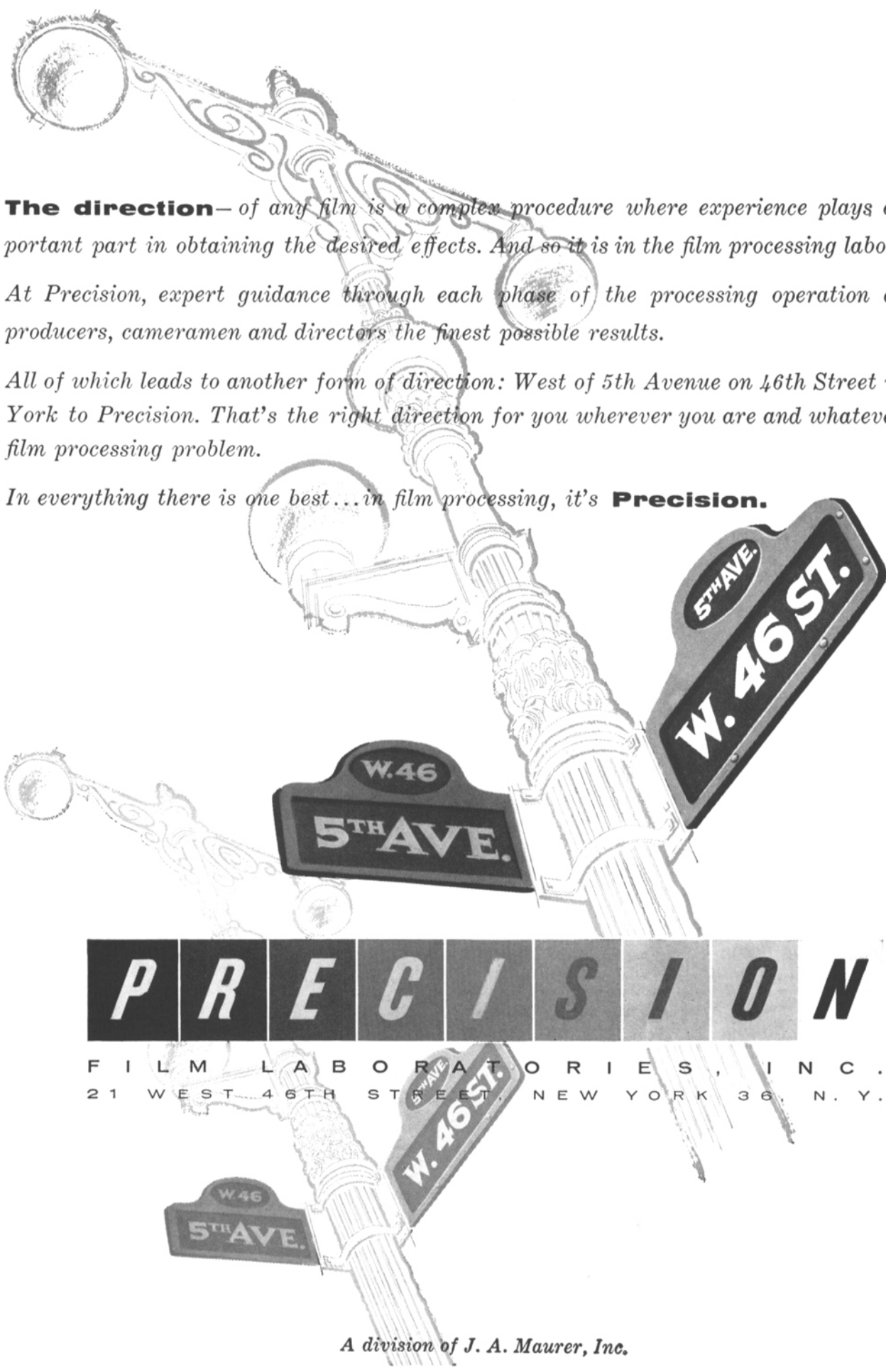

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control unit developed for this purpose. The unit is used to control the video output level of the camera by varying the intensity of the projector light source to compensate for varying film density. The angular position of a continuously variable neutral density filter wedge placed in the condenser lens system of a projector is remotely controlled by means of a servomechanism. Thus the signal-to-noise ratio of the system is maintained at its optimum value since the camera is operating with essentially constant input level.

A 35mm Motion-Picture Projector for Color Television

W. F. FISHER and W. R. ISOM, *Radio Corp. of America, Camden, N.J.*

A 35mm motion-picture projector for use with the three-vidicon film camera for color television is described. This projector employs a modified Geneva intermittent that permits long application of light and nonlocked synchronous operation. The light source is an incandescent lamp. Compensation for variation in film density, without affecting color balance, is provided. The unique accommodation of 24-frames/sec film rate to the 30-frame television system makes the projector adaptable for all storage and semi-storage film pick-up systems.

Chromacoder Colorcasting

PIERRE H. BOUCHERON, JR., *General Electric Co., Syracuse, N.Y.*

Briefly explained are the sequential camera and controls, with scanning rates of three times NTSC rates and at right angles to normal raster, scan rate and sequential to simultaneous conversion in an RBG chromacoder, and the C.P.S. Emitron pickup tube, its operation and advantages. The luminance, or RBY, chromacoder gives freedom from registration in the black-and-white picture and reduction of the registry problem in color picture.

Experimental Equipment for Recording and Reproducing Color-Television Images on Black-and-White Film

WILLIAM L. HUGHES, *Engineering Experiment Station, Iowa State College Ames, Iowa*

At the National Institute of Radio Engineers Convention in 1954, a system of recording and reproducing color-television images on black-and-white film was proposed. The system made use of a combination color separation and electronic switching principle. Provisions were made in the system design for kinescope recording, recording live scenes with a mechanical camera, and reproduction of color-television images directly from black-and-white film with a simple flying-spot scanner. At the time the system was proposed, it had not been tried. This paper is a detailed account of the construction and preliminary operation of the proposed system which has now been operated successfully.

Characteristics of the "Perfect" Lens and the "Perfect" Television System

OTTO SCHADE, *Tube Dept., Radio Corp. of America, Harrison, N. J.*

A "perfect" image is defined optically as an image in which the light-intensity distribution is determined by diffraction alone. In this case the finite boundary (lens stop) of a lens acts as a low-pass filter which determines the sine-wave spectrum of the perfect lens. A perfect television system can hence be defined as a system in which the performance is limited only by the electrical cutoff filter of the system and the optical filter requirements imposed by the raster process. It will be shown that the performance of a "perfect" TV system differs in many ways from that of a perfect lens and photographic system and that a close approach to its performance is possible with practical systems.

WEDNESDAY EVENING

TELEVISION

Color Television Vs. Color Motion Pictures

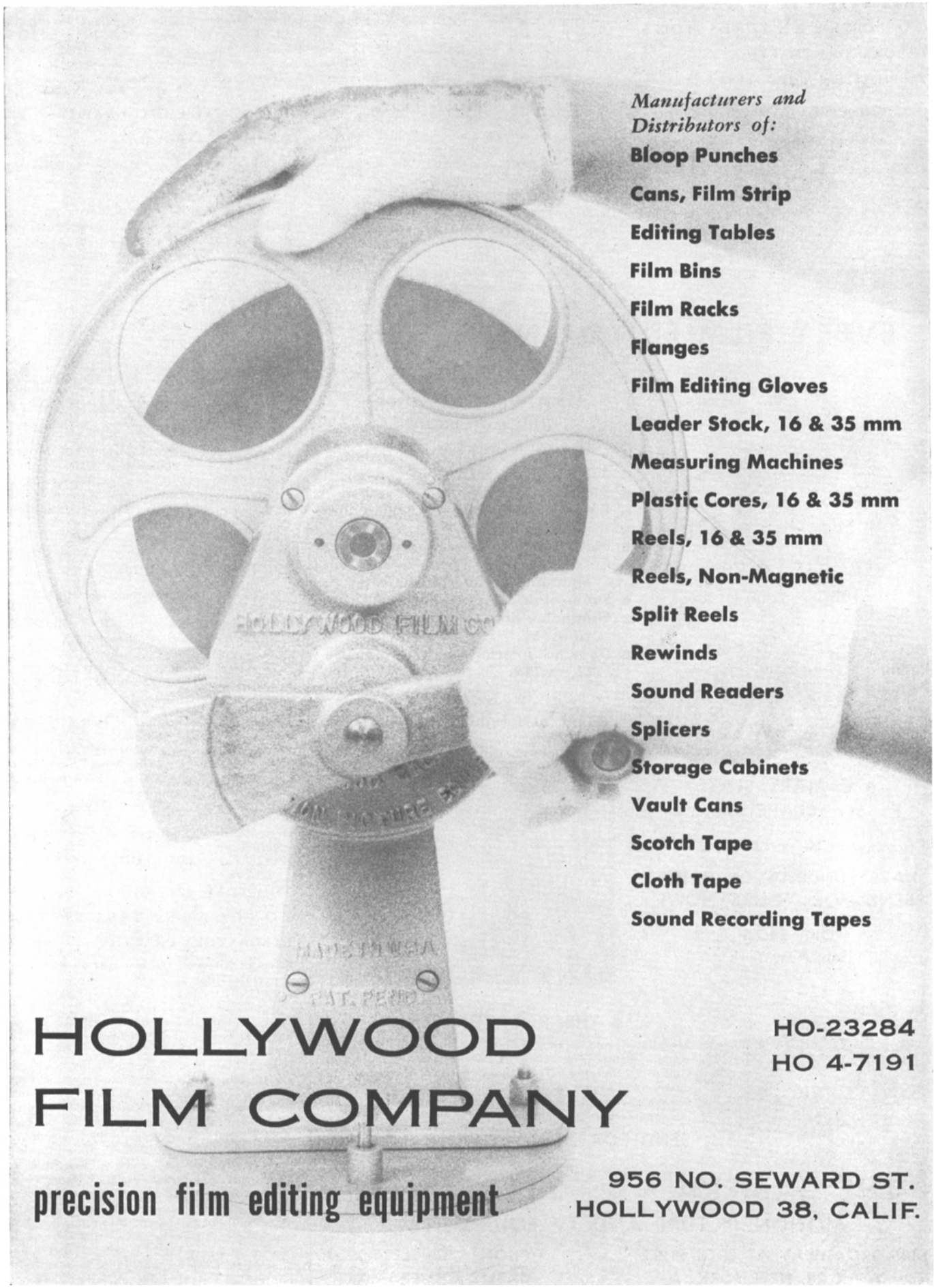
DONALD G. FINK, *Philco Corp., Philadelphia*

The technical capabilities and limitations of color television and color photography are compared in five categories: (1) the viewing situation, (2) image photometry, (3) image colorimetry, (4) image structure and (5) image continuity. The results of a detailed survey of the practices of motion-picture theaters and the 8mm and 16mm home movie systems are compared with the current performance obtained by 21-in. color-television receivers. Tables comparing these systems are presented. The avenues open to television and photographic engineers to improve the respective systems are pointed out.

Integration of Color Television Equipment in a Television Station

PHILLIP B. LAESER, WTMJ-TV, *The Milwaukee Journal, Milwaukee*

WTMJ-TV's pioneer color installation and the operational problems faced by its engineers during the past 16 months are discussed. The results and experience gained by integrating color film slides and live color camera equipment with the present monochrome system are given. The scope of the discussion includes some of the technical difficulties and handling of the color signals from the camera to studio control room through the master and TV transmitter. Color test procedures, lighting, air-conditioning and manpower requirements at the station are also explained and illustrated.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THURSDAY MORNING APRIL 21

CONCURRENT SESSIONS

LABORATORY PRACTICE

The Role of Resolving Power and Acutance in Photographic Definition

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

Experiments have shown that no unique correlation exists between either resolving power or acutance and definition, which is the quality aspect of a photograph associated with the clarity of detail. Acutance was found to correlate with definition when resolving power was above that for the eye under the conditions for which the prints were viewed, and to correlate with definition in all cases when it was weighted by a suitable function of resolving power and viewing conditions.

The Effect on Definition of the Stage at Which Reduction Is Performed in Reduction-Printing Processes

G. C. HIGGINS, R. L. LAMBERTS and R. A. PURDY, *Eastman Kodak Co., Rochester, N.Y.*

When reduction prints are made by a process involving duplicating positives and negatives, the size reduction can be made at any convenient stage. Color prints have been prepared from color negatives at a reduction of two to one, the reduction being made at a different stage for each print. The prints were ranked for definition. These prints will be shown and the conclusions of the study discussed.

Depth of Field and Perspective Considerations in Wide-Screen Cinematography

R. N. WOLFE and F. H. PERRIN, *Eastman Kodak Co., Rochester, N.Y.*

To improve definition in wide-screen cinematography, negatives are often made with a frame size larger than normal. This results in decreasing the depth of field by an amount that depends on whether the camera position or the focal length of the lens is changed. The effects of the various factors on the depth of field and perspective will be discussed and illustrated.

HIGH-SPEED PHOTOGRAPHY

Cameras for Underwater

HAROLD E. EDGERTON, *Massachusetts Inst. of Technology, Cambridge, Mass.*, and LLOYD D. HOADLEY, *Woods Hole Oceanographic Inst., Woods Hole, Mass.*

The design of underwater automatic and controlled cameras is discussed. A camera of linear design uses a 4-in. (ID) cylinder and a standard 100-ft roll of 35mm film, exposing 800 frames of double 35mm size. Electronic flash is used for illumination, either synchronized with a shutter when external light is present, or without a shutter in darkness. Simplified calculations are given in chart form for cylinders and end plates with external pressure. A few experimental points are given.

Sensitometer With Electronic Flash Illumination

CHARLES W. WYCKOFF and HAROLD E. EDGERTON, *Edgerton, Germeshausen and Grier, Boston*

A sensitometer is described, which uses the electronic flashtube for illumination, using circuits of variable constants to obtain exposure times, in the range from 8000 to 280 μsec. The electronic flash system requires no rotating mechanism or shutter. The spectral distribution of the xenon discharge is a very good approximation to that of daylight. The quantity of radiation per flash is remarkably constant.

A New Schlieren System for High-Speed Photography

RAY CHRISTENSEN and B. F. BECKELMAN, *Boeing Airplane Company*

A New High-Speed 16mm Framing Camera

F. W. WARRICK, *Frederick P. Warrick Co., Bloomfield Hills, Mich.*

High-Speed Photography of Solar Surfaces

JOHN WADDELL, *Rochester, N.Y.*

Controlled Tests to Evaluate the Accuracy of Accelerations Derived From Analysis of High Speed Camera Film Using a Bausch & Lomb Optical Comparator

D. M. SEVERY and PAUL BARBOUR

High-Speed Photography of Business Machines

NATIONAL CASH REGISTER COMPANY

THURSDAY AFTERNOON

CONCURRENT SESSIONS

LABORATORY PRACTICE

Effect of Nitrogen Oxide Gases on Processed Acetate Film

J. F. CARROLL and J. M. CALHOUN, *Eastman Kodak Co., Rochester, N.Y.*

Safety motion-picture film on cellulose acetate base has been found chemically damaged on occasion by storage in the same can with unstable nitrate film. As a result, the effects on acetate film of the three nitrogen oxide gases produced by the decomposition of nitrate film have been investigated. Nitrous oxide and nitric oxide were found to be harmless, but nitrogen dioxide, even at low concentrations, is seriously damaging to safety film. This is to be expected, since nitrogen dioxide reacts with moisture to form nitrous and nitric acids. The order in which the film components are attacked by nitrogen dioxide is: the silver or dye image first, the gelatin of the emulsion second, and the acetate base last. The rate of attack increases with increase in relative humidity. It is concluded that safety films should never be stored in the same can with nitrate films and preferably not in the same room.

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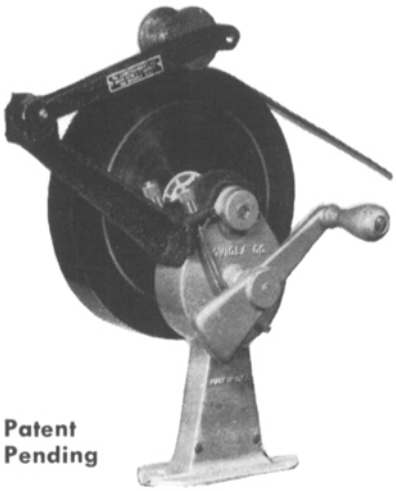

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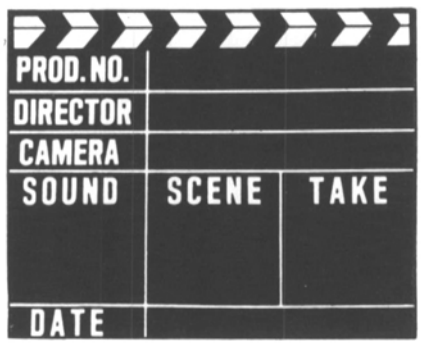

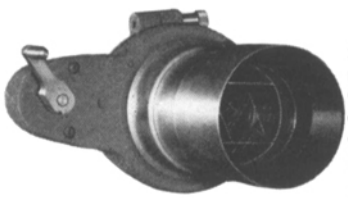

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Recent Developments in Magnetic Striping by the Lamination Process
RICHARD F. DUBBE, *Minnesota Mining & Manufacturing Co., St Paul, Minn.*
A new machine for the application of a magnetic stripe to 16mm and 8mm motion-picture film by a lamination process is discussed. The machine incorporates several new developments such as improved slitting, adjustable track position, a pre-size coater, and a humidity cabinet with elevator. These improvements have made dependable striping on both the base and emulsion surface of the films possible and permit removal of the cellophane carrier in one operation.

A Comparison of Soundtrack Processing Methods for Color Release Positive Film
JOHN L. FORREST, *Ansco, Binghamton, N.Y.*
The problems of processing color release positive film to give a dye image and a silver soundtrack are discussed. The viscous image bleach method is described in some detail. The direct silver plus dye track produced by the viscous bleach method is compared with the track produced by the conventional redeveloped silver method.

A Multiple Magnetic Printing Equipment for CinemaScope
HANS-CHRISTOPH WOHLRAB, *Siemens and Halske A.G., Karlsruhe, West Germany*
A high-speed CinemaScope four-track sound printing equipment that produces six prints at the same time has been developed by the Klangfilm Division of Siemens and Halske A.G., Karlsruhe, Western Germany, to meet specifications of DeLuxe Laboratories, Inc., New York. The printer operates at a speed of 135 ft/min, and, serviced by two men, has a printing capacity of 30,000 ft/hr.

Summary of Proposed Laboratory Standards of the Association of Cinema Laboratories
BYRON ROUDABUSH, *Byron, Inc., Washington*

Single-System Printing Device for Bell & Howell Model "J" Printer
ROBERT VANCE, *Byron, Inc., Washington, D.C.*
The Bell & Howell Model "J" Printer has been adapted to permit the printing of single-system picture and soundtrack simultaneously, at the same aperture, from the regular single light source, yet allowing conventional light changes without causing variations in soundtrack exposure.

The Logatronic Printing Principle for Television Release Prints
D. R. CRAIG, *President, Logatronics, Inc., Washington, D.C.*

Model "D" and "J" Printer Improvements
A. C. MUELLER, *Bell & Howell Co., Chicago*
General description of the following improvements: (1) double-head printing attachment; (2) sensitized cuing patch; (3) edge printing attachment; and (4) automatic fading device.

HIGH-SPEED PHOTOGRAPHY

The listing of papers and demonstrations for this session will be part of those listed on this morning's High-Speed Photography Session.

THURSDAY EVENING

COCKTAIL HOUR, then BANQUET AND DANCE (Informal, dress optional)

FRIDAY MORNING APRIL 22

WIDE SCREEN and VISTAVISION

Reliability Engineering
C. M. RYERSON, *Radio Corp. of America, Camden, N.J.*
Recent advances in the field of "reliability engineering" are reviewed. These include specialized work in four areas: equipment reliability, component reliability, design and use aspects, and reliability program administration. The present status of equipment and part reliability is reviewed, and facts are given on measurement methods and their results. Reliability calculation and prediction are touched upon. Slides are shown, simplifying the presentation and illustrating the results described.

An Aspheric Lens for Mirror-Type Motion-Picture Projection Systems
R. E. HARRINGTON, *National Carbon Co., Cleveland*
An aspheric lens is described which is designed to be added to the elliptical mirror-type of projection optical system commonly employed with carbon-arc light sources. The added aspheric lens reduces the effect of the inherent foreshortened images of the crater formed by the outer zones of an elliptical mirror of large collection angle. Measurements of screen light color and distribution obtained using a sample aspheric lens will be discussed.

This session will be held in a theater, with additional papers and demonstrations.

FRIDAY AFTERNOON

WIDE SCREEN and SCREEN BRIGHTNESS

Historical Notes on Large Screens, Wide Screens and Cycloramas; Some Little-Known Facts
JULIUS B. POSTAL, *Tele-Science Productions, New York*
An anecdotal history of "large" screens, "wide" screens, cycloramas, panoramic triple-projection screens and the like, from 1892 to the present, in which it is shown that the enhanced screen idea is almost as old as the commercial motion picture itself.

Evaluation and Reaction to New Processes of Motion-Picture Presentation
LUCIEN E. POPE, *Fox Midwest Amusement Corp.*, and RICHARD H. OREAR, *Commonwealth Theatres, Inc., Kansas City, Mo.*
A retrospective review of the problems involved in the conversion of many theaters for the various methods of motion-picture presentation is made. Patron acceptance influences management justification for required modifications for these newer processes. The authors have faced problems of equipping over 200 theaters for the changed presentation processes.

Ambient Light From Motion-Picture Projectors
JOHN R. MILES, *John R. Miles Co., Skokie, Ill.*
Motion-picture illumination is not produced by classical condensers, but rather by source-imaging systems, which have specific characteristics limiting the light on the screen edge. Some of these characteristics are often produced by using short-focus lenses with a mirror designed for long-focus lenses. This produces difficulties which are not completely overcome by faster lenses. Tube spaces in projectors, meant for long-focus lenses, also frequently produce uneven illumination.

A report of the Screen Brightness Committee and other papers are planned for this session.

LADIES PROGRAM—In addition to the usual invitation to attend the Get-Together Luncheon on Monday and of course the Cocktail Hour, Banquet and Dance, a local activities and entertainment program is being arranged by Mrs. Geo. W. Colburn and Mrs. Malcolm G. Townsley, as Cohostesses. The Hospitality Committee under Geo. W. Colburn will have available tickets and suggestions for many Chicago activities. Passes for motion-picture theaters downtown and near The Drake will be available.

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