

# Advance Program

**T**his Program is as complete and accurate as possible at press time but it may contain errors and there may well be some changes before the Final Program is printed for the Convention. If very brief Convention attendance has to be planned to hear only one session or specific papers, members are advised to inquire during the week before the Convention by telephoning the Society Headquarters in New York (LOnagacre 5-0172) or to Program Chairman Behrend at Behrend Cine Corp. in Chicago, MIchigan 2-2281.

## SUNDAY—OCTOBER 21

10:00—4:00 Registration

## MONDAY—OCTOBER 22

9:00 Registration

10:00 PROJECTION PRACTICE

### Cold-Mirror Lamps for 8mm Projectors

JOHN O. GEISSBUHLER, Photo Lamp Dept., General Electric Co., Cleveland, Ohio

Cold mirror coatings have been incorporated into reflector lamps for use in the home movie 8mm projector. Light output shows little or no loss, whereas the total energy absorbed by the film has been reduced by 50% for some films. Methods for testing these lamps are shown. Problems of coating uniformity, visible light reflectance, infrared transmission, color bias and adherence are discussed.

### An Automatic Threading 16mm Sound Projector

ARTHUR E. NUPNAU and JAROSLAV CHERNIAVSKYJ, Bell & Howell Co., Chicago

A 16mm sound motion-picture projector was developed to include automatic threading of motion-picture film throughout the entire film path, thereby eliminating the complexity of manual threading. The mechanism is equipped with movable guides to form the proper size of loops and tensions. There is also an automatic loop-restoring device to retain the proper size of lower loop.

12:15 **Get-Together Luncheon**  
Guest Speaker—"The Challenge We Face"



**Charles H. Percy**  
Chairman of the Board,  
Bell & Howell Co.

## MONDAY AFTERNOON

2:30 BUSINESS MEETING

Jack Behrend  
Chairman, 92nd Program



## 3:00 LABORATORY PRACTICE

### Picture Quality and Its Relationship to Internegative Printing

ROBERT O. GALE, Color Technology Division; and ALLAN L. WILLIAMS, Film Testing Division; Eastman Kodak Co., Rochester, N.Y.

Improperly printed color internegatives will create problems in producing good picture quality. Optimum tone reproduction can be achieved only if the entire range of picture densities is properly placed on the individual red-, green- and blue-sensitive layers of the color internegative film. A picture demonstration has been prepared correlating the sensitometric effects with screen quality, using a series of printer exposures in making the color internegatives. The correlation of scene-to-scene color timing used in preparing reversal prints and color internegatives is also demonstrated. Recommended techniques for duplication printing are reviewed.

### A New Fast Acting Light Value Control System for Film Printers

W. ENGEL, A. S. PRATT and H. C. WOHLRAB, Bell & Howell Co., Chicago

The light control contains a pulse-operated memory device which receives the light value information from a perforated tape. A cue signal from the film releases the stored information to the vane-type shutter, which is set to its correct value within a few milliseconds. The 73 different light values in 0.025 Log E increments can be stored and released by the light control; 50 of them are controlled by the tape and the rest by manual presetting. A special device provides for instantaneous complete closing of the shutter to be used instead of black leader in A & B printing.

### A Multiple-Head Reduction Printer — 16mm to 8mm

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

A printer has been devised and built to produce four 8mm color positive reduction prints simultaneously from a single pass of the 16mm color internegative. The optical arrangement and details of its construction are described.

### The Sulfuric Acid-Potassium Dichromate Bleach in the Black-and-White Reversal Process

J. W. ZUIDEMA, Film Testing Div., Eastman Kodak Co., Rochester, N.Y.

In the processing of black-and-white reversal films, the bleach, although having a relatively simple function, can cause numerous practical problems including silver retention, black-and-white spots, and highlight stain. Actual processing machine failure can result because of undesirable but preventable sludge accumulation. It is shown that correct bleach usage and chemical formulation in conjunction with an adequate post-bleaching treatment will eliminate these problems. New bleach replenishment conditions are recommended. In addition, information relating to high-temperature processing and the use of specially formulated bleaches is presented.



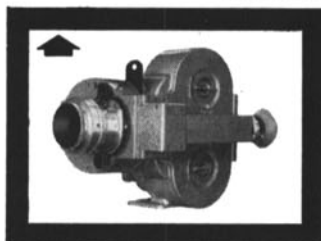
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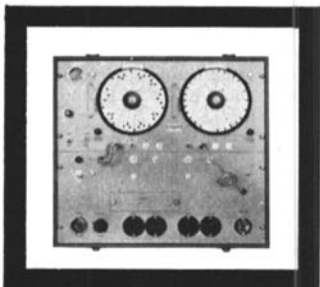
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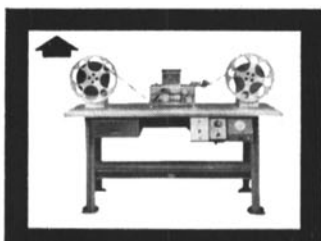
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## Ultrasonic Cleaning of Video, Audio and Magnetic Sound

J. S. LIPSNER, Lipsner-Smith Corp., Chicago

## Ektachrome Original Film Processing — The Application of Engineering Improvements

WILLIAM D. HEDDEN, ROBERT L. SUTTON and ROBERT GYORI, Calvin Productions, Inc., Kansas City, Mo.

During the last few years, many laboratories have installed color processing facilities. There have been engineering improvements in color processing machine design derived through extensive operation experience at Calvin Productions. The application of these engineering improvements to provide optimum color quality and film protection for processing of Ektachrome original color film is described.

## Pitfalls of Color Densitometry

STANLEY A. POWERS and ORAN E. MILLER, Color Technology Div., Eastman Kodak Co., Rochester, N.Y.

## A Semiautomatic Analytical Recording Densitometer

W. E. WHITE, Eastman Kodak Co., Rochester, N.Y.

A semiautomatic analytical recording densitometer has been developed with a unique optical system illuminating the sample after which the light is separated into its blue, green and red components. Integral density measurements made with commercially available amplifiers are converted to shaft rotations and then to equivalent neutral densities. A newly marketed stepping motor advances the 16mm or 35mm strips in discrete steps. The characteristic curves are in turn recorded by a three-character printing unit on an X-Y flatbed recorder. The use of commercially available components is emphasized throughout. The possibilities of using various building blocks of such a system to assemble considerably less complicated and less expensive arrangements which would read only integral densities either simultaneously or in successive sample passes are pointed out.

## MONDAY EVENING

### 8:00 SYMPOSIUM ON 8MM SOUND FILM

#### Facts Are Obstinate Things

ELLIS W. D'ARCY, Ellis W. D'Arcy and Associates, Gary, Inc.

The results of a survey conducted by psychologists working in the area of motion-picture teaching techniques for the American Optical Co., and presented by the latter as an aid to the 8mm sound program, forms the prologue for a discussion of present 8mm standards as well as various proposed 8mm systems.

## TUESDAY MORNING—OCTOBER 23

### CONCURRENT SESSIONS

#### 9:00 8MM/SMALL-FORMAT FILM

#### Capabilities and Considerations in 8mm Sound

HANS F. NAPPEL, Industrial Products Div., Fairchild Camera & Instrument Corp., Yonkers, N.Y.

Compared with other existing 8mm sound recording methods, the present 8mm magnetic medium is capable of surpassing quality. Considerations in the design of 8mm magnetic systems are the choice and application of magnetic stripe, and the achievement of proper physical film-head contact without excessive wear during prolonged operation. Quantitative data are given for wow and flutter, signal-to-noise ratio and frequency response. A demonstration shows what is attainable with present 8mm magnetic sound practices.

#### Teaching With 8mm Sound

LEE H. SCHANK, Industrial Products Div., Fairchild Camera & Instrument Corp., Yonkers, N.Y.

A teaching machine has been designed to be student-operated, completely self-contained and to need no control or supervision by an instructor. In its particular application it is effectively a totally automated teacher, permitting the student to progress at a speed suitable to his capability. 8mm sound was found well suited to this application due to increased film life, reduced film cost and equipment size and complexity. It also offers the possibility of material being programmed inexpensively by schools or agencies using this equipment.

## Double 8 Film With Single Row of Perforations

A. D. SAINT-HILAIRE and L. MARTIN, Pyral S.A., Creteil, Seine, France

Proposed is a standard reduction technique for the transfer of picture image from 35mm to 8mm. This is done by reducing two rows of picture images side by side on 16mm film. The pulldown perforations are in the center of the 16mm film and two soundtracks at the two outer edges. It is pointed out that the aspect ratios of wide screen images in 35mm can be preserved on 8mm in this way. The 16mm reduction carrying two rows of picture images is not slit, the projector being arranged for alternate projection of two rows, one at a time.

## Opportunities in Education for Individual 8mm Sound Film Viewers

LOUIS FORSDALE, Teachers College, Columbia University, New York

Motion pictures are traditionally used for group viewing in education. This is due to many factors including cost and the fact that projectors are too complicated for use by most students. The prospects for individual use of film in education have been enhanced by the advent of 8mm sound film however, and the author proposes that long-range opportunities lie ahead to designers and manufacturers of individual 8mm sound film viewers. A motion picture designed explicitly for individual use by learners of languages is shown as an example of opportunities in this field.

## A Survey of Commercial Use of 8mm Sound Prints

EYRE BRANCH, Noel Enterprises, Hartsdale, N.Y.

Presented are results of a survey made in an attempt to acquire, from laboratories, accurate, up-to-date information on commercial uses of 8mm sound prints. Included are the type of film being used, total footage processed to date or estimated monthly runs, print titles if available, by whom used, and the extent of use as well as pertinent comments.

## 8mm Photographic and Magnetic Sound Films — A Comparison on a System Basis

JOHN A. MAURER, JM Developments, Inc., New York

Taking into account all foreseeable economies in the production of 8mm release prints carrying magnetic sound records, it is argued that prints with photographic soundtracks will remain significantly lower in cost. Elements of cost in the manufacture of projectors are discussed, with particular reference to the design of a combination optical-magnetic reproducer. Photographic 8mm records of 50-mil, 30-mil, and 20-mil widths are demonstrated.

## CONCURRENT SESSIONS

### 9:00 INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

(at Argonne National Laboratory)

## TUESDAY AFTERNOON

### CONCURRENT SESSIONS

#### 2:00 SOUND RECORDING

#### Recent Developments in Magnetic Heads for Use in Motion Pictures

WILLIAM MOEHRING, World Magnetics, Inc., Charlotte, Mich.

This paper is a brief résumé of the present state of the art as applied to the magnetic recording of sound on film and in particular with regard to 8mm sound film equipment. The paper is conceived from the point of view of head manufacture and its application in this type of equipment. Various head parameters are discussed, and the choice of gap, magnetic material, impedance, bias, head shielding and gap presentation to the medium are discussed in detail.

#### A New Magnetic-Recording Tape With Increased Signal-to-Noise Ratio

LLOYD D. LUBINSKI and ALFRED H. MORIS, Minnesota Mining & Mfg. Co., St. Paul, Minn.

One of the inherent difficulties in present-day recording systems is the low signal-to-noise ratio obtainable. Using the newly developed Low Noise Recording Tape, an improvement in subjective signal-to-noise ratio of at least 6 db is obtainable. The magnetic properties of this tape are discussed as well as methods used in measuring these properties.

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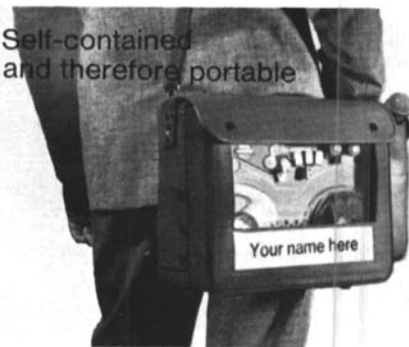
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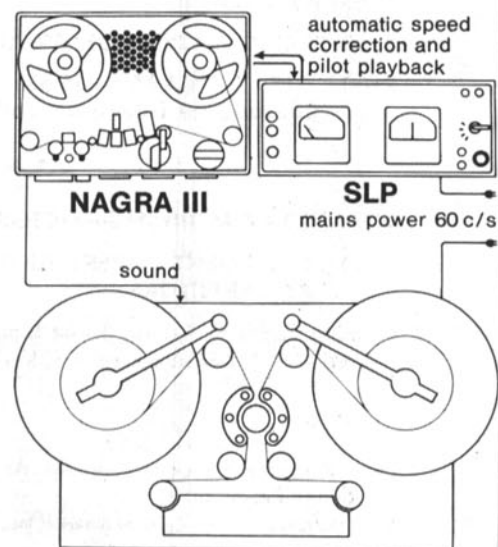
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## Performance

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- 58 DB ASA A signal/noise
- 0.1% peak wow and flutter
- Works from  $-13^{\circ}$  to  $122^{\circ}$  F
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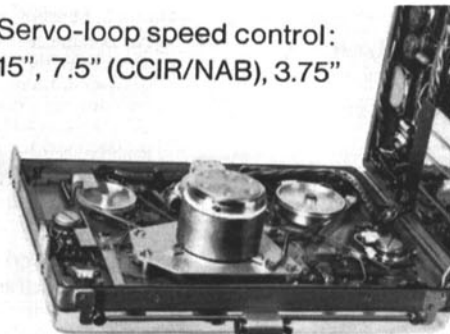
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## A New Look at the Problems of Automatic Volume Level Control

ARTHUR KAISER and BENJAMIN B. BAUER, CBS Laboratories, Stamford, Conn.

The prospects for partially or fully automated broadcast and film production operations are reviving keen interest among engineers in devices to control volume level automatically without degrading program quality. There are problems and criteria of effective volume control, manual and automatic; these criteria are applied to each of the level control designs now in use. A revised set of parameters is proposed to specify these instruments with greater meaning for the user. In this way, the choice of a proper system is related to the user's program needs.

## CONCURRENT SESSION

### 2:00 INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

(at Argonne National Laboratory)

#### High-Speed Photography of Destruction of Fuel Elements During a Reactor Transient

E. N. PETTITT, Argonne National Laboratory, Argonne, Ill.

In the fast reactor safety program at Argonne National Laboratory one of the methods proposed for studying the meltdown process of a reactor fuel assembly was to take motion pictures of the assembly undergoing a destructive reactor power surge. As the test assembly is in the center of the reactor there are problems of access, lighting and operation in an intense field of nuclear radiation. The system designed to take high-speed motion pictures of this process is described.

#### Developments and Applications of High-Speed Photography in Japan

TSUNEYOSHI UYEMURA, Institute of Industrial Science, University of Tokyo, Tokyo, Japan

Developments in the field of high-speed photography in Japan during the last two years are reviewed and the work of the Japanese Research Group on High-Speed Photography is discussed. Equipments described include two prism-type high-speed cameras and the Uyemura Ultra-High-Speed Framing Camera, Model MID-3. Various applications are discussed.

## TUESDAY EVENING

### 8:00 PRESENTATION OF AWARDS

### 8:00 GUEST SPEAKER—James Robertson, National Educational Television and Radio Center

## WEDNESDAY MORNING—OCTOBER 24

### 9:00 EQUIPMENT PAPERS AND DEMONSTRATIONS BY EXHIBITORS

#### Gamma Scientific A-500, Scene Luminance Analyzer

HAROLD T. FIELD, Gamma Scientific Co., San Diego, Calif.

#### New Angenieux Zoom Lens for Arri 16; Siemens 16mm Sound Projector

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

#### Stellavox Recorder With Arri Sync Generator

JACK BEHREND, Behrend Cine Corp., Chicago

#### Nova Twin Lighting Kit and Accessories

HAROLD KOVNER, Novatech Corp., New York

## WEDNESDAY AFTERNOON

### 2:00 INSTRUMENTATION AND HIGH-SPEED PHOTOGRAPHY

(Reports From the 6th International Congress)

## WEDNESDAY EVENING

### 6:45 COCKTAIL PARTY, BANQUET

## THURSDAY MORNING—OCTOBER 25

## CONCURRENT SESSIONS

### 9:00 PANEL DISCUSSION: SIXTH INTERNATIONAL CONGRESS ON HIGH-SPEED PHOTOGRAPHY

## CONCURRENT SESSION

### 9:00 INDUSTRIAL AUDIO-VISUALS and FILMS IN TELEVISION AND EDUCATION

## THURSDAY AFTERNOON

### 2:00 INDUSTRIAL AUDIO-VISUALS and FILMS IN TELEVISION AND EDUCATION

#### Three R's of Aerospace Photography

CHARLES O. PROBST, Cinefonics, Cook Technological Ctr., Cook Electric Co., Morton Grove, Ill.

The importance of aerospace photography is discussed in terms of the ability of film to reveal significant events, to report concepts and programs and to provide a record of events. Specific examples are given.

#### University Film Production: Long Shot and Close-up

ROBERT W. WAGNER, Ohio State University, Columbus, Ohio

The motion picture has long been used in connection with university programs of instruction, research and public information. A recent survey of university production facilities shows a remarkable professionalization of equipment, a growing number of films being produced, and the development of a concern, on the part of university administrations, for more and better use of the motion picture in higher education. The long view of university film production shows growth — often associated with the growth of television activities — in a variety of patterns resulting in a variety of kinds of films ranging from the highly technical to the highly creative. The close-up view of the work of the Motion-Picture Division of the Ohio State University's Department of Photography exemplifies the contribution of the university-produced film to education.

#### Educational Film Production in an Academic Training Program

MERLYN C. HERRICK, Indiana University, Bloomington, Ind.

At Indiana University, as at many other universities, educational film production serves as a laboratory for training students. Problems develop in trainee-assistant programs which are not found in commercial practice: crew members are inexperienced, scheduling around class and teaching assignments compounds problems, yet quality productions are required to help finance the program. In such a laboratory, the educational film is defined, studied, and tested as well as produced.

#### A Three-Pronged Approach to Educational Film Production

ROBERT A. WEISGERBER, Indiana University, Bloomington, Ind.; and San Francisco State College, San Francisco, Calif.

After discussion of a rationale for film-making by educators, examples are drawn from the three-pronged approach operating at Indiana University. An examination of characteristics inherent in (1) student films, (2) departmental service films and (3) educational films for general public use is then given. Production procedures common to the three categories are considered.

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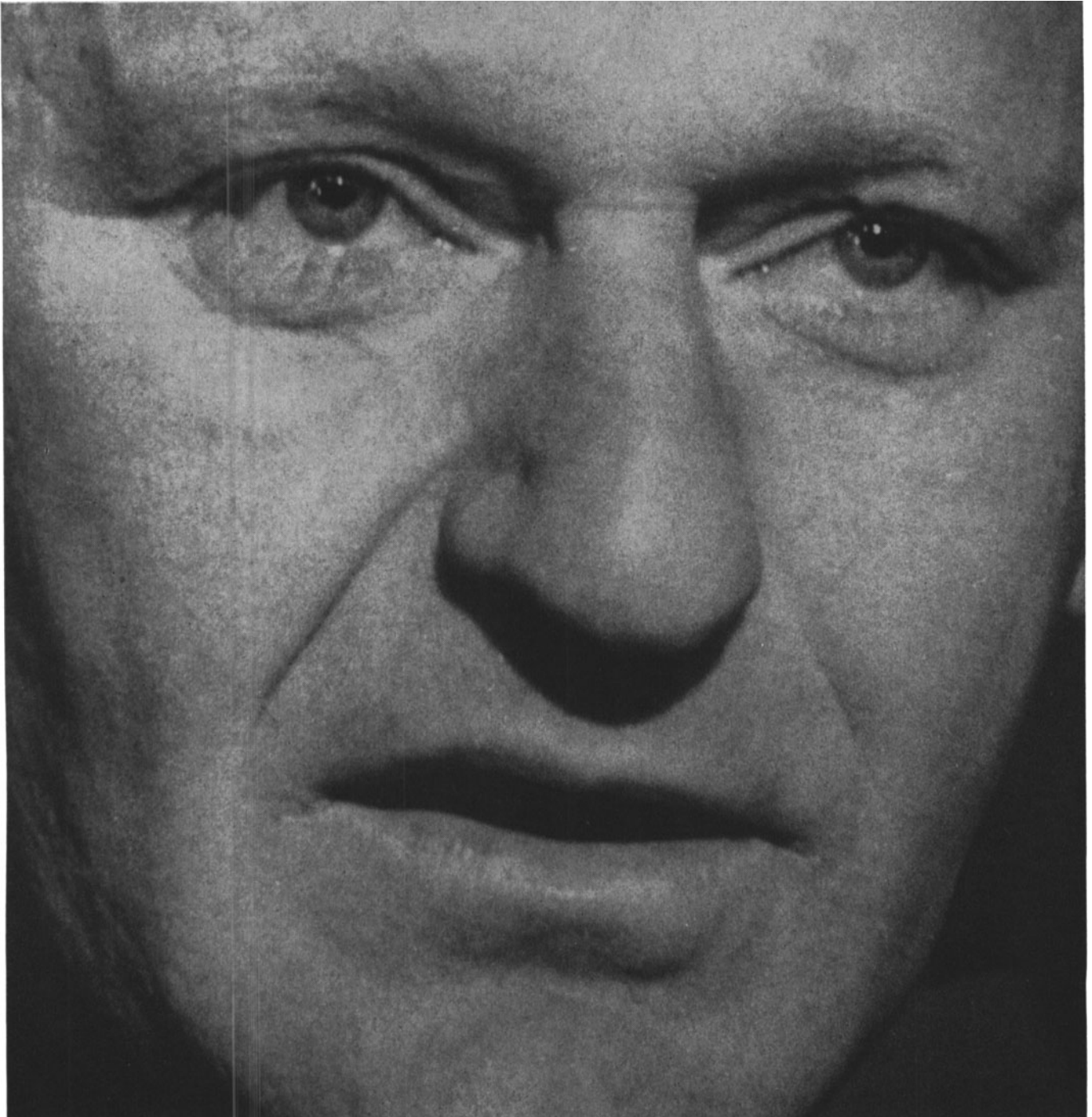
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## Trends in the Single Concept Film

STEVE KNUDSEN, Iowa State University, Ames, Iowa

The production of educational films known as single concept films is increasing rapidly. A survey of selected portions of this production activity shows that a wide diversity exists in the scope of these films. The term "single concept" is sometimes misleading.

## The Planning and Development of a Text-Film

ALBERT J. ROSENBERG, McGraw-Hill Book Co., New York

After a short history of the development of the text-film concept, there are considered: the need for correlated visual materials; research in the subject-matter area covering potential, market, competitive titles, etc.; planning of the motion picture, including choice of advisor, producer, etc.; and, finally, production of a text-film. The future is assessed.

## The Midwest Program on Airborne Television Instruction Project

THE STAFF, Midwest Program on Airborne Television Instruction, Purdue University, Lafayette, Ind.

MPATI is a regional project for upgrading the quality of education over a wide geographic area at a lower cost than would be possible by other means. It achieves these ends by televising quality instructional material from an aircraft to schools in six states and helping schools make the best possible uses of these materials. Schools and colleges assume the management and financing of MPATI by becoming members of a nonprofit corporation.

## Los Angeles and Educational Television

ROSE BLYTH, Community Television of Southern California, Los Angeles

The greater Los Angeles area, representing a potential audience of more than 10 million, is the last major city in the country without an educational station. Community Television of Southern California, a nonprofit corporation, has been formed for the express purpose of acquiring an existing VHF channel for education. The organization is outlined and the development and plans for the Los Angeles station, including proposed programming, described. There are many uses of film and television in education in the Southern California area; the impacts and growth thereof, and the enormous resources available, are cited.

## Overseas Use of Educational Film and Television

DON G. WILLIAMS, Motion Picture Production, University of Kansas City, Mo.

In 1956 when the International Association of Schools of Cinema and Television was formed, these schools were not aware of the possibilities of producing films for the educational or commercial fields; and they did not know the meaning of the word audio-visual. Educational television was just getting started in Europe.

At the last meeting of the Association in Paris, more than half of the discussion was devoted to the training of people in the production of serious pedagogical film, the production of commercial film, and in questioning the United States delegate regarding the possibility of using film on educational television. This has opened a vast new field of educational film utilization and production throughout all of Europe, and again has put the United States in a position of leadership in the area of training of serious or educational film-makers.

## A New Design for a Visual Communications Center at the University of Miami

C. HENDERSON BEAL, University of Miami, Coral Gables, Fla.

A unique structural and technical facility has been engineered and developed at the University of Miami to facilitate visual communications techniques in the teaching of college students. This facility is in the form of a large multiple-classroom structure and television studio enabling as many as 2,260 students to be instructed simultaneously through the use of closed-circuit television as well as all modern visual projection devices. Extensive research and development in areas of projector remote control and automation have been accomplished, resulting in a new approach to the use of film and television on an economical basis. Further research is being carried on in the application of digital and analog computer-feedback techniques from the student to the instructor to increase the bandwidth of communication channels.

## FRIDAY MORNING—OCTOBER 26

### 9:00 CINEMATOGRAPHY

#### The BBC Television Film Department

DENNIS JOHN CRAVEN, BBC Television Film Studios, London

In fourteen years the BBC Television Film Department has grown and developed to meet the increasing needs of the BBC's Television Service, from a dozen enthusiasts in 1948 to over 400 today. A brief history of this development is given, together with a survey of the present-day work of the department with special reference to film produced for educational purposes and to the streamlined production techniques used for handling urgent topical material.

#### Photomultiplier Photometer for Scene Image Analysis

HAROLD P. FIELD and ROYAL H. AKIN, Gamma Scientific Inc., San Diego Calif.

Through the development of a new electronic circuit a spot photometer using a photomultiplier as its sensor has been packaged in portable form. The instrument is specifically designed to measure the ratio between maximum highlight and minimum shadow luminances as well as to relate other portions of the scene to these extremes. Additionally, through an integral exposure computer, exposure information, accurate to a fraction of a stop, can be derived. This device is particularly helpful in measuring and controlling scene luminances in filming for television.

#### Development of a Light Meter for Cathode-Ray-Tube Photography

MATT LEHMANN, Stanford Electronics Laboratories, Stanford University, Stanford, Calif.

The expanding use of film for electronic instrument recording, particularly the various cathode-ray-tube displays, emphasizes the need for a reliable light-intensity meter which will accurately predict film response. The design of such an instrument has been accomplished in the Stanford Electronics Laboratories. The calibration of a suitable photocell probe and design of associated circuitry are illustrated. The use of this instrument with various types of phosphors and the outcome of tests are illustrated and explained.

#### Methods of Television Film Production Used in Europe

ADOLF HINZE, Siemens & Halske, Hamburg, Germany

In Europe new methods have been used in an ever-increasing degree besides the conventional techniques of film production to appease the demands dictated by television. In practice 16mm film is used only in conjunction with the Pilot-Tone technique, while for TV feature film production 35mm film together with the Electronic Cam procedure has gained favor. To meet the requirements created by this development, there have been designed magnetic sound film equipments which for years have found their way into use far beyond Europe.

#### Rotosyn, A System for Universal Synchronization

KARL SCHWARZ, Siemens & Halske, Karlsruhe, Germany

The Rotosyn system designed to synchronize film transport mechanisms has found its way into the studios of Europe and the adjacent countries. It permits the synchronous drive of film transport mechanisms which are fitted with a standard synchronous motor. The principle of the Rotosyn system is that the three-phase a-c power is supplied with a frequency raising from 0 to 50 cycles and a voltage which is in accordance with the increasing impedance. The power is supplied by a Rotosyn converter which is relay-controlled in starting and stopping. Compared to other procedures the advantage of this system is that the film transport mechanisms may be operated either from power line or from Rotosyn supply and need not be fitted with special motors.

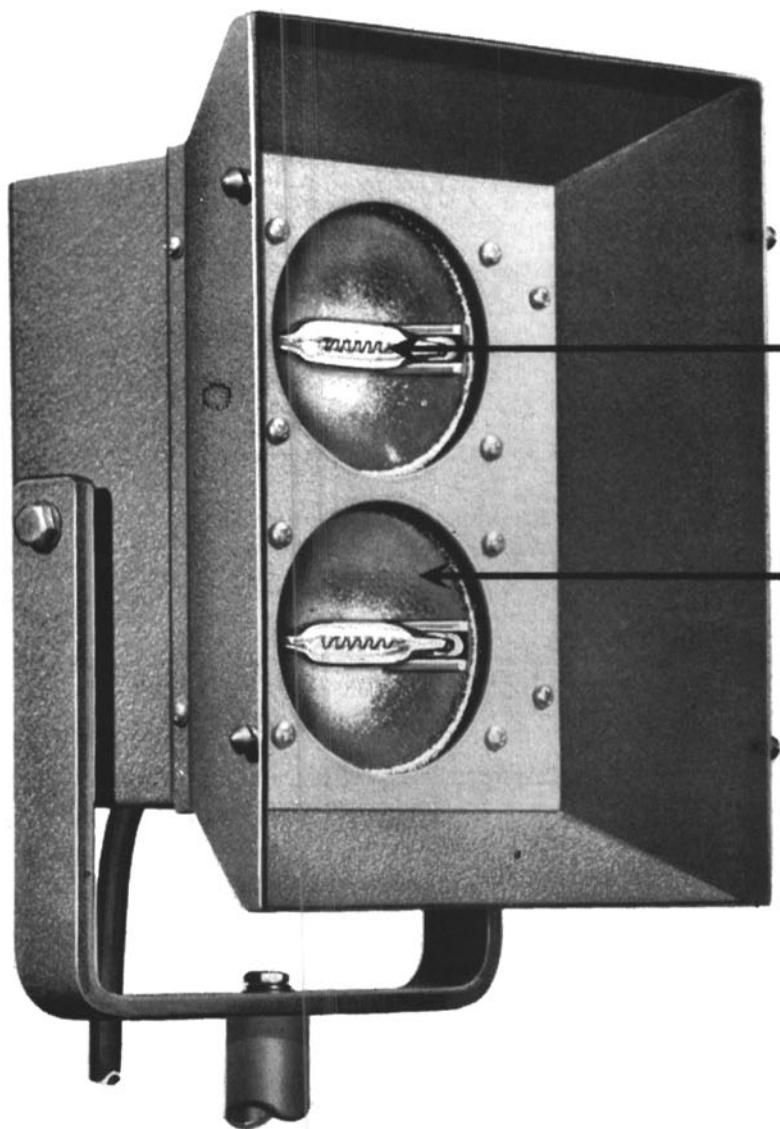
#### A New 16mm Motion-Picture Camera

AUSTIN COMA, Eclair International Diffusion, Paris, France

A 16mm motion-picture reflex camera has been designed to run silently without the use of an external blimp. The achievement was possible through careful attention to all areas which normally contribute to noise in cameras using intermittent motion, and some radical design departures resulted.

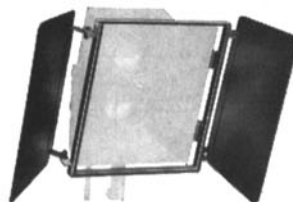
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For the past year the NOVA TWIN has been in limited production. During this time it has been tested and acclaimed by the Armed Forces and all segments of the Photographic and TV Industries. Now, production has been stepped up to meet the accelerated demand by the industry for this revolutionary Nova Twin.

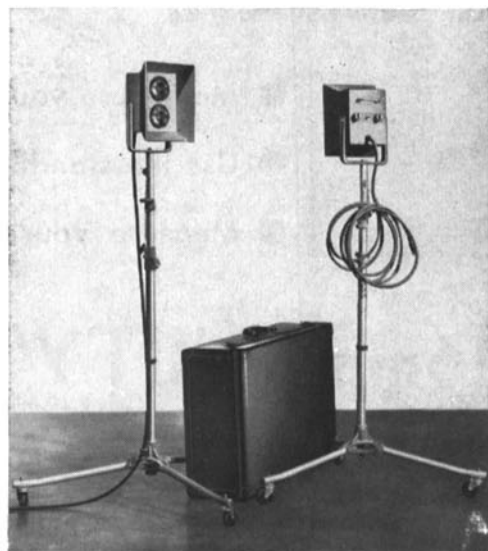
#### HERE ARE SOME STARTLING FACTS ABOUT THE NOVA TWIN:

- Light intensity at 10 feet: 650 foot candles for 3400K Lamp  
500 foot candles for 3200K Lamp
- Average Lamp Life: 35 hours with 3400K Lamp  
200 hours with 3200K Lamp
- Power consumption only 1250 watts (11.4 amps)
- A 2-position switch provides low and high illumination levels for setting up and shooting
- The NOVA TWIN weighs only 3½ lbs. and is a compact 7"x9"x6" in size
- The Nova Light Stand weighs 3½ lbs., extends 9½ feet and collapses to 31 inches

Write for Technical Bulletin

## NOVATECH CORPORATION

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#### A PORTABLE STUDIO LIGHTING SYSTEM

The NOVA TWIN KIT consists of 2 Nova Twins, complete with quartz iodide lamps, 2 Nova Stands and a Sturdy Carrying Case. Total wt., only 26 lbs.

Exclusive U. S. Distributor:

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## Specialized Animation Techniques for Instructional Films

WILLIAM L. MILLARD, Office of Institutional Research, Rensselaer Polytechnic Institute, Troy, N.Y.

The development of economical, practical and visually adequate animation techniques is of special importance to producers of 16mm educational motion pictures. Selected experimental animation techniques used in the production of college-level science and engineering instructional films are presented, including specialized electronic and optical effects, nonstandard lighting, manipulated three-dimensional materials, and recently developed art materials. The design characteristics of related instrumentation is also discussed.

### The New Arriflex 16M

ERICH KAESTNER, Arriflex Corp. of America, New York

## FRIDAY AFTERNOON

### 2:00 TELEVISION EQUIPMENT AND CLOSED-CIRCUIT APPLICATIONS

#### The Operation of High-Power Television Transmitters in Parallel

M. W. S. BARLOW, CFCF-TV, Montreal, Que.

Increased reliability, improved electrical performance and considerable operating economies can be obtained by operating TV transmitters in parallel. The degree of paralleling required, the maintenance of correct phasing, and the use of split-feed antennas is described. The problems of monitoring and fault detection are discussed with relation to the largest installation in North America, that of CFTM and CFCF-TV in Montreal. A staff of eight persons runs all shifts on four TV and two FM transmitters in two languages.

#### A Proposal for the Conversion of 525-Line Television to 625-Line

M. W. S. BARLOW, CFCF-TV, Division of Marconi Co., Montreal, Que.

Intercontinental exchanges of TV programs by satellite or cable raise again the problem of standards conversion. As all systems other

than 525 lines have announced their conversion to 625 lines, the case is examined for changing the 525-line system to 625. CCIR standards are proposed for the video signal, but channel spacing, allocation and sound-to-vision carrier spacing would remain as at present. No changes are required for receivers or transmitters and there need be only very slight changes in studio equipment. Although not making full use of the 625-line capabilities, picture quality would be slightly better than with the 525-line system. Color programs by SECAM or NTSC systems can also be accommodated. Studio film transmission would be simplified and improved.

#### A High-Performance Closed-Circuit Television System

C. E. TAGGART, M. ALTMAN and T. ASPLUND, GPL Division - General Precision, Inc., Pleasantville, N.Y.

A television system for general use has been designed to provide 800-line resolution with a high degree of stability and minimum distortion. Operation at 525 or 675 lines, 60 fields is provided by the synchronizing pulse generator which incorporates a novel pulse delay scheme for camera cable compensation up to 2000 ft. Two inherent disadvantages generally encountered in automatic exposure control circuits are constant signal-to-noise ratio and black-level variation caused by changes in vidicon dark current. The manner in which this system is designed to overcome these disadvantages is described along with other features including a low noise preamplifier using nuvistors.

#### The MVR 10 - A Portable Video-Tape Recorder

KURT R. MACHEIN, Mach-Tronics, Inc., Mountain View, Calif.

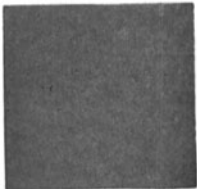
#### Technical Progress in Editing Video-Tape Recordings

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


Numerous systems have been developed to assist the editor in working with video tape. Following the "pushbutton" method of electronic editing, introduced in 1962, there has been developed the Editec system providing rehearsal and preview facilities and automatic control of cuing. A demonstration by screening a video tape shows the intricate editing techniques now possible on television tape.

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# Educators . . .

- 
- Make sure you get the most out of your 16mm sound films
  - Use the standard tests your own projector repairman uses
  - Measure your projector's performance yourself with the

## 16mm "JIFFY" TEST FILM

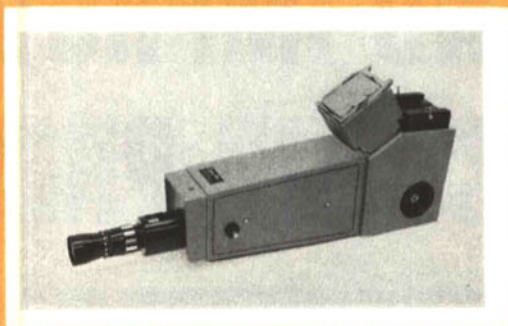
- 
- Points up both projection and sound troubles
  - Instruction booklet supplied with the film
  - Test instruments are not required. Write . . .

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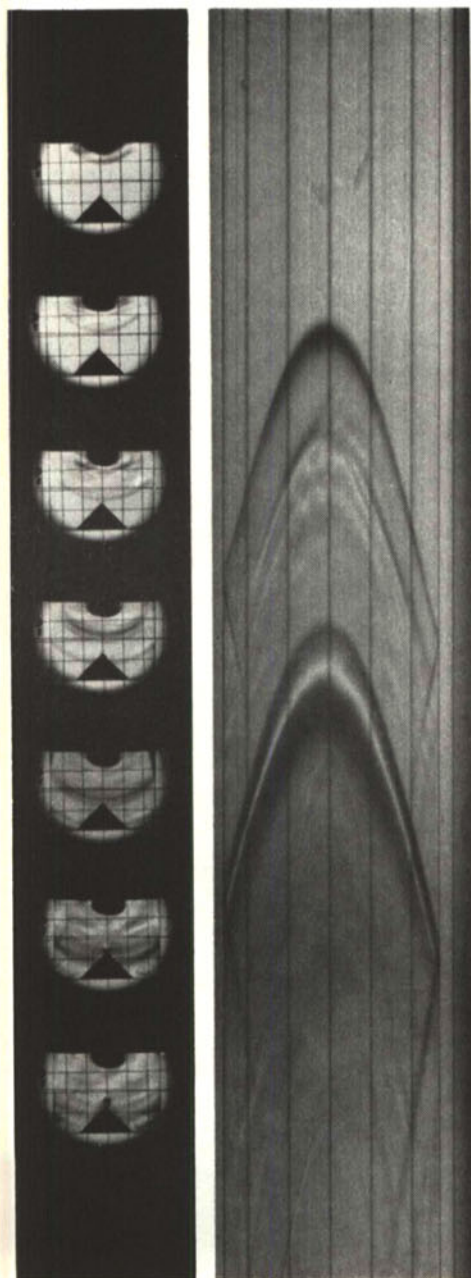
**SOCIETY OF MOTION PICTURE AND TELEVISION ENGINEERS**  
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*Beckman & Whitley introduces  
a remarkable new photoinstrument ...*



## **MODEL 200 SIMULTANEOUS STREAK & FRAMING CAMERA**



Model 200 is the *only* high speed photoinstrument that will simultaneously record streak and framing records of the same event. Both records are taken from the same optical axis, on the same time base.

Result: activity between the two records can be correlated precisely in space and time for positive interpretation of minute variations throughout the recorded period.

One simultaneous record of one experiment may provide more measurable information than could be derived from any number of streak or framing records taken separately of repeated experiments. The analyst is provided with a streak record written at up to 6.9mm per microsecond and a framing record of the same event recorded at rates up to 550,000 frames per second.

Model 200 is designed so that it can be used as a streak camera only, as a framing camera only or as a simultaneous streak and framing camera.

*Typical applications for the Model 200 Camera are in the study of lasers, plasmas, exploding wires, shocks and dynamic stress patterns. The simultaneous streak and framing records shown here are of shock waves explosively induced in a lucite block. Recording rates: 440,000 f.p.s. and 6.2mm/ $\mu$ sec. With precisely correlated records such as this, the experimentalist can clearly interpret phenomena which might be obscure in either record analysed by itself.*

*For complete information write or phone Jack Patterson, Photoinstrument Product Sales Manager.*

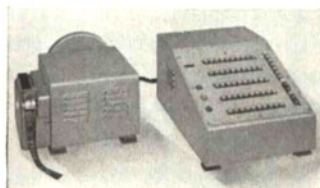
**Beckman & Whitley**  
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# A NEW AND IMPROVED ADDITIVE COLOR PRINTER

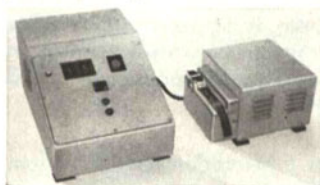
*Automated for high speed laboratory production*

The result of seven years of engineering research and development, the Model "C" additive color printer is destined to set a new standard of laboratory quality.



**Program Tape Perforator**

Operating from pre-punched program tapes, you can now produce internegatives at 60 feet per minute or release prints at 180 feet per minute with fade and color controls which achieve an accuracy never before possible. The exact frame length for a fade or the precise amount of color needed to set a mood or enhance a scene can be programmed for automatic control. Once the "start" button is pressed, full automation takes over and every print delivered by your laboratory has answer print quality.



**Program Tape Checker**

Color stability is assured through the use of dichroic mirrors to separate the single 1,000-watt light source into three primary beams, each individually controlled through light valves. No longer is the instability of gelatin filters a problem in precise color matching. Your color timer now has a choice of 50 values of .025 log E in each color beam

—all automatically controlled. Twenty-four additional points of .025 log E are available through the manual control in each color to allow for emulsion corrections.

The entire film transport mechanism maintains frictionless film handling from feed reel to torque tight-wind take-up. Internal threading light, controlled key number printing at the aperture, pop-out lamp holder, internally illuminated controls, negative break switch, new tension rollers below the aperture, all contribute to increased efficiency in your printing operation.

All components may be easily serviced or quickly replaced. Light valves are interchangeable and are guaranteed under a new replacement system.



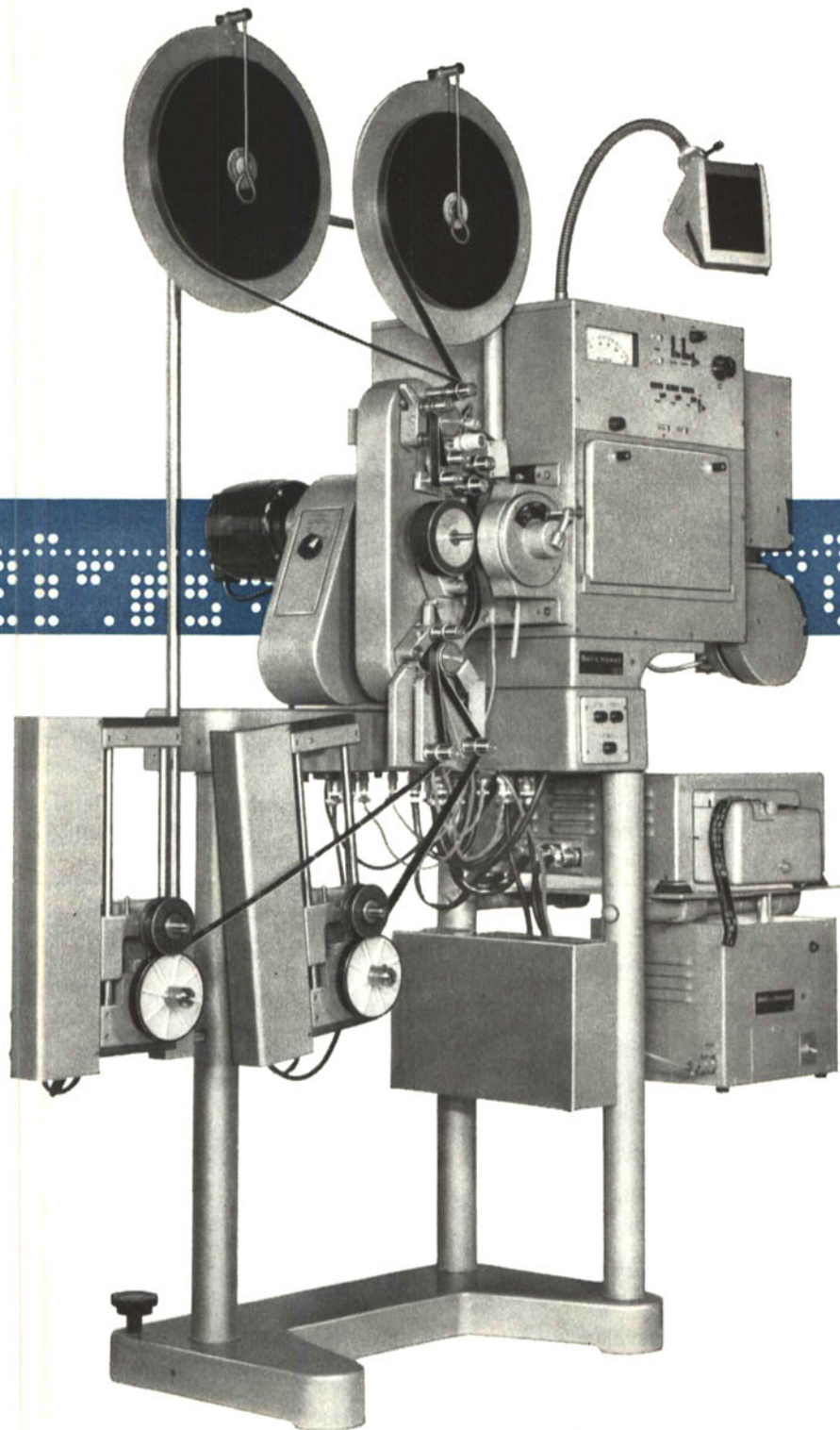
**R-F Cue Unit**

To learn what this new standard of laboratory quality can do for you, write or call J. L. Wassell, Director of Marketing, Professional Equipment.

*Don't delay . . . inquire today while your present printers still have trade-in value!*

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PROFESSIONAL  
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CHICAGO 45, ILLINOIS



**HERE ARE SOME OF THE MODEL "C" FEATURES**

■ Ability to make scene-to-scene color corrections ■ Six fade lengths (16-24-32-48-64-96) separately controllable by pre-punched program tape ■ Zero cut to allow extended scene printing ■ Over 2000-foot capacity ■ Single 1000-watt lamp proximity reflector type ■ Edge light printing separately controlled at aperture ■ Instruments internally illuminated ■ RF cue system available as accessory to supplement standard notch cue ■ Slow-start circuit to prevent film damage ■ Internal air pressure ■ Pre-wired for sound head installation ■ Automatic stop in case of negative break ■ Available accessories include: a tape checker-tape duplicator unit (6173C), 1000-watt rectifier (6160), 16mm, 35mm, 35/32mm soundheads, and RF cue kits (6395).

**Other printers available:**

Model "MB", Automatic Black & White Printer. This model does not include fader, which is available as an accessory.

Model "MA", Manual Black & White Printer. This model can be updated to model "MB" through addition of an accessory reader.

These models can be converted to the Model "C" at any time.