

on company business and was able to visit his home there. Since then he has returned to Europe several times. He retired from Kodak in 1956 but was retained as a consultant through 1965.

Since 1926 Mr. Wittel has published more than 140 patents on cameras, projectors and accessories. He is the author of a paper, "A Continuous Projector for Television (Model 300)," in the June 1955 issue

of the *Journal* and (with Donald G. Haefele) "Continuous Projector Problems" in the same issue.

He is a Fellow of the Society and is also a member of the Optical Society of America.

# news and reports

## 101st SMPTE Technical Conference Program

**K. Blair Benson** of CBS, New York, has been appointed Program Chairman for the 101st SMPTE Technical Conference by SMPTE Editorial Vice-President Herbert E. Farmer. The Conference will be held at the New York Hilton Hotel in New York City, April 16-21, 1967.

Benson, who is Director, Audio-Video Engineering at CBS, is now planning the Conference sessions and format and choosing topic chairmen. A list of topic chairmen and the call for papers will appear in the November *Journal*.

**The Rochester Chapter of the Society of Photographic Scientists and Engineers (SPSE)** has announced that it is again making available to other organizations its Visual Encyclopedia Series. Each unit of the Encyclopedia attempts to define, to explain, and to interpret one basic aspect of the science of photography. Each unit is illustrated with 35mm slides or a 16mm motion picture and requires about 20 minutes for delivery. There is no charge to the user for borrowing units of the Visual Encyclopedia Series. Further information is available from Rochester Institute of Technology Library, 160 Spring St., Rochester, N.Y. 14608.

**The Rochester Chapter of SPSE** has announced installation of new officers and councilors for the 1966-67 term of office. Chapter President is David A. Engdahl; First Vice-President, David C. Gilkeson; Second Vice-President, John L. Simonds; Recording Secretary, Wilfred J. Moretti; Executive Secretary, Leland M. Porter; Senior Director, John D. Hayes; Director and Past President, John C. Barnes; and Directors James S. Moser and William S. Shoemaker. The chapter also installed eight Councilors.

In a separate announcement the Rochester Chapter revealed that all meetings during the 1966-67 season will be held jointly with the Society's Rochester Section. It was stated in the announcement, issued jointly by SPSE Chapter President David

A. Engdahl and SMPTE Section Chairman, Robert C. Lovick, that "the joint program will permit an expansion of the scope of meetings and an increase in the number of meetings. Thus the joint program benefits the members, the local organization, the profession and the industry."

**The Commission Internationale de l'Eclairage (CIE)** will hold its quadrennial Session June 19-28, 1967, at the Shoreham Hotel in Washington, D.C. This is the first time since 1928 that a CIE Session has been held in the United States. Some 400 scientists and engineers from 25 countries are expected to attend. About 20 formal papers will be presented, covering lighting developments in many countries. In addition, some 45 CIE international committees will report on developments in many phases of illumination, among them: aviation lighting, photometry, color rendering, visual performance, characteristics of lighting materials, discomfort glare, and stage and studio lighting. Further information is available from L. E. Barrow, Secretary, U.S.CIE National Committee, C/O National Bureau of Standards, Washington, D.C. 20234.

**The German Television Engineering Society (Fernseh-Technische Gesellschaft E.V.)** held its 14th Annual Meeting September 19-23 in Heidelberg. Some fifty technical papers were presented in seven sessions, covering broadcast engineering, receivers, cameras, other studio equipment, film recording and special applications. For detailed information, write: Fernseh-Technische Gesellschaft E.V., 61 Darmstadt, Postfach 329, Germany.

**The 36th Annual Meeting of the Biological Photographic Association** was held August 22-25 in Lexington, Ky. An international event, papers were presented from many countries, including Poland, Australia, New Zealand, India, England and Canada as well as the United States. Among papers of special interest there were:

"Professionalism in Medical Motion Pictures" by Lawrence B. Newell; "A Survey of British Biomedical Photographic Installations and Audio-Visual Communication Center" by Paul Marshall Macapia; "Closed-Circuit Television and 8mm Single Concept Films in Continuing Dental Education" by Frank J. Reindl; "A New Approach to Medical Motion Pictures with Ektachrome EF Motion Picture Film" by Will E. Renner; "Split Frame Movies—A Simplified Method of Recording Motor Function of Patients Being Treated in a Double Blind Drug Study" by Nicholas M. Graver; "The Use of Television in Health Science Education" by Michael T. Romano, M.D.; and "Adding Sound to the Surgical Teaching Film—A Simplified Approach" by William R. Fowler.

Prizes were awarded for outstanding examples of photography in various categories. Motion-Picture awards went to: (First) *Reprieve From Lethal Infection* (color and sound, 19 min) entered by W. Keith Lovett of Sturgis-Grant Productions, New York. The sponsor was Beecham Research Laboratories. (Second) *Human and Animal Beginnings*, (color, sound, 13 min) entered by Sy Wexler of Wexler Film Productions, sponsor, E. C. Brown Trust Foundation. (Honorable Mention) *The Ileal Sleeve for the Dilated or Adynamic Ureter* (color, sound, 19 min) entered by Fernando Gonzales, Jackson Memorial Hospital, Miami; and *Immediate Post-Surgical Protheses* (color, sound, 35 min) entered by Joe E. Mineo of V.A. Hospital, Seattle, Wash. A special award the BPA Medical Education Award went to *Penetrating Keratoplasty* (color, sound, 11 min) produced and narrated by Don Macon and Lewis J. Girard, M.D., and entered by Gene K. Davis, Methodist Hospital, Houston.

**The Audio Engineering Society** held its Annual Convention October 10-14 in New York. Some 100 technical papers were presented at the 14 sessions held during the 5-day convention. Sessions were held on Microphones and Earphones; Loudspeakers; Audio Amplification; Audio Instrumentation; Automotive Tape Cart-



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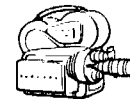
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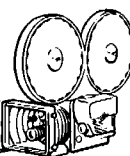
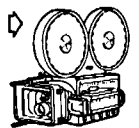


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ridge Systems; Speech Processing; Disc Recording and Reproduction; Music and Electronics; Sound Reinforcement (I and II); Acoustics of Halls for Recording; Stereo Broadcasting and Reception; and Studio and Control Systems. Convention Chairman was Daniel R. von Recklinghausen.

**The 20th Annual Conference of the Western Radio and Television Association (WRTA)** will be held February 21-23, 1967, at Disneyland Hotel in Anaheim, Calif. Conference Chairman is Phil Essman of the Los Angeles County Schools. The WRTA conference has been coordinated with the 5th West Coast ITV Conference in that the first general session of the WRTA conference begins Tuesday evening, Feb. 21, immediately following the last session of the ITV conference. Subjects to be covered in papers and discussions include ITV Utilization; Instructional Media Systems; Television and Radio Criticism; and Financing Educational Television.

**Show-A-Rama X**, the Trade Exhibit sponsored by the United Motion Pictures Assn. 114 W. 18 St., Kansas City, Mo. 64108, will be held Feb. 27 - Mar. 2, 1967, at the Muehlebach Hotel in Kansas City. The exhibit will occupy the entire lobby floor of the hotel and some 70 exhibitors are expected to show new developments in all types of motion-picture equipments.

**The new Metropolitan Opera House at the Lincoln Center for the Performing Arts** in New York City is one of the marvels of the age of automation. The first entirely automatic scenery-handling system in the world (European opera houses use a com-

bination of motors and counterweights), electrical/electronic systems at the new Met replace the time-honored counterweight method of moving scenery. The electronic stage control system was designed for the Met by Cutler-Hammer, Inc., 4201 N. 27 St., Milwaukee, Wis. The \$2½-million transistorized stage control system includes a winch system, 100 ft above the stage, which employs 109 10-horsepower electric motors to move the sets at speeds as fast as 3 ft/s or as slow as a 2 ft/min. Large movable stages, weighing between 15 and 30 tons, controlled by adjustable frequency motor drives, can be set offstage and slid into place automatically. Stagehands watch television monitors to see how far curtains are open on a dark stage.

Three separate but interrelated transistorized systems operate scenery, curtains, and stage-moving equipments and all three systems are directed from one centralized electronic control center just off stage. Motorizing the Met for automation created a number of special problems for the designers. For example, stage and offstage areas at the new Met are bigger than the main hall which seats 3,800. The offstage area houses such behemoths as a trio of square, movable platforms, 60 ft to a side, which can be set with scenery offstage. They had to be moved to precise onstage positions automatically and silently. The overhead fly system had to have the capability of holding — and moving instantaneously — the scenery for as many as three operas at a time.

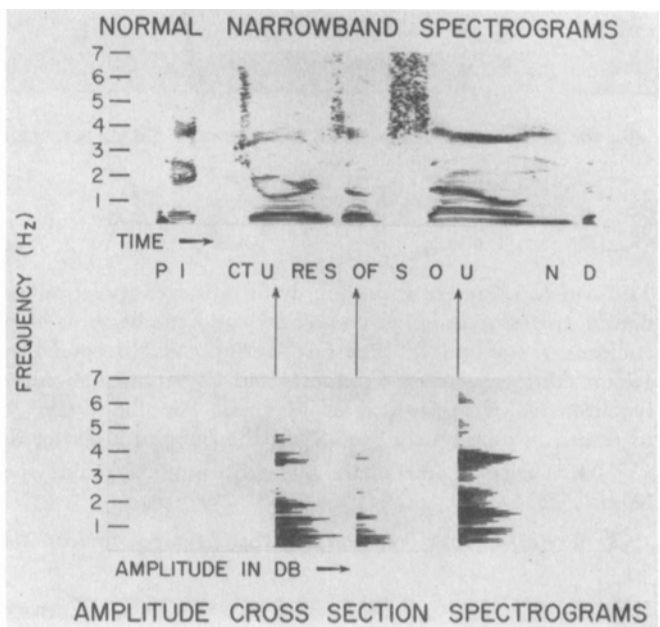
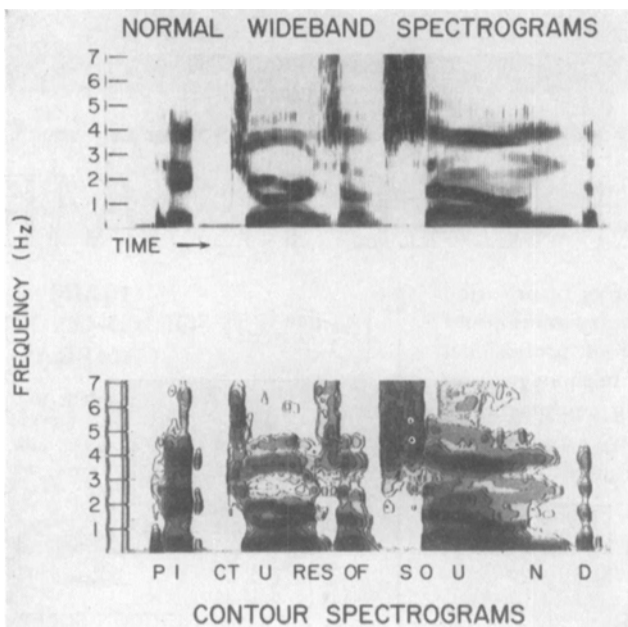
The equipment conceivably could do away with intermissions in some operas. Entire operas such as *Rigoletto*, *Carmen* and *La Boheme* could be set ahead of time and the scenery dropped and rolled into place automatically.

The new Met is a huge structure housing 20 rehearsal rooms, 14 dressing rooms,

studios, shops and three restaurants. More than 6,000 kW of electrical power is available to operate its vast array of equipment.

**The 1,500-seat Northland Theatre** which opened August 17 in Detroit is an interesting example of new trends in architecture in general and the construction of motion-picture theaters in particular. In the entire building no wall is straight and no two walls are parallel. The theater, shaped something like a mitten, has a sloping roof, which, at its highest point, houses a screen for showing Cinerama and CinemaScope films. The unusual design of the building, planned to provide the best possible seating arrangement, acoustics and projection facilities, was made possible by the use of steel framing for which Bethlehem Steel Corp. supplied about 150 tons of structural steel. The steel framing includes trusses and purlins in the main auditorium, open web joists and beams in the lobby area and light beams in the entranceway. The trusses are 9 ft, 6 in. deep and vary in length from 88 to 101 ft. The theater contains 24,050 ft² of floor space and the main auditorium is 144 ft long and 98 ft wide. The lobby is 40 X 120 ft.

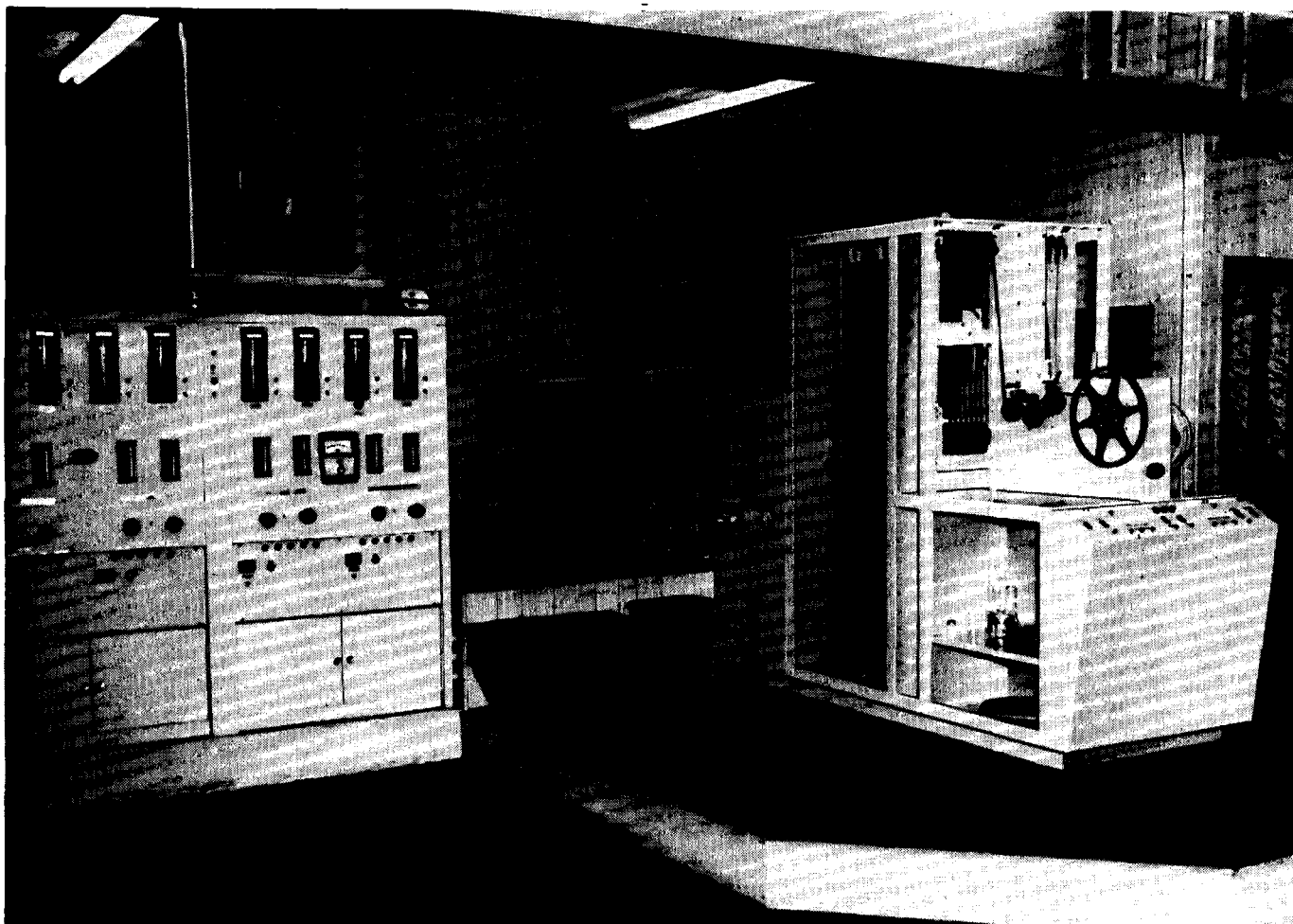
**Formal opening of Stage 2**, a 6,500-ft² film production facilities building located at 5642 Dyer St., Dallas, Tex., has been announced by Bill Stokes, President. The building contains a 5,000-ft² air-conditioned sound stage which has 16mm and 35mm camera equipment, complete lighting facilities as well as 1,200 A of electrical power and a permanent kitchen set. Stage 2 is available to motion-picture and television producers on a rental basis with or without equipment or technicians, the announcement stated.



A new sound spectrograph that can in 80 s, make spectrograms (printed diagrams of the frequencies and amplitudes of sound) directly from standard mylar magnetic recording tape has been designed at Bell

Telephone Laboratories. The machine, a further development of the sound spectrograph conceived at Bell Labs more than 20 years ago, produces four basic spectrogram types. Two "normal" spectrograms show

time and frequency in a linear fashion with amplitude indicated in varying shades of gray. The difference between the two spectrograms is in the type of filter used. Spectrograms produced with a wideband

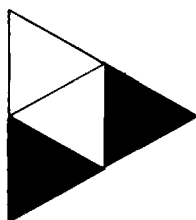


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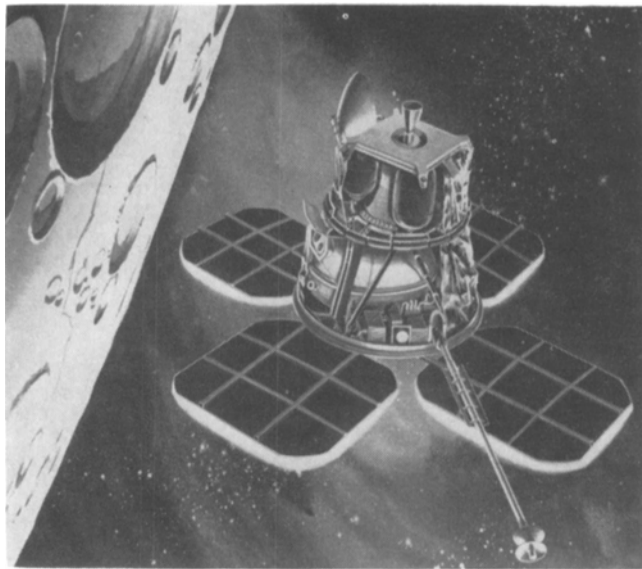


filter have superior temporal resolution while those produced with a narrow band filter have better resolution along the frequency scale. A third type of spectrogram displays the energy levels of sound in a manner similar to the way contour maps display ground elevation. Contour spectrograms provide more accurate amplitude measurement because the amplitude is shown in well-defined levels or steps rather than in gradations of gray. A fourth type of spectrogram is the cross-sectional amplitude display, which provides an accurate amplitude measurement of a narrow bandwidth at a selected point in time, and is useful in detailed measurement of the relative amplitude of several frequencies.

In operation, the mylar tape is scanned by the spectrograph in narrow bands of successively higher frequencies. Information from each scan is transferred to electrically sensitive paper, producing a graph of frequency and amplitude. The tape is scanned 400 times for an analysis of fre-

quencies up to 7,000 Hz. Lower frequencies are printed at the bottom of the spectrogram paper and higher frequencies at the top. Sound intensity is indicated by light and dark shading and time is read from left to right. Each spectrogram represents 2.4 s of sound. Other mechanical and electrical advances included in the new spectrograph are solid state circuitry, pushbutton controls, equipment to advance the tape automatically so that continuous portions can be analyzed, and provisions for producing contour spectrograms.

Sound spectrographs have a variety of uses. They can be used to analyze speech, diagnose diseased hearts or malfunctioning jet engines, investigate noise to improve soundproofing, provide better communications equipment and identify voices, aircraft, ships or submarines. Spectrograms of voices, called "voiceprints", (*Jour.* p. 604, Aug. 1962) are said to provide as reliable a means of identification as fingerprints.



developed to diagnose back ailments. Three TV cameras, one for close-ups, one for wide-area viewing and the third mounted overhead, made it possible for Dr. Mennell to demonstrate a number of diagnostic procedures. Three wall-mounted monitors made it possible to maintain visual as well as voice contact with the three other locations.

**An adult-level science program** called *Experiment*, produced by Prism Productions, Inc., is broadcast over the National Educational Television network, consisting of 104 local stations across the United States. The programs are presented by Don Herbert who, for 14 years, explained science to children in a program called *Mr. Wizard*. The new series is being underwritten by grants from the National Science Foundation and the Alfred P. Sloan Foundation. Each program in the series deals with the work of an individual scientist. For example, a program called *Laser — the Light of the Future* will present the story of Arthur Schawlow of Stanford University and his contribution to the development of the laser. In the laser program, an Acton Programmer, a rotating drum memory switch produced by Sealectro Corp., Manaroneck, N.Y. 10543, controls the symbolic interaction of electrons and photons by programming 324 lamps representing photons on a demonstration board designed by Mr. Herbert. The switch also controls three cork balls, each of which represents an electron. As the aluminum drum of the Acton Programmer rotates on its axis, actuators set in place about the perimeter of the drum trigger 32 switch contacts. The contacts are mounted in a bank in a stationary position next to the drum to open or close circuits as required.

The laser demonstration board has 27 strips of 12 lamps apiece, and 27 of the 38 contacts on the programmer select the strip of lights to be illuminated at any given time. Stepping relays placed between the programmer and the lights light the 12 lamps in any strip in sequence. Two contacts on the programmer also serve to trigger any of three levers activated by solenoids to control the motion of the cork "electrons"

**The photographic subsystem** supplied by Eastman Kodak Co. for the Lunar Orbiter is designed to photograph the lunar surface, process the exposed film, scan the processed film and provide video signals to the communications subsystem for transmission to earth. It consists of two cameras, a film processor and a readout system contained in a 26- by 22- by 32-in. pressurized, temperature- and humidity-controlled shell with a total weight of 145 lb. The camera incorporates a 24-in. focal length lens for high-resolution photographs of 3-ft resolution and a 3-in. focal length lens for medium-resolution photographs of 25-ft resolution, both from an altitude of 28 miles. Both lenses photograph on the same 70 mm film strip. A specially designed sensor tracks the lunar surface through the 24-in. lens and translates tracking motion to platen movement. Exposed film is stored by the camera storage looper to await processing. The processor takes the exposed film from the camera looper and laminates it with a Kodak Bimat film strip. The processed film is scanned by a high-intensity spot of light generated by a special cathode-ray tube (CRT) called a Line Scan Tube (LST) and imaged by an op-

tical-mechanical scanner (OMS). The OMS moves across the width of the film while the LST sweeps a "framelet" about 1/10-in. wide, providing 18,942 scan lines over a 2.25-in. linear scanning distance. The variation of light intensity as it passes through the negative film image generates an electrical signal in a photomultiplier tube which, through associated circuits, converts the electrical signal to a video signal for transmission to earth.

**The common backache**, a medical mystery almost as murky as the common cold, was the subject of an unusual medical conference conducted as part of the New York Telephone Company's medical education program. The conference was conducted via closed-circuit television, an innovation for the N. Y. Telephone Company, with 30 doctors in four separate locations taking part in the 90-min lecture-conference. John M. Mennell, M.D., of the University of Pennsylvania's Medical School spoke from a television conference room at the telephone company's downtown Manhattan offices where he demonstrated a number of techniques that he has

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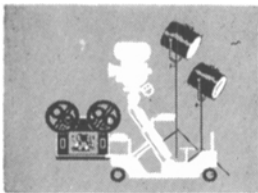
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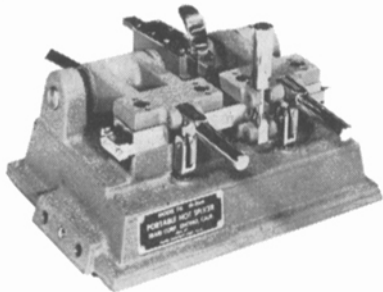
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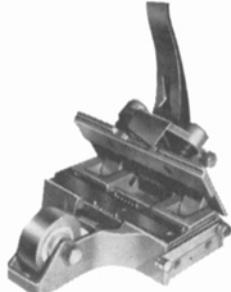


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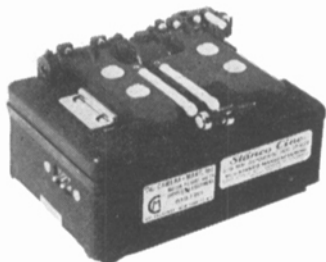
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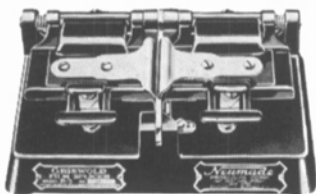
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 Recessed channel splicing block. Drop-in film positioning on pins. Quick-action butt, overlap, or diagonal splice. Rebuilds torn sprocket holes. Repairs negatives. Uses any type of pressure sensitive tape. (Mylar or Cellophane.)  
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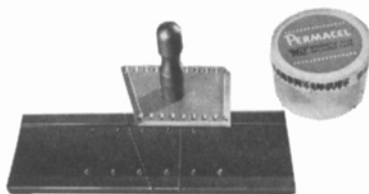
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 Automatically removes emulsion. Dual film registration pins permit perfect film alignment. Correct platen temperature at splicing point permits faster stronger splices. Heavy duty construction.  
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and three other contacts control the motion of the "photons" as they move from left to right, right to left, or diagonally.

Other subjects in the series include the science and engineering behind Mariner IV and its successful quest for pictures for the planet Mars, computerized weather prediction, discovery of the invisible planet Barnard's Star B, attack patterns of sharks, white blood cells, social behavior of chimpanzees, and the Kilauea volcano.

Fourteen educational institutions in the United States and Great Britain have joined the APT (Automatically Programed Tools) Education Program recently established by the IIT Research Institute, 10 W. 35 St., Chicago, Ill. 60616. APT is standard language consisting of about 300 vocabulary words which, when combined with APT statements, describe the geometry of a part and define machine tool cutter motions required to produce the part. APT is also the name for a computer program that performs the calculations necessary to produce punched tape which commands numerical control (N/C) machine tool motions. "The technology of symbolic control (computer-aided numerical control) is new and rapidly expanding," an IITRI spokesman said. Materials available to participants in the APT program are an APT Encyclopedia, an APT Dictionary. An APT Part Programing text will be published by McGraw-Hill in January 1967. Other materials, such as reports, bulletins, proceedings and memoranda, are available on microfilm.

A solid-state laser that produces ultraviolet light (a "first") has been produced at the Electronic Research Laboratory of RCA Laboratories, Princeton, N.J., through conversion of zinc oxide, a phosphor used on the face of a television picture tube. The device is a tiny, transparent platelet of zinc oxide, resembling a soap flake, which is mounted on a metal support housed in a glass vacuum tube. It is activated by an electron beam which is fired into it at a rate of 2,000 pulses/s. At first the phosphor glows green, but when the power of the electron beam reaches a certain critical intensity, the light streaming from the phosphor suddenly becomes coherent. At the same time it shifts predominantly into the ultraviolet and emerges as a narrow beam of laser light shooting out at right angles to the bombarding electron beam. The mechanism by which the electron beam initiates laser action involves a process of energy transfer in which each incoming electron in the beam excites as many as 1,000 electrons in the phosphor to a higher energy level. They remain in this state until one of them falls back spontaneously to its original level throwing off its excess energy as a tiny burst of ultraviolet light. This triggers all the other excited electrons so that a cumulative pulse of intense ultraviolet laser light is generated.

Industry Profiles, a series of publications prepared by Surveys & Research, Inc., Washington, D. C., for Clearinghouse, Department of Commerce, Springfield, Va. 22151, as agents for International Development, is intended to offer production and market information especially for those

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**5.** Cine Reversal Concentrates are packed in easy-to-handle cartons of 4x5-qt. poly bottles to a carton (makes 20 gallons) and in economical 5-gallon Cubitainers (makes 20 gallons).

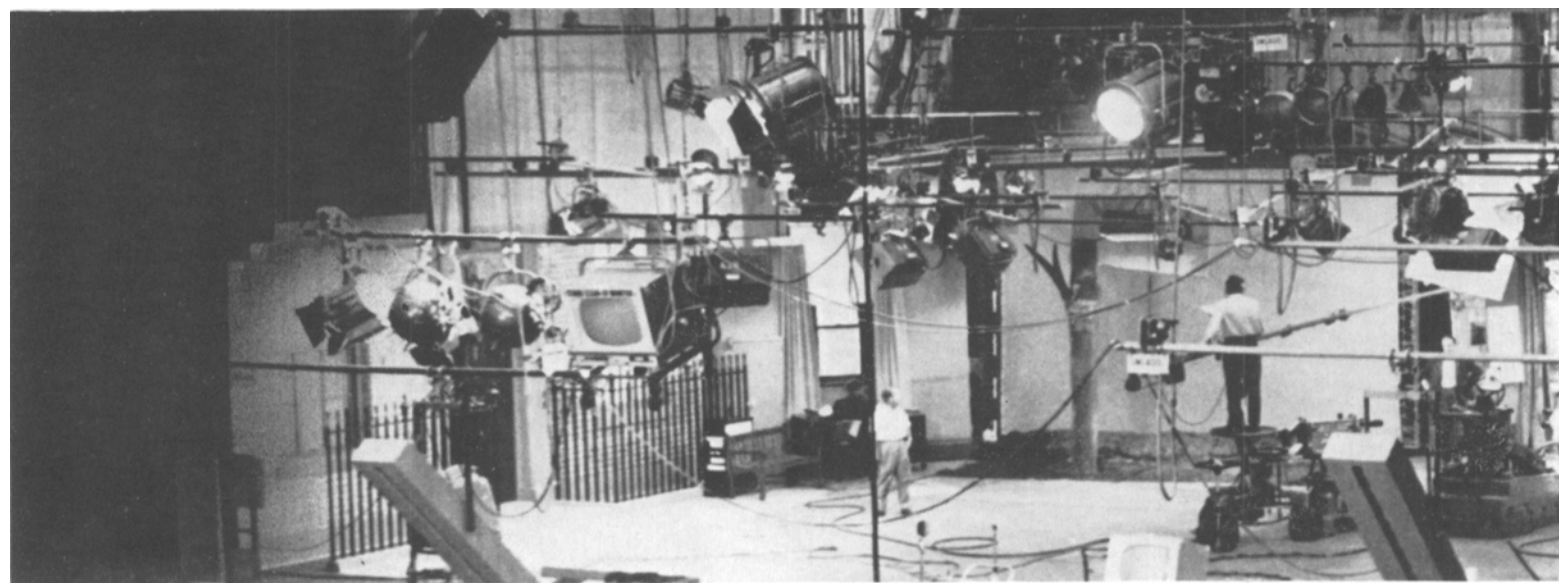
If you process negative B & W Cine film use Cine 5 Negative Developer and Cine 6 Replenisher.

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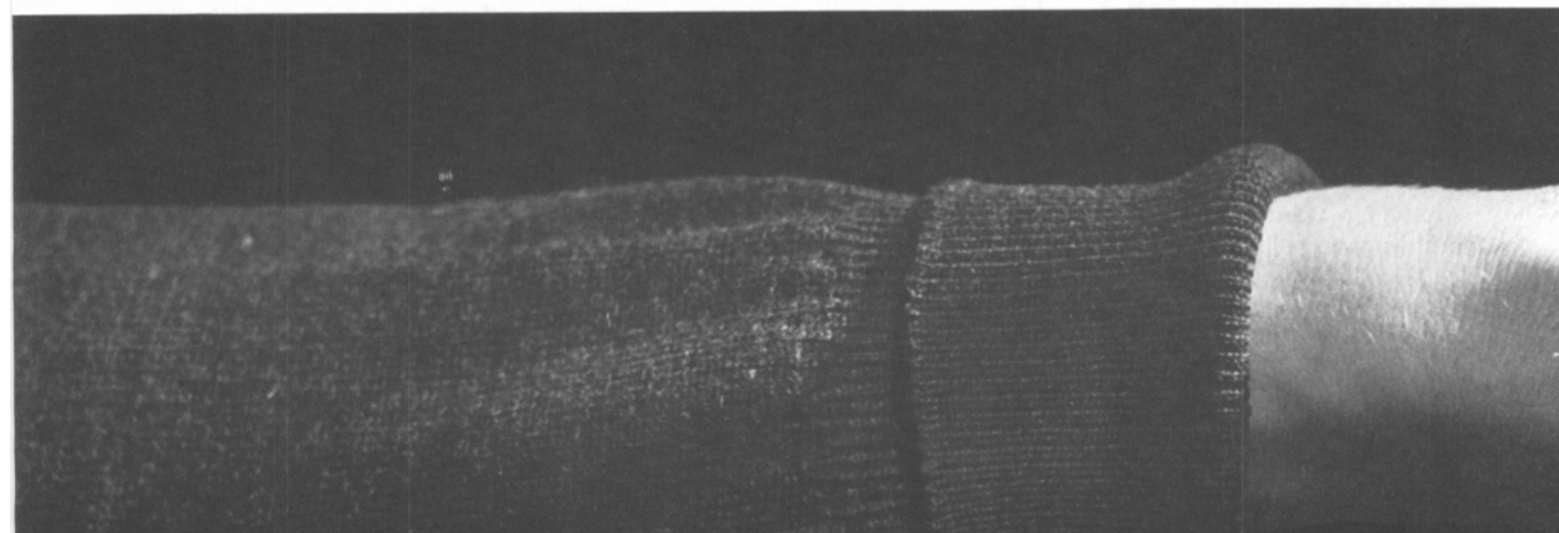
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**THORN'S NEW LIGHTING CONTROL SYSTEM** brings unprecedented speed and flexibility to studio and stage lighting. The most subtle and complicated effects (using up to 380 lighting channels) can be duplicated exactly as plotted. Imagine a cue has been finalised at the FDR; with this new THORN system all the lighting controller has to do to be *absolutely sure of getting exactly the same effect from first night to last* is to press a button that commits the cue to memory. Every lamp, every setting—even crossfade length—is stored and instantly available at the press of a button and there is enough memory capacity to take two average length shows—or the biggest spectacular! You get visual display too: both existing and impending cues are indicated on illuminated panels showing both lamps *and* intensities. A manual override is provided to facilitate adding-in lamps to existing cues. *And all this in a total panel area of only 4 feet square!*

Although designed for THORN thyristor dimmers, the system can be used with resistance or auto-transformer type installations. The memory store is by means of magnetic cores and silicon semi-conductors; these combined with the use of reed switches and micro-switches provide maximum reliability. All the electronic equipment is housed in two standard 19" racks, each 6" high and 18" deep. Control panel presentation can be varied to suit all types of location.

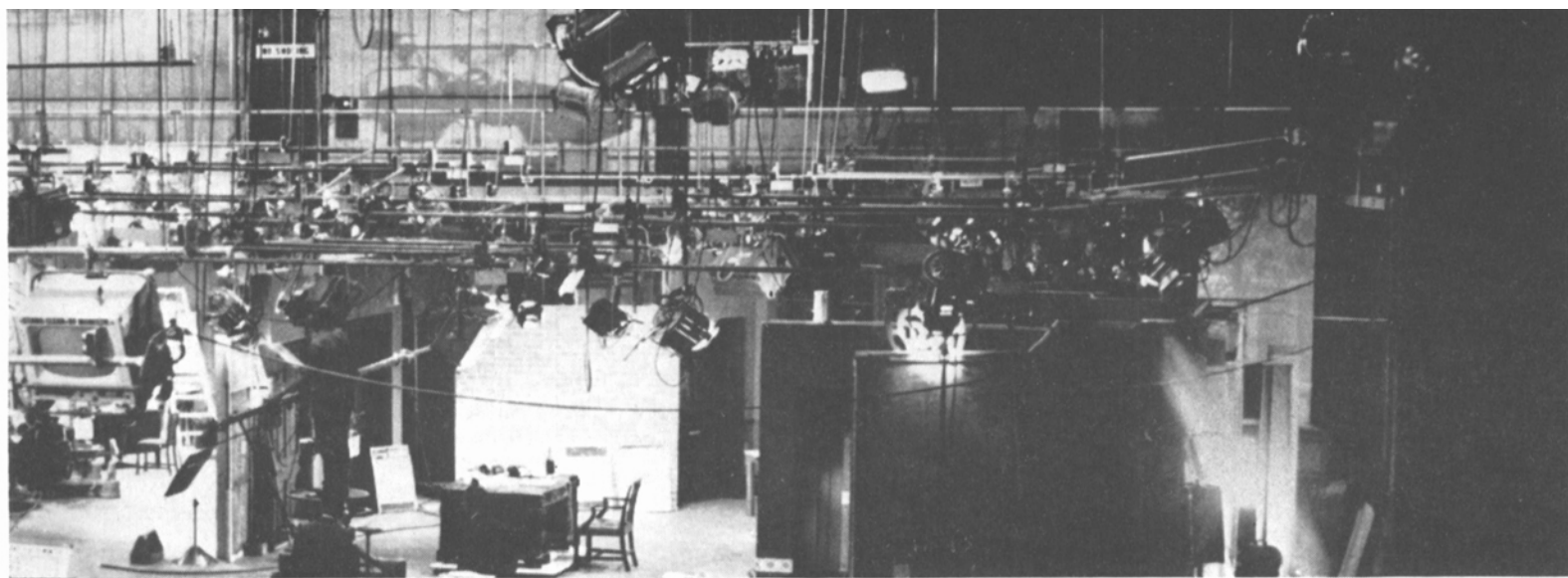
If you would like to hear more of this remarkable new system and the speed and flexibility it brings to stage and TV lighting—please write to:



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Never before has a line of lenses been designed and crafted to such near perfection, optically and mechanically. A superior lens must combine the latest glass technology with the newest advances in the lens making art. Men and machines, experience and skills must all contribute. Bausch & Lomb is uniquely equipped to bring you just such a lens—the Super Baltar.

Super Baltars are outstanding for precise photographic data recording for military, industrial, technical and commercial applications; for the professional footage of creative cinematography; for the sharp response of the television camera.

There are eight focal lengths, from 20mm to 9" covering 35mm and 70mm formats. All lenses have *f/* and *T* aperture stops. Send for our newest Catalog 51-169. Bausch & Lomb, 72234 Bausch Street, Rochester, New York 14602.

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considering establishment of a new business or plant in the United States or abroad. Each *Profile* briefly gives a product description, a general evaluation of the strength and weakness of the product field, market aspects and capital requirements. Information is also presented on annual cost figures of materials and supplies needed, power, fuel, water, transportation and manpower. A plant layout is provided, plus reference material on technical journals, patents and other pertinent information. A list of the 233 titles now completed is available without charge from clearinghouse. Individual copies of the *Profiles* are \$1.00. A subscription service through which all *Industry Profiles* may be received as they are produced is available for \$200.

**A new communications engineering office** has been established in Sydney, Australia, by Granger Associates, 1601 California Ave., Palo Alto, Calif. 94304. The new office will handle technical sales engineering for all G/A products, including HF antennas, ionospheric sounders, aviation, video and microwave equipments. Head of the new office is Richard J. Roberts, and the address is: Granger Associates, 35 Ben Boyd Rd., Neutral Bay Sydney, N.S.W., Australia.

**A substantial addition** to its film manufacturing facilities has been announced by Eastman Kodak Co. The 6-story-and-basement addition, containing 230,000 ft<sup>2</sup> of floor space will provide facilities for the coating of photographic emulsions onto film base. The new structure will be enclosed by the summer of 1967 with production operations scheduled to begin in January 1969. This is the second major addition to film emulsion coating facilities in the last few years, the announcement stated. A 6-story addition containing over 125,000 ft<sup>2</sup> of floor space was completed in January 1965.

**Complete Ektachrome reversal processing** is available from Associated Screen Industries Ltd., 2000 Northcliffe Ave., Montreal Que., Can., according to a recent announcement. The firm recently installed new Pako processing machines to handle all EK types including Commercial Type 7255; ER Type 7257 and 7258; MS Type 7256; the new EF Type 7242; and reversal print Type 7386. In addition, all 16mm color requirements are available, the announcement stated.

**A video-tape duplicating facility** to provide complete television tape copying services has been established by Ampex Corp. at 2201 Lunt Ave., Elk Grove Village, Ill. The new service permits production of single or multiple duplicate tapes made on any Ampex VR-6000 or VR-7000 helical scan recorder using 1-in. tape, or Ampex VR-1500, VR-1560, VR-660, VR-660B helical scan recorders using 2-in. tape. Tapes made on any of these models may be copied for use on any other model. The new service is under the direction of Donald V. Hall, General Manager, Ampex Stereo Tapes.

**Licensintorg**, the Soviet trading company that buys and sells patents, is offering licenses of Soviet inventions to American

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### 35MM

**BNC MITCHELL**—With 25, 30, 35, 40, 50, 75 & 100mm Baltars, 4—1000 ft. mags, 110 or 220 volt sync motor, Mitchell finder with cams, 2 matte boxes, 7 cases **\$18,500.00**

**NC MITCHELL**—With 40, 50, 75 & 100mm Baltars, 2—1000 ft. mags, 110 or 220 volt sync motor, Mitchell finder, matte box, 4 cases **\$4,750.00**

**STANDARD MITCHELL HI-SPEED**—With 40, 50, 75 & 100mm Baltars, 2—1000 ft. mags, 110 volt AC-DC wild motor, Mitchell finder, matte box, 4 cases **\$3,675.00**

**STANDARD MITCHELL**—With 40, 50, 75, & 100mm Baltars, 2—1000 ft. mags, 110 volt AC-DC wild motor, Mitchell finder, matte box, 4 cases **\$2,850.00**

**35MM ARRIFLEX 2-A**—With 28, 50 & 75mm Schneider lenses, 2—400 ft. mags, wild DC motor, sunshade, battery case **\$1,950.00**

**35MM ECLAIR CAMERETTE**—With 3 Kinoptik lenses, 2—400 ft. mags, wild DC motor, battery case (no finder) **\$775.00**

### 16MM

**16MM MITCHELL**—235° shutter, 15, 20, 25 & 35mm Baltars, 2—400 ft. mags, 110V AC-DC wild or 110V AC sync motor, Mitchell finder, matte box, cases **\$3,975.00** with blimp & follow-focus: **\$4,800.00**

**16MM MAURER**—With 2—400 ft. mags, 110 volt sync motor, Maurer finder, sunshade, case **\$885.00**

**16MM ARRIFLEX "S"**—With 16, 25 & 50mm Schneider lenses, 400 ft. mag and torque motor, wild DC motor, matte box, battery, case **\$2,175.00**

**16MM ECLAIR NPR (NOISELESS)**—With 400 ft. mag, 12 volt constant speed sync motor, built-in sync signal, battery, case, (no lens) **\$3,280.00** with 12-120mm Angenieux zoom lens: **\$3,840.00**

**16MM SUPER 1200 AURICON WITH GALVO**—With 3 lenses, 3—1200 ft. mags, 110 volt sync motor, sunshade, NR amplifier (optical sound) "S" Galvo, mike, headset, cases **\$2,390.00**

**16MM PRO 600 AURICON WITH GALVO**—With 3 lenses, 2—600 ft. mags, 110 volt sync motor, sunshade, NR Amplifier (optical sound) mike, headset, cases **\$1,780.00**

### ACCESSORIES

UNIT PRICE

|  |                  |
|--|------------------|
| 16mm zoom lenses: 17-70mm .....  | <b>\$ 142.00</b> |
| 16mm zoom lenses: 17-85mm .....  | <b>209.00</b>    |
| 35mm zoom lenses: 35-140mm .....                                       | <b>945.00</b>    |
| 35mm zoom lenses: 38-154mm—Arri mount ..                               | <b>880.00</b>    |
| 35mm zoom lenses: 38-154mm—Mitchell mount with finder .....            | <b>1065.00</b>   |
| Baltar lenses—in BNC mounts—all focal lengths from 25mm to 100mm ..... | <b>185.00</b>    |
| 16mm Mitchell blimps with follow-focus .....                           | <b>885.00</b>    |
| 16mm Maurer blimps .....   | <b>185.00</b>    |
| 16mm Cine special blimps .....   | <b>130.00</b>    |
| 110 volt AC Cine special motors .....                                  | <b>78.00</b>     |
| 12 volt DC Maurer motors .....   | <b>110.00</b>    |
| 12 volt DC 35mm Mitchell motors .....                                  | <b>145.00</b>    |
| 12 volt DC 16mm Mitchell motors .....                                  | <b>175.00</b>    |
| 1000 ft. 35mm Standard Mitchell magazines ..                           | <b>88.00</b>     |
| 200 ft. 35mm Arriflex magazines .....                                  | <b>44.00</b>     |
| Akely Gyro tripods .....   | <b>545.00</b>    |
| 35mm Mitchell friction tripods .....                                   | <b>350.00</b>    |
| 16mm Mitchell friction tripods .....                                   | <b>275.00</b>    |
| Pro Jr. Gyro tripods .....   | <b>395.00</b>    |
| 16mm Arriflex tripods .....  | <b>195.00</b>    |
| 4 wheel Fearless dolly .....   | <b>785.00</b>    |
| 5 wheel Fearless dolly .....   | <b>985.00</b>    |
| Camart TV dolly .....  | <b>595.00</b>    |
| Camart Platform dolly .....  | <b>250.00</b>    |
| Large Western dolly .....  | <b>100.00</b>    |
| Thomas hydraulic (Sputnik) pedestal .....                              | <b>980.00</b>    |
| NCE Crab Hydrology .....   | <b>2475.00</b>   |
| 5 ft. and 10 ft. dolly tracks @ 3.00 per foot                          |                  |

business firms who may wish to produce them in the United States. Full technical information, blueprints and samples are part of their service. A newsletter listing some of these licenses is available upon request from Licensintorg, V-420, Moscow USSR, or from its U.S. representative, Amtorg Trading Corp., 355 Lexington Ave., New York, N.Y. 10017. Typical inventions available under license include an electromechanical time schedule controller; anti-vibration mountings; an alkaline treatment for strengthening glass; a boiling bed dryer for evaporation of solutions, and a multistable memory circuit.

**F & B Cecco, Inc.** (located at 315 W. 43 St., New York, N.Y. 10036) has been franchised by Sony Corp. of America to sell and rent the Sony Series 2000 video-tape recorders (*Jour.*, p. 642, July 1965). The recorder can record television programs off the air for immediate playback on its 8-in. screen, the announcement stated. The portable unit weighs about 60 lb. Another version of the recorder is housed in a cabinet and has a built-in timer for taping automatically at a preset time (*Jour.* 632, June 1966).

**The Conrac Division** of Giannini Controls Corp. has purchased a 120,000 ft<sup>2</sup> building and 19.5 acres of ground in Covina, Calif., to provide for consolidation and expansion of its manufacturing operations. The firm, which manufactures broadcast, industrial and educational TV equipment,

is currently housed in six separate locations in the Glendora, Calif., area. The new facilities are expected to be completed in about three months at an estimated cost of about \$2 million.

**Twenty-one sweeping claims** covering high-speed motion-picture camera design have been granted to Ernest M. Whitley, Alfred K. Boyd and Elmer J. Larsen, and assigned to Red Lake Laboratories of Santa Clara, Calif. The patent runs for 17 years. The claims, relating principally to the invention of mechanisms combining a segmented shutter, an image-compensating prism and a film sprocket mounted on a single rotating shaft are embodied in the Hycam cameras manufactured by Red Lake Laboratories.

**Vanguard Instrument Corp.**, manufacturers of photographic data reduction instruments, has moved to new and larger facilities at Walt Whitman Road, Melville, L.I., N.Y., 11746. The firm was formerly located at 20 W. Centennial Ave., Roosevelt, L.I., N.Y.

**Robert M. Corbin**, Manager of Product Planning for Eastman Kodak Co.'s Motion Picture and Education Markets Division, has announced plans to retire. He has been with Eastman Kodak since 1925 when he joined the staff of Kodak Research Laboratories. In 1930 he inspected Kodak processing stations in Europe and the following year he went to Tokyo as Far East

Technical Representative for the Motion-Picture Film Division and as Technical Advisor for Kodak Japan Ltd. He returned to Kodak Park in 1937 and in 1943 he was appointed Assistant Manager of Motion-Picture Sales. He was appointed to his present post in 1964.

He will be succeeded by Norwood L. Simmons, Marketing Director of Kodak's New York City Region. Williard C. Campbell, Marketing Director, Pacific Northern Region, will succeed Simmons. Thomas D. Major, Jr., Sales Manager, Consumer Products, Midwestern Region will succeed Campbell.

**David A. Engdahl** has been appointed Assistant to the Director of the School of Photography, Rochester Institute of Technology. He will assist the newly appointed Director, William S. Shoemaker. A 1949 graduate of the School of Photography, Mr. Engdahl has been Counselor for the Evening College photography program for several years. In his new post he will be active in directing the school of Photography's move to RIT's new \$54 million campus, scheduled to open in September 1967. Also, he will help coordinate the activities of a photographic program which has an enrolment of 400 full-time students majoring in photographic science and instrumentation, photographic illustration and professional photography.

**John J. Kowalak and Ted J. Gaski**, Vice-Presidents of Movielab, Inc., 619



DESIGN: LAWRENCE BEES / PHOTO: JACK STUMP

## Model on the move!

Since its introduction, the Model HB-2\* Air Squeegee has constantly moved up in popularity; today it is widely accepted as a standard for the elimination of water spots in film processing.

It can do much more for you too! When used with water rather than air, it provides a very efficient method of removing film

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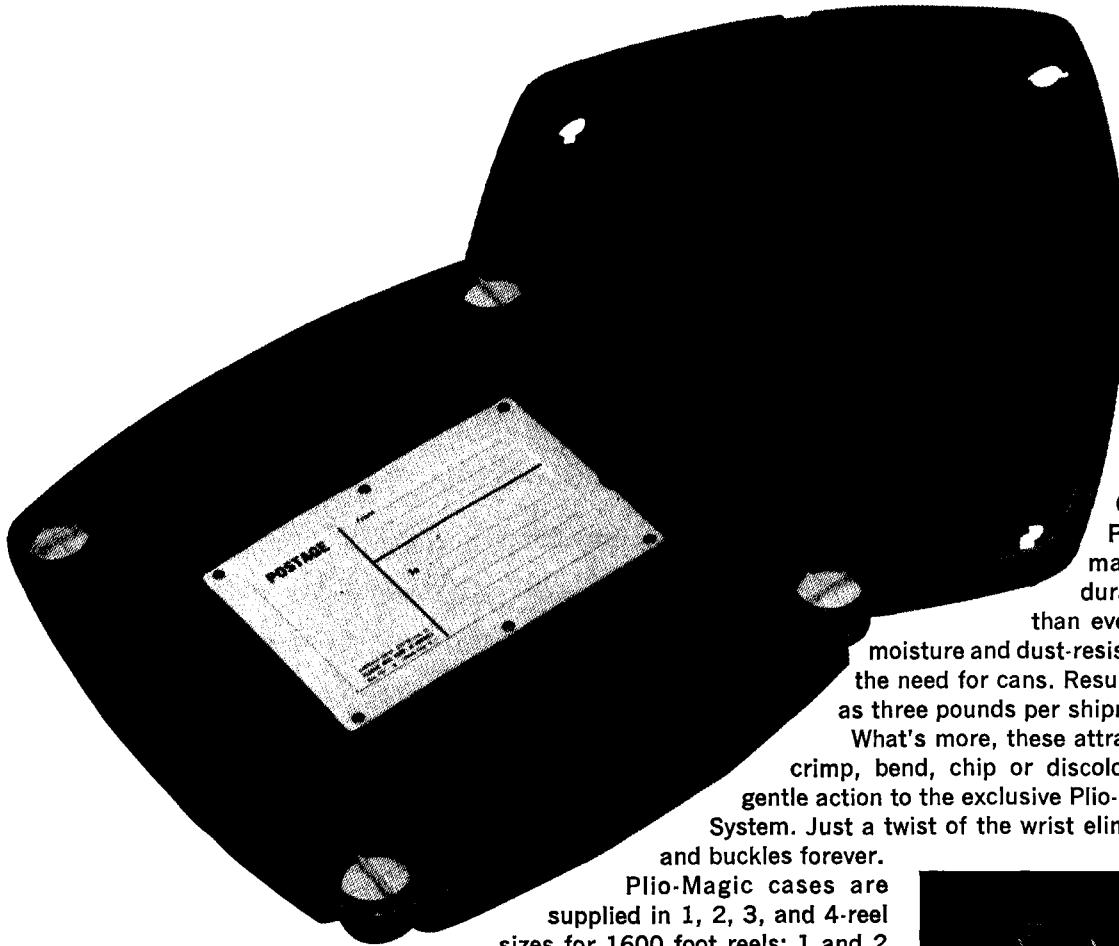
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# the case against high shipping costs.

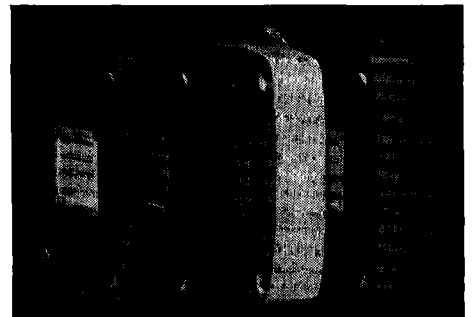


Plio-Magic film cases cut your shipping costs by as much as 65%. New, improved Plio-Magic material makes them even more durable, lighter in weight than ever before. And you get moisture and dust-resistant protection without the need for cans. Result: a saving of as much as three pounds per shipment.

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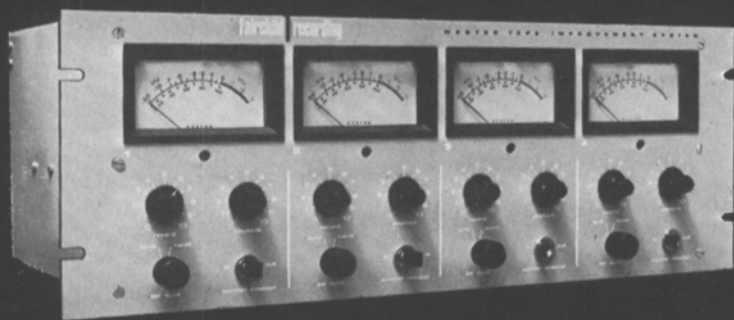
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- Space saving electronics package only 7" x 19"
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- Ideal for the preparation of highest quality 8-track master tapes for high speed duplication.

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W. 54 St., New York, N.Y. 10019, have been elected to the firm's Board of Directors. Mr. Kowalak has been with Movielab since 1957. He was previously an executive and technical consultant with the Ansco Division of General Aniline Film Corp. Mr. Gaski has been with the firm since 1958. He formerly held research production and technical positions with Consolidated Film Industries, Pathe Laboratories, Inc., Eastman Kodak Co., and Jam Handy Picture Service, Inc.

**Wendell C. Morrison** has been appointed Director, Product Engineering, Radio Corp. of America. In his new post he will be responsible for corporate programs and activities concerned with engineering professional development, technical papers and publications and engineering education. He was formerly Chief Engineer of the RCA Broadcast and Communications Division. He has been with RCA since 1940.

**Richard Sirinsky** has been appointed to the newly created post of District Sales Manager, New York City Area, Ampex Corp. The firm's headquarters are 401 Broadway, Redwood City, Calif. In his new post Mr. Sirinsky will be responsible for sales of all Ampex products (except for consumer products) in the New York City area. He has been with Ampex since 1959.

**Ted H. Truesdell**, First Vice-President of D. B. Milliken Co., 131 N. Fifth Ave., Arcadia, Calif. 91006, has been assigned the responsibility of marketing, engineering and research and development to coordinate the activities of the three groups. He has made two appointments within the Marketing Department: Glen A. Crandall to be Manager, Marketing Services and Lou F. Meyer, Manager, Field Engineering. The company recently announced a long-range program to broaden its product line with emphasis on development of new products and further diversification in the commercial photographic field.

**Donald Sheaff** has been appointed Assistant Plant Manager of the Television Division of Technicolor Corp., 6311 Romaine St., Hollywood, Calif. 90038. Mr. Sheaff has spent 20 years in the motion-picture industry and has been with Technicolor since early in 1966.

**John J. Brophy** has been appointed to the newly created position of Sales Manager for studio, theater and television lighting for the Photolamp Operation of Sylvania Electric Products Inc., 730 Third Ave., New York, N.Y. 10017, with headquarters at Sylvania's Lighting Center, Danvers, Mass. Prior to this appointment, Mr. Brophy was Marketing Manager for Xerox Corp. Previously he had been with Sylvania in various sales capacities.

**William J. Schenck** has joined Beckman & Whitley, Inc., Mountain View, Calif., as Sales Manager, Electrooptical Instruments. Thomas J. Healey, who was formerly in that post, has been appointed to the newly created post of Sales Manager, Optical Data Systems. Mr. Schenck was formerly Director of Marketing, Electro-



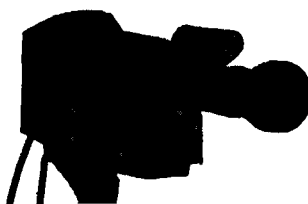
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Built to take action by the largest, most experienced manufacturer of ultra high speed cameras, CM16 is available now. Write or phone Cine Products, Beckman & Whitley, Inc., 441 Whisman Road, Mountain View, California 94040, phone (415) 968-6220. In Europe, Kettingweg 23, Baarn, Holland, phone 5004.



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A SUBSIDIARY OF TECHNICAL OPERATIONS, INC.

Optical Instruments, Inc., Pasadena, Calif. In his new post he is responsible for sales and applications of image converter cameras and of the company's new line of Kerr cell cameras, pulse-forming networks and high-voltage components. Mr. Healey now has charge of sales and applications of laser beam deflection instruments, laser interferometers and isophotometers.

**Joseph N. Tawil's** appointment as Eastern Market Manager for Motion Pictures and Television for Berkey Technical Corp., 25-15 50 St., Woodside, N.Y. 11377, has been announced by Vice-President Harry L. Parker. In his new post Mr. Tawil will specialize in the application of ColorTran lighting equipment. He will be available for technical consultation, development and sales of motion-picture and television lighting systems.

**William S. Shoemaker** has been appointed Director of the School of Photography, Rochester Institute of Technology. He succeeds C. B. Neblette, who will continue as Dean of RIT's College of Graphic Arts and Photography. In his new position Director Shoemaker will coordinate the activities of the School of Photography which has an enrollment of 400 students majoring in photographic science and instrumentation, photographic illustration and professional photography. He will also assist Dean Neblette in making plans for the School of Photography at RIT's new \$54 million

campus, which will be ready for occupancy in September 1967.

**Gordon L. Rome** has joined the staff of John Holman & Co., Inc. 2419 M. St., N.W., Washington, D.C. 20037, as Production Consultant. The firm supplies publishing services to industry and government and to research and educational groups. It plans to expand its list of publications dealing with photographic and related subjects. In his new post, Mr. Rome will be mainly concerned with this area of activity. His previous experience includes the post of Executive Assistant to the Director of Georgetown University's Astronomical Observatory; Editor and publisher of *Photographic Technical Bulletin*, U.S. Navy Photographic Center; and Editor of *SPSE News*.

**William B. Gaither** has been appointed Manager of Marketing for the Visual Communications Products Business Section, General Electric Co., Electronics Park, Syracuse, N.Y. 13201. He will direct all marketing activities for General Electric television and radio broadcast products, including cameras, video systems, studio audio equipment and television transmitters and transmitting antennas.

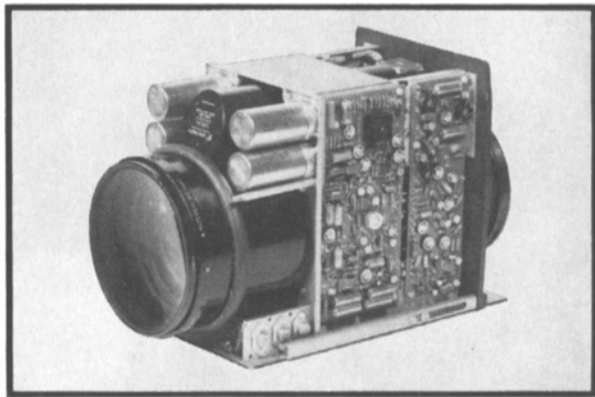
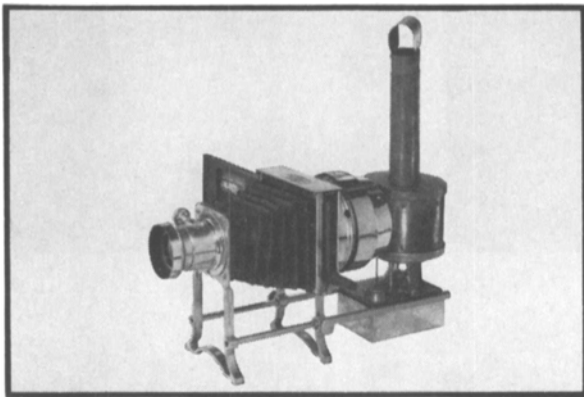
**Robert C. Lundquist** has been appointed Manager, Public Relations, for Bell & Howell's Photo Sales Company, 7100

McCormick Rd., Chicago, Ill. 60645. He was formerly with Eastman Kodak Co. where he handled publicity for the Motion Picture and Education Markets Div. In his new post he will work closely with all facets of marketing communications, including advertising and sales promotion.

**Klaus A. Werner** has been appointed a Vice-President of Delta Films International, Inc., San Juan, Puerto Rico. The firm's New York address is 15 W. 46 St., New York, N.Y. 10036, where Mr. Werner is Liaison Producer. Most of Delta's work consists of the production of black-and-white and color commercials for television and motion-picture advertising. The firm also produces travelogues, industrial films and documentaries.

**Bert Spielvogel** has joined TeleVideo Productions Inc., 316 W. 57 St., New York, N.Y. 10019, as Director/Cameraman, it was recently announced. His television commercials have won awards at various film festivals.

**Arthur C. Keller** retired September 1 from the post of Director, Switching Apparatus, Bell Telephone Laboratories. He has established a Research and Development Consultation Service at 125 White Plains Rd., Bronxville, N.Y. 10708.



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