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CORRECTION

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Western Cine color duplicating is the better way to achieve the fine results you expect! Our computerized lab equipment permits wide flexibility that enables you to do more with your film. . . color correction, variable fade and dissolve lengths, zero cuts and R/F cueing.

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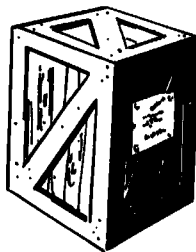
### COMPLETE LAB SERVICES

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EKTACHROME COMMERCIAL EF & MS  
LIPSNER-SMITH ULTRASONIC FILM  
CLEANING ON ALL ORIGINALS  
COMPLETE SOUND RECORDING  
OPTICAL PRINTING TRACKS  
OPTICAL PRINTING 16mm to 16mm  
and 35mm to 16mm  
INTERLOCK PROJECTION  
8mm PRINTING

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## new products

(and developments)

.....  
Further information about these items can be obtained direct from the addresses given. As in the case of technical papers, the Society is not responsible for manufacturers' statements, and publication of these items does not constitute endorsement of the products or services.

The Eastman Ektachrome R Print-Film 7389, intended for making color prints from originals made on Ektachrome EF and MS films has been introduced by Eastman Kodak Co. The new film, which will replace Ektachrome R Print Film 7388, has the capability of producing a silver optical soundtrack on 16mm release prints. If desired, a sulfide soundtrack, similar to that of its predecessor, can be produced on 7389. The silver soundtrack increases the sound quality on 16mm release prints and also increases laboratory efficiency in handling the film.

The new film was announced at the Society's 106th Technical Conference in Los Angeles in a 19-minute sound film presentation by G. L. Borton and R. W. Bauer, Kodak photographic engineers.

Two new color films, a camera original and a print film for super 8 release prints, have been announced by Eastman Kodak Co. The camera film, Ektachrome Commercial Film 7252 is a low-contrast 16mm reversal film intended to provide 16mm camera originals with improved sharpness, increased latitude and improved process stability. The new film is designed for the ECO-3 process which is more compatible with the ME-4 process used for many Ektachrome films. The film will be available in 16mm with standard perforations and in lengths from 50 to 1,200 ft.

The print film, Eastman Color Print Film 7381, is designed specifically for making super 8 and 8mm color release prints from original color negatives, color duplicate negatives or color internegatives. The film combines the fine-grain characteristics of its predecessor, 7380, but with a significant increase in printing speed. It will be available in 16mm widths for 2-rank printing of super 8 films and in 35mm width for 4-rank release printing in lengths from 1,200 to 2,000 ft.

Both films were introduced at the Society's 106th Technical Conference in Los Angeles.

A hot splicer for slit or unslit super 8 film, called Model 816-ST, has been announced by Maier-Hancock Sales Co., 14106 Ventura Blvd., Box 5135, Sherman Oaks, CA 91413. The unit handles A or B winding, emulsion up or down, has two sets of pins and provisions for double scrape. Features include a built-in scraper blade, hardened chrome steel cutter blades and narrow, low-visibility splices at the frame line. It is priced at \$299.



The KEM 8-plate Universal editing table has been announced by Intercraft Corp., 354 W. 45 St., New York, NY 10036. The firm has been appointed sole importer and distributor of all Keller Elektronik Mechanik products for the United States. Also announced is the formation of a new division of Intercraft Corp., called KEM Electronic Mechanic Corp., to sell, service and possibly rent all KEM editing, transfer and dubbing equipment.

The 8-plate Universal editing table is a modular system. It can be used with three

pictures and one soundtrack or with two pictures and two soundtracks, or with one picture and three soundtracks and it can run 16mm or 35mm or any combination of 16mm and 35mm in sync. Picture modules of CinemaScope or Techniscope are also available. A TV module can be dropped in place of a picture viewer for use with a video monitor whereby an optional frame counter could be superimposed onto the screen or video tape. The 8-plate editing table is priced at \$8,630. A basic 6-plate table is priced at \$6,400.

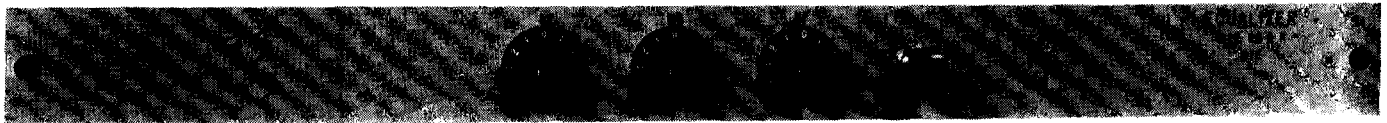


## CONSOLE COMPONENTS

The **EQUALIZER TYPE 29B** has separate LF, HF, and Mid-Range Controls. This permits greater flexibility than can be obtained with equalizers having only two controls. The MR Control provides slopes in the 200 to 5000 cycle range, whereas the LF, and HF Controls affect the frequencies above, and below. A great variety of response characteristics can be obtained by superimposing curves.

The Type 29B is fully transistorized and operates from a non-regulated nominal 160 VDC power supply. The voltage regulator in the equalizer employs current limiting, to protect the transistors against overloads, and accidental output shorts. This approach was taken in the interest of maximum system reliability, and RFI immunity. Input and output are transformer coupled.

The console version is 7" high, 1 $\frac{3}{4}$ " wide and 10" deep. A rackmounting version Type 29BR, with its own power supply, has mounting dimensions of 19" wide, 1 $\frac{3}{4}$ " high and 10" deep.



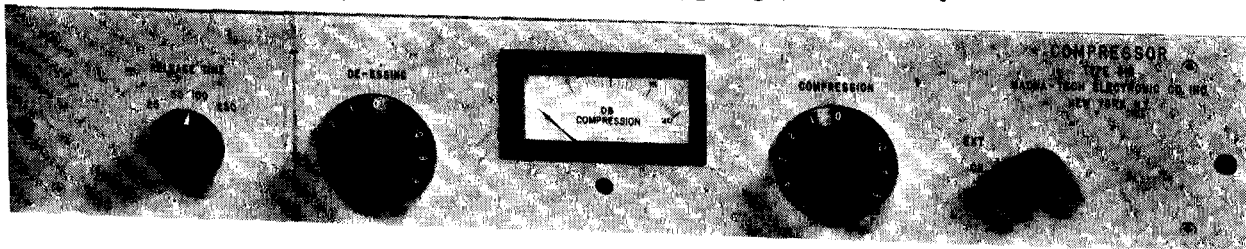
The **COMPRESSOR TYPE 31B** was primarily designed as a high quality dialogue compressor for motion picture sound application. The use of field-effect transistors as variable-gain devices makes possible an excellent and stable "thump" performance without any need for adjustments. The "Signal to Thump Ratio" is in the order of 60 db. The compression range is divided over 18 FET's so that the distortion in the normal range of compression never exceeds  $\frac{1}{2}$ %, and under severe overload remains under 2%.

The Compressor incorporates a "ganged Ceiling Control", a variable De-Essing Control, and a Release Time Control. The Ceiling Control has 10 steps, of 1 db per step. The ratio is fixed at 20:10. The De-Esser provides 10 steps of de-essing, with the last 5 steps being very severe to make it effective even after a low-pass filter. The Release Time Control has a range from 25 to 250 milliseconds. A special circuit feature eliminates the usual high distortion at low frequencies, even at the extremely fast release time of 25 ms. The end-effect is a compression action without the usual objectionable recovery problem.

The compression meter is calibrated in db gain reduction. The meter action is such that the attack is fast, and the decay is slow. This makes it easier to perceive the peak readings. The Compressor is self powered to simplify installation.

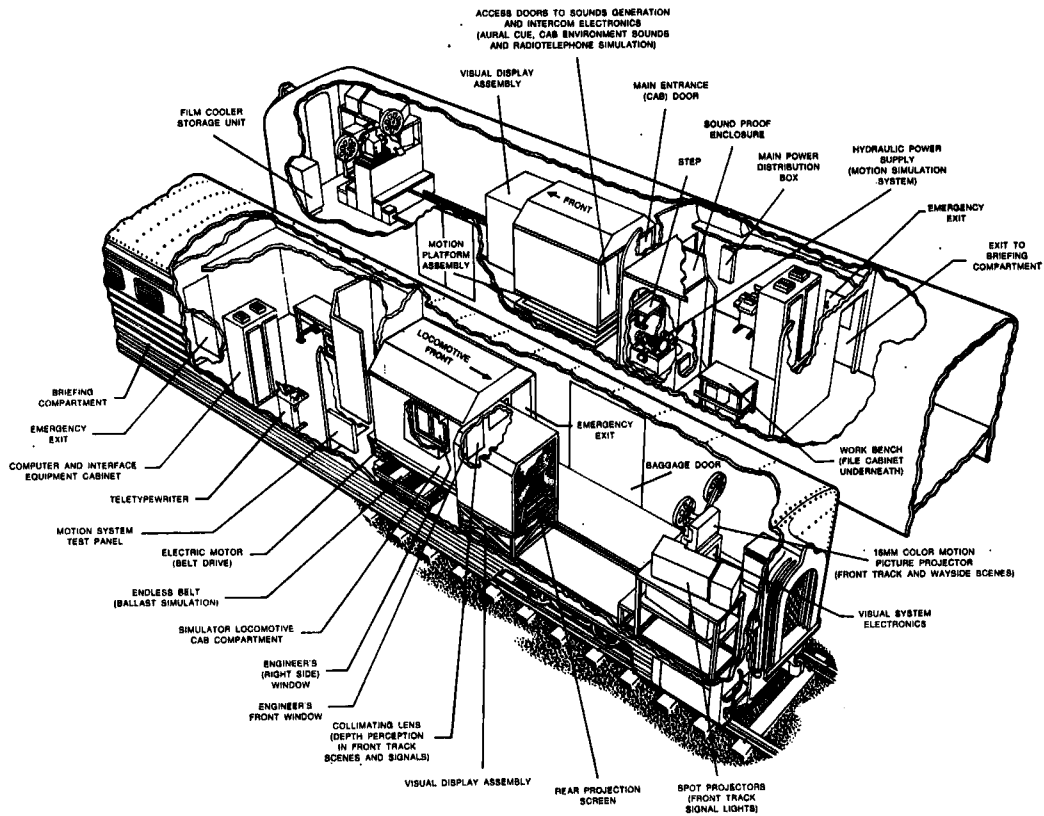
The Ceiling Control, the De-Essing Control, and the Compression meter can be removed. Input and output are transformer coupled. The gain without compression is adjustable from 0 to 34 db. In the OFF position, the Compressor operates as a linear amplifier with a maximum output level of +29 dbm.

The mounting dimensions are 19" wide, 3 $\frac{1}{2}$ " high, and 12" deep.



# MAGNA-TECH ELECTRONIC CO., INC.

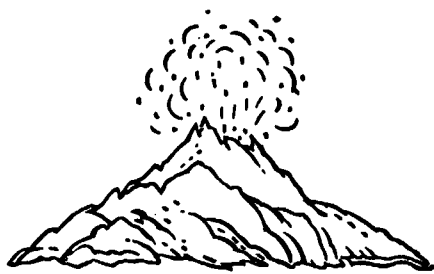
630 Ninth Avenue, New York, N. Y., 10036



A new computer-controlled projector designated the Traid 16N-4000 has been announced by Traid Corp., Photo Instrumentation Div., 777 Flower St., Glendale, CA 91201. The new machine is a heavy-

duty, flickerless projector that shows up to 4,000 ft of 16mm film at speeds varying from single-frame projection to 32 frames/s. The projector will be used in a railroad simulator to display the view

seen from a train when run over a certain route; the computer commands will vary the projection rate to indicate changes in train speed.



# Special Effects in Motion Pictures

(Some Methods for  
Producing Mechanical  
Special Effects)

Frank P. Clark

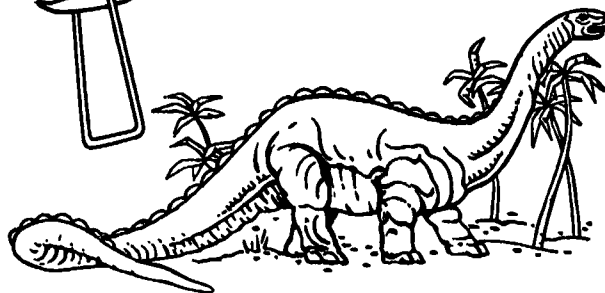
**CONTENTS:** The Development of Special Effects  
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Atmospheric Effects  
Special-Effects Props  
Optical Effects  
Sound Effects  
Miscellaneous Effects  
Shooting  
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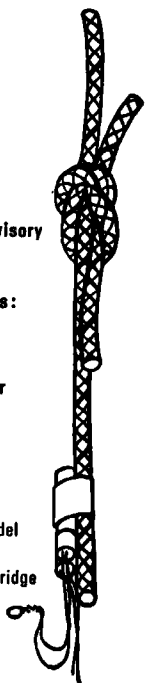
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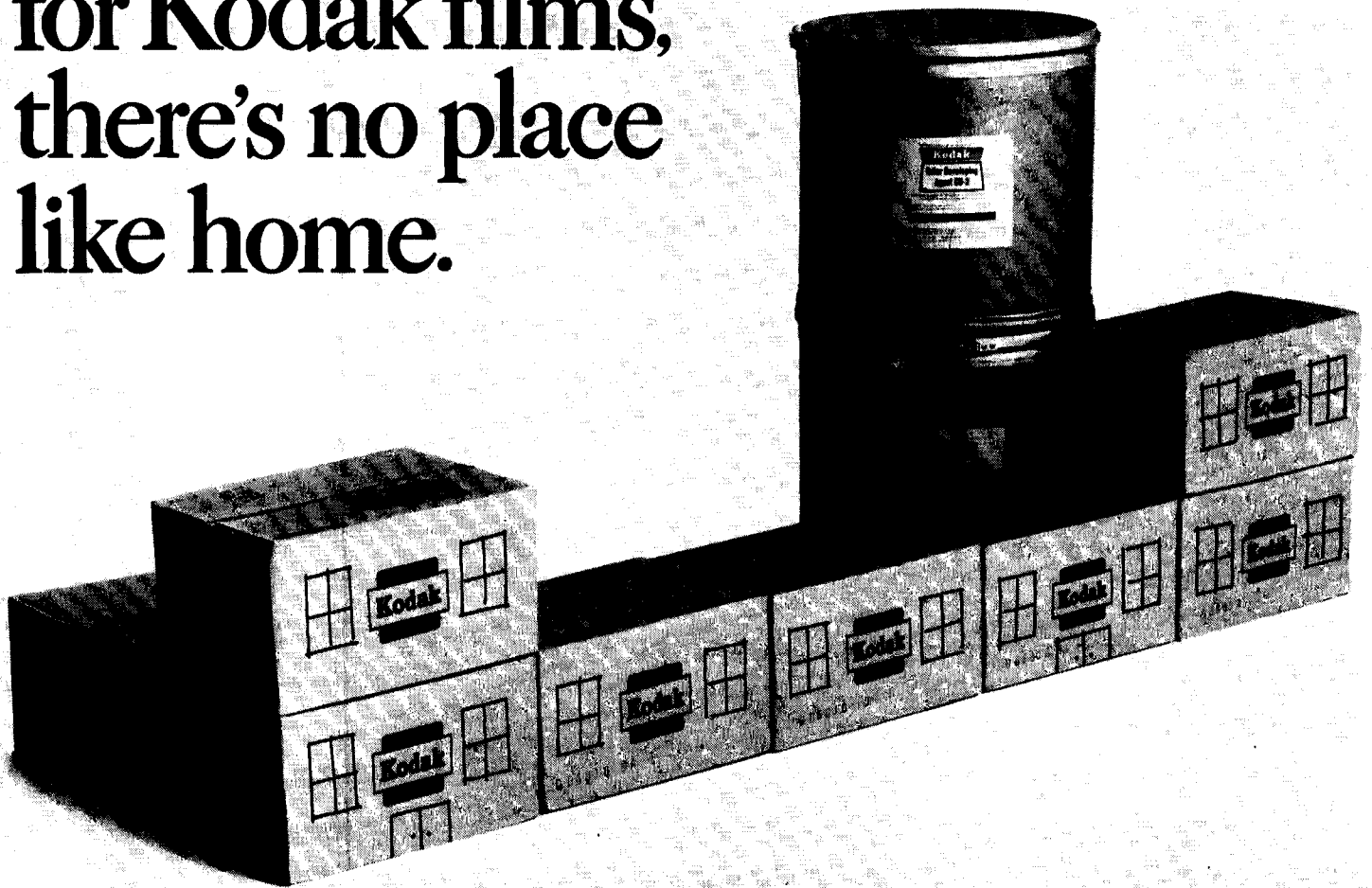
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# To get "match-tested" chemicals for Kodak films, there's no place like home.



It stands to reason. Kodak created and manufactured the films you process. These films are the finest we can produce because of endless testing during manufacture. Naturally, we use Kodak chemicals to test our films. We call it "Match-Testing" because the films are matched to the chemicals and vice versa. So if you're not using Kodak chemicals in your processing, you can't be sure you're getting the finest processing.

"Match-Testing" is actually the final test for Kodak chemicals. There

are many more before that. We test the initial ingredients, the mixed ingredients, and the finished chemical. We even test the packaging, so it comes to you in the best condition.

To make it easier to get the Kodak chemicals you need, when you need them, we now have a direct "One-Stop Shopping Service" for chemicals. Kodak warehouses throughout the country provide speedy delivery of the chemicals you order.

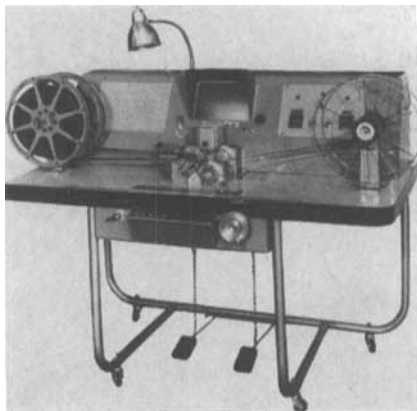
Speaking of ordering, some Kodak chemicals such as *Kodak Color Developing Agent, CD-2 or CD-3*, come in handy 50-pound drum sizes that are hard to find elsewhere.

We top everything off with extensive and readily available technical resources. After all, as we said earlier, we made the films in the first place, and we like all our films to have happy endings.

Would the Kodak "One-Stop Shopping Service" for chemicals benefit you? Talk to your Kodak Sales and Engineering Representative about it, or call the nearest Kodak office listed below.

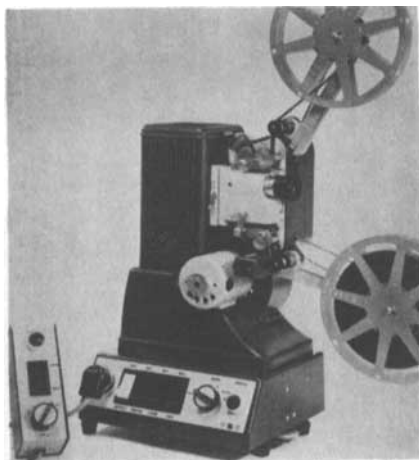
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**Kodak**



Five Atlas Film-Editing Tables, made by the Atlas Company of France, have been acquired by WPIX-TV, 11 WPIX Plaza, New York, NY 10017. The machines, which are pushbutton-controlled and fully automatic are distributed in the United States by A.G.G. Distributing Corp., 121 Reni Rd., Manhasset, NY 11030. The editing tables, available for 16mm and 35mm film can be used for fast editing of news and documentary footage. The machines have been designed to accommodate quartz-based lamps, permitting brighter viewing screens and full lighting in editing rooms. Other features include a built-in interchange facility for editing both magnetic stripe and optical sound records plus a special gate arrangement to make it virtually impossible to scratch the footage being edited. The machine can run backwards and for-

wards at variable speeds or can be locked in at 24/25 frames/s. Prices begin at \$3,495 for the basic 16mm unit.



The C-S Mark III 16mm Motion Analysis Projector in an improved (second generation) model has been announced by Irondequoit Industries, P.O. Box 7637, Rochester, NY 14622. Features include a new cooling system, an aspheric element in the condenser lens and a heavy-duty drive mechanism. The projector operates electronically without flicker at selected automatic projection rates of 2, 4, 8 or 16 frames/s or in still or single-frame pulse mode. The unit can handle all sound or silent 16mm film and can be operated in forward or reverse at any speed. The shut-

ter speed remains constant at all film speeds, eliminating flicker, and the unit is operated by relays, electromagnetic clutches and transistor circuits for reliability. The projector uses a 100-W quartz iodine lamp which is cooled by a fan that blows directly onto the gate aperture. The C-S Mark III is priced at \$1,175.

Three new projectors, the Fairchild/Eumig 711 and two Fairchild projectors, the Seventy-21 and the Seventy-31, have been announced by Fairchild Camera and Instrument Corp., 221 Fairchild Ave., Plainview, L.I., NY 11803. It was also announced that the firm's 1970 line will be based on magnetic sound, super 8 film with a plus-18 image-to-sound separation. This format is the same as that adopted by Eastman Kodak and Eumig of Austria.

The 711 projector has been designed especially for use in the educational field. It is a high-intensity, front-screen projector suitable for large audiences. The Seventy-21 and the Seventy-31 have been designed for individual and small-group viewing. Eastman Kodak cassette-type cartridges are interchangeable on the Fairchild/Eumig 711 and Kodak projectors. Both of the Seventy-Series projectors use the continuous loop MoviePak Seventy cartridge, a Fairchild product.

Various educational film producers have announced that they will distribute film libraries in the magnetic sound, plus-18, super 8 film format, including Doubleday and Company, Chelsea House Publishers, International Film Bureau, A.C.I., and others.

The 8mm projectors, including the 711, and cartridge systems were described by Lee H. Schank, of Fairchild Industrial Products, at the SMPTE 106th Technical Conference in Los Angeles.

Bauer's new Selection II0 is the permanent installation projector that has everything. It's the ideal projector for schools, screening rooms, studios, advertising agencies and industrial and business installations that can't gamble on quality.

From one of the world's largest manufacturers of professional equipment, the Bauer Selection II0 offers the most brilliant illumination possible, with a Xenon lamphouse accommodating 450, 900 or 1600 watt lamps.

Its Geneva (Maltese Cross) Movement and automatic "oil bath" lubrication mean steadier, smoother running projection and more positive film protection. And its 5000 foot capacity allows some 2½ hours of uninterrupted film run.

The Selection II0 doesn't stint on sound quality, either. A built-in solid state pre-amplifier assures high fidelity sound from both optical and magnetic tracks.

All this, plus human-engineered push-button controls and a range of precision projection lenses from 25mm to 75mm. Prices start at \$4,125.

Also studio models with single and double (16/16) band operation, programmed push-button control... full line of accessories.

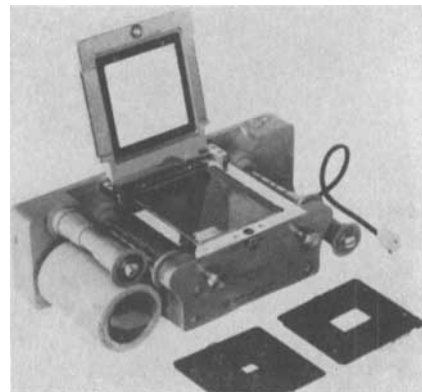
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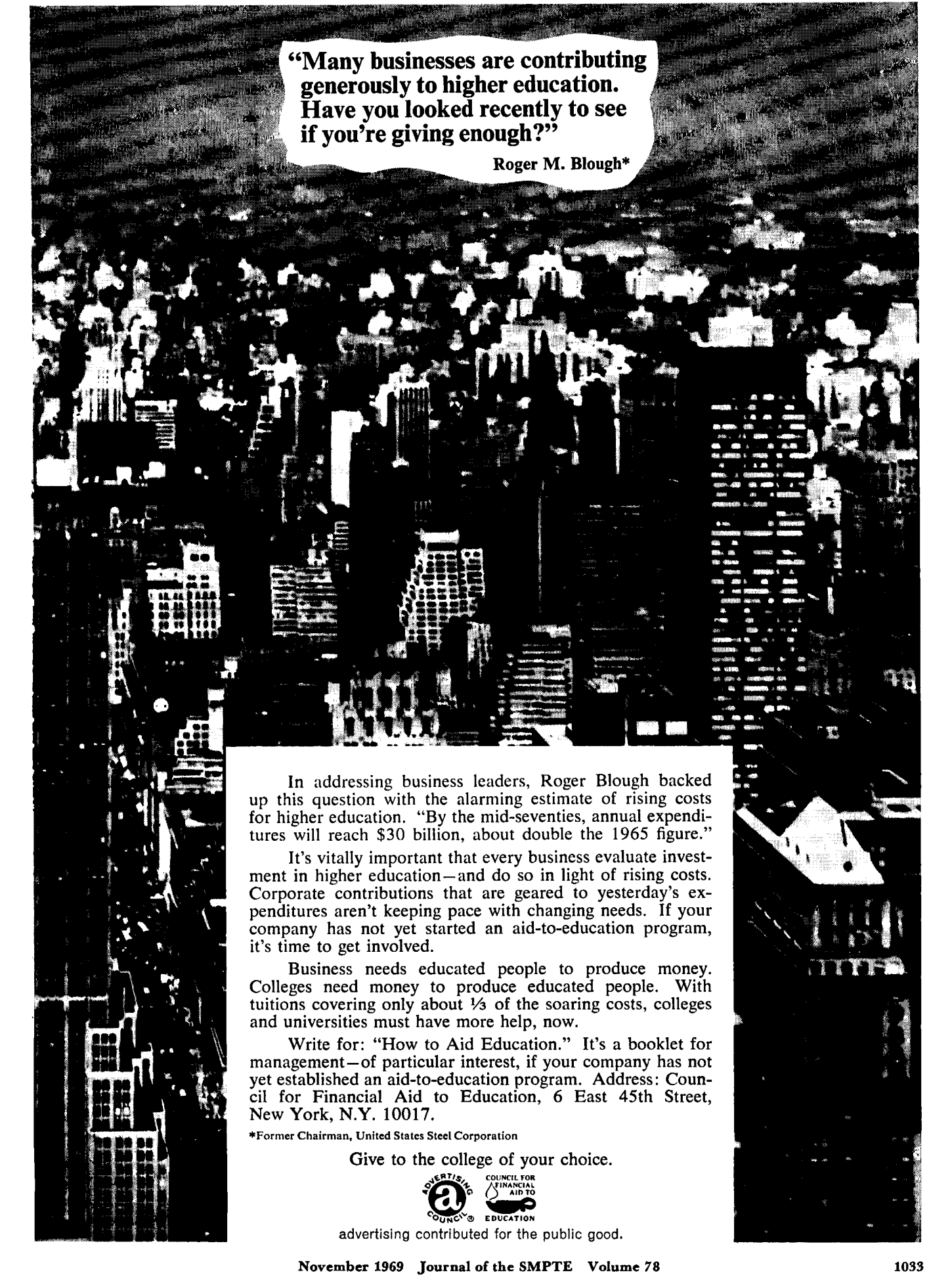


Bauer  
SELECTION II0  
16mm "Push Button"  
Sound Projector



A new continuous film movement that accommodates 16mm, 35mm and 70mm film in one mechanism has been announced by Traid Corp., 777 Flower St., Glendale, CA 91201. Designated the FM-70-36-16, the device incorporates aperture plates that may be operated with a constant gap or with an electrically actuated solenoid closure. When used at the 24 frames/s rate the maximum scanning speed is 120 ft/min. Other motor speeds and reduction gear ratios permit operation up to 500 ft/min.

Leader stock for threading laboratory processing machines, photographic processors and other equipment is produced



**“Many businesses are contributing generously to higher education. Have you looked recently to see if you’re giving enough?”**

**Roger M. Blough\***

In addressing business leaders, Roger Blough backed up this question with the alarming estimate of rising costs for higher education. “By the mid-seventies, annual expenditures will reach \$30 billion, about double the 1965 figure.”

It’s vitally important that every business evaluate investment in higher education—and do so in light of rising costs. Corporate contributions that are geared to yesterday’s expenditures aren’t keeping pace with changing needs. If your company has not yet started an aid-to-education program, it’s time to get involved.

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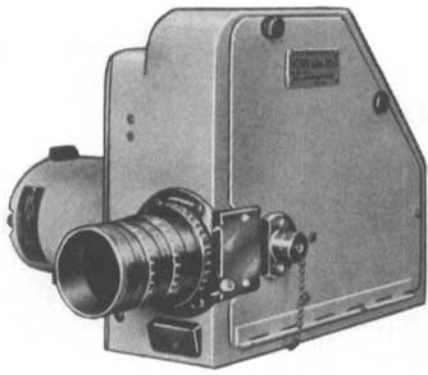
Write for: “How to Aid Education.” It’s a booklet for management—of particular interest, if your company has not yet established an aid-to-education program. Address: Council for Financial Aid to Education, 6 East 45th Street, New York, N.Y. 10017.

\*Former Chairman, United States Steel Corporation

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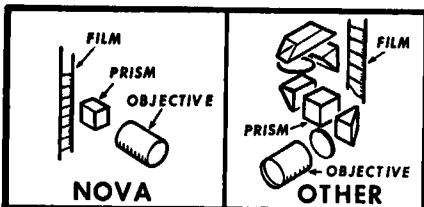
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## Here's why the PHOTO-KINETICS "NOVA" HIGH SPEED CAMERA is the finest and most versatile!

The Photo-Kinetics Nova High Speed Camera is superior to any other in speed range, resolution, sharpness, it is easy to operate and it is rugged. Unique changeable film magazines provide great versatility.

The speed range is 10 pps. to 8,500 pps. for the basic 100' camera, 10 to 10,000 pps. with the 400' magazine; and with the 1200' magazine 3,000 pps. with infinitely variable controlled speed to 1% (patented). The 16mm prism assembly is interchangeable with 1/2 frame, 1/4 frame, and streak prisms for frame rates up to 40,000 pps. and 3,000" per sec. in the streak mode. Uses standard or thin base films. Complete line of lenses and accessories are available.



The "Nova" provides exceptionally sharp pictures because of its simple straight-through lens design. This provides a number of advantages over five-prism designs with their attendant image loss and extra light requirements. The Nova optical system is less liable to get out of alignment. The NOVA design also enables the film to be stopped and started and acceleration is smoother.

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The Model EP-8 Eidophor television projector has been announced by TNT Communications Inc., 62-10 34th Ave., Woodside, NY 11377. The projector accepts any standard video signal originating from a camera, video-tape recorder, broadcast tuner, etc., and projects the image onto front-or rear-projection screens ranging to theater-size dimensions. The EP-8 delivers a light output of 4,000 lm which, for a 9- by 12-ft screen with a gain of 2 results in a highlight brightness of 74.0 fL. The heart of the Eidophor is the control layer. An image is produced electronically on a special oil film surface with a television raster scan technique. The image is then illuminated and projected by a separate high-intensity xenon light source. The EP-8 uses solid-state circuits in conjunction with an advanced control-layer technique described as "hot" image-forming oil based on a new oil formula operating above ambient temperature. The new formula is said to produce superior picture crispness. Prices for Model EP-8 start at \$56,000.

The SelectaVision, a color television tape player built around lasers and holography and designed for home use has been developed by RCA Corp. Selectavision tapes are made from motion-picture films, video tapes, slides or photographs. For example, a color program originating from a color TV camera or color video-tape player is recorded on conventional film by means of an electron beam recorder. This film, known as the color encoded master, is then developed and converted by a laser to a series of holograms recorded on a plastic tape coated with photoresist, a material that hardens to varying degrees, depending on the intensity of the light striking it.

The tape is then developed in a chemical solution that eats away the portions of the photoresist not hardened by the laser beam. The result is a "relief map" of photoresist whose hills and valleys and the spacing between them represent the original color TV program in coded form. This is called the

hologram master. The hologram master is then plated with a thick coating of nickel and stripped away, leaving a nickel tape with the holograms impressed on it like a series of engravings. This is called the nickel master.

Finally, by feeding the nickel master through a set of pressure rollers together with a transparent vinyl tape of similar dimensions, the holographic engravings on the master are impressed on the smooth surface of the vinyl as holographic reliefs and the program tape is then ready for home use.

Playback of the tape requires only that the beam from a very low-powered laser pass through it into a simple TV camera which sees the images reconstructed by the laser directly, and their colors as coded variations in those images. The playback mechanism, the laser and the TV camera are housed in the SelectaVision player, which is attached to the antenna terminals of a standard color TV set for program viewing. The programs can also be viewed on black-and-white sets.

A laboratory model of the SelectaVision has been demonstrated and commercial availability is expected in 1972. The player will probably be priced at less than \$400.

A solid-state electronic motion-picture color film analyzer (Series 200) featuring a 180 in<sup>2</sup> display has been introduced by Hazeltine Corp., Little Neck, NY 11362. The solid-state circuitry permits the system to be substantially reduced in size from earlier models. The system utilizes a new type of color flying-spot scanner tube to scan the film and an image is displayed for 16mm, 35mm or 35-32mm negative or positive film. The color screen brightness simulates theater projection standards and the color balance is changeable for incandescent or arc viewing. In operation, variations in light transmission are sensed simultaneously by three photomultiplier tubes, providing red, green and blue signals for ultimate presentation on the color display cathode-ray tube. Simulation of the unwanted dye absorption characteristic of the print film is achieved by use of cross coupling matrices made possible by simultaneous presentation of the red, blue and green signals. The direct reading color exposure controls are continuously adjustable to provide a total range of 1.6 Log E in 64 steps each of 0.025. Calibration is achieved through the laboratory head test and the system stability is achieved by automatic gain stabilizing circuits.

The Series 200 system was displayed at the SMPTE 106th Technical Conference in Los Angeles.

A television production system, designated the ETS II-M, that can be transported in a station wagon has been announced by Raytheon Company, Lexington, MA 02173. The system is manufactured by Raytheon Learning Systems Company of Michigan City, IN. The console contains a switcher/fader with six inputs, four non-composite, two composite; an audio mixer with a built-in VU meter and two microphones; and two 9-in solid state video monitors. Features of the system include an electric pointer by which any area of

the picture can be selected and illuminated by a quadrilateral, or any quadrilateral can be selected for viewing while blanking out the remaining area of the picture. The cameras are Raytheon Models 606 and 706. The ETS II-M is priced at \$8,500.



A new SEC television camera, the STV-609, designed to give better resolution and SNR than earlier SEC cameras has been announced by Westinghouse Electric Corp., P.O. Box 868, Pittsburgh, PA 15230. The two-piece camera includes a camera head and a separate camera control unit (CCU) with a connecting cable. The camera head is 8¾ in wide, 7¼ in high, 20½ in long and weighs 24 lb. The CCU is 19½ in wide, 14½ in deep, 7¼ in high and weighs 20 lb. A 40-ft connecting cable is supplied with longer lengths available. The camera has a limiting resolution of 700 lines and minimum SNR of 37 dB at  $5 \times 10^{-8}$  fc faceplate illumination. Price of the STV-609 is \$19,000 with a class 2 WX-30654 SEC tube without intensifiers.

The PAL Encoder for broadcast use has been announced by Rank Precision Industries Ltd., Bessemer Rd., Welwyn Garden City, Herts., England. Features include six coded outputs plus a separate luminance output and an integral color bar generator. The color bar generator can provide 100%, 95% or EBU saturation levels enabling individual color bar generators to be used in place of a master generator. The encoder is priced at £750.

A new 2.5-GHz Instructional Television Transmitter Modulator, Model SE-1, has been developed by Micro-link Systems/Varian Associates, 19 Wartburg Ave., Copiague, NY 11726. Features of the equipment include both audio and video processing, plus differential phase and gain controls to optimize color transmission. Model SE-1 solid-state exciter accepts standard audio and video inputs and develops a TV signal on any of the VHF high-band channels. The output is used to drive a 2.5-GHz ITFS transmitter or a cable distribution system. The exciter is priced at \$3,000.

Light-emitting diode camera timing markers and light-emitting diode cartridges, Series 1400, have been announced by L. M. Dearing Associates, Inc., 12345 Ventura Blvd., Suite R, Studio City, CA 91604. The devices are used for recording time and other data on high-speed photoinstrumentation motion-picture film. The light sources use low power and provide pulsed light with less than 1- $\mu$ s rise time. The Series 1400 blocks are designed for easy field retrofitting in any existing high-speed photoinstrumentation camera. With the cartridge optical systems, fully exposed timing marks are provided at film rates of 10,000 frames/s. Models are available which will mark film on one or both sides as required. The light-emitting diode cartridge prices range from \$45 to \$105 and timing block prices range from \$95 to \$225.



A coded timing pulse generator designated Model CTPG has been announced by L. M. Dearing Associates, Inc., 12345 Ventura Blvd., Suite R, Studio City, CA

91604. The new model is a crystal-controlled timing code generator for driving two or more gallium arsenide phosphide light-emitting diodes used in high-speed motion-picture instrumentation cameras. With code rates of 10, 100, 1,000 and 10,000 pulses/s, singly or in any combination at 0.005% accuracy, it provides pulse length coded film markings for easy and rapid time data correlation. It is available in ac or 28-V dc power version for airborne or field use. It is designed primarily for driving light-emitting diodes but it has other uses such as oscillographic recording, tape inputs or oscilloscope calibration. Model CTPG is priced at \$545 for 115-V ac power and 28-V dc power. It is also available for 115-V/28-V dc power at a price of \$575.

An over-the-shoulder battery pack, Model IMC-100, has been announced by Instrumentation Marketing Corp., 820 South Mariposa, Burbank, CA 91506. The battery pack is rechargeable and weighs 16 lb. It provides 28 V at 8A continuous draw for 30 min. The nickel cadmium sealed cell battery recharging requires 6 h maximum from 20 V and can be continuously plugged into 115 V ac. It is fused for both ac and dc. The price is \$490.

A pair of knobs designed to fit all standard cassette hubs and used as tape tension winders has been announced by Robins Industries Corp., College Point

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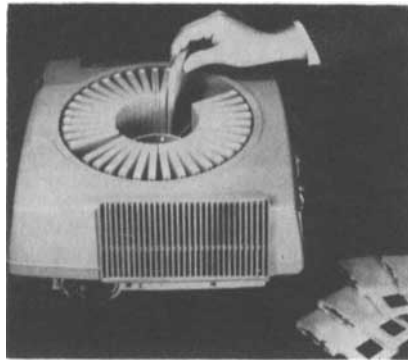
in the bankruptcy of K & S Films, Inc., #55645, U.S. District Court, Southern Ohio.

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(Flushing), NY 11356. The knobs are used to take up slack in the cassette that can lead to jamming or damaged tape. They are also used in editing and splicing. The price is \$1.50 a pair.



The Kalavox, a unit designed to convert a Kodak Carousel or Ektagraphic slide projector to a slide-sound projector in which up to 60 seconds of sound is combined with the color slide, has been announced by the Kalart Company, Plainville, CT 06062. The unit replaces the usual slide tray on the projector and uses an audio slide cassette to hold both the 2 x 2 slide and a reel-to-reel tape. Each cassette can hold up to one minute. The Kalavox holds up to 40 cassettes, thereby providing up to 40 minutes of sound. To record a message the user pushes the "Record" button and speaks into the microphone built into the Kalavox. When the message is finished a "Cue" button located on the control panel is pressed. This records an inaudible signal that will automatically advance the tray to the next cassette. The unit is priced at \$325, including 40 audio slide cassettes.

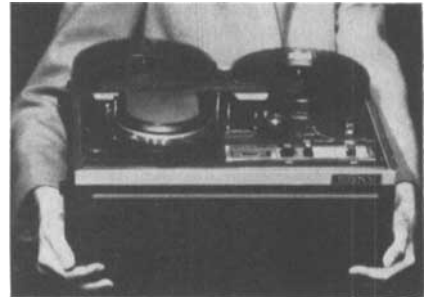
A super 8 cartridge projection system called the Kodak Ektagraphic 120 projector has been announced by Eastman Kodak Co. Designed to use the new Kodak Projection Cartridge, the system provides a completely enclosed film path from supply reel through take-up reel. In use the cartridge is snapped into position on the 120 projector and the thread button is pressed. The movie begins immediately as the projector mechanism transports the film from the cartridge to the take-up reel. When the movie ends an automatic rewind returns the film to the cartridge. Additional controls on the projector permit the operator to stop the film at any point, review selected portions of the film or automatically return the film to the cartridge at any time during projection. The projector weighs less than 15 lb and operates on 110-125-V, 60-Hz ac current. It is priced at less than \$135. The system was introduced at the Society's 106th Technical Conference in Los Angeles.

The Frezzolini #537 conversion installation for Nagra Professional Sound Recorders has been announced by General Research Laboratories Div., Frezzolini Electronics Inc., 7 Valley St., Hawthorne, NJ 07506. The #537 adds 4.2 oz to the weight of the Nagra recorders and includes a crystal-control, built-in sync gen-

erator; a strobe-like wand positive picture start mark and a positive sound start mark of the special low frequency of 400 Hz. The converted Nagra can be used either wireless or cord-to-camera. The #537 conversion for Nagra III recorders is \$540.

The Mini-Pro, a professional battery-operated or 110-V portable quartz light, has been announced by Berkey-ColorTran, Inc., 1015 Chestnut St., Burbank, CA 91502. The light has a specially designed utility yoke containing an on/off switch and recessed power receptacle for the 110-V detachable 9-ft cord. The unit can be stand-mounted or handheld with a plastic handle (accessory) that locks to the yoke. The Mini-Pro, including lamp and handle weighs 30 oz. It is priced at \$45 complete with detachable 110-V cord.

A new line of tungsten-halogen location lighting kits has been announced by Her- vic Corp., 14225 Ventura Blvd., Sherman Oaks, CA 91403. Five different location lighting kits are available, each designed to fit into a single carrying case. The Hervi-Quartz Senior 1,000- and 650-W and Junior 650-W quartz fill-light fixtures are provided with a rigged new housing design featuring flow-through convection cooling. The SR/100 and SR/650 fixtures feature removable barndoors. The JR/650 fixtures are supplied with integral barndoors. Prices of the location lighting kits range from about \$665 for the Senior Kit #1 to \$155 for the Junior Kit #7.



The CV-2600 half-inch video-tape recorder has been announced by Sony Corp. of America, 47-47 Van Dam St., Long Island City, NY 11101. The instrument, designed for portability, operating ease and economy, weighs only 31 lb. A single lever controls all tape movements, including record and playback, rewind and fast forward. Automatic gain control eliminates manual recording adjustments and a new servo system is incorporated to provide quick picture stabilization. The CV-2600 is priced at \$675.

The Videographic Kit for rapid reproduction of visual aids has been announced by Sony Corp. of America, VTR Div., 47-47 Van Dam St., Long Island City, NY 11101. The kit consists of six sheets of lettering, four sheets of illustrations, 12 reusable visual boards, a lettering level, letter removal tape, a burnishing tool with crafting point, a felt tip pen, a desktop easel and an instruction book. The kit is priced at \$39.95.

A series of exciting and barrier filters for use in conjunction with xenon and mercury, including incandescent sources, has

been developed by Fish-Schurman Corp., 70 Portman Rd., New Rochelle, NY 10802, for special purposes, such as biomedical chromatograms, microscopy, fluorometry and photometry investigations. Five exciting filters and 13 barrier filters have been announced, plus four neutral gray filters. The filters are of various wavelengths. Prices range from \$4.50 to \$18.50 for two exciting filters (ultraviolet transmitting, black glass, and ultraviolet transmitting, infrared attenuater).

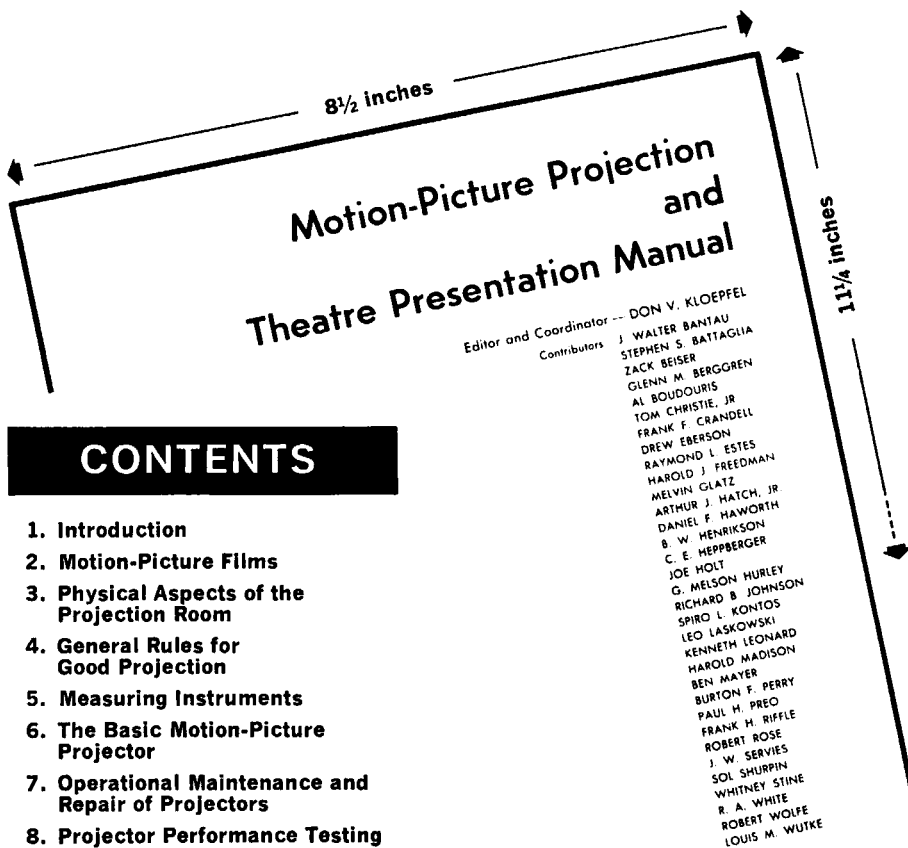
The Scanning Sound Reader has been announced by Scanning Instrument Co., 210 Catalpa Pl., Wilmette, IL 60091. The new sound reader incorporates a General Electric integrated circuit audio amplifier. Other features include a silicon photo-voltaic cell that does not require bias adjustment, a rugged exciter lamp with pre-focused base and a two-element lens. The machine measures 6 by 8 by 8 in. The price range is from \$195 for a 16mm optical-only track toward user machine to \$385 for a 35mm optical and magnetic track away from user, audio analyzer.

The VTR Wheelit 69-22 designed to transport 1-in video-tape recording equipment has been announced by Gruber Products, Inc., 5254 Jackman Rd., Toledo, OH 43606. The new model has a 22-in wheel-base. The top platform is 15 by 24 in and the bottom platform is 18 by 24 in equipped with 9-ft heavy duty retaining straps. The load capacity is 175 lb. It is priced at \$124.50.

The A9 model, described as the "third generation" of The Voice of the Theatre speaker systems has been announced by Altec Lansing, 1515 South Manchester Ave., Anaheim, CA 92803. The new speaker system provides wide angular dispersion and features a high-frequency driver incorporating the newly developed Symbiotik diaphragm voice coil assembly. Uniform frequency response for the system extends from 35 to 20,000 Hz. The low-frequency section utilizes two 15-in cone-type speakers. The high-frequency section couples the driver to a straight cast-aluminum sectoral horn. The A9 speaker system employs a large infinite baffle low-frequency bass enclosure developed to provide clean bass response and wide angular dispersion of bass notes. It is priced at \$995.

A new cardioid dynamic microphone called the Turner Balladier Model 2266 has been announced by The Turner Co., 909 17th St. N.E., Cedar Rapids, IA 52402. The microphone, designed specifically for live entertainment use, features sound-cancelling ports on the side of the case to provide a controlled cardioid acoustical pickup pattern which reduces feedback howl and suppresses unwanted background noise. It is priced at \$90.

The Ultramix I, a solid-state preamplifier and sound mixer that accepts up to four separate microphone or electric instrument inputs has been announced by The Turner Co., 909 17th St., N.E., Cedar Rapids, IA 52402. The device is designed to permit musical groups to blend, mix and create



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new sounds through existing amplification equipment. It accepts inputs from microphones, tape recorders or electric instruments such as guitars and organs. The front panel contains eight volume controls and two switches. The Ultramix I is 12 in wide, 5½ in deep and 3 in high. It is priced at \$175.

A playback-only version of the MM-1000 Series multichannel recorder has been announced by Ampex Corp., 401 Broadway, Redwood City, CA 94063. It is designed for use in mixing down many recorder tracks into two-track master stereo tapes. It is available in 8-, 16- and 24-track versions. Features include solid-state modular electronics, plug-in head assembly and rapid conversion to any track configuration. The price range is from \$11,500 to \$22,750, depending on options and track configuration.

The KB-19A and KB-19B airborne gun/strike cameras have been introduced by Photo-Sonics, Inc., 820 South Mariposa St., Burbank, CA 91506. Both cameras have undergone environmental testing, such as altitudes to 80,000 ft. The KB-19A features through-the-lens, variable shutter automatic exposure control, exposure lock and lock-out, variable frame rates (24, 32, 48, 64 and 200 frames/s) and over-runs. The KB-19B employs an iris diaphragm exposure control. Both cameras employ the same magazine (the LB-24A) which contains the complete film transport mechanism. This intermittent pin registered movement consists of two register pins and two pulldown pins to provide positive film control at all times. The magazines are interchangeable in less than five seconds. The system also enables the camera to be focused and boresighted without a reflex viewer or removing the film from the transport mechanism. The KB-19A is priced at \$6,000.

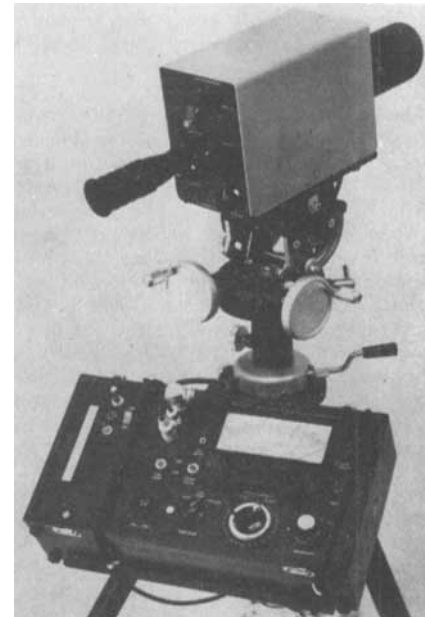
A Kösters-prism interferometer for measuring refractive indices and thickness gradients in both small and large optics has been developed at the NBS Institute for Basic Standards, U.S. Department of Commerce. The interferometer is relatively free from vibration problems; thermal gradients are reduced to a minimum by confining the two component beams of light to a small area. Scanning allows large specimens to be measured. The instrument is based on the same principle that is used in the Twyman-Green interferometer in which refractive indices and thickness gradients are calculated from two sets of interference fringes, one produced by light transmitted through the specimen and the other by light reflected from its two surfaces. However, the new instrument requires fewer adjustments and has the ability to evaluate large optics.

The main components of the NBS interferometer are a light source, Kösters prism, mirror and three screens. The prism is composed of two components cemented together to form an approximately triangular prism (the side that forms the base is spherical). The prism serves as: a collimator lens; a beam divider for dividing the beam twice; two mirrors for deflecting the transmitted and reflected

beams to a common direction; a near-perfect compensator so that white light interference can be used if desired; and a collector lens.

The Model 2400 photometer, which provides a 3-digit digital presentation with 100% over-ranging and BCD output, has been announced by Gamma Scientific, Inc., 2165 Kurtz St., San Diego, CA 92110. Operational features include remotely programmable high-voltage and 7-step calibrated sensitivity control which together provide a dynamic measurement range of 10<sup>7</sup>. The instrument operates from a regulated ac power supply or from an interchangeable battery pack for making measurements in the laboratory or in the field. It is priced at \$1,670.

The R100 Nanovolt Stabaumatic potentiometer, manufactured in Great Britain by H. Tinsley and Co. and available in the United States from Southfield Electronics Div., Comtel Corp., 21250 10½ Mile Rd., Southfield, MI 48075. The measuring system includes a low-resistance unit with four ranges giving a total coverage of 1 nV to 2.11110 V. The unit comprises a detector, a current control unit operating from the main circuit and a temperature-controlled reference voltage. The R100 is available as a rack-mounted unit priced at \$4,750.



A new telephotometer, Model 2000K, utilizing X<sub>b</sub>, X<sub>r</sub>, Y and Z filters electrically trimmed for optimum tristimulus measurements of surface luminance has been announced by Gamma Scientific, 2165 Kurtz St., San Diego, CA 92110. The instrument measures down to 10<sup>-5</sup> fL "full scale" and provides 7-step sensitivity control over a three-log range. Operational features include an integral computer for direct footlambert readings; an aperture area range of 10,000 to 1 with 2', 6', 20', 1° and 3° apertures selected by rotary switch and an internal tungsten lamp calibrator. Solid-state electronics permit a built-in battery supply for field use or an ac supply for laboratory use. The instrument is priced at \$3,670.

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A new oscilloscope, Model 183A, which provides realtime response from dc through 250 MHz without sacrificing viewing ease, operating ease, sensitivity or plug-in versatility, has been announced by Hewlett-Packard, 1501 Page Mill Rd., Palo Alto, CA 94304. Either of two input signals can be displayed singly on the 6- by 10-cm viewing area or both can be displayed alternately on successive sweeps or at the same time in a chopped (time-shared) mode. It can also present the sum or difference of two input signals. The instrument is priced at \$3,150 including a 250-MHz dual-trace amplifier and high-speed time-base plug-ins.

The Type AMF TV Demodulator, announced by Rhode & Schwarz, 111 Lexington Ave., Passaic, NJ 07055, demodulates monochrome and color TV signals with color subcarriers (NTSC, SECAM and PAL) as well as TV sound signals in the lower VHF, upper VHF and UHF. The sound trap preceding the video demodulation can be switched off; the instrument then has a constant amplitude and group delay time up to 5 MHz. Required measurements and checks can be made on the picture transmitter and on the sound transmitter. The instrument is priced at \$5,550 for VHF and \$5,790 for UHF.

The ELD Electronic Level Display has been announced by Electrodyne Corp., 7315 Greenbush Ave., North Hollywood,

CA 91605. The device is a plug-in module which has a 9-increment visual display. It can be used for multitrack level display clusters; 16 ELDs require only 21-in width. Scale graduations of -20, -10, -6, -4 and -2 and 0 are amber color and +2, +4 and +6 are red. Features include a polarized non-glare lens. The device is priced at less than \$100.



A new cylindrical lead-acid battery with an anticipated life of more than 30 years has been developed at Bell Telephone Laboratories. An unusual feature of the battery is that its performance improves with age. This is because of the use of an energy-producing material, a paste with a crystal structure designed to interlock for

added mechanical strength. The computer-designed grids are conical, cupped to a 10° angle and are stacked one upon the other. The conical grids, which contain the energy-producing material, consist of a series of concentric rings connected by radial spokes. The growth of these rings is controlled so that each increases in diameter at the same rate, keeping the distance between the rings constant. Since the distance between the rings remains constant, the rings are not separated from the energy-producing paste. Thus, the battery's original capacity, derived from the paste, is retained. As time goes on, some corrosion occurs and this increases the amount of the paste, which leads to some increase in the total capacity with age.




Some four million 3-element electronic devices can be placed on an area about the size of a postage stamp by means of a new technique developed at Westinghouse Electric Corp., Box 2278, Pittsburgh, PA 15230. The technique is based on the use of electron beams rather than light beams to fabricate miniaturized devices and integrated circuits and utilizes an imaging tube that projects electrons in patterns with finer detail than is possible with light projection. The tube, about three inches long and three inches in diameter, is surrounded by electromagnets which focus the electrons in parallel lines inside the tube.

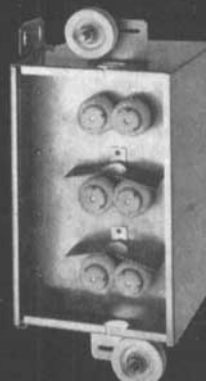
In operation, there is a series of stencil-like light-sensitive masks, one after the other, at the negative electrode, or cathode, of the image tube. The masks are the source of the electrons that form the final circuitry, with each mask contributing one aspect of it. The electrons are released by shining ultraviolet light upon the masks, which eject electrons along the parallel magnetic lines toward the positive electrode, or anode, of the tube. The anode holds a silicon wafer upon which the electrons form a pattern identical to the pattern of each mask.

Two series of low-pass filters, TLA (50 to 1,000 MHz) and TLR (2,000 to 3,000 MHz) have been announced by Telonic Engineering Co., Box 277, Laguna Beach, CA 92652. Both series of filters are of 0.05-dB Chebyshev design to provide sharp cut-off characteristics. The filters range in length from about 4½ in to 10½ in and in weight from 4.5 oz to 7.5 oz. The price of all versions is \$65 for each filter.

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