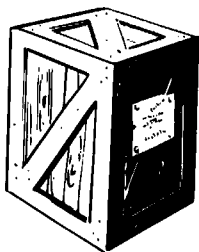


John C. Mahon, Jr., has been appointed to the Department of Television, Motion Picture and Radio, Washington Square College of Arts and Sciences, New York University, as Associate Professor. Prior to the appointment he was a writer-director for the Motion Picture Dept. of the Space and Information Systems Div., North American Aviation, Inc. During his career he has participated in the production of more than 150 nontheatrical films. He has taught at the University of California, Los Angeles, and has lectured at the Institut des Hautes-Etudes Cinématographiques, Sorbonne University, and at the Institut für Filmwesen, University of Munich. He has also served the U.S. State Department as documentary film director in Iran.

Services of a proficient linguist in French, Spanish, Italian, German and Portuguese languages are offered by Victor Volmar, 55 Payson Ave., New York 34, for spotting, foreign or domestic adaptations, re-narrations, dubbing, subtitling, etc. Services are offered particularly for films with "unusual problems," the announcement stated.

Richard M. Blanco has been appointed Director of Sales for New York of the Motion Picture Division and Military Sales Division, Technicolor Corp., with offices at Technicolor headquarters, 30 Rockefeller Plaza, New York. Announcement was made by Edward E. Ettinger, Executive Vice-President of the company.



new products

(and developments)

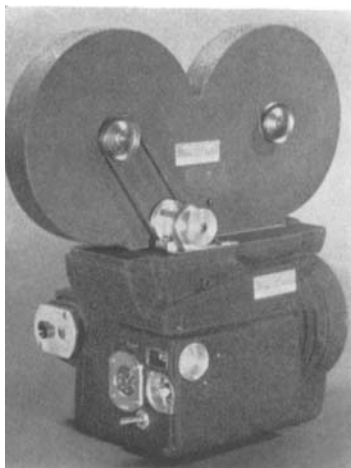
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Further information about these items can be obtained direct from the addresses given. As in the case of technical papers, the Society is not responsible for manufacturers' statements, and publication of these items does not constitute endorsement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



The **A-500 Luminance Analyzer**, an instrument for measuring scene luminance ratios, is a product of Gamma Scientific, Inc., San Diego, Calif. The hand-held (weight 3 lb, length 7½ in., width 2½ in., height, 6 in.) instrument is a photomultiplier spot photometer with a "look" angle of ½ degree, enabling measurement of light from 1/4000th of the area of a typical scene. The optical system is similar to that of a camera. An objective lens forms an image; in the image plane is an aperture 30/1000 in. in diameter which permits only the light from the center of the optical field to pass through the photocathode of a photomultiplier tube. When the operator looks through the instrument's viewfinder, a small ring reticule appears which rep-

resents the area being analyzed. The instrument is aimed so that the reticule falls on the reference white area, and the variable sensitivity control is then adjusted so that the meter pointer on a scale in the viewer reads 100 on the scale. When the luminance analyzer is aimed at any point in the scene, following the adjustment, the luminance ratio at that point is shown. The instrument is designed to enable the establishment of white reference quickly and correctly so that flesh tones and shadow areas, as well as all other scene luminances, may be related directly to this reference. The instrument may also be used to solve light measurement problems in difficult or critical situations. It is priced at \$675.00.

The analyzer is the subject of a paper that was presented at the 92d Convention in Chicago by Harold P. Field and Royal H. Akin, both of Gamma Scientific. Title of the paper is "Photomultiplier Photometer for Scene Image Analysis."



A conversion of the **Auricon Cine Voice** to accept 400-ft magazines has been announced by Professional Cine Products, 2222 N. Prairie Ave., Dallas 4, Tex. The new conversion is said to make a true 400-ft camera out of the 100-ft Cine Voice. Features include cut-off camera top to reduce size and weight; external adjustable clutch for positive take-up control (no extra motor necessary); built-in specially silenced Veeder-Root footage counter; phone jack in camera (optical models only); and built-in filter slot. Price for the conversion is \$445.00.



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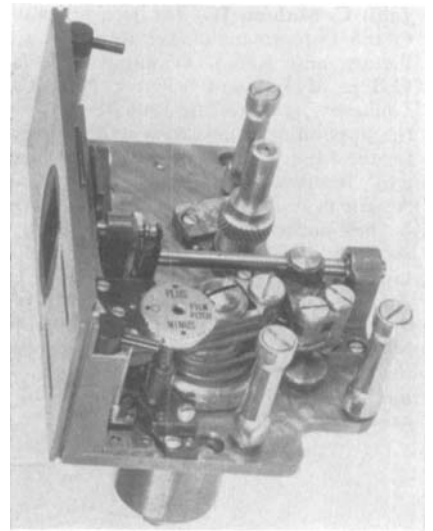
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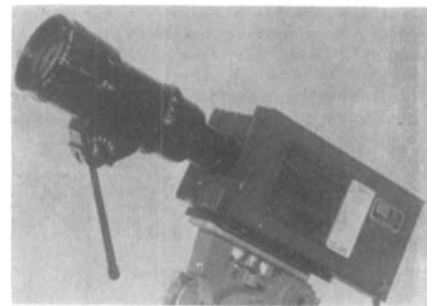


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A new D-R Viewfinder, announced by Mitchell Camera Corp., 666 W. Harvard St., Glendale, Calif., has two sets of horizontal matte vanes, instead of a standard single set. The new viewfinder is designed to provide the camera operator with an efficient means for composing for two aspect ratios — Academy and Television, or 1.85 and Academy — whenever this should be required.



The Traid-Berthiot variable focal length lens, announced by Traid Corp., 17136 Ventura Blvd., is described as a "six shooter," with "six lenses in one." The lens, in a "C" mount with a convenient zoom handle, has markers at 25mm, 35mm, 50mm, 75mm, 100mm and 115mm. All elements of the lens are coated and the focus is from 6 ft to infinity. Features include a removable sunshade. The lens (weight 2 lb 6 oz) measures 8½ in. without the sunshade and 11¼ in. when the sunshade is attached. The maximum outside diameter is 2¾ in. or 3⅝ in. with the sunshade. The lens is priced at \$599.00 without the viewfinder. If the viewfinder is included the price is \$699.00.

The Vari-Stroke control is a new device announced by Mitchell Camera Corp., 666 W. Harvard St., Glendale, Calif. Added to the Mitchell NC and BNC film movements the Vari-Stroke permits timing of the movement to match variations in the film, thus providing the operator with a control over the movement in relation to the film condition to achieve quieter movement free of picking noise. The announcement pointed out that while film is accurately

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NEW

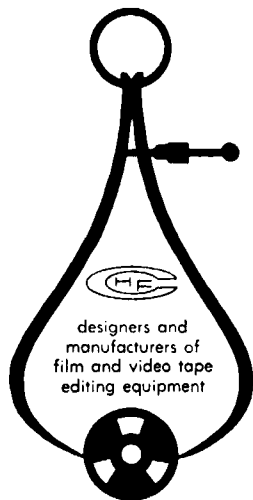
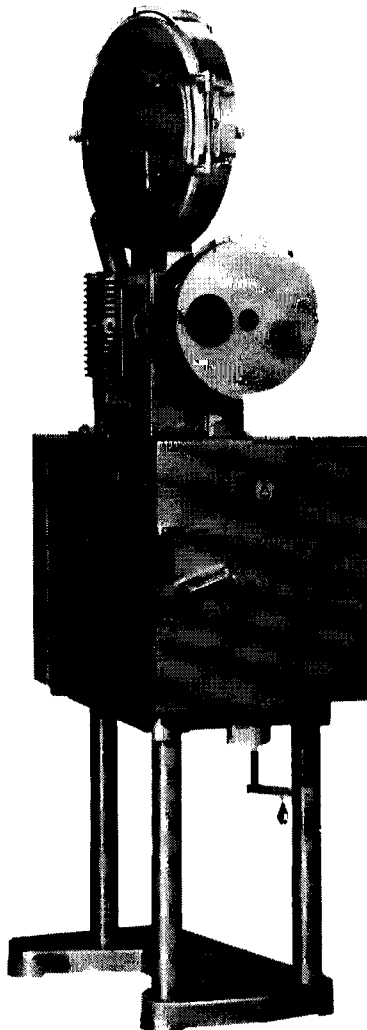
The projector is a converted front shutter Simplex with a two pin intermittent. 16mm or 35/32 film runs at a speed of 144 ft. per minute while 35mm film runs at a speed of 165 ft. per minute.

1. A variac controls the light intensity.
2. A 500 watt lamp is used for 16mm and a 1,000 watt for 35mm (a blower is used to cool the lamphouse).
3. A 2½ inch projection lens is furnished with each unit.
4. A start-stop lever controls the power to the lamp and motor.
5. The magazine and take up core takes up to 3,000 ft. of film.
6. Upper guide rollers are made to handle the film from either direction of the feed reel.
7. A free wheeling take off flange is provided in the magazine.
8. A lamp near the takeup reel permits hand inspection of the film prior to takeup.

NOUVEAU

Le projecteur contient un obturateur Simplex antérieur transformé avec deux clavettes intermittente. Les films de 16mm ou 35/32 tournent avec une vitesse de 144 pieds à la minute, tandis que les films de 35mm tournent avec une vitesse de 165 pieds à la minute.

1. Le regulateur de voltage d'intensité d'éclairage.
2. La lampe de 500 watt est nécessaire pour les films de 16mm, et de 1000 watt, pour les films de 35mm (un ventilateur est mise pour rafraichir la chambre de la lampe).
3. L'objectif de 2½ est installé.
4. La manette de mise en marche et d'arrêt controle en meme temps la lampe et le moteur.
5. La boite de films avec noyau peut contenir 3000 pieds du films.
6. La roue supérieure est construite de manière de recevoir le film dans les deux directions, nourrie par la bobine centrale.
7. Une roue est installée pour libérer rapidement le film de la boite.
8. La lampe se trouve pres de la bobine recepteuse, et donne toute facilité pour inspecter le film a main dans le projecteur.



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NUOVO

Questi proiettori sono Simplex trasformati, otturatore al fronte, meccanismo di scatto di due punte. La velocità di proiezione in 16 o 35/32mm e di 144 piedi per minuto, e in 35mm, di 165 piedi per minuto.

1. Controllo manuale della luminosità della lampada.
2. Lampada di 500 watt per 16mm e di 1000 watt per 35mm.
3. Obiettivo di proiezione di 2½".
4. Maniglia per controllo di motore e lampada di proiezione.
5. La cassetta porta pellicola puo contenere 3000 piedi.
6. I rulli superiori di guida sono costruiti per operare con film proveniente di ambati della bobina svolgitrice.
7. Disco con montatura sporgente nel magazzino.
8. Una lampadina illumina la bobina avvolgitrice, permettendo l'ispezione manuale del film prima che si avvolga nel proiettore.

NUEVO

Esta máquina es un proyector simplex convertido, obturador al frente y movimiento intermitente a doble grifa. Para 16mm o 35/32mm, la velocidad fija de proyección es de 144 pies por minuto, para 35mm es de 165 pies por minuto.

1. Un reostato controla la intensidad de la lampara de proyección.
2. Para 16mm se usa una lampara de 500 watt, y una de 1000 watt para 35mm (un chorro de aire ventila las lámparas en ambos casos).
3. Cada unidad está provista de un lente de proyección de 2 pulgadas y media.
4. Una palanca de control opera el motor y la lampara simultáneamente.
5. Capacidad de proyección: rollos de hasta 3000'.
6. Los rodillos de guía superiores operan con la película en ambas direcciones.
7. La tapa de la bobina de carga es desenroscable.
8. Una lámpara ubicada junto a la bobina de toma permite la inspección manual de la película antes que se rebobine en la bobina superior del proyector.

Camera Mart

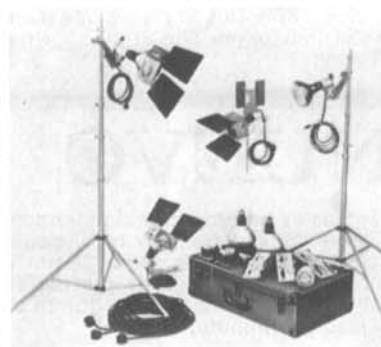
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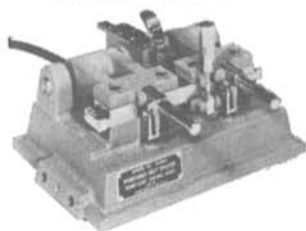
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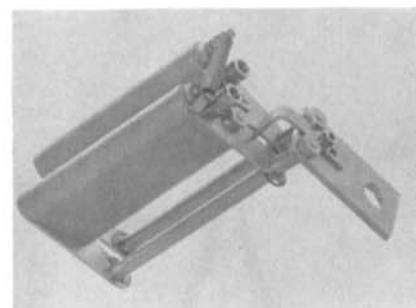
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perforated when manufactured, many things can happen to cause the pitch, or measurement of the film, perforation to perforation, to change, such as humidity, dryness, method of storing and age of film. When such a situation is indicated by excessive noise the knob can be moved from the zero setting until the desired timing is reached. When the knob is turned, an eccentric on the end of the shaft causes a link to move the timing block on the end of the movement eccentric arm. The timing block has a pivot point. The correct placing of this pivot point enables the claw to move up and down and also shortens and lengthens the stroke at the same time.



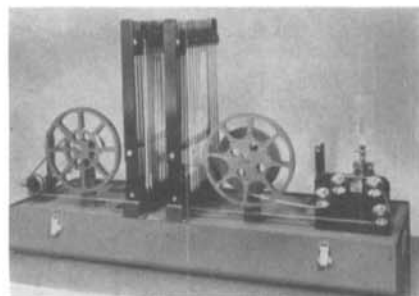
A zoom lens for 16mm and TV cameras called the Elgeet Zoom Navitar has been introduced by Elgeet Optical Co., Inc., 303 Child St., Rochester 11, N.Y. The 14-element lens has a zoom range from 20mm to 80mm and a maximum speed of $f/1.8$. The zoom action is linear, achieved by means of a ring with a push-pull action to permit total optical centering without need for cam construction. The optical system contains rare-earth glass and all lens surfaces are hard-coated with Elcote to minimize light loss due to internal reflections. The coverage has been designed to allow its use in standard 16mm mounts as well as in standard vidicon TV cameras. The lens for C-mount and vidicon is priced at \$400.00. The lens will also be available with boresight finders and for other standard mounts.



Gryphon HB-2 air squeegees for continuous film processing machines, previously available only for 16mm and 35mm (*Journal*, p. 573, July, 1961) are now available also for 70mm, according to a recent announcement from Gryphon Corp., P.O. Box 854, Burbank, Calif. The squeegees are constructed entirely of stainless steels to resist attack from photographic chemicals and are said to be highly efficient in removing surface liquids from films being processed, particularly in respect to soundtrack application and viscous solution processing machines. Priced at \$100.00 in the 16mm or 35mm size, the new 70mm squeegees are priced at \$150.00.

The Quartz-King 650 is a high-intensity quartz light produced by ColorTran Industries, 630 Flower St., Burbank, Calif. Said to produce 390 ft-c at 10 ft, with an 8-ft diameter of light in excess of 100 ft-c in a round pattern, the Quartz-King, utilizing a 650-w quartz-iodine lamp, operates directly from any standard 120-v outlet. Prices for housings range from \$29.90 to \$33.50. Lamps are available at \$8.35 (3200 K) and \$7.95 (3400 K).

The Camart TV Matte for Moviola film editing machines has been announced by Camera Mart, Inc., 1845 Broadway, New York 23. The matte, which is precision cut and fitted from heavy-gage plastic, is placed flat on the viewing glass and is instantly removable. The matte is intended to eliminate guesswork in framing the exact picture area appearing on TV receivers, thus allowing film editors to view the correct TV frame size directly on the Moviola picture head. The mattes are available in various sizes, with prices ranging from \$6.50 to \$8.00.



A portable striping machine for 16mm film, called the P-16, has been introduced by Reeves Soundcraft Corp., Great Pasture Rd., Danbury, Conn. The P-16 has been developed especially for use by production units in remote areas to enable them to stripe their own film rather than ship it long distances for processing. The operating principles of the unit are similar to those of Soundcraft's larger, fixed Magna-striping machines. It is said to provide the same close tolerances for oxide coatings as the larger machines while requiring less than 50 w of power for operation. The unit has interchangeable striping applicators for placing oxide coatings on film in the following combinations: a 25-mil balance stripe and a 100-mil recording stripe; a 25-mil balance stripe and a nominal 50-mil half-stripe for a combination of magnetic coating and photographic sound recording; a 300-mil recording stripe with no balance stripe, for production of film to be used for original recording. Other coating configurations are available on special order. The P-16 is priced at \$2,000.00.

The Model D-20 continuous graphic arts film dryer, produced by LogEtronic, Inc., 500 E. Monroe Ave., Alexandria, Va., is designed for operation either independently or in dry-to-dry processing attached to a 20-in. Lithoflo Automatic Sheet Film Processor. Capable of handling cut sheets from 5 by 8 in. to 20 by 24 in. and rolls up to 20 in. wide in any film base thickness, including 0.002 in., the new dryer includes a pre-wetting bath and four squeegee

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rollers before drying to eliminate possible water marks and facilitate drying action. Rate of production on dry-to-dry operation can be matched with the variable-drive speed control to the Lithoflo Processor at any processing speed. Maximum drying speed during independent operation is 6.8 ft/min, or about three 20 by 24 in. sheets/min.

A 130-lb portable TV tape recorder designed for closed-circuit TV recording has been developed by Ampex Corp., Redwood City, Calif., with commercial availability expected in the second half of 1963, according to the announcement. The new recorder, called VR-1500, will probably be priced at less than \$12,000 the announcement stated. The machine operates on household current at a tape speed of 5 in./sec, using standard 2-in. tape.

The fully-transistorized RCA TR-22 TV tape recorder (now commercially available) and the compact TR-2 (available in two models, one for studio, the other for mobile use) have been announced by Radio Corp. of America Broadcast and Communications Products Div., Camden, N.J. The recorder's single-cabinet design, effecting noteworthy economies in weight, floor space and power consumption, has been achieved through use of solid-state components. The recorder can switch from one

standard to another. Its design includes 750 transistors and 350 diodes. Circuitry is contained in a bank of 44 plug-in modules accessible from the front of the machine. The addition of a color equipment module makes possible recording in color. The TR-22 is in the \$60,000.00 price range.

The studio version of the TR 2 is contained in three racks 84 in. high, while the mobile version uses four 66-in. racks to accommodate vehicle mounting. A color playback accessory is available for color operation. Transistorized circuitry is employed in the TR-2 and, according to the announcement, transistorization of the TR-2 has been extended to operation of the switchlock, a standard feature designed to prevent picture rollover when the signal is switched among local sources. Optional accessories include a device for two-speed operation (7½ or 15 in./sec), linelock for lap dissolves, automatic timing corrector to remove geometric errors, and air bearing headwheels for essentially jitter-free operation and longer life.

Half-speed operation of RCA TV tape recorders for recording in black-and-white, announced earlier (*Journal*, p. 310, Apr. 1962) is now applicable to color recording, according to a recent announcement from Radio Corp. of America, Broadcast and Communications Products Div., Camden, N.J. The new equipment for half-speed (7½ in./sec) operation for programs in color

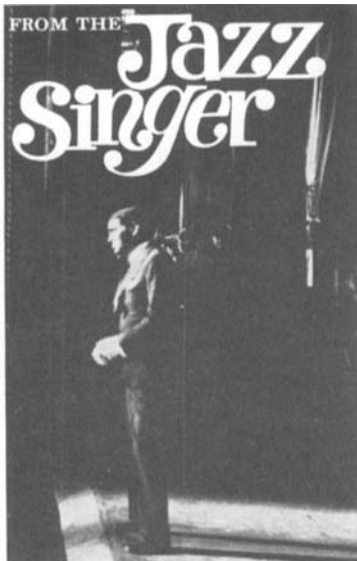
has been tested with "no discernible difference in color quality," the announcement stated. The economical, half-speed operation is based on a narrow recording head which covers a transverse track only 5 mils wide as compared with the conventional 10-mil width. Thus two tracks, or double the volume of video information, are recorded when the tape moves at 7½ in./sec instead of the usual 15 in./sec.

Commercial availability of the TK-60 monochrome studio TV camera has been announced by Radio Corp. of America, Broadcast and Communications Products Div., Camden, N.J. The announcement represents culmination of five years of development work plus a two-year testing period. The design concept combines a "big picture" 4½-in. image orthicon with stabilized circuits for the best possible picture quality. The camera is also designed for reliability, ease of set-up procedures and simplicity of operation. The camera cooling and ventilating system makes use of a "whisper"-type fan which substantially reduces heat and noise. A newly developed transistorized servo is used to provide more powerful and faster-acting remote control of the iris. The TK-60 will be used first in New York in the M-G-M Telestudios for tape recording TV programs and commercials.

A closed-circuit television microscope system, under development for two years by Allen B. Du Mont Laboratories, Divisions of Fairchild Camera and Instrument Corp., 750 Bloomfield Ave., Clifton, N.J., with the cooperation of Carl Zeiss, Inc., the Storz Instrument Co. and the New York Polyclinic Hospital, is designed specifically for teaching microsurgery techniques. It has been installed at Polyclinic Hospital in New York where it is being used in teaching surgery of the inner ear.

Basically the system, called the Du Mont Type #MTS 1000, utilizes the Du Mont subminiature (22-oz) TV camera. Cylindrical in shape, the camera head is 1½ in. in diameter and 10 in. in length. The camera utilizes the optics of a Zeiss operation microscope and the system has a control console with a 14-in. TV monitor with the microscopic image observed on one or more 17-in. high definition monitors for group viewing. Display monitors of the new system can be located as far as 2000 ft away from TV camera-microscope. Additional features include ruggedized transistorization of the camera head, and high resolution horizontally and vertically for maximum viewing clarity. The system can be used with a broadcast-type sync generator.

A closed-circuit, high resolution TV camera for educational, commercial and industrial use has been announced by Sylvania Electric Products Inc., 730 Third Ave., New York 17. The camera, called the Sylvania VRF600, offers a minimum of 600 lines video or 300 lines r-f resolution, the announcement stated. The camera also features a newly designed electrical focus circuit to stabilize and hold the focus even under varying voltage



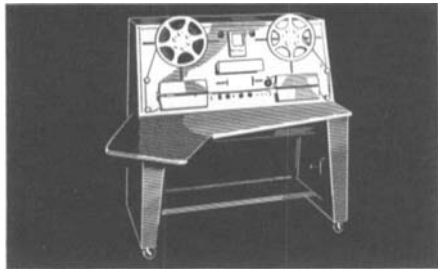
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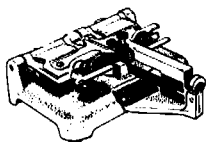
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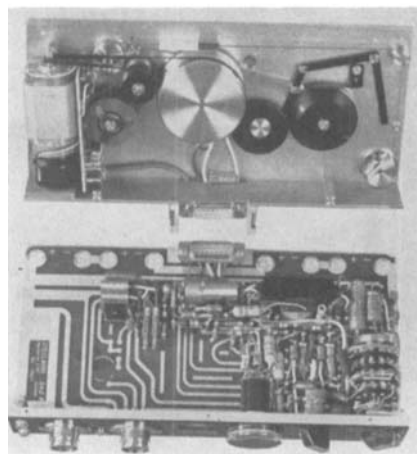
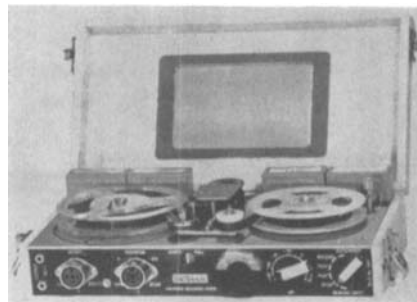
conditions. The 17-lb camera is 12 in. long, 7 in. wide and 6 in. high. It is priced at about \$995.00.

Development of a scan converter for studying alternate TV techniques to be applied in transmitting slow-scan television from spacecraft to standard home receivers is underway at Image Instruments, Inc., 2300 Washington St., Newton 62, Mass. The project has been undertaken to fulfill terms of a \$71,000 development contract from the Manned Spacecraft Center of NASA. The scan converter will be used to evaluate the visual effect of displaying at standard TV rates incoming signals taken at a variety of line and frame rates. The basic design is said to employ three cathode-ray storage tubes in a time-sharing fashion to eliminate flicker and smear in the display. Incoming signals may vary from 5 frames/sec to 25 frames/sec and from 100 lines to 525 lines/frame.

The Allen VTR Sweep Generator, manufactured by Allen Electronic Corp., Palo Alto, Calif., has been announced by Visual Electronics Corp., 356 W. 40 St., New York 18. The unit, Model 960, designed to simplify alignment of video-tape recorders, enables the operator to test the signal system from video input to video output. It also provides an output for simultaneous display of individual head and electronics performance on a 4-channel basis. In addition, the unit evaluates combined or individual performance of playback preamplifiers, switcher, modulator and demodulator and also aids in pinpointing sources of excessive noise. The generator sweeps 0–10 mc at a rate of either 60 or 960 cps. In the 960-cps mode it can be locked to the drum servo of a video-tape recorder to give a complete 0–10 mc sweep of each head pass which can be viewed as a simultaneous display of all four heads characteristics on a standard waveform monitor or oscilloscope. The generator is provided with an internal gated mixer for adding sync and blanking to provide a complete signal for operation throughout a system with clamp amplifiers. The unit, with or without the gated mixer, is available for 525- and 625-line systems.

A slow-scan TV camera, developed by the Electronic Instrumentation Division of Lear Siegler, Inc., to monitor action inside the liquid fuel tanks of the Centaur space vehicle and relay signals to Earth with other telemetry data, uses a rugged electromagnetic vidicon, type WX-4530, made by the Electronic Tube Division of Westinghouse Electric Corp., Pittsburgh, Pa. The 6.5-lb camera (8 in. in length, without lens; diameter 2.5 in.) is built to produce 600-line resolution while withstanding 1-min periods of random vibrations at 10 g and shocks of 50 g for milliseconds durations, with a clear picture even during 10 g acceleration. The camera unit, operating between temperatures of 0 to 158 F, can take one picture every two seconds. Strobe lights, controlled by the camera, are located in individual windows on the shoulder of the liquid hydrogen tank dome. Since the temperature of the liquid hydrogen is –423 F, the vidicon and lens are separated

by a glass seal. Power input to the camera is 28 v at 15 w. Voltages necessary for the vidicon and transistor circuit are supplied by an a-c to d-c converter driven by a primary regulator. A constant faceplate illumination of 0.1 ft-c gives a composite video output of 1.4 v peak-to-peak.



An all-transistorized recorder, the Stellavox SM5, has been announced by Magnetic Sales Corp., 1147 N. Vine St., Hollywood 38. Weighing less than 6 lb and measuring 10 by 5½ by 2½ in., it is powered by four Dryfit storage batteries designed for fast charge from any power source, including a 12-v automobile battery. The top section of the recorder includes the tape deck, drive motor and movement. The electronic assembly is in the lower section. The printed circuitry is a new, heavy-layer ribbon, laid out for ease of components testing and servicing.

The tape speed is 7½ in./sec. With 3½-in. reels, the recording time is 16 min. with ½-mil Mylar tape or 10 min. with 1-mil acetate tape. The frequency characteristic is reported as flat within ± 2 db from 40 to 12,000 cycles, and the signal-to-noise ratio is 55 db or better. The speed regulation is said to be less than ± 1.0%; and the flutter and wow, better than 0.2% peak-to-peak. The recorder is designed for high-quality, low-impedance microphone and ear phones. A bridging input and a low-impedance output are also available. A special feature of the recorder is the automatic volume control for recording without earphones, mixing or watching the volume indicator. Manual mixing is also available. The microphone may also be used for low-level playback as a check of recording when earphones are not available.

The Uher "4000 report," an all-transistorized portable tape recorder is dis-

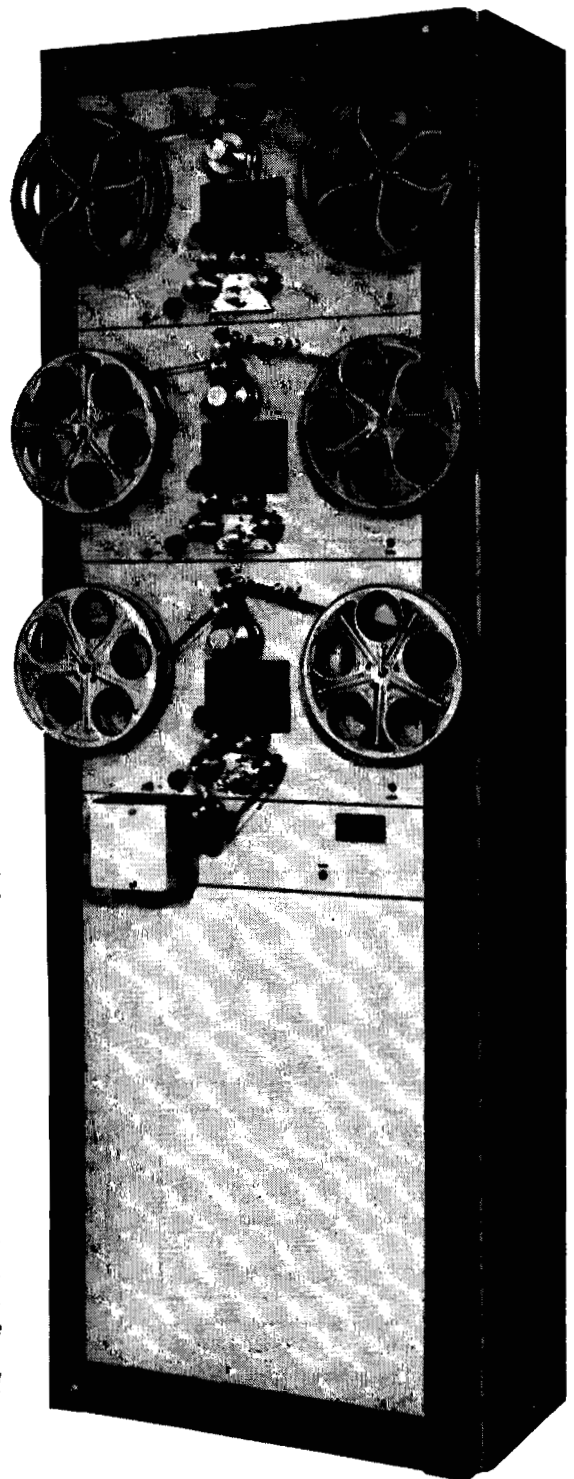
MAGNA-TECH ELECTRONIC 400 SERIES FILM RECORDING EQUIPMENT ARE VARIOUS INSTRUMENTS SPECIALIZED TO PERFORM THE FUNCTIONS ASSOCIATED WITH THE PRODUCTION OF OPTICAL AND MAGNETIC SOUND FOR MOTION PICTURES. THEY OFFER SPACE AND CAPITAL INVESTMENT SAVING WITHOUT COMPROMISING THE CRITICAL DEMANDS OF THE ENGINEER.

The transport is a self-driven unit incorporating the film pulling mechanism, a miniaturized semi-conductor reproduce amplifier, drive motor and torque motors in one assembly. Basically a magnetic reproducer, it is also used as a magnetic recorder, optical reproducer, and optical recorder by means of optional attachments.

Interlock is provided by the conventional method using a selsyn motor mounted on each film transport. 2 to 8 track reproducers and record attachments are also provided. 8 reproduce amplifiers are mounted on one panel. Recording amplifiers are on individual panels.

A cabinet can be supplied to house five complete film reproducers or various optional attachments and transports utilizing the 77" panel space. A semi-conductor power supply mounts inside this cabinet.

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VIEW OF THREE SERIES 400, TYPE MD497 DUAL FILM WIDTH, 17½mm AND 35mm MAGNETIC REPRODUCERS, AND ONE OD435, 35mm OPTICAL REPRODUCER ATTACHMENT INSTALLED IN THE CS400 CABINET.

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TYPE	FILM WIDTHS	SPEEDS(fpm)	OPTIONAL ATTACHMENTS ACCOMMODATED		
MD416	16mm	36	MR416 MAGNETIC RECORD	OD416 OPTICAL DUBBER	OR416 OPTICAL RECORD
MD417	17½mm	90	MR417 MAGNETIC RECORD		
MD435	35mm	90	MR435 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD447	17½mm	45	MR447 MAGNETIC RECORD		
MD437	COMB. 17½/35mm	DUAL 45/90	MR437 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD427	17½mm	DUAL 45/90	MR427 MAGNETIC RECORD		
MD497	COMB. 17½/35mm	90	MR427 MAGNETIC RECORD	OD435 OPTICAL DUBBER	OR435 OPTICAL RECORD
MD436	COMB. 16/35mm	DUAL 36/90	MR436 MAGNETIC RECORD	OD416 AND OD435	OR416 AND OR435

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tributed exclusively in the United States by Martel Electronics Co., 7400 Melrose Ave., Los Angeles 46. A two-track recorder, the "4000" operates at $7\frac{1}{2}$, $3\frac{1}{2}$, $1\frac{1}{2}$ and $\frac{1}{2}$ in./sec. Frequency response at $7\frac{1}{2}$ in./sec is said to be 50 to 22,000 cps. According to the announcement, the power source can be four flashlight cells, rechargeable battery, 110 v a-c, or any storage battery from six to 24 v. A transistor-controlled motor is used to provide uniform tape speeds as battery voltage decreases. Other features include illuminated VU meter, remote-control microphone, and pushbutton controls. The recorder weighs 6 lb without batteries and measures 11 by 8 by 3 in. It is priced at \$399.95, including a remote-control 2000-ohm dynamic microphone.

A line of solid-state wideband, coaxial cable repeater-amplifiers has been introduced by Hammarlund Manufacturing Co., a Giannini Scientific Company, 53 W. 23 St., New York 10, N.Y. The repeater-amplifiers are intended for use in multi-channel coaxial cable communications and video or data transmission systems employing buried or aerial cable systems. They will be available in both unidirectional and bidirectional types. Bandpass ranges from 100 kc to 20 mc, depending upon system requirements.

The Movie-Mate Convertible, Model CV-1, a 16mm sound motion picture projector, has been announced by Movie-Mite Corp., 8811 Puritan Ave., Detroit 38.

Designed for portability and compactness the 23-lb projector has a reel-arm capacity of 2000 ft. Features include self-compensating take-up; power rewind; attached belts; 4-w amplifier; 4 by 6-in. speaker with 30 ft of cord; 400-w projection lamp; and 2-in. f/1.6 projection lens. The unit accepts rear projection and/or repeater projection kits without modification. It is priced at \$420.00.

The MDC Model 131 Rapid Random Access Projector for projecting single frames of visual data stored on a 35mm strip film is a product of Mast Development Co., 2212 E. 12 St., Davenport, Iowa. The standard Model has a 512-frame film capacity and is said to be capable of retrieving, precisely locating, and projecting any frame of the 512 in no more

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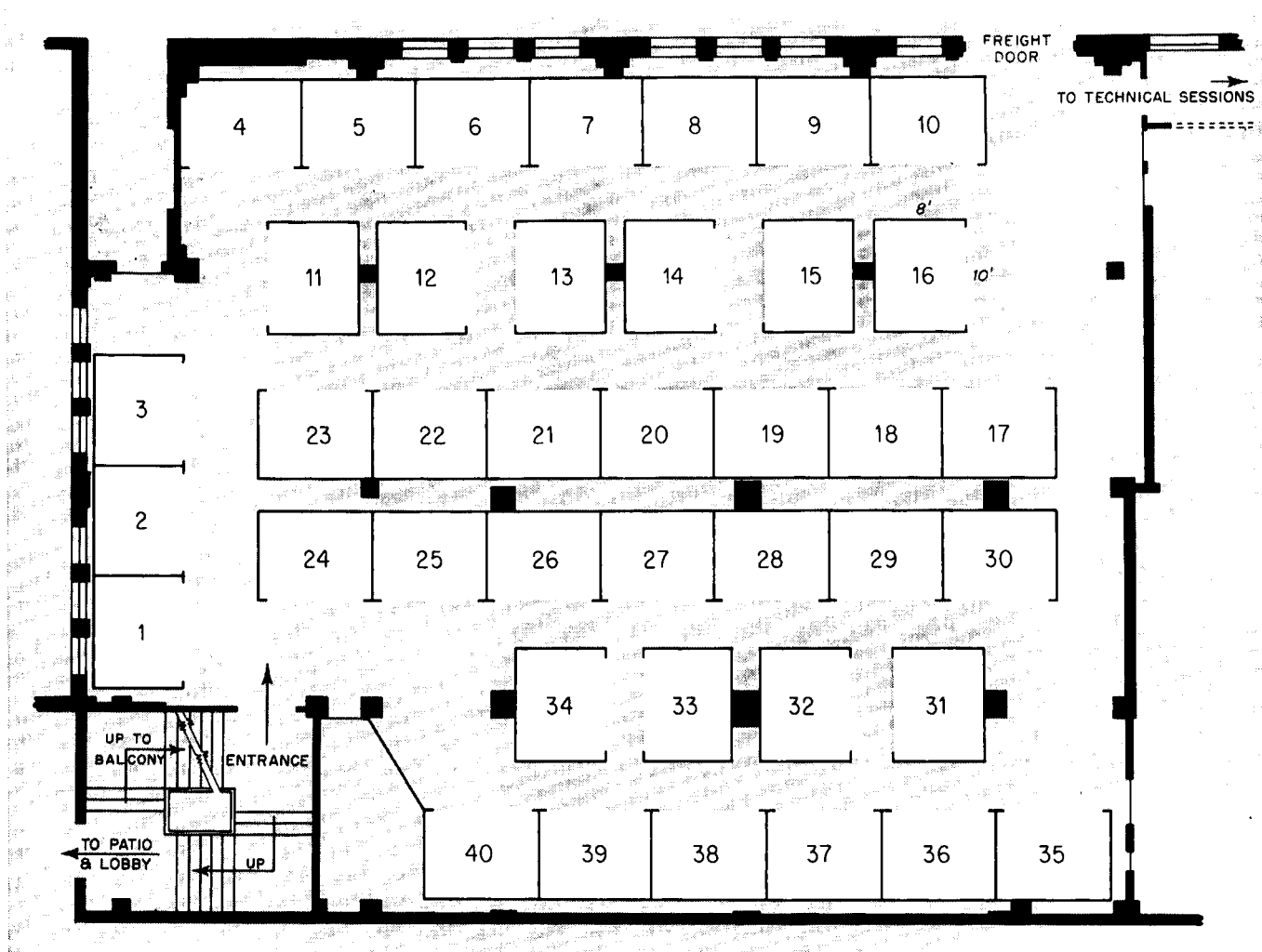
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than 8 seconds. The requested frame is registered by locating pins with a repeat accuracy said to be better than one half thousandths of an inch. The projector can be operated from command inputs such as a keyboard, telephone-type dial, computer buffer, or program drum. The unit originally was designed and built by the Mast firm for the Bureau of Ships of the Navy Department under subcontract from Remington Rand Univac. Possible data and storage applications include maps, forms, radar and satellite recordings, astronomical data, etc. The unit may also be adapted for educational use in institutional, industrial and military training programs.

Addition of a sapphire clad ruby rod to the line of ruby laser rods announced earlier (*Journal*, p. 476, June 1962) has been announced by Valpey Crystal Corp., Highland St., Holliston, Mass. The new rod is 2.5 in. long with a diameter of 0.25 in. at the ruby core, increased to 0.44 by the sapphire overlay grown on the outside. (For a paper on overlay grown on the outside, see G. E. Devlin, J. McKenna, A. D. May and A. L. Schawlow, *Applied Optics* vol. 1, 11-15, 1962.) According to the announcement, the composite rod is a single homogenous crystal with no interface between the ruby and the sapphire overlay. The elimination of the insulation interface between the ruby and the sapphire makes possible improved heat transfer from the ruby to the outer surface of the sapphire and also the elimination of "whispering," or off-axis spurious modes which are not reflected back into the ruby, which has the effect of increasing output power for the same input level. This effect occurs because more of the chromium ions are excited in a direction parallel to the axis of the rod. The new rod, priced at \$775.00, is said to have a chromium concentration of 0.05 % and 90° crystallographic orientation.

Two sweep generators, the SN-3 and the PD-8, have recently been announced by Telonic Industries, Inc., 60 N. First Ave., Beech Grove, Ind. The SN-3, constructed for portability and easy operation, covers frequencies from 425 mc to 930 mc. Designed especially for use in testing and aligning UHF tuners and converters, it is shielded to eliminate interference with other testing stations and is said to provide infinite resolution with a continuously variable center frequency setting. It is priced at about \$695.00.

The PD-8, announced as capable of delivering up to 4 w of swept or modulated swept r-f power covers a frequency range of 330 mc to 1,010 mc, is also capable of operating in CW and modulated CW as well as the two r-f modes. Applications suggested by the manufacturer include test and evaluation of varactors, klystrons, filters, etc. The price is about \$2,750.00.

A line of UHF microwave parametric amplifiers manufactured by Micromega Corp. has been announced by Visual Electronics Corp., 356 W. 40 St., New York 18. The low noise, low signal r-f pre-amplifiers when inserted between receiving antennas and receivers are said to give 8 to 16 db improvement in signal fade

margin, depending upon the installation. The preamplifier weighs only 47 lb and occupies a space, the dimensions of which are 12 by 12 by 14½ in. The price range is from \$3250.00 to \$5300.00 depending upon frequency and type of mounting (indoor or outdoor).

A low-level, current-limiting device said to be capable of ± 1 micromho has been announced by CircuitDyne Corp., 480 Mermaid St., Laguna Beach, Calif. Designated Model CP-8, the device is a two-terminal component that may be specified with any current level from 2.1 to 1 ma in 5% increments. Measuring 0.8 in. in diameter and 1.05 in. long, it is encapsulated in epoxy and is available with single-ended or axial leads. Price range is from \$22.50 to \$34.50.

The Elgenco Model 311A Noise Generator used to provide simultaneously two random voltage outputs with stable regulated rms levels is a product of Elgenco, Inc., 1231 Colorado Ave., Santa Monica, Calif. A special noise regulator circuit that compares the noise level with a zener reference is incorporated to assure stability of the rms levels. Electronically filtered and regulated filament and plate supplies are used to achieve extremely low hum components in the noise spectrum and a solid state chopper is used to provide the desired stable low-frequency spectrum. Among other applications, the noise generator is used with analog computers having a repetitive or iterative mode to study effects of random disturbances on satellite, guided missile and fire control systems.

Extremely small variations in the surfaces of polished flat semiconductor materials may be detected by means of a simple and inexpensive method devised by Miles V. Sullivan of Bell Telephone Laboratories. Light from a small tungsten-filament lamp is made to shine on the surface of the material and is reflected onto a screen or ground glass. Ripples or defects in the surface are enlarged and accentuated in the image on the screen. For example, a defect about 0.025 mm wide may easily be magnified to 6.3 mm when projected onto a screen 20 mm away. The relative position of any defects on the specimen can easily be determined because the entire surface can be viewed at one time. No lenses are needed for forming, examining or photographing the image. The analyzer has been found to be useful in the development of new chemical and electrochemical semiconductor polishing techniques.

A new series of diffusion pumps designed for special ultra-high vacuum chambers used in solid state and space simulation projects, has been announced by NRC Equipment Corp., a subsidiary of National Research Corp., 70 Memorial Dr., Cambridge 42, Mass. Designated the HK series, the fractionating oil diffusion pumps are available in 4-, 6- and 10-in. sizes. The new pumps are designed to provide more safeguards against danger of any leaks or outgassing developing, and also to allow for more flexibility in sealing.

An hermetic seal made from Teflon resin has been developed by Tri-Point Industries, Inc., 175 I.U. Willets Rd., Albertson, L.I., N.Y. Said to be unaffected by thermal cycling, corrosives and mechanical shock, the process was developed specifically to seal Teflon-insulated wire, bare conductors and hollow structures into Teflon mounting plates for electrical and electronic service requiring an hermetic seal. The process may also be used to produce Teflon components for chemical and mechanical applications.



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