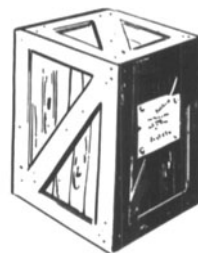


Supplies; Racks and Mountings; and Microwave Relay. The catalog is priced at \$1.00.

Two brochures describing the miniature Bolsey 8 are available without charge from Bolsey Research and Development Division of Bolsey Corp. of America, 11 W. 57 St., New York 19. This minute motion-picture camera is 3 in. high and weighs 12 oz. The booklets give step-by-step instructions for the use of the camera and describe various accessories that are available.

Prologue to Space is the theme of the September, 1960, issue of the Bell Telephone

Laboratories publication *Reporter*. A particularly impressive photograph on the front cover shows the horn antenna at Holmdale, N.J., and white diagonal lines across the night sky that are "star tracks" on time exposure. An article by Frederick R. Kappel on "Communications in the Space Age," explores the practical problems of world-wide communications. James B. Fisk, President of Bell Telephone Laboratories, wrote on "Problems and Progress in Space," presenting excerpts from an analysis of space telephony prepared for the Federal Communications Commission. Other articles by scientists in the field discussed various aspects of research and development leading to space communications.



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 Spectra-Pritchard Photometer is manufactured and distributed exclusively by Photo Research Corp., 837 No. Cahuenga Blvd., Hollywood 38, according to a recent announcement. Measurement by the photometer of a wide range of brightness is possible because of seven electrical ranges plus seven neutral attenuation ranges. Partly polarized light is measured as well as unpolarized light because of the absence of reflecting surfaces in the measuring beam. The instrument has a telescopic viewing system reflected from the aperture mirror and a folding mirror with a straight-through optical system for sensitivity to light of any type of polarization. The objective lens can be moved to adjust the focus from 3 ft to infinity without affecting calibration of the instrument. The field-of-view of the photometer can be varied by the insertion of various mirror-apertures.

A miniature radar and television display device, developed by Westinghouse Electric Corp., Box 2278, Pittsburgh 30, Pa., has been nicknamed the Private Eye because its display can be viewed by but one person at a time. Its essential element is a cathode-ray tube seven inches long and a screen 0.60 in. in diameter seen through a magnifying eyepiece. Because of the ten-fold enlargement the effect to the observer peering through the eyepiece is that of a picture on a 6-in. screen seen from a distance of 10 in. The screen is aluminized and cathodically deposited to insure high resolution, reported as 900 lines resolution in the present design. The tube, a WX 4527, is electrostatically focused and magnetically deflected with a deflection angle of about 34°. Suggested applications include closed-circuit systems for automobile traffic control; construction projects; military use; and three-dimensional display systems for medical and biological microscopy. A major use is expected to be

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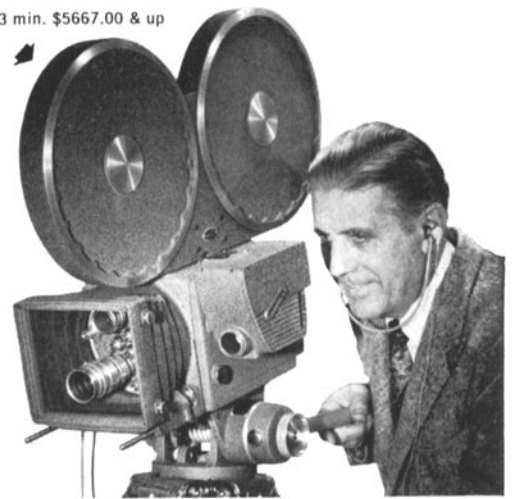
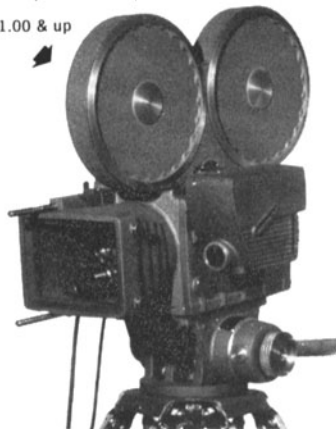


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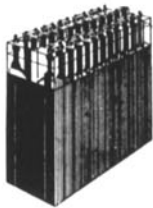
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as the display device for radar installations in private aircraft and boats. The cost is expected to be about \$150 when in quantity production.

A pulsed x-ray system developed to make cineradiographs of high-speed phenomena in one microsecond, or less, has been announced by Zenith Radio Research Corp., 4040 Campbell Ave., Menlo Park, Calif. The system includes an oxide-coated thermionic hot cathode x-ray tube capable of conducting high currents at high voltage with fast rise time characteristics. Tests have shown the tube to perform consistently in reproducibility of pulse length, voltage, current, and x-ray output characteristics after approximately a million shots. The pulsed system consists of two units, the x-ray console with the x-ray generating tube, power supply and control circuits, and the image intensifier console. The x-ray tube is pulsed with a square-wave voltage pulse 1 μ sec in duration, with the rate of application continuously variable from 1 to 30 pulses/sec. The high-powered, short pulses of x-radiation are passed through the subject under study and impinge on the x-ray-sensitive screen of the Rauland image intensifier tube housed in the image intensifier console. The Rauland tube amplifies the image and converts it to visible light which appears as a bright image on the tube's output phosphor. The image is suitable for direct viewing, closed-circuit, or for pickup by a motion-picture camera. The system is expected to have application in the fields of shock and vibration studies, radiation effects, rocketry, medical radiology, ballistics, and crystallography. Price range is from \$40,000 to \$50,000.

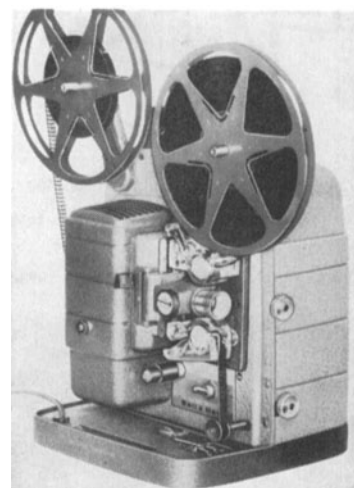
The television system for Stratoscope II—the balloon telescope now under construction at Princeton University—is based on a supersensitive image orthicon developed jointly by RCA Laboratories and RCA Electron Tube Division. Project Stratoscope II is sponsored jointly by the Office of Naval Research and the National Science Foundation. The television development is supported by the National Aeronautics and Space Administration. The television complex, to be provided by RCA, will be used by astronomers in studying such phenomena as the divisions in Saturn's rings, the sudden atmospheric changes that take place on Jupiter and Venus, and the gaseous nebulae from which new stars are formed.

Two specially developed transistorized cameras, each weighing about 58 lb, will be mounted on the telescope assembly suspended from the balloon. One of the cameras, equipped with a wide-angle lens, will look directly out into space. Scanning an area extending across 10° of the sky, it will transmit to the ground a large-area picture to be used by astronomers in selecting their targets for detailed viewing through the telescope. The second camera will be positioned to look through the telescope to show the astronomers what the instrument is seeing. During tests the cameras picked up and transmitted images of eighth-magnitude stars. (The human eye can rarely see any object fainter than a sixty-magnitude star.) The new cameras are also equipped with remote controls.

The VST-1, a VHF-to-VHF translator for extending TV station coverage areas beyond distance and terrain barriers, is produced by Adler Electronics, Inc., One LeFevre Lane, New Rochelle, N. Y. The equipment is designed for unattended off-air pickup and features operation on any VHF channel. It has 1-w output, heterodyne conversion, remote control, and use of standard VHF receiving and transmitting antennas. It is priced at \$2100.

A simplified TV tape recorder, designed for use in educational, industrial military and other closed-circuit systems, has been announced by RCA. The new model has been designed with the aim of bringing video-tape recording equipment within the economic reach of a broad range of the users of closed-circuit systems. The price is expected to be about \$25,000, or approximately half that of presently available RCA black-and-white TV tape recorders, now priced at \$49,500.

Two electric eye zoom cameras, both 8mm roll-film models (310 and 312) have been announced by Bell & Howell. Designed for completely automatic operation, both cameras have a single speed and a universal lens which does not require focusing. Eleven-element zoom lenses ($f/2.3$ for the 310, $f/1.8$ for the 312) zoom from 9.7mm for wide-angle shots to 29.2mm for telephoto. Two filters, a haze filter to screen out ultraviolet rays, and a Type A filter to permit use of indoor film out-of-doors are incorporated in the 312. The 310 is priced at about \$99.95 and the 312 is priced at about \$129.95.

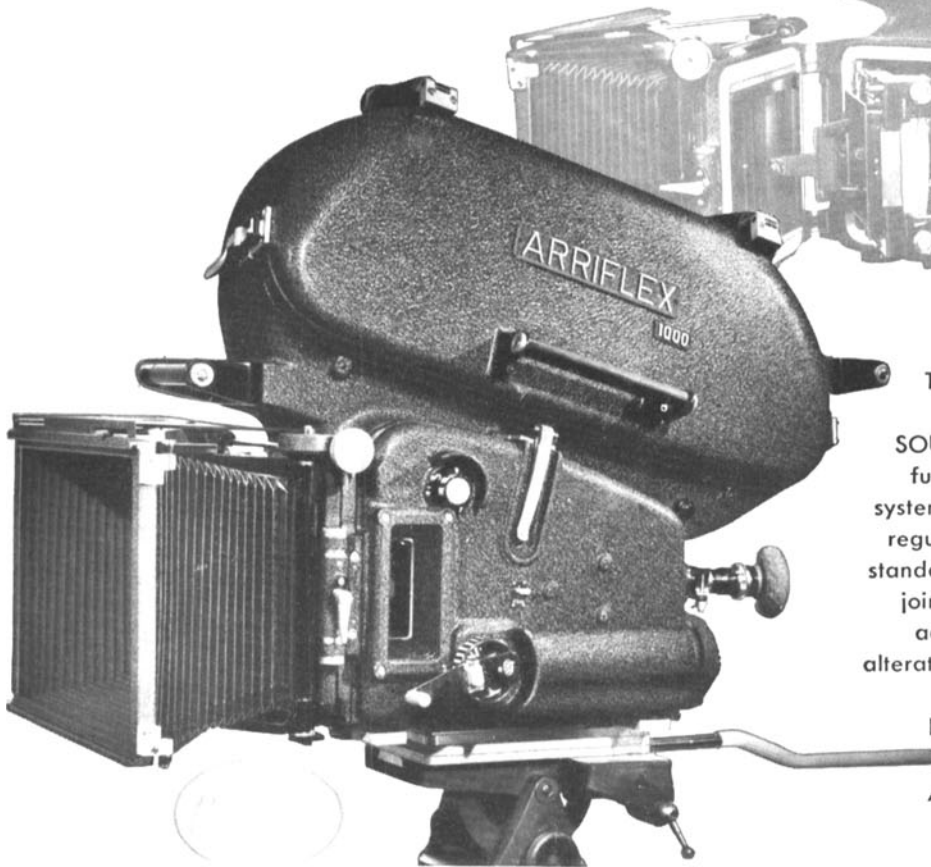


An 8mm projector, the Auto Load 245 was also announced by Bell & Howell. The new projector features fast, automatic film threading, a loop setter to restore a lost film loop without stopping the movie; a $f/1.6$ projection lens; and a T-12 Tru-Flector line voltage 150-w projection lamp. It is priced at about \$99.95.

An improved (1961) model of the RCA TV tape recorder has been announced by the Radio Corp of America. Improved features include a transistor signal processing amplifier for finger-tip control of picture quality. Key functions such as video level, sync level and pedestal are grouped

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on a control panel readily accessible to the operator. The new model also has increased limiting (more than 55 db) of the demodulator to minimize tape "dropouts," and thus extend the life of the tape. The design has been made to permit more expeditious conversion to color by adding half a rack of color-handling equipment.

Two new lenses, the Wollensak 20-60mm $f/1.8$ Vari-focus lens "C" mount for 16mm cameras, and its 28-75mm $f/2.3$ companion for Fastax, the WF-220, have been announced by Wollensak Optical Co., Rochester 21, N.Y. The lenses are priced at \$298, and \$345, respectively. The firm has also announced an improved model of the WF-142 13mm $f/1.6$ Fastax Raptor Wide Angle, which is now available in a focusing jacket. The improved lens is designed for critical focusing. It is priced at \$275.

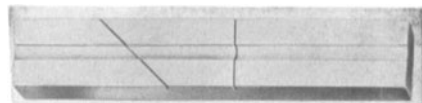


Two 8mm projectors and a slide projector have been announced by AnSCO, Binghamton, N.Y., A Division of General Aniline and Film Corp. The Memo Master Projector features a 13mm to 25mm focal length zoom lens, to allow the operator to enlarge the picture on the screen to four times its original size without moving the projector. A rheostat knob controls speed-up or slow-down continuously. Reverse action setting on the master control knob permits reviewing of any desired scenes. The price is under \$90. The Memo 80 Projector features a new light system and a high-efficiency $f/1.6$ projection lens. The price is under \$65. The Anscomatic Slide Changer can be operated by automatic control or manually. It accommodates any type or size of slides up to $2\frac{1}{2}$ sq in. It is priced at \$119.50.

A 16mm silent projector with a 2000-ft reel capacity has been announced by Victor Animatograph Corp., Division of Kalart, Plainville, Conn. Designed primarily for use by coaches and time-study engineers, the projector has a remote control forward-and reverse switch and a rheostat control for forward operation within a range of 10 frames/sec to 27 frames/sec. The machine runs in reverse at a rate of $18\frac{1}{2}$ frames/sec. A special optical system with heat filters is incorporated to enhance projection of still pictures. The machine also is equipped with a safety film trip for stopping the machine automatically in a film emergency, thus preventing film damage.

Protect-a-Print, a special film base designed to be run through cameras to pre-

vent scratching of the film due to dirt and emulsion accumulation, a product of Flight Research, Inc., P.O. Box 1-F, Richmond 1, Va., has been made available in 100-ft lengths, according to a recent announcement. The new length is designed to meet the specialized requirements of testing centers where many remotely located cameras are in operation at one time. The 100-ft rolls are available for 16mm double perforation at a base price of \$16.50 per roll and for 35mm standard at a base price of \$24.75. The film base continues to be available in 400-ft packages for 16mm and 35mm and 200-ft packs for 70mm.



The Editall Block (the S2), designed especially for attachment to modern compact tape recorders, has been announced by the Tall Company, which recently opened new offices at 27 E. 37 St., New York 16. The block is 4 in. long, $\frac{3}{4}$ in. wide and $\frac{1}{4}$ in. thick. It is priced at \$6.50. The new block is also available in a package containing a china-marking pencil for marking tape, a roll of $\frac{3}{8}$ splicing tape and an instruction book condensed from the chapter on "Editing," in *Techniques of Magnetic Recording*, by Joel Tall. In addition to the new block, the firm produces editing blocks for all sizes of magnetic tapes from $\frac{1}{4}$ in. to 1 in.

A work table particularly adapted to use in the motion-picture industry is a product of Swaptops, Manchester, N.H. Designated the GP-100, it is manufactured by the Leitch-Huard Corp., Manchester, N.H. The table has an interchangeable top and table and is designed with a rigid frame that is virtually free of dust traps.

Magnetic tape for business, home and laboratory use is a newly developed product of Burgess Battery Co., Division of Servel, Inc., Freeport, Ill., and a separate Magnetic Tape Division has been established within the firm to handle production and marketing of the new audio tape. The firm is continuing developmental work on magnetic tape for electronic data processing systems and for expanding video-tape applications. In manufacturing the new tape, available in $\frac{1}{4}$ -in. widths, a special acicular iron oxide powder, filtered down to a particle size of 5 microns, or less, is used. The needle-shaped particles are then dispersed by a new process that separates the particles without shattering them. Acetate or Mylar plastic is used as the base, precoated to eliminate imperfections. Application of the magnetic coating is made in a dust-free room, and a "static" coating process has been developed to eliminate the possibility of any dust particles adhering to the finished coat.

Products announced by Pro-Tex Reel Band Co., 200 Film Bldg., Cleveland 14, Ohio, include a nonmagnetic reel clip that snaps over the reel flange to keep the tape from loosening and unwinding; a packaged tape reel called Sealedreel, to seal tape and film from extremes in humidity and from dust; and Friction Free Tape Reel

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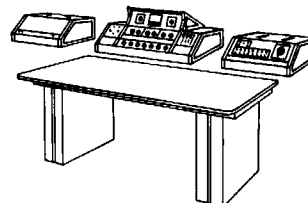
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or smooth, tight winding of tape. The tape reel features specially designed embossing to eliminate "flat spots" and portions of loose winding.

Two transistorized television projection systems have been introduced by Giant-view Television Network, 1280 Fifth Ave., New York 29. The two systems (1014-Portable and 1014-R Permanent) are described in a brochure available from the firm's New York offices, or from 901 Livernois Ave., Ferndale 20, Mich. Both models provide a complete system for closed-circuit or "off-the air" VHF and UHF projection. Only one operator is required. Both models feature a separate re-

mote light unit that can be operated up to 200 ft.

A new series of closed-circuit TV monitors has been developed by General Electric for visual communications systems. In designing the new series emphasis was placed on accessibility to parts. Either side of the cabinet can be easily removed to expose parts for simple maintenance. Wiring and components are accessible through removal of the bottom cover panel. The picture tube face and glass faceplate are also easily accessible for cleaning. The monitors are available in three screen sizes, 14, 17 and 21-in., as announced by GE Communication Products Dept., P.O. Box 4197, Lynchburg, Va.

A new instrumentation recorder/reproducer, the G-100, and an improved model of the CM-100 video band recorder/reproducer have been announced by Minnesota Mining and Mfg. Co., Minicom Div., 2049 S. Barrington Ave., Los Angeles 25. Bandwidth of the CM-100 (used for predetection recording) has been extended to 1.2 mc, a 20% increase over its former capability of 1.0 mc. Increase is proportionate at all six speeds. An additional improvement has been made so that the standard one-rack, seven-track model may be easily converted to 14 tracks. This is accomplished by plugging in an additional rack of electronics, slightly changing the tape transport so that it will accommodate 14 tracks of information on 1-in. tape. The same

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Two miniature light sources, blinking on and off at rates up to 1500 cycles/sec provide the driving force in a microvolt modulator announced by Apollo Electronics, Inc., 301 S. Harbor Blvd., Fullerton Calif. Two light sources, driven by an internal oscillator circuit and set to operate at 50, 400, 1000 or 1500 cycles/sec, project onto two photoelectric elements. These in turn convert the input signal, either d-c or low-frequency a-c, into a full wave modulated output. The unit weighs about 3.3 oz, and is enclosed in an aluminum container 1 in. in diameter and 2½ in. long. Pin connections fit into standard 7-pin miniature tube sockets. Input and sync outputs are at the top of the device and the signal connections are at the base.

A pushbutton switch, measuring 1½ in. in length and occupying less than 1 in. behind the panel is a product of Pepco Inc., 2080 Placentia Ave., Costa Mesa, Calif. The switches may be used individually or in interlocked, ganged groups. Silver alloy contacts are used to provide operations of over 100,000 cycles at rated load. For low-level switching applications, the switch is available with gold-plated contacts. The unit may also be provided with "O" rings and a diaphragm seal.

RF filters equipped with special fittings to accept any of the common subminiature connectors have been announced by Telonic Engineering Co., Laguna Beach, Calif. The units, available in band-pass or low-pass types, are designed for use in missiles, ground support systems, and telemetering equipment where space requirements and weight are critical. The basic filters are the Telonic TBP and TLP series with adapter fittings attached to both ends.

A seven-pin coaxial connector, designed to meet military specifications, has been developed by Viking Industries, Inc., 21343 Roscoe Blvd., Canoga Park, Calif., for use by electronic, aircraft and missile industries. The connector features individual, coaxial, snap-in contacts that can be removed from the connector with an extraction tool. The contacts utilize a clamping mechanism to retain both the coaxial cable jacketing and the braid. The mechanism will retain the coaxial cable with a minimum of 15-lb force and is designed to retain four cable sizes. The coaxial contact material is copper alloy, rhodium plated. Inner insulation material of the coaxial contact is Teflon.

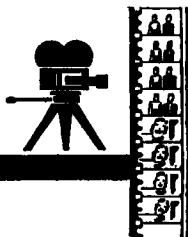
An electronic device for clinical use in recording pupillary movement has been announced by GPL Division, General Precision, Inc., 63 Bedford Rd., Pleasantville, N.Y. The device, called an Electronic Pupillograph, is a direct writing instrument used to detect pathological processes within the nervous centers and pathways of pupillary control.

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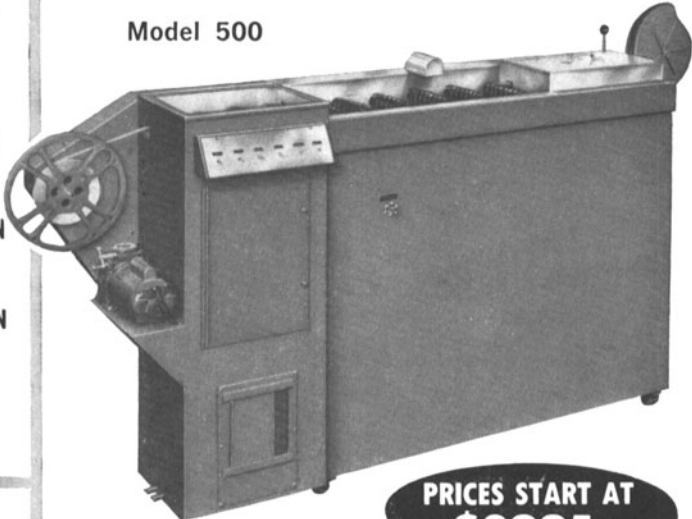


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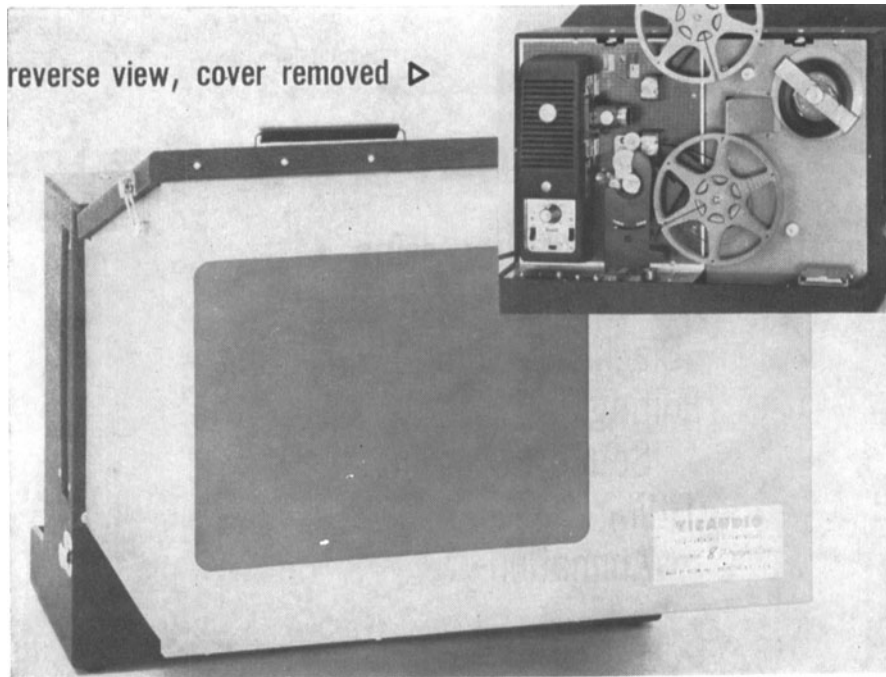
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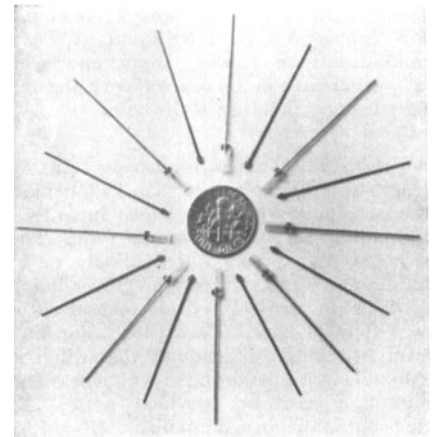
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The Vicaudio Mark I, a portable 8mm sound motion-picture projector with a self-contained rear projection screen, has been announced by Vicom, Inc., 70 Aberthaw Rd., Rochester, N.Y. Designed by Fred E. Aufhauser, the unit incorporates the Kodak Sound 8 Projector together with the Vicom optical system to achieve 500X magnification. The projector is designed

for use in lighted areas such as shop windows, counters, offices and exhibits, as well as for classrooms and industrial applications. The unit includes a continuous reel up to 400 ft. Larger reels are available to provide up to 40 minutes of continuous projection. The projector is priced at \$495.00 for a single unit.

Development of a specially processed gray insulation coating (rather than the usual white coating) for heater wires of receiving tubes has been developed by the Electron Tube Division of RCA. The so-called "dark heater" operates at temperatures down to 350 K below the 1500 to 1700 K of the white heater. Beneficial results of use of the "dark heater" are reported as lower internal stresses in the heater wire and smaller thermal change during the heater cycling, which tend to lessen possible recrystallization and burnout. The "dark heater" is said to have stable current characteristics which contribute to the maintenance of a constant cathode temperature.



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<p>crab dolly</p>		<p style="text-align: center;">  first IN EDITING EQUIPMENT </p> <p>From the time motion pictures "learned to talk" Moviola has earned acceptance as the word for professional film editing equipment. Moviola is keeping pace with the changing needs of the Motion Picture Industry with new devices such as:</p> <ul style="list-style-type: none"> • Crab Dolly for improved Motion Picture and TV Camera mobility • 70 mm Viewer for the Photo Instrumentation field <p style="text-align: center;"> Moviola MANUFACTURING CO. </p> <p style="text-align: center;">1451 GORDON STREET • HOLLYWOOD • CALIFORNIA • HO. 7-3178</p>	

Beaded leads and glass seal subassemblies used in the manufacture of glass diodes are products of Electronic Glass and Ceramic Corp., Cambridge, Mass, a Division of Alloys Unlimited, Inc., 21-01 43d Ave., Long Island City 1, N.Y. Both moly and dumet studs with hard glass packages are available. The subassemblies are being produced to fit specifications of individual diode manufacturers.

A superconducting compound of niobium and tin (Nb_3Sn) (which becomes superconducting at 18 K) has been used by research scientists at Bell Telephone Laboratories in experiments demonstrating the feasibility of superconducting solenoid magnets producing extremely high magnetic fields. Special metallurgical techniques were employed in constructing a solenoid using the niobium-tin compound. Indications are that the new compound will sustain steady-state magnetic fields of 100,000 gauss while carrying 100,000 amp/sq cm of cross-section. One of the important attributes of the superconducting solenoid is that it does not require expenditure of electric energy once the field is established. It has been suggested that the development of traveling wave tubes and masers may be influenced by this discovery. The availability of large magnetic fields can extend the operation of these devices to higher frequencies, thus providing the possibility of broadband communication systems for use by Earth-based radio-relay systems and active satellite repeaters for space communications.