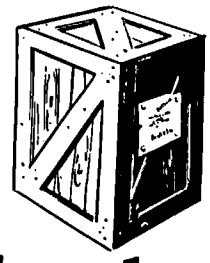
Professional Services



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.

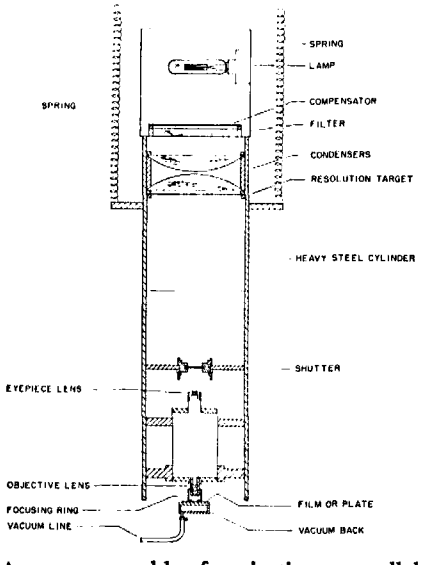
Shop and Mail Early belongs now to the ages, along with What Hath God Wrought, and other great messages expressing human emotion and concern as some awe-inspiring event signals the turning of another page of the recorded history of mankind. This message, sent by Postmaster General Arthur E. Summerfield, marks the beginning of the satellite era of communications. The historic letter was first sent by wire line from Washington, D.C., to Stump Neck, Md., where the Naval Research Laboratories are located. It was then beamed by microwave at the Echo Satellite orbiting 1000 miles above Earth. The signal was "bounced" off the passive reflector and picked up by a sensitive tracking antenna at the Holmdel, N.J., station of the Bell Telephone Laboratories to the Postmaster's office in Newark, N.J., where it was converted to its original form by a facsimile receiver. The test was managed for the Post Office Department by Adler Electronics Inc., New Rochelle, N.Y.

While the transmission between Washington and Newark was instantaneous, approximately five minutes were required from the time the letter was fed into the facsimile transmitter at Washington until it was reprinted by the facsimile receiver at Newark. With existing techniques, however, the system is capable of simultaneously transmitting up to 50 letters in a three-minute period. Satellite links capable of transmitting television signals are planned for the near future.

The 500-lb Courier, at this writing the United State's newest communication satellite, was built by Philco Corp. at its Western Development Laboratories, Palo Alto, Calif., for the Department of Defense. This satellite is not designed for navigation purposes or scientific measurements nor is it "out there" on a reconnaissance patrol. The Courier is, as its name implies, a means of carrying messages from one ground station to another. It has an estimated capacity of close to 3½ million words a day. Ground complexes were provided by the International Telephone and Telegraph Company's ITT Laboratories at Nutley, N.J., while tracking antennas were provided by Radiation, Inc., Melbourne, Fla.

The Courier completes its orbit around Earth in about 110 minutes at an altitude of 600 miles. It is in view of each ground station for varying periods up to 15 minutes. During the time it is in view it will accept messages from one ground station and, on command, deliver them to another. At present, command and data stations are located at the Army Signal Research and Development Laboratory's Astro-Observation Center, near Fort Monmouth, N.J., and at the Army Caribbean Signal Agency's Space Communications Center, near Ponce, Puerto Rico. The Courier contains a command decoder used to control its operation and to monitor the performance of its instruments. It is powered by the rays of the Sun. A solar outer shell consisting of some 20,000 individual solar cells wired together provides 62 w of power.

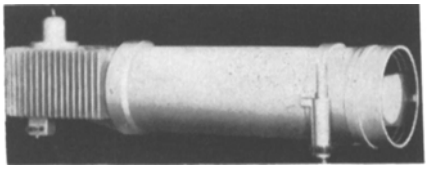
Plans to put the first station of a satellite relay system into space within a year have been announced by American Telephone and Telegraph Co. The station would provide for the experimental transmission of telephone calls, television, data transmission and other types of communication between the United States, the United Kingdom and continental Europe. The proposal has been presented to the FCC. The system would make use of solar-powered satellites orbiting at an altitude of about 2200 miles. Electronic amplifiers aboard the space stations would catch signals from Earth, immediately boost and relay them on to ground stations in the United States, Great Britain and Europe. The proposed spheres would be 4 ft in diameter and weigh about 175 lb. About 60% of the surface would be covered by glass-coated solar cells. A metal skin and two slotted antennas would comprise the rest of the surface. The plans call for installation of the initial U.S. ground station at the Bell Telephone Laboratories' installation at Holmdel, N.J., where current Bell System space communications work is going on.



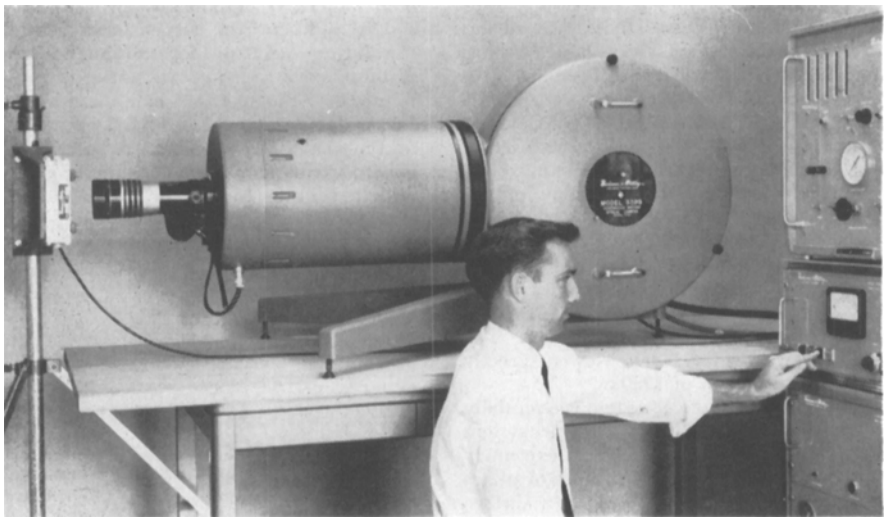
A camera capable of projecting a parallel line pattern of 50,000 lines/in. is being used by the National Bureau of Standards in a research project directed toward the development of a standard method for determining the resolving power of photographic materials. Five laboratories in the United States and Canada are working toward this goal which has been set by a committee of the American Standards Association. The camera, designed by C. S. McCamy of the Bureau's photographic research laboratory, was used in an experiment during which a photocopy of the first page of the Bible was made at a linear reduction rate of 1000, thus reducing the area by a total factor of one million. The page was first reduced 2.5 times to fit into the camera's chart holder, then it was reduced by a factor of 400. The printing was legible when viewed directly at a magnification of 1250x.

The camera's optical system is essentially a fine apochromatic microscope system operated in reverse to make an extremely small image of a large chart. Film or plates to be tested are placed against a surface attached to the objective lens mount and a gear mechanism permits a minute adjustment of focus. The camera is operated at a constant temperature to avoid changes in focus resulting from thermal expansion or contraction.

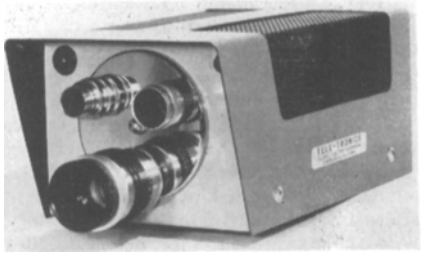
Xeroradiography, a process for developing industrial x-ray pictures in 15 sec, was shown for the first time by Rank-XeroX Ltd. at the Industrial Photographic and Television Exhibition held in London, November 21–25. At the same time, the Cine and Photographic Division of Rank Precision Industries Ltd. introduced the Xenon Lantern for use with the Bell & Howell Model 609 16mm cine projector. The lantern is designed to give constant steady light to the screen and features pushbutton control for automatic and instantaneous starting with no warmup required. Among other exhibits was the Bell & Howell Model 173 BD 16 mm time and motion study projector. A hand crank is used to advance a single frame at a time with a counter to register up to 100,000 frames.



A portable field collimator for checking long-range lenses and cameras has been developed by Zoomar, Inc., Glen Cove, N.Y. The instrument measures 10 in. in height; 6½ in. in width; 30 in. in length; and weighs 25 lb. The design is based on the premise that a collimator objective need not have a focal length longer than the lenses tested if it is corrected over a considerable extra-paraxial field and can even be shorter if its resolving power is extremely high. The designers also considered it unnecessary to cover the entire area of the lens under test. For most measurements, such as the focal plane position, chromatic aberrations, etc., the theory was advanced that it could be advantageous to examine portions of the lens successively when checking for symmetry and possible cylindrical conditions.



The Model 339 Sweeping-Image Camera announced by Beckman & Whitley, San Carlos, Calif., is reported to produce an uninterrupted streak image 50 in. long on 35mm film. Designed to be in recording condition during operation, it can be used for the documentation of randomly occurring events which are not suitable for synchronization with the instrumentation. The writing rate is reported at 9mm per μsec at a maximum mirror speed of 2600 rps. The time resolution is 5×10^{-9} sec and the minimum writing time is 145 μsec. Features not included in previous models include a beryllium rotating mirror, essentially distortion free at operating speeds; an all-mirror, axially aligned relay optical system to permit operation in the high ultraviolet region; a newly developed film track configuration to give a flat film plane and optimum assessment curve and a transistorized automatic turbine-speed monitor to provide an overspeed safety cutout. The camera may be operated in various positions. Other features include 100-ft daylight film loading and arrangements to permit operation as a synchronized streak camera where required.

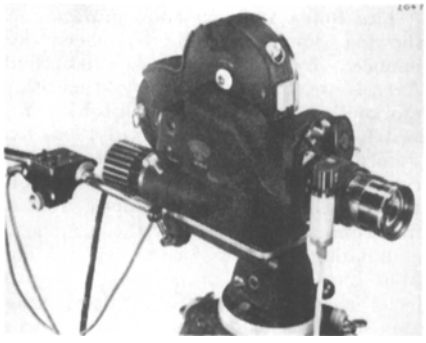


A 19-lb closed-circuit TV camera. Model 700, designed especially for simplicity of installation and portability has been announced by Tele-Tronics Corp., 12786 Western Ave., Garden Grove, Calif. The power input is 117 v ($\pm$ 7v), 60-c, a-c, 65-w. Features include 8.0-mc video amplifiers to provide 600-line horizontal resolution; internal synchronizing signal generator to provide 2:1 scanning line interlace for 350-line vertical resolution; and transmission line aperture-corrector circuitry. A general purpose *f*/1.9 25mm lens is supplied in a three-lens turret designed to accommodate any 16mm "C" mount lenses. The camera is priced at $1295. A model with built-in microphone and amplifier sound channel, the 700-S, is priced at $1495.

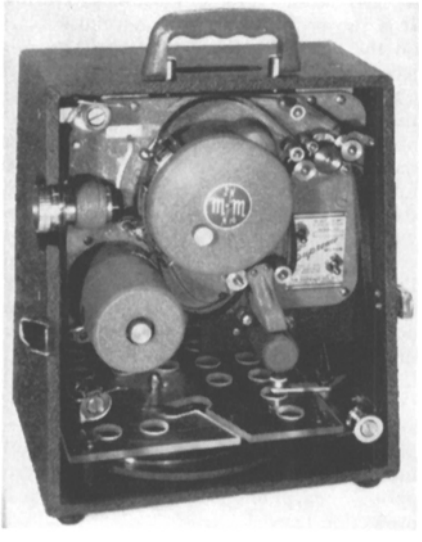
A compact television sound control desk designed by Marconi Wireless Telegraph Co. for one-man operation is being manufactured in three models designated Major, Medium and Minor. The Major handles 26 microphone inputs and has 54 amplifiers; the Medium, 18 microphone inputs, 41 amplifiers; and the Minor, 11 microphone inputs, 23 amplifiers. In the Major version the distance between the outermost fades is 4 ft, 10 in. The overall height is 3 ft, 6 in. A number of the desks have been installed by various program contractors to Britain's Independent Television Authority.

Glass-base receiving tubes designed for economy and simplicity of installation have been developed by the RCA Electron Tube Division, Harrison, N.J., and are expected to be in production in 1961. The new tube, called Novar, has a pin-circle diameter of 0.687 in. and a pin length of 0.350 in. Internal leads have a diameter of 30 mils. There is a distance of 0.212 in. between the pins. This spacing is calculated so that the tubes may withstand high voltage gradients between pins and be less susceptible to breakdown at high voltages than tubes having closer pin spacings.

The F/4 Zoomar Reflector is a 20-in. lens developed by Zoomar, Inc., Glen Cove, N.Y. The new lens is adaptable to all types of 16mm and 35mm motion-picture and TV cameras. It is designed for high resolution, compactness and light weight. The distance from the front to the film plane is 14 in. outside diameter, $6\frac{1}{4}$ in., and the weight is about 7 lb. The closest focusing distance is 500 ft. The resolution in Kodak Plus X film is 50 lines/mm. All lens elements are antireflection coated. It is priced at $1500. A filter frame or filter wheel is available as optional equipment. Other accessories are available.



A new motor drive for the zoom movement of the 17–70 Angenieux varifocal lens has been announced by Arriflex Corp. of America, 257 Park Avenue South, New York 10. A miniature motor and gear mechanism is mounted directly on the lens barrel by means of a special split-ring clamp. The control unit is designed to mount on the panhead handle. The motor operates from the same 8-v d-c battery pack as the camera. The motor drive is priced at $249.50



The Movie Mate is an automatic 16mm sound projector with a built-in transparent continuous projection magazine and holding an endless loop of up to 400 ft of 16mm film. It is produced by Harwald Co., 1245 Chicago Ave., Evanston, Ill. The unit weighs about 23 lb and occupies about one cubic foot of space. It is recommended by the manufacturer for sales presentations, schools or other educational and industrial uses. The projector runs on almost any type of house current, 25 to 60 cycle, 105- to 125-v a-c or on d-c. It is priced at $498.

New home movie equipment has been announced by Bell & Howell, 7100 McCormick Rd., Chicago 45. The 8mm camera, the 314, is designed for the movie maker who wants completely automatic operation; it has one speed and a universal focus lens. Features include an 11-element *f*/1.8 Comar zoom lens and coupled viewfinder. It is priced at $169.95.

The projector, called the Dual/Lectric is designed for completely automatic operation. Features include remote control (Roto-Remote) which permits the operator to start, stop or reverse the film from any location within the room. Price range is from about $239.95 to $264.95, depending on the type of lens.

The Moviematic Jr., a product of Technical Service Inc., Farmington, Mich., is a compact repeater projector designed to show 8mm silent film in normal light. The Kodak-built mechanism permits continuous showing of a 5-min film, or the film can be switched on and off for each showing. The film ends are spliced together to avoid threading and rewinding. The projector is priced at $98.50.

A barndoor that folds flat to fit in a jacket pocket is designed for professional lighting control with reflector bulbs. Introduced by Lowel-Light Photo Engineering, 421 W. 54 St., New York 19, it is used with the Lowel-Light clamp-on lighting unit and with other portable clamp-on lights using R 40 type reflector bulbs, 150 to 500 w. Made of flexible aluminum, the device weighs 4½ oz. The 5 by 10-in. door flaps are removable and replaceable. The unit is priced at $5.75.

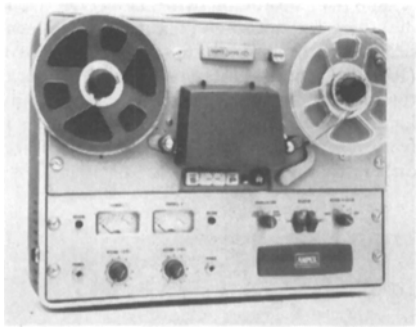
A color motion-picture film for use in high-speed cameras with exposures as short as 1/50,000 sec has been announced by Eastman Kodak Co., Rochester 4, N.Y. The film, exhibited at the Fifth International Congress on High-Speed Photography, was the subject of a paper presented at the Equipment Papers and Demonstrations Session by A. Earl Quinn. The film has a tungsten light speed of 125. It can be used interchangeably with Kodak Tri-X black-and-white reversal film.

The Model R-BW Modulator and Light Source for Depue-Carlson Step Printer, equipped with 1000-w adjustable lamphouse, has been announced by Fish-Schurman Corp., 70 Portman Rd., New Rochelle, N.Y. The optical system is designed to provide uniform light on the 35mm aperture of the Depue-Carlson Transport. A cold mirror of the effective interference type and a heat absorber are used so that very little heat can reach the printing aperture. Modulation of the light is achieved by mean of five a-c solenoid-

actuated neutral density glass filters, giving 32 printer steps in increments of 0.025 or 0.030 Log E. The black-and-white model is supplied with a blue trimmer and five neutral glass filters calibrated for blue light.

The lamphouse is designed for a 1000-w T-12 bulb with blower. Bulb alignment is made in darkness by adjusting three knobs providing for vertical, transverse and rotational motion of the bulb. A damping cylinder is incorporated to prevent mechanical shock to the lamp filament during opening and closing. The unit is adaptable to automatic control using punched tape or modified drop board. Dimensions are 20 by 20 by 10 in.; weight is 70 lb. It is priced at $3000.

The Vega-Mike is a wireless microphone which weighs 7½ oz, measures 5 in. in length and 1 in. in diameter. A product of Vega Electronics Corp., 10781 N. Highway 9, Cupertino, Calif., it is designed as a self-contained miniature FM broadcast station, including transistors and battery. The neck strap is part of the system, acting as an antenna element. The power output of the microphone is no more than 20 thousandths of a watt, but it is said to have a useful range of up to a half-mile or more. Operating frequencies range from 25 to 45 mc. The microphone has been field tested in various situations including use by the American Broadcasting Company at the national political conventions. It is priced at $249.75. An FM receiver designed for use with the microphone is priced at $267.75. When purchased together as a system the combination is priced at $495.



Professional tape recorders announced by Ampex Professional Products Co., Redwood City, Calif., are part of the new PR-10 series of recorders, mixers and speaker-amplifiers designed for compactness and economy. The series includes a monophonic recorder priced at $895, and a combination stereophonic/monophonic recorder priced at $995. These prices apply to the portable versions of the machines. The recorder is also available as a rack unit 14 in. high. Both units are two-speed and available at 7½ – 15 in./sec, or 3¾ – 7½ in./sec. Among features and accessories available are 4-position head assembly, 4-track stereo playback, new compact electronics, automatic threading and remote control.

The TapeEditor, an electronic video tape editing machine, is a product of Telescript CSP Inc., 155 W. 72 St., New York. The machine is transistorized and consists of two units, the tape viewing unit and the edit pulse unit. Described as "desk top size," it is priced at about $1200.

The Bolex 18-5, an 8mm projector for showing home movies, has been announced by Paillard, Inc., 100 Sixth Ave., New York 13. Featuring "super-slow motion," the projector is equipped with a switch to drop the speed from 18 to five frames/sec. A variable shutter is incorporated that automatically changes from three to nine blades as the speed drops to five frames/sec. This is for the purpose of eliminating flicker and to protect the film from burning and drying out. The projector is priced at $149.50. The firm has also introduced an 8mm zoom camera, the Bolex Compumatic Super Zoom Camera, featuring the Pan Cinor 40 Zoom lens. The zooming range is from 8 mm wide angle to 40mm telephoto. Another version of the lens, the Pan Cinor 40R is equipped with a built-in split-image range finder. The price range for the camera, equipped with the Pan Cinor 40 begins at $225. Equipped with the Pan Cinor 40R, the price range begins at $295.

A 16mm magnetic-optical sound projector, the Bolex S-221, has been introduced by Paillard Inc., 100 Sixth Ave., New York 13. The projector's overplay feature permits the recording of one track directly over another without erasing. It is also possible to combine a music track on the film with live narration. The projector has a 2000-ft film capacity with pushbutton sprocket guides for ease in threading. Separate threading paths for optical, magnetic and silent films eliminate the need for running the film over unnecessary parts. An illuminated stroboscope is incorporated to show the slightest variation in running speed so that the correct running speed can be maintained. Double-perforated films with a quarter track, single-perforated films with an optical and a 50-mil magnetic track, or single-perforated film with the full 100-mil track can be used without adjustment. Designed especially for industrial and other audio-visual uses, the projector is priced at $1250. Included is an 8-in. speaker built into the machine's removable lid, microphone, earphone and 50mm Hi-Fi projection lens.

The Master Vu-Graph Series 7700 Overhead Projectors has been announced by the Charles Beseler Co., 219 S. 18 St., East Orange, N.J. Designed especially for classroom use, the projector head stands at 17½ in. at maximum height; overall dimensions of the projector housing are 23 by 12½ by 12½ in. The projection stage accepts 10 by 10-in. transparencies.

Brady Quick-Cue Contact Tabs are produced by W. H. Brady Co., 727 West Glendale Ave., Milwaukee 9, Wis. These are highly conductive, pressure-sensitive aluminum foil tabs which are applied to motion-picture film, film strips and magnetic recording tape for automatic cuing operations. When the tab reaches the contact points of a relay on the machine, its purpose is to actuate the mechanism to stop and shut off the reproducer, or reverse and repeat the program. The tabs are made with a special permanent adhesive to stick tight upon contact. The average price is less than 2 cents per tab.