

trap and yet it has perfect deflection linearity and a resolving power not found in present kinescopes. The new thin cathode-ray tube utilizes the Aiken Deflection Principle and consists essentially of a phosphor screen and transparent deflection plates within the glass faceplates. The tube functions by electronically exciting selected areas or spots on the phosphor screen. This is accomplished by the following means.

An electron beam is injected along an edge of the tube. This beam flows in a field-free region near the edge of the phosphor screen and adjacent to a row of transverse deflection plates. Through control of the voltages on these deflection plates, the beam is bent vertically at any desired place

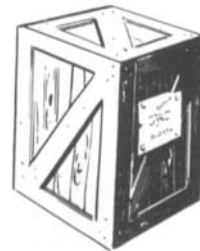
along the edge of the tube. The beam then flows vertically in a second field-free region between a series of transparent deflection plates and the electrically charged phosphor screen.

Deflection of the beam into the screen at any desired vertical level is made possible by controlling the voltages on the transparent deflection plates. Through the above means the position of the spot created by the deflection beam may be exactly controlled.

The deflection system employed in the new tube provides extremely fine focus, resulting from the principle involved in the beam dynamics of the tube. As a result, the resolution obtainable is superior to that

of conventional tubes, along with a much higher screen brightness.

This tube could well be the prototype for the flat wall tube.—*Werner H. Ruhl*, Secretary-Treasurer, 415 Molimo Dr., San Francisco 27.



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.

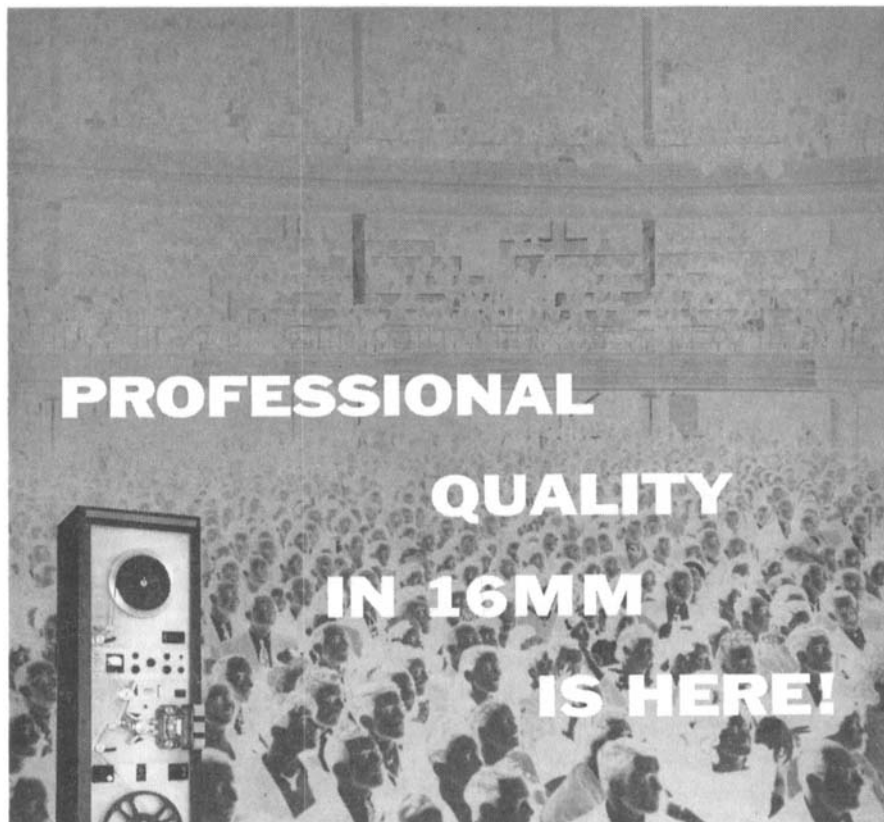
Technirama:

A Development for Large Screens

Technirama is a wide-screen system developed by Technicolor Motion Picture Corp., 6311 Romaine Street, Hollywood 38. It has been used in the soon-to-be-released *Night Passage* which was produced by Universal International, and in *Monte Carlo* which premiered at the Riposi Theatre in Turin last December. Two motion pictures presently in production at RKO and Warner Bros. will also use this system.

The chief innovation of this new process is its anamorphic optical system. This system works on the principle of reflection optics, designed by N. V. Optische Industrie of Oude Delft, Holland. In terms of definition, image distortion and flare, this anamorphic system has proved itself superior to all others. Light losses are extremely low. Because of this, it is possible to photograph with relatively larger lens apertures effecting a considerable economy in studio lighting. The Technirama lens is an attachment lens, anamorphic, prismatic and designed to focus simultaneously and in sync with normal 50mm, 75mm, and 100mm lenses. Even at larger lens aperture good depth of field is obtained, and this factor coupled with the intrinsic sharpness of the image and the wide angle of view makes it possible for the movie director to cover the same action with less set-ups than he requires in normal cinematography. Where one would expect an eight-perforation film to consume twice the amount of negative raw stock compared with four-perforation film, less than 60% of negative raw stock is consumed. The cost difference between other methods of 35mm photography and Technirama is reported not to exceed \$25,000.

In production, Technirama has proved itself perhaps the most economical of the large negative systems. It employs a standard 35mm negative which moves horizontally through the camera exposing eight perforation frames. With allowance for a standard optical soundtrack, the whole of the remaining negative area



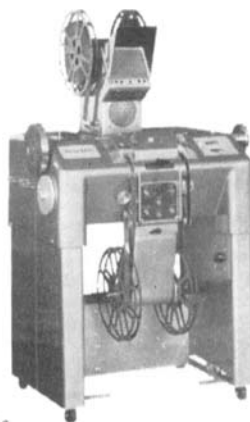
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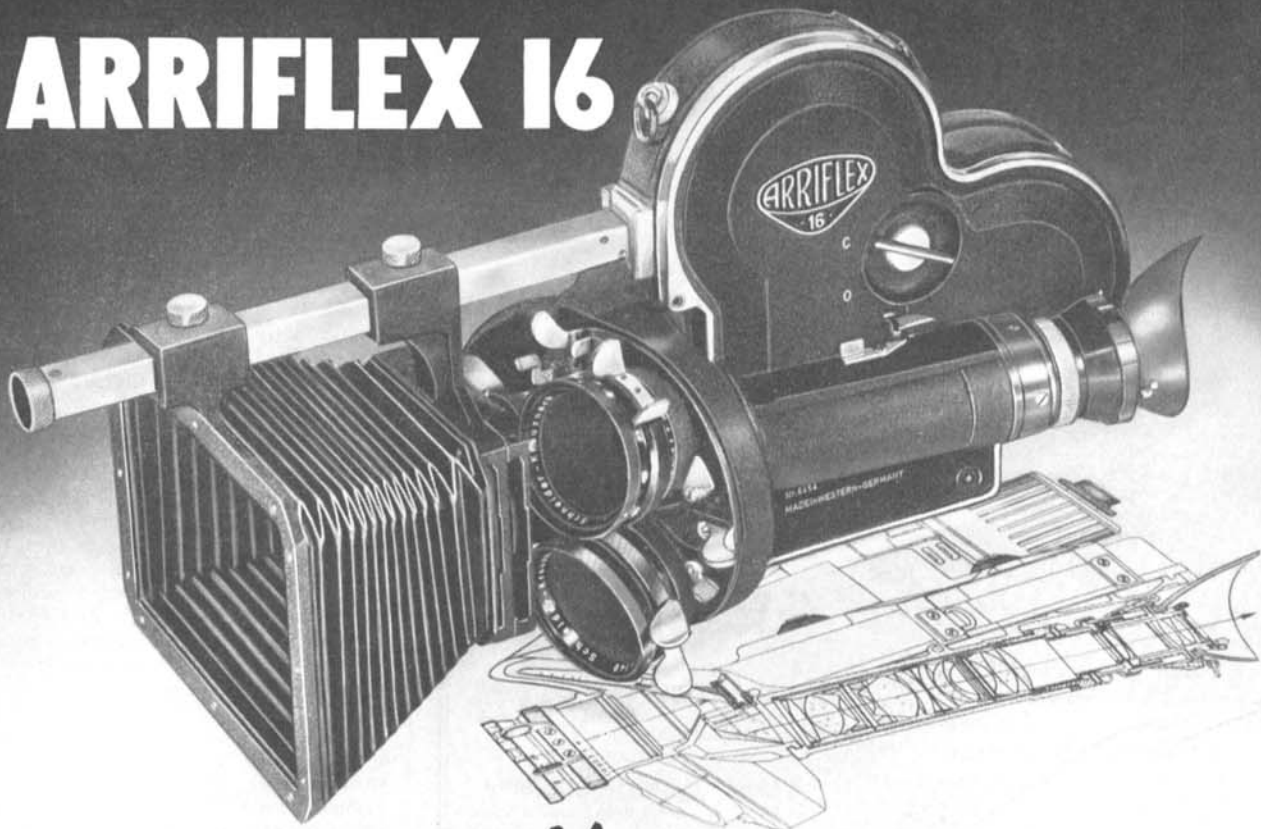


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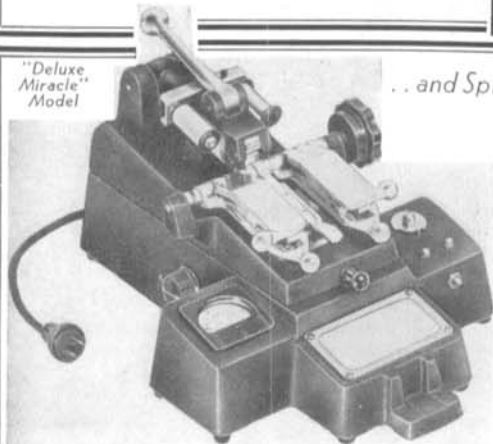
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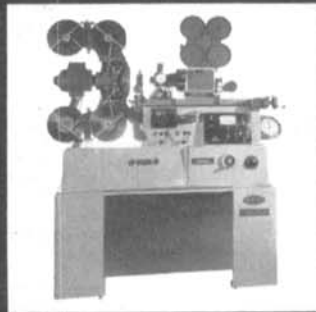
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within the frame is utilized. Other large-screen negatives often waste as much as a quarter of the available area, but a double squeeze CinemaScope-type positive print made from Technirama makes the maximum possible use of the positive frame. Since no area of the available negative and positive frames is lost, Technirama achieves a considerable advantage in terms of definition and reduction of grain visibility.

As the negative runs horizontally through the camera, the picture is recorded in partially squeezed form on a large area double the surface used in standard-frame 35mm film. Compressed 1.5 times in the camera, the image undergoes further compression in printing so that its final compression is 2 to 1.

Processing is carried out in the Technicolor laboratories and anamorphic rush prints in both color and black-and-white are provided. These rush prints have an anamorphic factor of 2 and can be handled by picture editors as though they were CinemaScope prints. The release print, compatible with large-screen projection installations throughout the world, is of the CinemaScope type on standard perforated positive. These prints have a single optical soundtrack and a compressed image which if projected with a CinemaScope-type projection lens will yield an aspect ratio on the screen of 2.34:1. Technicolor Corporation will also manufacture stereophonic-type prints carrying four magnetic tracks and an image projection with a screen aspect ratio of 2.55:1. It is understood also that Technicolor can also make prints conforming to the new "magoptical" specifications.

A number of the Technirama cameras are available for hire. They are equipped with either 1,000- or 2,000-ft magazines, remote focussing controls, blimps and all normal accessories. These cameras make special effects practicable and shortly still other Technirama cameras will be available for high-speed photography. The understanding is, however, that the majority of producers may equip themselves with eight-perforation cameras, all of which can be fitted with the Technirama anamorphic unit.

A special Technirama projector called the "Micronlambda" has been developed by Microtecnica, Turin, Italy. Two picture ratios are required in this projector: A "great picture" ratio similar to the one followed in shooting; and a "standard picture" ratio identical to optical CinemaScope. The "great picture" ratio is 36:11mm × 22:38mm; the "standard picture" ratio is 21:31mm × 18:16mm.

Although this projector has the components of any common projector, the drive is placed to allow for the film's horizontal travel. Film travels twice as fast through this release system as it does in standard projectors. The Maltese Cross Block, triple the size of standard blocks, has to have a greater resistance since it undergoes greater effort. The shutter system, operated by coaxial shafts, is substantially different. The pre-anamorphic lenses, also, have a diameter of 100 focal length because of the greater surface of the photogram. A ratio of 1.5 is the expansion factor for these lenses, 0.5 less than the usual anamorphic lens. Delrama-type and mirror-like, these lenses achieve definitions impossible with cylindrical lenses.—R.G.

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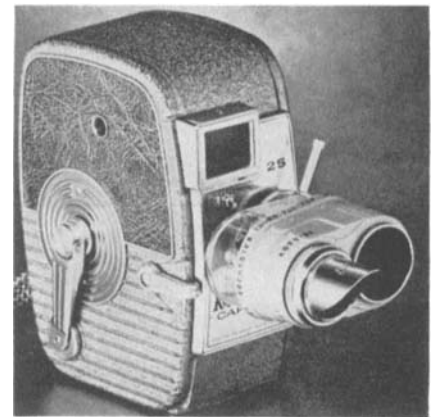
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The Auto-Ex is a fast $f/1.9$ lens coupled to an accurate exposure meter. It is made to fit most "D" mount cameras. For correctly exposed color motion pictures the photographer sights his camera, matches two arrows and shoots.

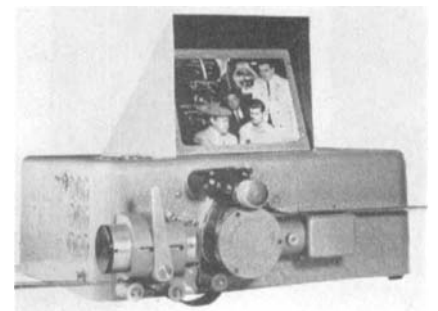
The Auto-EX analyzes light conditions and transmits the information to the floating needle. By lining up the needle with an arrow, all guesswork is eliminated from shooting. Over- and under-exposure can be prevented, and ruining costly color film can be avoided.

The Auto-EX exposure meter is calculated for daylight color film with an exposure index of 10 and tungsten color film with an exposure index of 16. The angle of acceptance of the photocell is designed to



exactly match the angle of the lens. It is ingeniously engineered to permit *intentional* over- and under-exposure depending on whether the subject is light or dark. Manual operation of the "f" stops is possible, if required. A revolving sunvisor eliminates unwanted overhead skylight, insuring accurate exposure of even brightly lit scenes.

A friction-lock orienting back permits mounting the Auto-EX in convenient position on the front of the camera. Made to a very compact design, it is smaller than a lens-plus-exposure meter. Spacing between stop positions has been made wide to insure precision setting of "f" stops. It is equipped with a filter-retaining ring permitting use of 21.5mm filters. The fast $f/1.9$ lens is pre-focused for simplicity and convenience. List price is \$49.95 as announced by Elgeet Optical Co., Inc., 828 Smith St., Rochester 6, N.Y.





A Professional Film Viewer for 35mm film has been announced by Camera Equipment Co., 315 West 43 St., New York 36. The viewer enables the film editor to view the film from left to right on a $6 \times 4\frac{1}{2}$ in. screen. It is portable and enclosed in a metal case. A counter and/or sound reader can easily be attached. The viewer is priced at \$500; the counter at \$75; and the sound reader at \$150. A viewer for use with 16mm film is also available.

A vidicon studio camera, a professional-type slide projector for TV stations, a 21-in. color TV monitor and a 500-w high-band VHF TV transmitter are among the developments displayed by the Radio Corp. of America at the 35th annual trade show of the National Association of Radio and Television Broadcasters (NARTB), April 7-11, Conrad Hilton Hotel, Chicago. The slide projector features a loading

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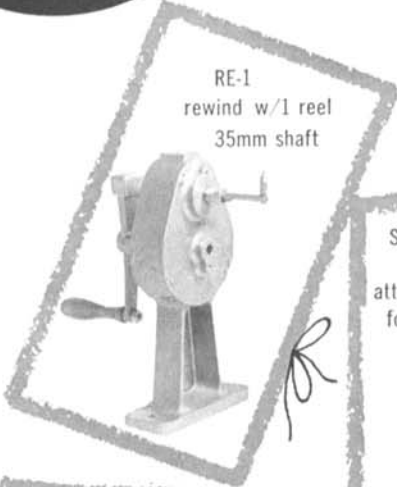
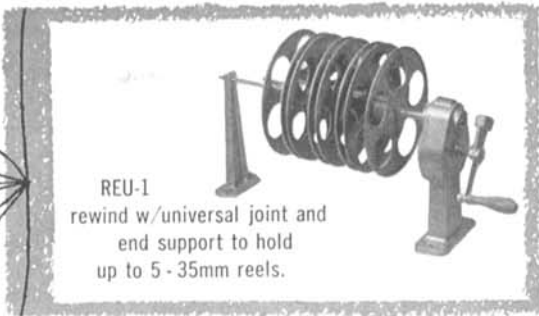
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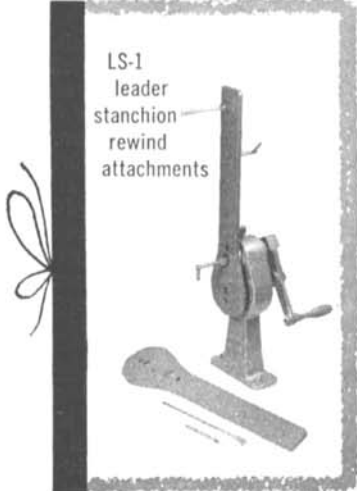
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capacity of 36 2 X 2 in. color or monochrome transparencies. Known as the TP-7A it is reported to be useful with virtually all types of TV camera systems.

The new monochrome TV studio camera (TK-15) is engineered with a vidicon pickup tube and advanced electronic circuitry for economy in broadcast operations. The 21-in. color monitor for presentation of color pictures from live and film cameras is scheduled to be available this year. It features feedback stabilization throughout, kinescope protection from loss of horizontal deflection or video overdrive, regulated voltages for stability, and under-scan provisions for examination of picture corners.

Two Houston Fearless Processing Machines and a Continuous Contact Printer, provided by the American manufacturer for the Australian Broadcasting Commission, Melbourne, were used in making motion pictures of the 1956 Olympic Games. Photographic production of 96 motion-picture cameramen covering events totaled more than three-quarters of a million feet of processed film in 15 days. The film was sent from Melbourne to Herschell's Film Laboratories in nearby Joliment by motorcycle, the film arriving hourly from 6 P.M. to 3 A.M. A staff of 30 experts completed processing, duplicating and editing of the daily output by 7 A.M. the same day. A Houston Fearless Continuous Contact

Printer provided for a heavy demand of 16mm copies of film. The two Processors nightly processed up to 5,000 ft of film an hour, it was reported.

Fifteen-watt amplifiers, for use in large auditoriums, provide a 50% increase in power and distortion-free sound at high levels in the new Bell & Howell's Filmosound 16mm magnetic-recording projector. The added reserve amplification, not needed in normal operation, is provided to compensate for variations in film prints and assure full sound volume in low-voltage areas.

Soundtrack can be recorded on film, and both magnetic and optical (conventional) sound and silent films can be projected. There are separate tone controls for independent adjustment of treble and bass frequencies. Dual recording-level lamps (instead of a single lamp) indicate specifically when the recording level is correct. A transistor eliminates vibration noise during magnetic playback, and switch clicks during recording are minimized by the circuit design. A monitor input jack for use with the Bell & Howell monitor mixer or monitoring headset is located on the rear amplifier panel.

With the new Filmosound, a magnetic soundtrack can be recorded on any 16mm film — sound or silent, single- or double-perforated. When the film already has an optical soundtrack, Bell & Howell can add a magnetic half-track which permits the use of both magnetic and optical sound.

A built-in interlock automatically prevents accidental erasure of magnetic recording on film. Available as an accessory are a record-erase lock and key to prevent unauthorized recording or erasure.

Two versions of the projector are available. The 302E in a single case, with built-in 8-in. speaker, retails at \$734. The 302D is available with a 12-in. auxiliary speaker at \$814, or with a 12-in. 25-w power speaker at \$884. Both 12-in. speakers are housed in matching cases.

A bulletin issued by the Vicra-Lite Screen Division of L. E. Carpenter & Co., Empire State Bldg., New York 1, describes a lenticular screen designed to provide good viewing for all seats. Originally developed for CinemaScope, the screen is adaptable to small theaters and to various projection angles. The bulletin is available upon request from the company.

The C-I Theatron, an all-electronic control system for stage, nightclub and TV studio lighting, has been announced by Century Lighting, Inc., 521 West 43 St. A compact 2-scene preset console provides for proportional dimming and proportional cross fading. All of the 30 dimmers may be of 2000-w capacity or 22 may be of 1000-w and 8 of 4000-w capacities. The system is recommended for high school, university and community theater use or for small TV studios. Recommendations for layouts are available upon request.

The Fedi XII T Projector has been announced by Ing. Angiolo Fedi, 6 Via S. Gregorio, Milano, Italy. The new projector is an adaptation of the firm's Fedi XII S (p. 530 of the Sept. 1956 *Journal*) with such additional features as a self-contained cool-

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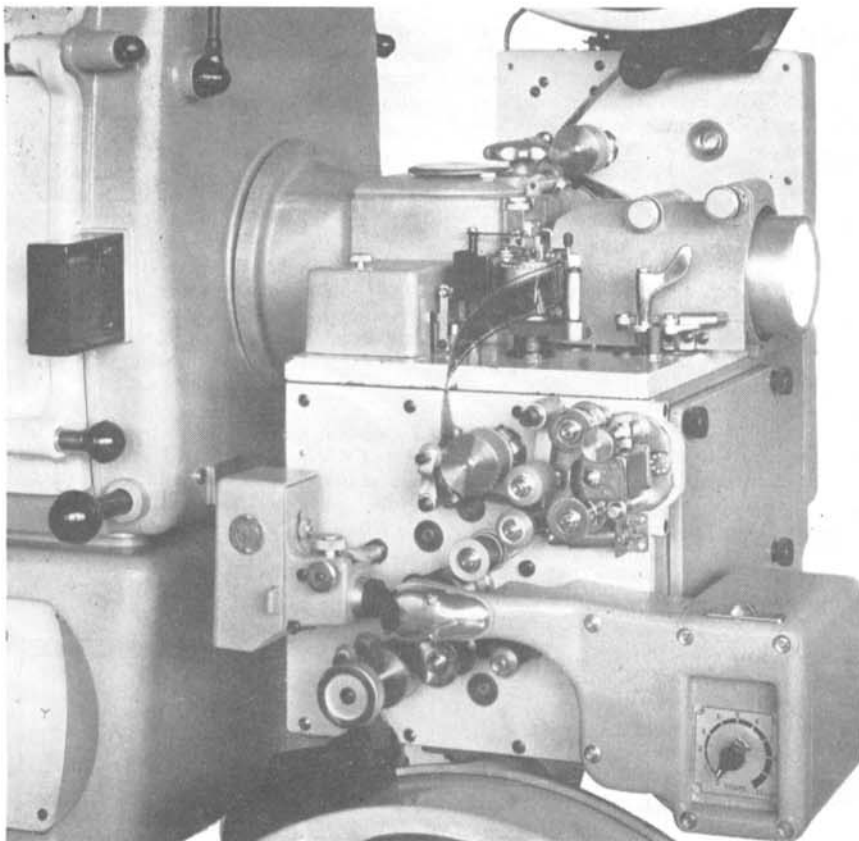
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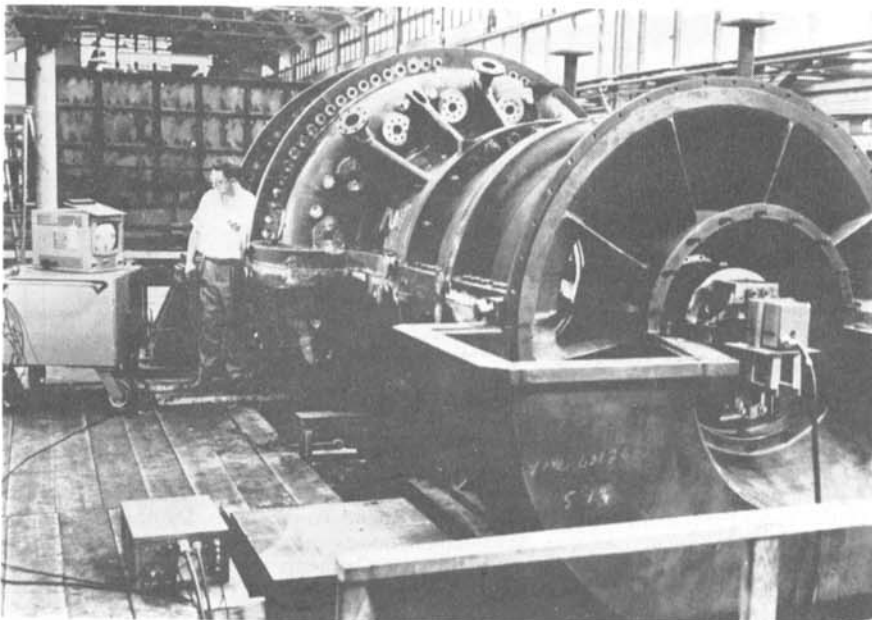
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ing system, turret lens holder and fully adjustable aperture plate. The camera-type turret provides for simultaneous and continuous projection of three different focal-length lenses for standard, wide-screen or VistaVision and CinemaScope ratios. A heat-absorbing shutter forms an essential part of the cooling device. A set of glass filters absorbs heat while permitting the light rays to pass through unchanged. Application of the heat-absorbing crystals is reported to have lowered the temperature of the center of the aperture plate from 515 C. to 265 C.

Aligning turbine shells is a new closed-circuit TV camera use developed by the

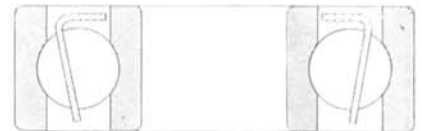
General Electric Co., Technical Products Dept., Syracuse, N.Y. Known as the Intratel, it is used in positioning 4- to 5-ton gas turbine sections, which previously were aligned by stretching a taut wire through the turbine and estimating when the shells were in position. The present method is to line up the turbine shells, then the camera is bolted, leveled and centered on the first or master shell. When another shell is to be attached, a target is centered in the new shell and the camera lens focused to the known distance to the target. By watching the monitor located about 15 ft from the camera, the engineer can accurately align the new shell and adjust the connecting bolts accordingly.



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The use of closed-circuit television in traffic control has been proposed by an official of the General Electric Co. Technical Products Dept., Syracuse, N.Y. Under the proposed plan, closed-circuit TV cameras would be strategically located along busy cross-city intersections or other important traffic arteries. Each camera would be focused on a system of mirrors at the intersection. The mirrors, in turn, would afford a view of traffic flow from all four directions of the intersection. By a system of measured stadia or graduated marks on each mirror, the distance of the traffic from the mirror would be calculated.

A traffic coordinator, seated in front of a bank of television monitors, or receivers, at a central traffic bureau, could thus view traffic conditions at any number of intersections. The closed-circuit TV system, combined with radio controls, would give the traffic coordinator pushbutton control over the timing of the red and green lights at each intersection. In this way, he could speed heavy traffic from one direction, while slowing lighter traffic from the other.

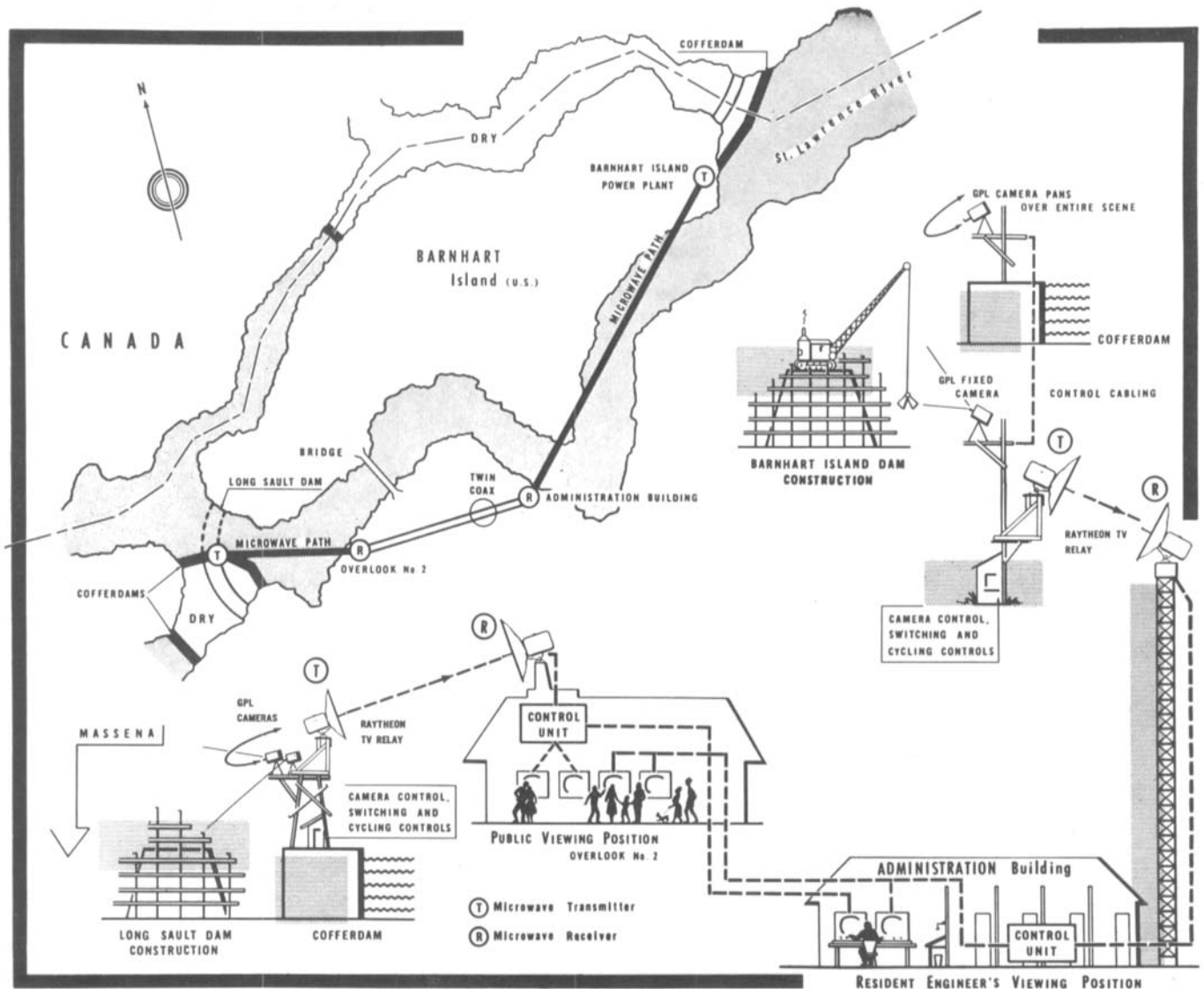
The East-West TV Network, 2924 Auburn Ave., Toledo 6, Ohio, offers two closed-circuit package deals reaching 9 or 11 cities. The 9-city package reaches Chicago, Columbus, South Bend, Cincinnati, Pittsburgh, Cleveland, Detroit, Indianapolis and Huntington, W. Va., at a price of \$9,746.39 for one hour and \$12,954.00 for two hours. The 11-city package reaches Minneapolis, Omaha, Wichita, Mason City, Quincy, Sioux Falls, S.D., Des Moines, Peoria, Kansas City, Mo., Madison, Wis., and Davenport, Ia., at a price of \$11,965.00 for one hour and \$16,427.00 for two hours. The origination may be from any included city, and union operation and network supervision are provided at each location.

A General Electric closed-circuit TV camera about twice the size of a cigar-box is being used by engineers at the company's aircraft jet-engine development center, Cincinnati, Ohio, to reduce testing time and help relieve the critical shortage of skilled technical assistants. The TV camera picks up test data as it emanates from a

computer and is registered on a pen recorder. The data is then transmitted to the test site some 200 ft distant where it is interpreted by a test engineer and checked with operations of hydraulic controls.

A nation-wide training program for technicians specializing in the installation and maintenance of closed-circuit TV systems is being conducted by the Technical Products Dept. of General Electric Co. A G-E official has estimated present industry-wide sales of closed-circuit TV at \$6 million annually and the same official predicts sales of \$75 million within 10 years.

To distribute RCA industrial closed-circuit TV equipment and systems, RCA has announced the appointment of four additional firms: Eastern Theatre Supply Co., Buffalo, N.Y.; Ernie Forbes Theatre Supply, Detroit; Lake Service Corp., Boston, and J. A. Walsh & Co., Houston, Tex.



Closed-circuit television is being used to supervise the building of dams by the Power Authority of the State of New York as part of the St. Lawrence Seaway development. At both the 2350-ft Long Sault Dam and 3230-ft Barnhart Island Power Plant Dam, two cameras, products of General Precision Laboratory, Inc., Pleasantville, N.Y., are in operation. At each dam, one camera is stationary and looks across the entire site; the other, equipped with a telephoto lens, scans a 120° arc. The fixed and moving cameras are automatically switched. Television signals are transmitted by Raytheon Mfg. Co. microwave relays to the resident engineer's office where a few minutes observation of the TV monitors is equal to several hours travel to the work sites.