

Education, Industry News

The Society of Photographic Instrumentation Engineers will hold its 8th Annual Technical Symposium August 5-9 at the Ambassador Hotel in Los Angeles. The five-day meeting will offer papers, seminars and workshop sessions covering advanced techniques of photooptical data acquisition, storage, retrieval and assessment. An exhibit of instruments and materials will display recent design developments. The Technical Program Director is J. A. Clemente, Pacific Missile Range, Point Mugu, Calif.

The Fifth Annual American Film Festival, sponsored by the Educational Film Library Association, was held May 1-4 in New York. Blue Ribbon Awards were presented to producers of 34 16mm films and 20 35mm filmstrips. More than 650 nontheatrical films and filmstrips competed for the awards. Representative of the wide range of subjects were such award-winning films as *A Portrait of Mexico*, produced by the Radio-TV Bureau of the University of Arizona; *Night and Fog*, a documentary on Nazi concentration camps, directed by Alain Resnais for Argos Films; *Tarpon Fishing With Ted Williams*, produced by Sears Roebuck and Company; *A Cry for Help* (a film dealing with attempted suicides), produced by George Stoney Associates for the Louisiana Association for Mental Health; *Mr. Europe and the Common Market*, a television film from *CBS Reports*; and *Christopher Columbus* (entered in the "Classroom Films for Lower Grades" category), produced by Churchill Films.

The 1963 EFLA Award was presented to Dr. L. C. Larson, Dean and Director of the Bureau of Audio-Visual Instruction at the University of Indiana, for "outstandingly effective leadership in the production and use of films in classrooms on every level of American education . . ." Presentation was made by Dr. F. A. White, EFLA President and Director of the Bureau of Audio-Visual Instruction at the University of Wisconsin.

The 7th Annual San Francisco International Film Festival, to be held Oct. 30-Nov. 12 under the auspices of the Art Commission of the City of San Francisco, has announced the Fourth Annual "Film as Communication," a competition for films not intended for theatrical release; and the First Annual "Film as Art," a competition limited to 16mm experimental short films. The Film as Communication competition is designed to screen and judge films produced with a specified purpose for a defined audience, such as government, industrial and institutional films, training, etc., and films sponsored by civic and

community organizations, classroom films, etc. The Film as Art competition is designed to encourage and recognize experimental films which make an original contribution to film as a creative medium. The Festival is a civic nonprofit enterprise. Competitions are held for features, short films and newsreels as well as for the two 16mm categories. Information is available from San Francisco International Film Festival, 172 Golden Gate Ave., San Francisco 2.

A Conference on Photographic and Spectroscopic Optics, arranged on an international level by the Science Council of Japan and the Japan Society of Applied Physics under the auspices of the International Commission for Optics, will be held in Tokyo and Kyoto, Japan, Sept. 1-8, 1964. Subjects to be dealt with at the Conference include Design and Evaluation of Photographic and Spectroscopic Optical Systems; Recent Instrumentation in the Far Infrared and the Extreme Ultraviolet; and Optical Materials for Use in Photographic and Spectroscopic Optics. Inquiries about the Conference should be addressed to: Prof. H. Kubota, Secretary, Organizing Committee, ICO-Tokyo & Kyoto, Science Council of Japan, Ueno Park, Tokyo, Japan.

Improvement of Instruction by Television and Radio was the theme of a two-day conference on Instructional Broadcasting held May 13-15 at the University of Illinois under the auspices of the National Association of Educational Broadcasters. Session topics included Application of Principles of Learning to Instructional Broadcasting; Uses and Utilization of Television; Creative Production for Instruction; Reorganization of the NAEB to Serve the Needs of Instructional Broadcasting; and The Role of Radio in Instruction. Technical Sessions were held on Low-Cost Video-Tape Recorders; 2000-mc Transmission; and Leased Lines. Group Discussions were held on Television Councils and Networks; The Role of the Classroom Teacher, Teacher Training, Utilization; and Utilization in Higher Education.

A three-year national survey of engineering schools' curricula and the entire range of engineers' responsibility in government and industry has been undertaken by the American Society for Engineering Education, University of Illinois, Urbana, Ill. A grant of \$300,000 has been made by the National Science Foundation in support of this study. The survey will be directed by Eric A. Walker, President of Penn State University, who will be project director of the overall study; George A. Hawkins, Dean of Engineering and Mathematical Science, Purdue University, who will head

a team of engineering professors to evaluate undergraduate engineering education; and Joseph M. Pettit, Dean of Engineering, Stanford University, who will direct an investigation of graduate education for engineers.

One of the problems the ASEE will re-examine is whether an engineer's education requires non-engineering studies, i.e., how specialized his college training should be.

The John Crerar Library has moved to 35 West 33 St., Chicago 16. The Library formerly was located at 86 East Randolph St., Chicago.

Red Runs the River, a 90-minute Civil War drama produced by Unusual Films, the Division of Cinema of Bob Jones University, Greenville, S.C., was previewed April 24 at the Overseas Press Club in New York. Plot of the historical drama centers around Confederate General Richard Stoddert Ewell (played by Bob Jones, Jr., President of Bob Jones University) who "scoffs at things spiritual until he meets God on the battlefield." General "Jeb" Stuart is played by Bob Jones III. Jack Buttram plays General Thomas "Stonewall" Jackson.

The film represents literally thousands of hours of writing, research, designing and construction of sets and costumes, casting, shooting and editing, as well as the combined talents of hundreds of people and a maze of technical equipment. Research teams were sent to the Manassas Battlefield, the Smithsonian Institute, and the Library of Congress, and authorities on the Civil War were consulted. More than 600 actors had to be outfitted with uniforms, muskets, bayonets, canteens, cups, and haversacks. Leather was cut to the exact specifications prescribed by the Grand Army of the Republic and the Confederate forces for military belts, cartridge boxes, cap boxes, medical field kits and officers' boots. The "ordnance crew" made working models of Civil War rifles to augment the real muskets used in the battle scenes. In addition, hundreds of "dummy" guns were made. A battery of Civil War "six-pounders" had been brought to the campus for the artillery scenes, and wooden replicas which could be loaded and fired were added by the construction crew.

On the sound stage, more than 100 tons of soil were used to reproduce portions of the location sets for close-up photography under controlled lighting and sound-recording conditions. Transplanted shrubs, sod and full-grown trees were kept alive indoors for days at a time. Arc lamps duplicated sunlight, hoses simulated rain, and the foliage was sprayed with a special preservative to keep it looking fresh. Most of the 59 scenes were filmed between April

and June. The production schedule was carefully planned so that while one crew was on location, another was building the next set on the sound stage. Dwight L. Gustafson, Dean of the School of Fine Arts, composed and directed the music for the film. Special equipment was set up in the University's Concert Center to record the more than 40 music cues played by the Bob Jones University Symphony Orchestra.

The film was directed by Katherine Stenholm. Mrs. Stenholm has received international recognition for her direction of outstanding films. Directing is part of her work as head of the University's Division of Cinema. The University's motion-picture unit is said to be one of the best equipped between New York and Hollywood. Equipment includes most up-to-date models of both Maurer and Mitchell 16mm cameras, a Raby Head, a custom-made camera crane, and Stancil-Hoffman Magnetic sound equipment.

The State of South Carolina, 49th in per capita income and 47th in literacy, is afflicted with "cultural pellagra," according to Lynn Kalmbach, of the South Carolina Educational Television Center, who told the International Convention of the Institute of Electrical and Electronics Engineers, held in New York during March, that the answer to South Carolina's educational problem will be in a "mass-media approach to education with educational television as the focal point."

South Carolina adopted the closed-circuit cable approach to educational television from the outset of its program in 1957-58, Mr. Kalmbach said. The program started with two subjects being taught in five classrooms in one Columbia school. The appropriation was \$60,000. By 1961-62, the program had expanded to reach 65 high schools throughout the State. The appropriation was \$800,000. By January, 1963, the system had expanded to 155 public high schools, 4 private colleges, 4 state colleges, the University of South Carolina and 5 Extension Centers. The appropriation was \$1,295,000.

If 1,250 schools were included, the estimated cost per school per year would be about \$8,000, or, roughly, the cost of two present classroom teachers, Mr. Kalmbach said.

Teaching transparencies for overhead projection, called Over-View Teaching Transparencies, have been introduced by Encyclopaedia Britannica Films Inc., 1150 Wilmette Ave., Wilmette, Ill. Offered initially in four subjects, Language of Maps, U.S. Growth and Expansion, Human Anatomy, and Vertebrates, the transparencies are designed to fit all standard overhead projectors. As an example, the Language of Maps series consists of a total of 16 transparencies in four study units, covering parallels and meridians, reading topographic symbols, identifying cultural features, and mapping a small area. The Map series is priced at \$50.00.

Single-concept 8mm films on science produced for Technicolor Corp. by Encyclopaedia Britannica Films Inc., 1150 Wilmette Ave., Wilmette, Ill., are now available and plans have been announced

for further production of single-concept films. The fifteen Technicolor films were produced in Great Britain and are now in use in British schools. There are four titles in biology and 11 in physics. The single-concept film is the subject of a paper presented by L. B. K. Happé, of Technicolor Ltd., London, presented at the Society's recent (93rd) Convention in Atlantic City. Title of the paper is "Development of the Educational Single-Concept Film in Great Britain." The single-concept film was also discussed in a paper presented at that same Convention by David G. Anderson and Andrew Patterson, Jr., both of Yale University. Title of the paper is "A Film Program for College Chemistry: A New Approach."

Relay, the RCA communications satellite developed for National Aeronautics and Space Administration, was described by Sidney Sternberg, Chief Engineer, Astro-Electronics Division, Radio Corp. of America, Princeton, N.J., before the U.S. Senate Committee on Interstate and Foreign Commerce, on February 19. Following are a few excerpts from his statement:

New components for the satellite included a 10-w traveling wave tube and a wideband transmitter-receiver capable of receiving information at 1725 megacycles and transmitting it at 4170 megacycles. [Relay] is a spin-stabilized satellite weighing 173 lb. It is powered by solar cells which convert the sun's energy into electricity. It uses a traveling wave tube transmitting system with a power capability of 10 w. Duplicate electronic subsystems [were used] to provide greater operational reliability. Two separate receiving and transmitting systems [were included], called wideband system 1 and wideband system 2.

After launch, the satellite appeared to be in satisfactory condition. On the fourth orbit, however, telemetry data indicated that wideband system 1 was turned on and that the power supply voltage was insufficient for proper operation of the communications system. Finally, wideband system 1 turned off and the batteries soon recharged. Since Relay was designed with a duplicate transmitting system it was thus possible to turn on wideband system 2.

An additional problem has been that of spurious commands. During several orbits used for transmission, false commands have occurred and we do not know why . . .

Telstar II, in appearance almost a twin of Telstar I, differs in several important respects. Perhaps the main difference is the orbit. Both elliptical, Telstar I's apogee was 3,531 statute miles, and its perigee, 592 miles. Telstar II has an apogee of 6,560 miles and a perigee of 575 miles. The greater apogee of Telstar II was planned to avoid regions of high radiation intensity and thus reduce the chance of radiation damage. In another effort to minimize radiation damage, one of the two command decoders in the satellite has been modified to use evacuated rather than gas-filled transistors.

The package aboard the satellite that will measure radiation in space, particularly the density and energy of electrons and protons in the Van Allen Belts, has also

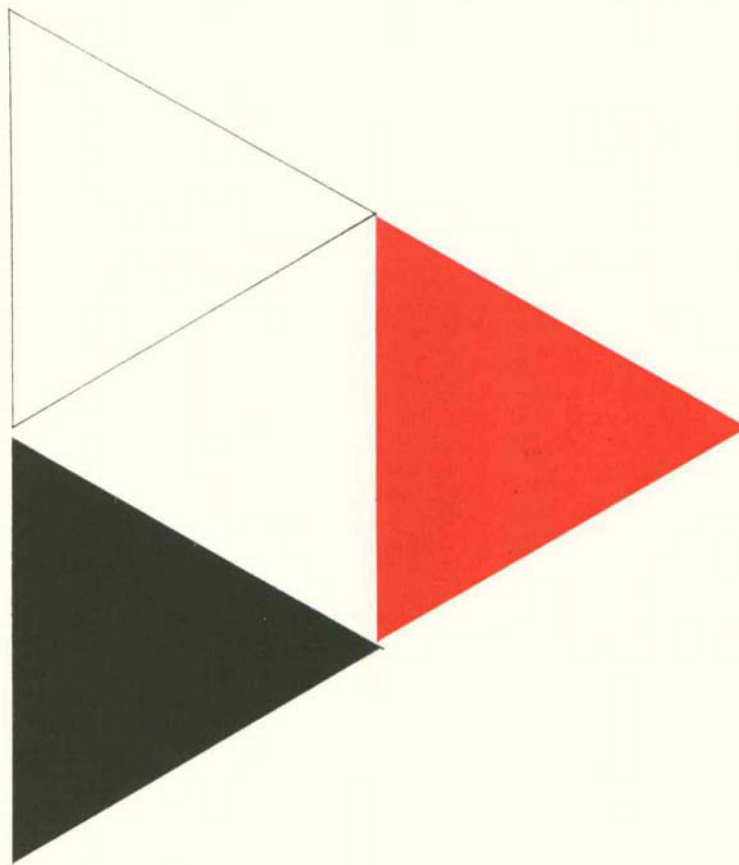
been modified. The ability to measure higher energy electrons is possible because of a small gold "scatter" dome protruding from the surface of the satellite. The dome allows only high-energy electrons to pass through to the p-n junction diode which does the measuring. The redesigned electron detector housing also allows measurement of electrons coming from more directions than could be accomplished by Telstar I.

Technical Meetings Information Service (TMIS), 22 Imperial Dr., New Hartford, N.Y., is a new subscription service for industry offering information on technical and scientific meetings covering wide fields of interest, including date, location, headquarters, theme, and a detailed call for papers for each meeting. Information is supplied by the sponsors of the meetings. According to Harry Baum, Director of TMIS, the service consists of two parts: a comprehensive interdisciplinary index of technical and scientific meetings of interest to industry; and a quick-reaction service to provide industry with calls for technical and scientific papers.

A theory of adhesion, recently developed at Bell Telephone Laboratories, departs from past ideas on adhesion to show that, in principle, any two materials can be made to adhere strongly. The practical secret lies in knowing which of the two materials must be fluid when brought into contact with the other. The theory states that the criteria for thermodynamic spreading and for strong adhesion bear a one-to-one correspondence to each other and that a necessary and sufficient condition for strong adhesion between pure A and pure B is that either A spread on B, or B spread on A. (Thermodynamic spreading requires that the surface tension of the solid equals or exceeds the sum of the surface tension of the liquid and the boundary between the liquid and solid.) Spreading is a nonreciprocal phenomenon; that is, if pure A spreads on pure B, then pure B will not spread on pure A. In a practical sense, the same is true of adhesion. For example, materials such as polyethylene, polypropylene and Teflon FEP have low surface tensions and are, therefore, difficult to stick to. But, because they are low-surface-tension materials, they stick to a wider variety of materials than generally used adhesives.

A solid state photosensor configuration developed by Kollsman Instrument Corp. of Elmhurst, N.Y., offers certain advantages for daylight star tracking systems, according to a report presented at the IEEE International Convention in New York. The photosensor geometry is designed to eliminate background scanning signals caused by nonuniformities in daylight sky brightness. Sky background scanning signals appear as false star signals, which degrade scanning accuracy and may even cause a tracker to lock onto sky areas devoid of stars.

The basic element in the daylight tracking technique is a silicon photosensor which is designed to match optical system characteristics. Two concentric sensitive areas are employed in an optically symmetric



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assembly. Operation of the system in a daylight background is shown to be free of troublesome gradient signals. The greater responsivity of the silicon photosensor, compared to a photomultiplier tube, leads to somewhat better performance for daylight sky backgrounds. In order to take full advantage of the improved responsivity, the sensor must approach a "shot-noise" limited condition of operation.

A high-gain laser which uses a helium-neon gas discharge which has, at a wavelength of 3.39 microns, enough gain to become a practical amplifier, has been put in operation at Bell Telephone Laboratories. Compared to previous gas lasers which gave typical gains of 0.2 to 1.0 db per meter, the new amplifier has achieved gains of up to 50 db per meter, it was reported. Each of several lines around 3.39 microns has, at this high gain, a bandwidth of 300 mc. This bandwidth can easily be increased at least 10 times, the report stated.

Reeves Industries, Inc. is the new name of the firm formerly known as Reeves Soundcraft Corp. According to Hazard E. Reeves, President of the firm, the new name was decided upon because of "increasing diversification." Mr. Reeves indicated that the firm had expanded its original magnetic-tape production activities and had branched out to other fields. "We now have a corporate research staff which is engaged full time in developing new concepts and products. . . . Through the efforts of this team," he said, "we have developed a new low-cost office photocopying machine which we expect to market in the third quarter of this year." He explained that the Soundcraft division of the firm will continue to use the "Soundcraft" brand name on all of its recording products.

The Angenieux Evershed Power-Optics Servo Remote Zoom Lens is sold and serviced in North and South America by Television Zoomar Co., 500 Fifth Ave., New York 18, according to a recent announcement. The Angenieux ten-to-one zooms have Power-Optics press-button pre-sets for zoom angles and press-and-twist controls. Also announced is a module developed by Power-Optics which consists of a basic optical servo unit giving remote servo control for 16mm cameras, vidicons, 35mm cine and image-orthicon. This is said to work as well with the earlier four-to-one, and similar zooms, as with the ten-to-one.

Eastman Kodak Company's 1964-65 New York World's Fair pavilion (*Journal*, p. 384, May 1962) is one of the 10 largest World's Fair buildings to be built by American manufacturing companies. The pavilion is of open design, 363 ft long on its main east-west axis. Constructed of reinforced free-form concrete, the roof shell is supported primarily by four main columns. The length of span between them extends as much as 113 ft. A large theater in the tower base will be capable of accommodating 35,000 people for a 12-min production during the course of an average day. A smaller theater will be utilized for audio-visual presentations on products of

Kodak companies in the textile and chemical fields. Construction of the building is expected to be complete by November 1963.

A Marconi closed-circuit TV is in use at the company's Research Laboratories at Great Baddow, near Chelmsford, to produce a large, easily read picture of a microscopic image. Microminiaturized components may be displayed on a 14-in. monitor to groups of people simultaneously, or the system may be used to save operator eyestrain when large numbers of components are inspected.

Three 25-kw RCA transmitters have been installed by Telesistema Mexicano, S.A., in Mexico City, and are expected to be in operation before the end of the year handling broadcasts on Channels 2, 4 and 5. Announcement was made by Don Emilo Azcarraga and Romulo O'Farrill, Jr. A similarly powered transmitter is being installed for Channel 3, atop a 12,000-ft mountain at Guanajuato, some 150 miles north of Mexico City. The new transmitters are suitable for color TV broadcasts, the announcement stated.

The East Coast Division of Eastman Kodak Company's Professional Motion-Picture Film Department has moved from 342 Madison Ave., New York, to new quarters in the Pan American building at 200 Park Avenue. The move was announced by Donald E. Hyndman, Assistant Vice-President, and Manager of the Professional Motion-Picture Film Dept. Manager of the East Coast Division is E. M. Stifle, who will head the new facility.

In addition to business offices, facilities in the Pan American building include a chemistry laboratory, areas for conferences and displays, and a projection room. The Kodak unit occupies an area of 8,000 square feet on the building's 29th floor.

The East Coast Division is responsible for sales of Eastman professional motion-picture film throughout the Eastern States. The Division also provides engineering consultation for the motion-picture and television industry, business and governmental agencies, educational institutions and other users of professional motion pictures.

The new chemistry laboratory will aid film processors in the establishment of quality controls, testing practices, and inspection procedures.

The tenth anniversary of the introduction of the 16mm Arriflex Professional Motion Picture Camera in the United States was observed by company representatives at the 1963 Photokina. Taking part in the observance were Paul Klingenstein, President of the Arriflex Corp. of America, and Dr. Robert Richter, President of Arnold & Richter, Munich, Germany.

A new type of analog-to-digital encoder, consisting only of windings and a thin magnetic film, has been designed at Bell Telephone Laboratories. The new device is faster than transistor encoders and in principle more reliable than vacuum tube encoders. It is capable of fully encoding an analog current into a five-bit binary word

every tenth of a microsecond. The new encoder uses a thin magnetic film plated on a beryllium copper wire. The film has a preferred or "easy" direction of magnetization along the wire's axis. The encoder's high operating speed depends upon the rotational switching of the magnetic film. The direction of rotation is determined by the intensity of the analog current. The rotating magnetization induces voltages in a series of coils along the wire. The binary information is contained in the polarity of these voltages.

A seminar on the electron microscope, conducted recently by the Radio Corp. of America, was enhanced by the use of closed-circuit TV which was used to give the 80 or so scientists attending the seminar equally good views of the microscope and its use. To accomplish this a TV picture of the control panel and the operator's hands was superimposed on a second picture of the specimen image appearing on the microscope's viewing screen. The purpose of this method was to produce a composite cause-and-effect picture that would show the viewer instantly what happens when a particular knob is turned.

An electronic "frog's eye," built by the Radio Corp. of America for research by the Aeronautical Systems Division of the U.S. Air Force, was demonstrated publicly for the first time during the Second Air Force Bionics Symposium held recently at Dayton, Ohio. (Bionics is a new branch of science devoted to building machines that function like living systems. It employs neuron logic — the logic of life — instead of conventional computer circuitry.)

According to an RCA spokesman, the frog's retina was duplicated electronically because it is far less complicated than that of a human being; its function is well known; and it performs tasks which conceivably could be of value to man if converted into an electronic system.

According to RCA project engineer Marvin B. Herscher, the frog's eye is a natural computer "because it makes life-and-death decisions for the frog without bothering his very limited brain. . . . A fly, for example is important to a frog, but a fly traveling away from him is not. The eye automatically discards this information and the frog's brain never sees the departing fly. A sudden shadow may be important as an indication of a threat; the frog's retina tells this to his brain. But the frog learns nothing from the shadow of a cloud crossing the sun, even though the eye sees it."

The RCA version of the frog's retina (as opposed to nature's version) is 3½ ft square, six feet long, and weighs hundreds of pounds because the functions of the frog's microscopic nerve cells have been duplicated by printed circuits, photoelectric cells, neon bulbs and relays.

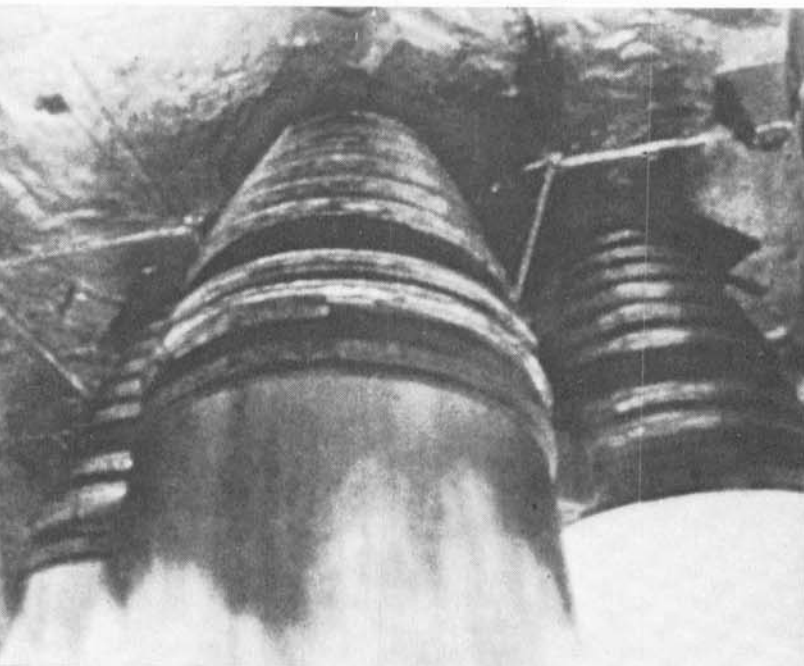
A plastic laser, developed at RCA Laboratories, Princeton, N.J., is a clear plastic fiber 15 in. long, containing traces of europium, a rare earth metal, in which the laser action is achieved. The plastic polymethyl methacrylate acts as a holder for molecules known as "chelates" or "molecular claws" which completely enclose each atom



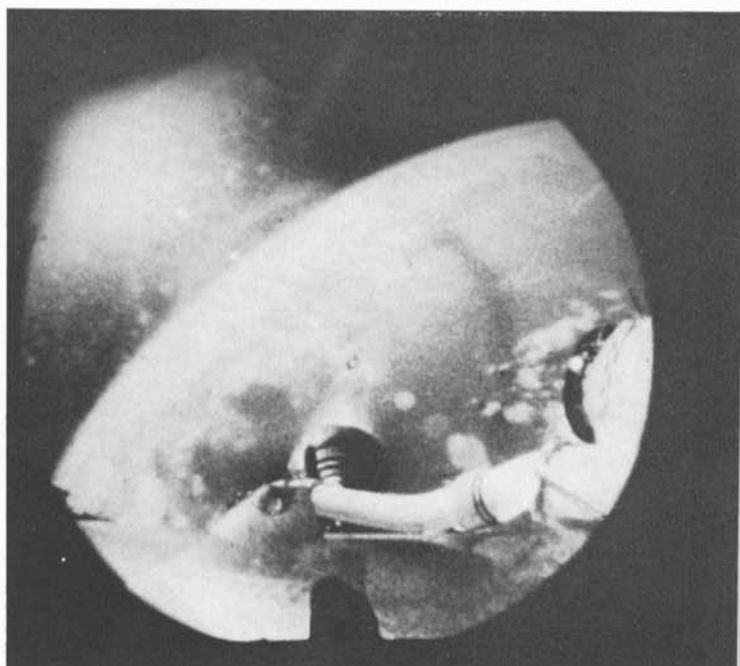
On-board capsule surveillance (Mercury, Gemini)



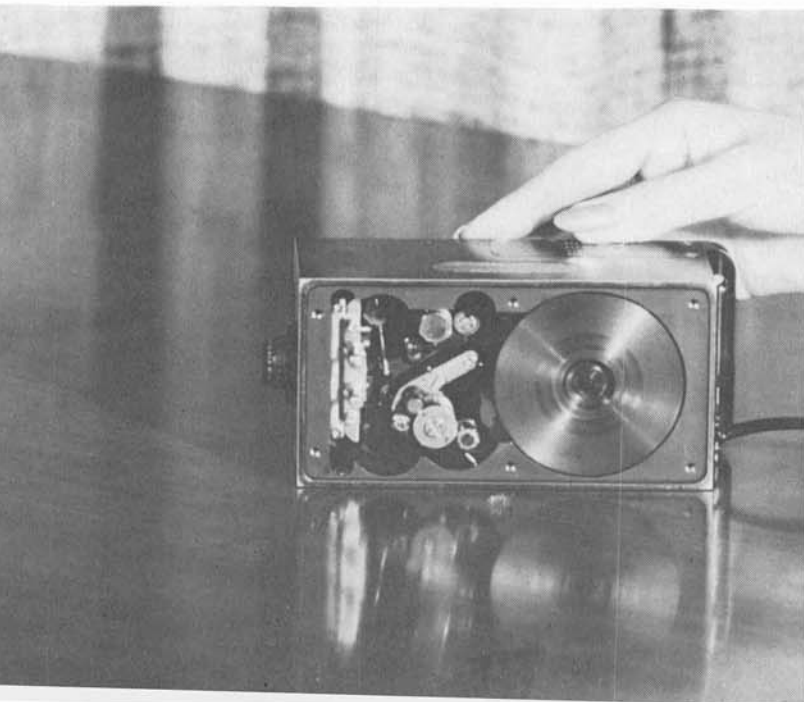
Observation of balloon inflation in space (Echo)



Worm's-eye view of Saturn blast-off



Man's first close-up of Atlas staging



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of europium. To make the fibers work as lasers, they are placed in a dewar filled with liquid nitrogen and exposed to intense flashes of ultraviolet light. The energy from the ultraviolet is transmitted by the fibers to the chelates which absorb the energy and transfer it to the europium atoms, causing them to emit bright flashes of red light. The fibers trap most of the light and force it to travel along their lengths. Each time such a flash occurs, it sweeps along the fiber and stimulates other flashes, all of which combine to create a single pulse of coherent light which bursts from the ends of the fibers with enormous power.

Crystals of zinc oxide measuring up to $\frac{3}{8}$ -in. thick and $\frac{1}{4}$ -in. wide have been grown

in Bell Telephone Laboratories by the hydrothermal method, according to a recent announcement. In this process, zinc oxide crystallizes onto a seed plate which is hung in a dilute basic solution at high temperatures and pressures. The crystals grow in silver-lined chambers, called autoclaves, at 350 C and 8,000 psi. Zinc oxide is both a semiconductor and piezoelectric. Because this crystal is so strongly piezoelectric, it can be used as a transducer in ultrasonic delay lines.

A "wheel configuration" design for future Tiros weather satellites is being developed under a study contract announced jointly by the National Aeronautics and Space Administration and the Radio Corp.

of America. In effect, the present hatbox-shaped Tiros would be turned on its side and made to roll endlessly through the sky, snapping pictures of the Earth. It would be launched in a polar orbit, meaning that every area of the world would be photographed at least once a day. Its two TV cameras, instead of looking downward through the flat base-plate (parallel to the spin axis), would be located sideways on the base-plate looking outward from the rim in opposite directions (at right-angles to the spin axis). As the satellite rolls along its orbit, at 12 revolutions a minute, its cameras would take pictures of the Earth below at 3-second intervals, with each picture stored on magnetic tape to be read out on command when the satellite came within range of a ground station. The new Tiros would use the same type of wide-angle camera as earlier Tiros satellites. This employs a half-inch vidicon tube, enabling the camera to photograph 500,000 sq mi of the Earth's surface with each picture.

The advantage of the wheel design is that it permits the television cameras to look Earthward throughout the orbit. The present Tiros satellites can "see" the Earth only about one-fourth of the time because the spacecraft cannot keep its base facing toward Earth. As it orbits the Earth, its position remains constant and eventually the cameras lose ground contact and stare into space.

A closed-circuit TV system installed on a \$2 million fisheries research vessel, the Albatross IV, is used for both surface and underwater observation. The system, installed by the Radio Corp. of America, consists of a remotely-controlled underwater camera, used to observe fish in their natural habitat, and three other cameras used for communication aboard ship. A low-power TV transmitter is capable of broadcasting pictures produced by the cameras so that they may be picked up by portable receivers anywhere on the weather decks. The transmitter is controlled from a switching console in the ship's wheelhouse where the operator selects which of the cameras to put "on the air." The pictures may also be received on six wired-in video monitors, including one at the control console. For underwater observation, the TV camera is encased in a special waterproof housing and mounted at the axle position of a wheel-like metal frame. The camera, with its cable connection to the ship goes overboard inside a large trawling net.

The School of Photography at Rochester Institute of Technology, Rochester 8, N.Y., has announced a special five-day course in materials and processes of photography, beginning September 16. The course is designed for engineers and applicants will be expected to hold the degree of Bachelor of Science, or an equivalent or higher degree. The course will consist of studies in statistical approaches, sensitometry, chemistry of the photographic process, image evaluation methods, physical characteristics of photographic materials, and contamination controls in the handling of these materials. Detailed information is available from Dean C. B.

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NBC NEWS CORRESPONDENT MARTIN AGRONSKY (FAR LEFT) INTERVIEWS CAPT. EDWARD COOKE ABOARD U.S.S. GEORGE WASHINGTON WHILE ARRIFLEX RECORDS THE EVENT.



DOWN UNDER, WHERE ELBOW SPACE IS A LUXURY, THE COMPACT ARRIFLEX FILMS MISSILE-FIRING ACTIVITY.

Filming of a realistic exercise aboard Polaris submarine U.S.S. George Washington, was climaxed by the actual launching of its missiles into the Atlantic Missile Range.

News Correspondent Martin Agronsky, Associate Producer Daniel Karasik and a crew of four created an hour-long documentary color film, "Polaris Submarine: Journal of an Undersea Voyage," shown over NBC-TV Network. Director Tom Priestly and Cameraman Scott Berner selected the compact, easily maneuverable Arriflex 16 for the pioneering job. The NBC newsmen, first TV team ever permitted aboard during a mission, met the Polaris

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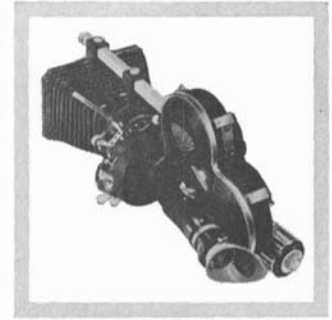
sub at sea. Once submerged, the George Washington was under "battle" orders not to resurface — for any reason — for 16 days.

Working day and night, approximately 14 hours a day, the camera crew filmed duty tours, church services, recreation activities and "bull" sessions of officers and men, then settled down to the serious business of missile-firing activity — recording the underwater launching after the warheads had been removed. Meeting all challenges on land, in the air, on the sea — or under it — Arriflex does its usual dependable job rapidly, accurately and economically. It will do the same for you.



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Images of Sound is the title of a photographic contest which will be held during the High Fidelity Music Show to be held September 11-15 in New York. The event is sponsored by the Institute of High Fidelity, Inc., 516 Fifth Ave., New York 36. Eight prizes, consisting of photographic and high fidelity component equipment will be awarded for the best photographs conveying ideas of sound.

Life Cycle of the Wasp has been awarded the Golden Eagle Award by the Committee on International Nontheatrical Events (CINE). It will be entered in the Venice Film Festival as one of the films chosen to represent the United States. Producer of the award-winning film is Milton J. Salzburg, President of Productions Unlimited, Inc., 1564 Broadway, New York 36.

Edward G. Stambouljian, Marketing Manager of AnSCO Motion Picture and Industrial Products for the Photo & Repro Division, General Aniline & Film Corp., Binghamton, N.Y., has been appointed Manager, Sales Analysis. Louis W. Jennis succeeds Mr. Stambouljian as Marketing Manager for AnSCO Products. Prior to his present appointment Mr. Jennis was field representative for AnSCO products.

Marshall L. Faber resigned May 20 from his post as Director of Program Development for Station KBTW, Channel 9, Denver, Colo., to open his own film production facilities at 312 S. Pearl St., Denver, where he will produce industrial motion pictures, TV commercials, educational films, and classroom instructional films. Previously, Mr. Faber owned and operated a motion-picture studio in Washington, D.C., where he produced medical films, industrial motion pictures and training films for the U.S. Navy.

B. G. Tubbs has been appointed President of Mitchell Camera Corp. of Glendale, Calif. He joined the firm in 1961 as Vice-President and General Manager, having previously served as President of the Vard Division of Royal Industries Inc., of Pasadena, Calif.

James Bergstrom, Production Superintendent of Minnesota Mining and Manufacturing Company's magnetic products installation at Hutchinson, Minn., has been appointed Manager of the firm's new magnetic products plant now under construction at Camarillo, Calif. It is expected that the new plant will be completed in October. Mr. Bergstrom joined 3M in 1951 as an industrial engineer. He transferred to the magnetic products division in 1956.

Four appointments at Kodak Park Works, Rochester, N.Y., have been announced.

Robert A. Sherman has been named comptroller of Kodak Park Works, succeeding Carl Grashof, Jr., who was recently elected Assistant Comptroller of Eastman Kodak. Mr. Sherman's successor is David S. Greenlaw who has been appointed Assistant Comptroller of Kodak Park. John M. Calhoun has been appointed Assistant Technical Advisor to the General Manager of Kodak Park, succeeding Mr. Greenlaw. Dr. Calhoun's successor is John T. Parker who has been appointed as Assistant Director of the Manufacturing Experiments Division.

J. Leslie Quigley has been appointed Director of Quality Control of the Apparatus & Optical Division of Eastman Kodak Co. John H. Eagle is his successor as Superintendent of Still Camera Development and Engineering. Mr. Quigley joined Kodak in 1938. His initial assignment involved work on high-intensity projection equipment used in the "Cavalcade of Color" at the 1939 New York World's Fair. Mr. Eagle joined the company's Hawk-Eye Works in Rochester in 1937. He was first assigned to the development of a standardization program for product design and later served as a product designer on lens programs.

David L. MacAdam is the new Editor of the *Journal of the Optical Society of America*, succeeding Deane B. Judd of the National Bureau of Standards. Dr. MacAdam is

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CONTROL TECHNIQUES IN FILM PROCESSING

Prepared by a Special Subcommittee of the Laboratory Practice Committee of the Society of Motion Picture and Television Engineers

WALTER I. KISNER
Subcommittee Chairman

Foreword by E. H. REICHARD
Chairman, Laboratory Practice Committee

CHAPTERS

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| 2. General Principles | 7. Sensitometric Control of a Standardized Process |
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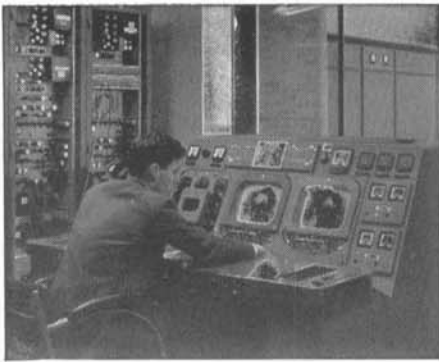
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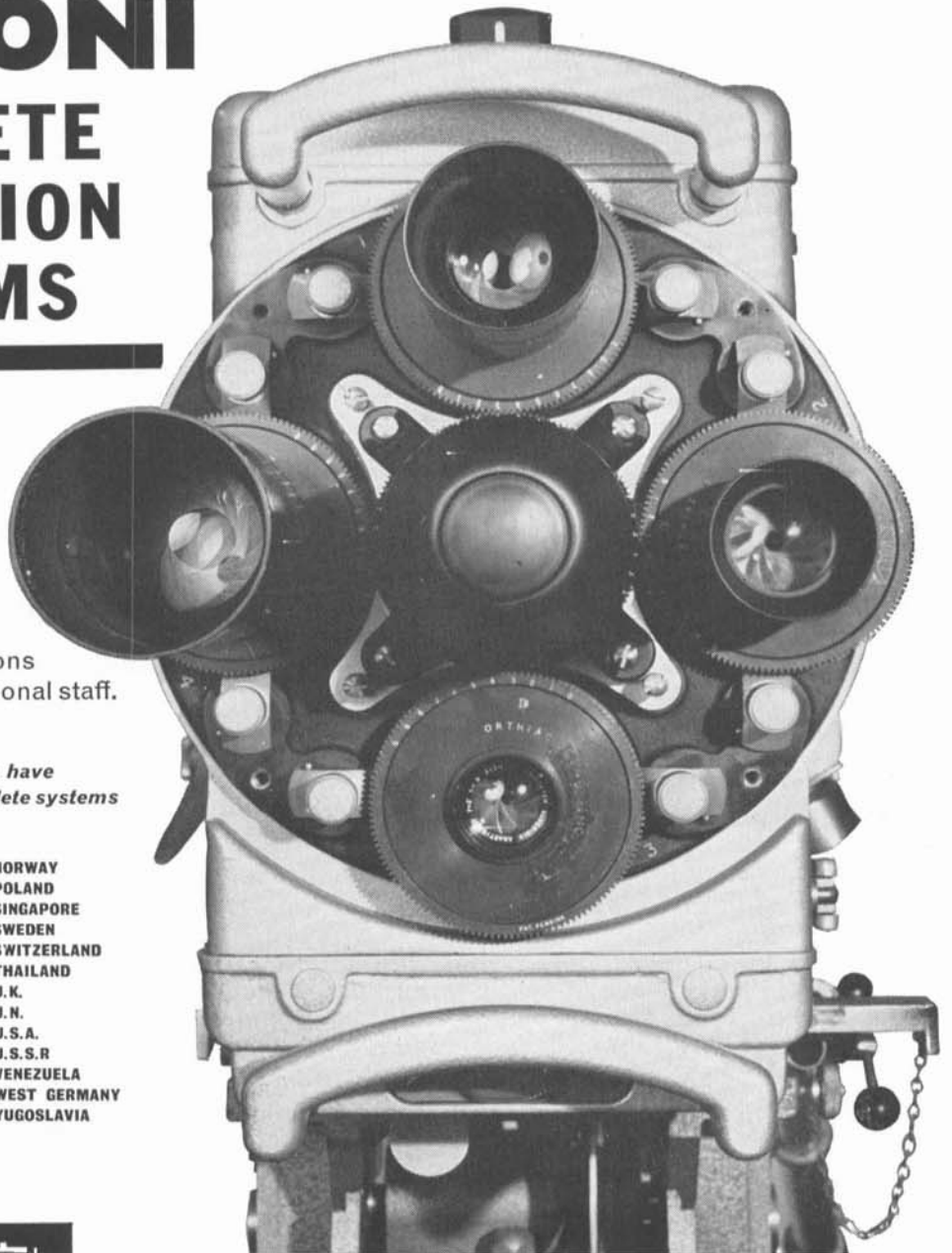
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head of the Image Structure Department, Physics Division, Kodak Research Laboratories. As the official publication of the Optical Society of America, its Journal has a circulation of about 7,000. Its Editor is elected to a three-year, renewable term. Among other achievements, Dr. MacAdam has pioneered in the application of automatic computing machines to scientific problems and has made studies of color measurement, the accuracy of color reproduction of color photography and printing, the theory of color photography, visual sensitivities to small color differences, visual adaptation to color, and color television.

Milford B. Moore has been appointed President and General Manager of Technology Instrument Corp. of California, a subsidiary of Bowmar Instrument Corp., 8000 Bluffton Rd., Fort Wayne, Ind. The firm specializes in precision single turn and multiturn potentiometers and other types of panel control and custom designed instruments. Prior to this appointment, Mr. Moore was Director of Manufacturing of Bowmar's Fort Wayne Division and had formerly been Vice-President of Manufacturing of Graflex, Inc., Rochester, N.Y.

Membership Certificates (Active and Associate members only). Attractive hand engrossed certificates, suitable for framing for display in offices or homes, may be obtained by writing to Society headquarters, at 9 East 41st St., New York 17, Price: \$2.50.

Obituaries



Rudolf Peterson

Rudolf Peterson, President and founder of the Motion Picture Equipment Company of Skokie, Ill., died suddenly May 9 in Chicago. Born June 6, 1905, in a small village in Sweden, he came to the United States in 1923 and began working with Oscar DePue that same year. He was chief engineer for DePue until 1948 when he left the firm to found the Motion Picture Equipment Company with the purpose of carrying out his ideas on motion-picture printers. Designer of a series of printers,

he also designed accessories for Bell & Howell printers, including sound printing head attachments and a fader now in use in many laboratories throughout the world. He had been a member of the Society since 1930.—James L. Wassell.



Adolph H. Rosenthal

Adolph H. Rosenthal died July 21, 1962, at his home in Forest Hills, N.Y. At the time of his death he was Scientific Advisor to the President of Kollsman Instrument Corp., Elmhurst, N.Y. He was born in Frankfurt, Germany, in 1906 and was graduated from the J. W. von Goethe University, Frankfurt-am-Main, Germany, with the degree of Doctor of Philosophy in Physics. He did post-graduate work at the Astrophysical Observatory, Potsdam, Germany, at the Observatory, Zürich, Switzerland, and the University of Utrecht, Holland. He became a member of the academic staff of J. W. von Goethe University in 1929 and left in 1933. From 1936 until 1948 he was Director of Research and Development for Scopphony Corp. In 1948 he became Vice-president and Director of Research and Development for Freed Electronics Corp. in New York, and in 1955, when this company merged with Fairchild Camera and Instrument Corp., he became Vice-president and Senior Research Program Director for Fairchild, a post he held until January 1961 when he joined Kollsman Instrument Corp. Dr. Rosenthal held a number of patents in the fields of optics and astronomy. He was a long-time member of the Society and was also a member of the American Physical Society and the Optical Society of America. He was a Fellow of the Television Society of Great Britain and of the Royal Astronomical Society.

Books, Booklets, Brochures

This is the EBU is a 40-page illustrated booklet describing the European Broadcasting Union in terms of its aims and organization, activities and publications. It is published by the Technical Centre of the European Broadcasting Union, 32, avenue Albert Lancaster, Brussels 18, Belgium. The E.B.U., as defined in the booklet is a "nongovernmental International organization whose object is to take care of the interests of organizations operating broadcasting services. It is a

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