**3-7 October 1977**
**CISCO — International Fair for Cinema, Theater, Convention Hall Equipment and Related Material,** Paris, France. Info from Nicole Hiep, CISCO, 3, Rue Garnier, 92200 Neuilly Sur Siene, France.

**5-8 October 1977**
**IFPA Film and Video Communicators National Conference,** Trade Show and Cindy Awards Festival, Chicago. Info from IFPA National Office, 3518 Cahuenga Blvd. W, Suite 313 Hollywood, CA 90068.

**9-15 October 1977**
**International Telecommunication Exposition,** Atlanta, Ga. Info from Conference Manager, Intelcom 77, Washington St., Dedham, MA 02026.

**10-14 October 1977**
**Optical Society of America 1977 Annual Meeting,** Royal York Hotel, Toronto. Info from Optical Soc. of America, 2000 L St., N.W., Washington, DC 20036 (See *Journal,* p. 447, June 1977.)

**11-15 October 1977**
**14th Yorkton International Film Festival.** Info from Box 477, Yorkton, Saskatchewan, Can. S3N 2W4.

**14-16 October 1977**
**ITVA Conference on Nonbroadcast Television,** Austin, Tex. Info from Sharon Williams, 9101 Lipan, Suite 106, Houston, TX 77063. (See above.)

**16-21 October 1977**
**SMPTE 119th Technical Conference and Equipment Exhibit, Century-Plaza Hotel, Los Angeles. Info from SMPTE Headquarters**

**18-20 October 1977**
**INTERNEPCON UK 77,** Metropole Exhibition Centre, Brighton, England. Info from British Information Services, 845 Third Ave., New York, NY 10022.

**18-21 October 1977**
**American Society of Photogrammetry and American Congress on Surveying and Mapping Technical Meeting,** Little Rock, Ark. Info from Charles H. Croom, USGS, 1400 Independence Rd., Rolla, MO 65401.

**24-25 October 1977**
**SPSE Seminar, Recent Advances in the Psychophysical and Visual Aspects of Image Evaluation,** Holiday Inn, Rochester, N.Y. Info from SPSE, 1411 K St., N.W., Suite 930, Washington, DC 20005. (See *Journal,* p. 447, June 1977 and above.)

**25-27 October 1977**
**Electro-Optics/Laser '77 Conference and Exposition,** Anaheim, Calif. Info from Bill Ashman, Industrial & Scientific Conference Management, Inc., 222 W. Adams St., Chicago, IL 60606. (See *Journal,* p. 896, Nov. 1976.)

**4-5 November 1977**
**Midwest Seminar on Videotape and Film,** Marriott Hotel, Chicago. Info from Midwest Seminar on Videotape and Film, P.O. Box 11376, Chicago, IL 60611.

**6-11 November 1977**
**Sensing of Environmental Pollutants,** Fourth Joint Conference, New Orleans Hotel, New Orleans, La. Info from V. E. Derr, Program Chairman, 4th Joint Conference, National Oceanic and Atmospheric Administration, ERL-WPL, R45.3, Boulder, CO 80302.

**9-12 November 1977**
**SPSE International Conference on Electrophotography,** Marriott Twin Bridges Hotel, Washington, D.C. Info from Robert H. Wood, Executive Director, SPSE, 1411 K St., N.W., Suite 930, Washington, DC 20005.

**10-11 November 1977**
**Workshop on Optical Fabrication and Testing,** Royal Coach Hotel, San Mateo, Calif. Info from Optical Soc. of America, 2000 L St., N.W., Washington, DC 20036.

**13-16 November 1977**
**Illuminating Engineering Society's Theatre, Television and Film Lighting Committee National Symposium,** Miami, Fla. Info from Dale Gilchrist, 2975 South 300 West, Salt Lake City, UT 84115.

**13-17 November 1977**
**NAEB Convention,** Washington, D.C. Info from James A. Fellows, NAEB, 1346 Connecticut Ave., N.W., Washington, DC 20036. (See *Journal,* p. 512, July 1977.)

**14-16 November 1977**
**Second Annual International Videodisc Programming Conference,** New York City. Info from IVDC, P.O. Box 102, Cooper Sta., New York, NY 10003.

**15-18 November 1977**
**SPSE Third International Conference on Electrophotography,** Washington, D.C. Info from Society of Photographic Scientists and Engineers, 1411 K St., N.W., Washington, DC 20005. (See *Journal,* p. 230, Apr. 1977.)

**6-8 December 1977**
**CINE Meeting,** Mayflower Hotel, Washington, D.C. Info from Council on International Nontheatrical Events, 1201 16th St., N.W., Washington, DC 20036.

**16-18 January 1978**
**OSA Meeting on Integrated and Guided Wave Optics,** Salt Lake City, Ut. Info from Optical Society of America, 2000 L St., N.W., Washington, DC 20036.

**3-4 February 1978**
**SMPTE Television Conference, Sheraton Atlanta Hotel, Atlanta, Ga., Info from SMPTE Headquarters.**

**7-9 February 1978**
**Conference on Laser and Electro-Optical Systems,** Town and Country Hotel, San Diego, Calif. Info from Jarus W. Quinn, Executive Director, Optical Soc. of America, Suite 620, 2000 L St., N.W., Washington, DC 20036.

**17 February 1978**
**Midwest Film Conference,** Marriott O'Hare Hotel, Chicago. Info from Bruce Trinz, 308 B Frontage Rd., Northfield, IL 60093. (See above.)

# Industry News & Educational Activities

## Scholarship Awards

The SMPTE Scholarship Committee has selected two recipients of the SMPTE Scholarship (for undergraduate students) and three recipients of the Academy-SMPTE Scholarships, as reported by Herbert E. Farmer, Chairman of the Scholarship Committee.

Recipients of the SMPTE scholarship are Henry Farcus, Temple University, and John Griffith, Rochester Institute of Technology. Academy-SMPTE scholarships have been awarded to Diana Aceti, New York University, Michael Barrett, University of California Santa Barbara, and John Katchmer, Boston University.

The scholarship program, sponsored by the Academy of Motion Picture Arts and Sciences and the SMPTE was established in 1971 with the Academy providing grants for graduate students to be administered by the SMPTE. Grants for undergraduate students were established by the Society. Purpose of the Scholarship Program is to encourage study and research by students in the sciences and technologies related to the production of motion pictures. Winners of the first undergraduate scholarships in 1971 were Paul Dennis Berg, who hoped to do research in photographic chemistry or geometrical optics, and Charles George Cyberski who was especially interested in the uses of super-8 film and ½-in helical scan videotape.

The Academy graduate scholarships in 1971 were awarded to Takshi Inagaki, who was interested in developing a knowledge of film optics with possible computer application, and Jay Milton Steinberg, who was especially interested in educational and instructional film and television.

The winners of the 1977 grants exhibit both a love for their chosen field within the broad areas of motion picture and television engineering and a determination to succeed.

### SMPTE Scholarships

Henry Farcus, whose major field in Temple University is radio-television-film, is especially interested in sound. He says that his goals include "keeping abreast of new developments in sound technology and using these means to their greatest creative potential not only in sound but

also in music." He notes that "by using what is available in a studio and/or my synthesizer, I can offer sound effects both real and unreal."

John Griffith, who is working toward a Bachelor of Science degree at Rochester Institute of Technology, hopes for a career doing applied research or product development on photographic imaging systems.

**Academy Scholarships**

Diana Aceti, who hopes to earn the MFA degree at New York University, wants to make films and to direct. At present she is dealing with the visual aspects of film such as composition, light and space. She realizes, she said, that she may begin her career by doing technical work for a time. "I am enthusiastic and determined to succeed in fulfilling my dream," she said.

Michael Barrett, who is working toward a PhD degree in Electrical Engineering at the University of California Santa Barbara, decided to study neurophysiology. He chose auditory physiology, he said, because it seems to have the greatest need for engineering mathematics.

He is working on a project designed to lead to a greater understanding of the nonlinear encoding of sound at the level of the auditory nerve. He believes that knowledge of the aspects of the sound-pressure waveform to which the ear is most sensitive will lead to a more effective code for sound recording and transmission.

John Katchmer, who is working toward a Master of Science degree in Broadcasting and Film at Boston University, said that his scholarly ambition is to use film as the medium in which to discuss, explore, and to attempt to integrate the subjects of science, art and philosphy. His professional ambition, he said, is to "learn about, understand, and eventually utilize many varied forms of cinematic expression to increase the area in which my ideas and themes can be developed."

The long-range benefits of these scholarships, granted to young people who might not otherwise be able to realize their dreams and ambitions, cannot be predicted in objective terms. It is, however, safe to assume that the arts, sciences and technologies of motion picture will, in the future, be enhanced due to the Academy and SMPTE scholarships.

**The 13th International Congress On High Speed Photography and Photonics** will be held 20–25 August 1978 (See *Journal*, p. 231, April 1977). Discussions are in progress for holding a meeting of the Aero Ballistic Range Organization before or after the 13th Congress. Tentative plans are now underway for travel and tour arrangements to enable members of both organizations to attend both meetings. Arrangements have been discussed by Japanese representatives of both organizations and possible travel and tour itineraries have been set up by Tanaka Travel Service, headquartered in San Francisco. The suggested travel plans have been arranged not only for economy but to provide interesting tours in and around Tokyo. Plans for the 13th International Congress will be reported in the *Journal* as they become more definite. Further information is available from Lincoln Endelman, c/o Perkin-Elmer, 411 Clyde Ave., Mountain View, CA 94040.

**The history of American acoustics,** beginning in 1954 with Joseph Henry's acoustical design of the Smithsonian Institution's original lecture hall, is given in six papers presented at the Bicentennial Session of the 91st meeting of the Acoustical Society in April 1976 in Washington, D.C., under the chairmanship of Richard K. Cook. The six papers now appear in the February 1977 issue of the *Journal of the Acoustical Society of America*, American Institute of Physics, 335 E. 45 St., New York, NY 10017.

The very beginning of architectural acoustics as an exact science is believed to have begun with Henry. In designing the Smithsonian's lecture hall he discovered the "limit of perceptibility" (now known as the "precedence effect") to locate sound-reflection wall and ceiling surfaces.

The six papers provide a comprehensive detailed account of the development of the engineering science of acoustics from 1854 to 1940, except for the paper on Undersea Acoustics which covers the years from 1900 to 1950. The papers, well illustrated, some of them with delightfully quaint drawings of early acoustical equipment, are written to provide information and enjoyment for the average reader as well as for practitioners in the field. These historical papers are replete with fascinating facts. For example, the familiar term "decibel" was coined in 1929 by Bell Telephone Laboratories to replace the earlier "sensation unit."

Titles and authors of the papers are: Architectural Acoustics in America to 1930, Robert S. Shankland; Building Acoustics in America — 1920–1940, Hale J. Sabine; Psychological and Physiological Acoustics — 1920–1942, Hallowell Davis; Electroacoustics to 1940, John K. Hilliard; Acoustical Measurements and Instrumentation; Harry B. Miller; Review of Undersea Acoustics to 1950, Marvin Lasky.

**The Werner-von-Siemens Ring,** an award established by the Werner-von-Siemens Ring Foundation to honor outstanding scientists and engineers, was presented to Walter Bruch and Wernher von Braun on 13 December 1976 during ceremonies held at Nymphenburg, Federal Republic of Germany. The Ring is awarded every four years. It was established to honor during their lifetime persons who through their accomplishments have contributed to progress in the engineering disciplines or who through their research have opened new roads to engineering achievements. Present at the ceremony was Walter Scheel, President of the German Federal Republic, and other distinguished guests.

The award was presented to Walter Bruch to honor his pioneering achievements with regard to the advancement of television technology and the establishment of the PAL television system.

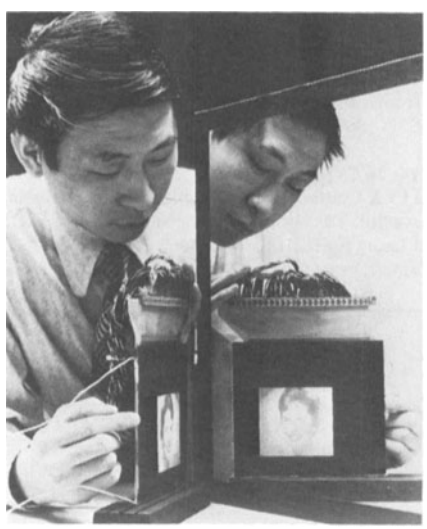
Wernher von Braun was given the award in recognition of his indefatigable and successful efforts as an engineer and scientist toward the development of the giant rocket for manned and unmanned travel in outer space.

**The American Society of Cinematographers** will sponsor the third annual ASC awards event for the Best Photographed College Film of 1976–77 in October, it was announced by Linwood G. Dunn, president. More than 200 schools are expected to participate. An ASC committee will supervise the event. Film entries, submitted by the heads of college film departments must be student-photographed and in 16mm or 35mm. A specially designed trophy will be presented to the winning student and another trophy will be awarded to the school which produced the film.

**Argentina will have color television** and the world championship soccer matches to be held in 1978 in Argentina will be televised in color. The matches will take place in six stadiums —Buenos Aires-Velez Sarsfield, Buenos Aires-River Plate, Rosario, Córdoba, Mendoza and Mar del Plata. Argentina 78 Televisora (A 78 TV), the organization responsible for the television transmission of the world championship matches, selected the PAL/M system for broadcasting. Major manufacturers and suppliers selected by A 78 TV to provide equipment include Robert Bosch-Fernseh (Darmstadt, Federal Republic of Germany); Jos. Schneider & Co. (Bad Kreuznach); Telefunken; and Siemens. Bosch-Fernseh will supply studios for each stadium and will also supply a television production center as well as four color OB vans and 44 KCK studio cameras. The firm has equipped the Baldarco Satellite Station with a standards converter for worldwide transmission.

Jos. Schneider & Co. will supply 44 television lenses. Argentinian service technicians will be sent to Bad Kreuznach for training and Schneider will supply two service technicians to Argentina for the duration of the championship games.

Telefunken and Siemens will supply some studio equipment and transmission trucks.



**Real-time video performance** on a thin-film transistorized electroluminescent (EL) panel only ⅛-in thick has been demonstrated at Westinghouse Research Laboratories, Westinghouse Building, Gateway Center, Pittsburgh, PA 15222.

In 1974 Westinghouse announced the development of a ⅛-in-thick display panel designed for digital, alphanumeric display. Because the microminiature thin-film transistors that control the brightness of the elements are also capable of gray-scale operation, Westinghouse scientists decided to investigate the real-time, gray-scale capabilities of the 6- X 6-in, 20- and 30-line/in array within the EL display panels. Development has progressed to the point where the picture on the panel can be taken directly from any videotaped feed or commercial television signal; however, Westinghouse reports, further study is required before the thin-film panel can provide the line resolution and brightness of commercial television receivers.

The thin-film transitorized panel is actually an enormous integrated circuit measuring six inches square. It has 12,000 glowing picture elements in a 110- X 110-element format. The picture elements are phosphor dots that light up when electricity passes through them, similar to the phosphor dots on the inside face of a television picture tube or cathode ray tube. The matrix of dots is produced by vacuum depositing thousands of tiny interlocked thin-film circuits onto

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- Pointer "memory" lock.
- Accessories: 1° spot attachment, fiber optics probe, enlarging/densitometry attachment, ground-glass reader, microscope/telescope adapter.

**New Spectra® Professional™ II**

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- Easy-to-read scales: exposures 8 hrs—1/8,000th sec., 1—256 fps; apertures f0.7—f90; footcandles 0.008—80,000; ASA 0.1—25,000.
- Pointer "memory" lock.
- Accepts same accessories as Combi™ II.

**New Spectra® Lumicon™**

- Silicon-cell footcandle meter (for illuminance measurement only)
- Three measuring ranges: 0.004—10 fc, 0.4—1,000 fc, 40—100,000 fc.
- Pointer "memory" lock.
- Accepts accessory 1°spot attachment for direct Foot-Lambert (luminance) readings, plus all other Spectra Series II accessories.

a glass substrate, coating the circuits with a phosphor film and sealing the "sandwich" with a glass cover plate.

Each individual element consists of two thin-film transistors, a storage capacitor and a phosphor overlay material. The transistorized matrix allows separate elements to be energized without activating others in the same row or column. Moving images are formed when a number of dots are triggered almost simultaneously across the entire screen 30 times per second. The transistors also control the dots' brightness.

F. C. Luo (shown above), the scientist who built the 20- and 30-lines/in panels, is currently working on a 3¾- X 5-in display panel designed specifically for television imaging. The panel will use a white phosphor rather than the green of the alphnumeric displays. It will have 262 lines and will consist of more than 80,000 elements. Work is also in progress to increase the line density to 100 and even to 128 lines/in.

The major obstacle to developing a solid-state screen to a performance level comparable to commercial television, according to the Westinghouse report, has been that of distributing the information to large numbers of picture points by some sort of wiring. There has been no practical way of wiring 100,000 or more light-emitting dots, one by one. Now, through thin-film transistor technology, the wiring is integrated into the panel itself. Leads on two sides of the panel feed signals to the thin-film circuit matrix which then energizes the EL cells.

The development of scanning and edge driver circuits, which can be simultaneously deposited onto the substrate along with the transistorized matrix, can further reduce the number of external leads from the present 220 to about 20. Continuous shading, rather than the eight levels of brightness now used can be achieved through a modification of the drive electronics, the report predicts. Substantially better television-type performance is expected from panels designed specifically for video display.

**Servicing of complex electronic products** using computer-type circuits is made easier through the use of a new technique developed by Hewlett-Packard Co. Called Signature Analysis, the technique enables a service technician to locate faults in microprocessed-based logic circuitry with a simple-tracing method similar to techniques employed in radio and television servicing. Signature analysis must be designed into the product during the initial design phase.

Conventional trouble shooting instruments and techniques used in servicing analog devices cannot be used in servicing logic circuitry because of the characteristics of the electrical signals in the circuit. Viewed on an oscilloscope, all of the signals in both good and faulty bit streams resemble square waves. Thus, a analog voltmeter can detect only the presence or absence of a signal. Neither instrument can detect whether a bit stream is correct or if timing relationships are correct. Signature Analysis, used with an instrument developed by Hewlett Packard (Model 5004A Signature Analyzer shown above), gives the service technician the means of finding a faulty bit streams with almost 100% accuracy by probing points in the circuit specified in a guide supplied by the products manufacturer. Each test point produces a hexidecimal number shown on the instrument's display panel. If the signature does not correspond with that given in the manufacturer's service manual, the technician follows further instructions to pinpoint the fault. Using the new technique and the Signature Analyzer, the serviceman can trace the fault to a single node. Previously if a fault were localized to a part of the circuit the entire circuit board had to be replaced.

**The 1977 edition of the NAVA Membership Directory** has been published by the National Audio-Visual Association, 3150 Spring St., Fairfax, VA 22030. Single copies are available without charge upon request. The *Directory* lists the more than 1000 member firms in several categories. Member dealer firms, their branch locations, film libraries and consulting companies are listed both geographically and alphabetically. Complete information on the company and the products and services offered is provided. Special service members, independent A-V representatives and international commercial members are listed in separate sections of the *Directory*.

**A User's Look at the Audiovisual World** has been updated and copies are available from the National Audio-Visual Association, 3150 Spring St., Fairfax, VA 22030, at a price of $1.00 each. First published in 1973, the material is still relevant, the announcement stated, but certain additions and revisions have been made and the "Bibliography and Reference Guide" has been brought up to date.

**Marconi Communications Systems Ltd.** of Chelmsford, Essex, England, will manufacture and market Ampex 1-in helical videotape recorders according to terms of an agreement with Ampex Corp. of Redwood City, Calif. Basically, the agreement covers the production in Chelmsford and the marketing world-wide of two new videotape recorders — the MR1 and the MR10 — which are equivalent to the Ampex VPR1 and the VPR10. The MR1, available in five different configurations, combines the advantages of low head wear and reduced tape consumption with slow motion and still frame capability. The MR10 embodies the recording characteristics in little more than one cubic foot of space. Applications include electronic journalism and other activities where great mobility is a prerequisite. Both the MR1 and the MR10 will use formats identical to their Ampex equivalents and tapes will be interchangeable between machines.

**North American Philips Corp.** has announced that its subsidiary, Magnavox Consumer Electronics Co., will market the Matsushita VHS (Video Home System) videotape recorder in the United States according to terms of an agreement with Matsushita Electric Co. Plans call for Matsushita to manufacture VHS videotape recorders to Magnavox design specifications. According to the specifications, the VHS recorders will have a four-hour record and play capability, an integral television tuner to permit the user to view one program while taping another, and a built-in electronic timer to provide for unattended recording.

**Wometco Film Laboratories** has opened a new office at 3030 Peachtree Rd., N.W., Atlanta, Ga., headed by David Gordon. The new sales office offers services to customers throughout the entire southern portion of the United States. Wometco's headquarters are at 306 North Miami Ave., Miami FL 33128. It offers complete processing facilities for super 8, 16mm and 35mm with full capabilities in sound.

**Alan Gordon Enterprises Inc.,** 5362 North Cahuenga Blvd., North Hollywood, CA 91601, has acquired the tooling and inventory of National Cine Equipment animation motors, according to a recent announcement. The motors, constructed of cast aluminum, are available for most professional motion-picture cameras.

**Stockdale Corp.,** 2211 West 2300 South, Salt Lake City, UT 84119, has acquired the assets and buildings of Cine-Chrome Laboratories in Palo Alto, Calif., according to an announcement by S. Patrick Stockdale, President. The new facility, located at 4083 Transport St. in Palo Alto, has been renamed Photo-Tech Laboratories. John Hunt, formerly Director of Sales for Cine-Chrome Labs, has been named General Manager.

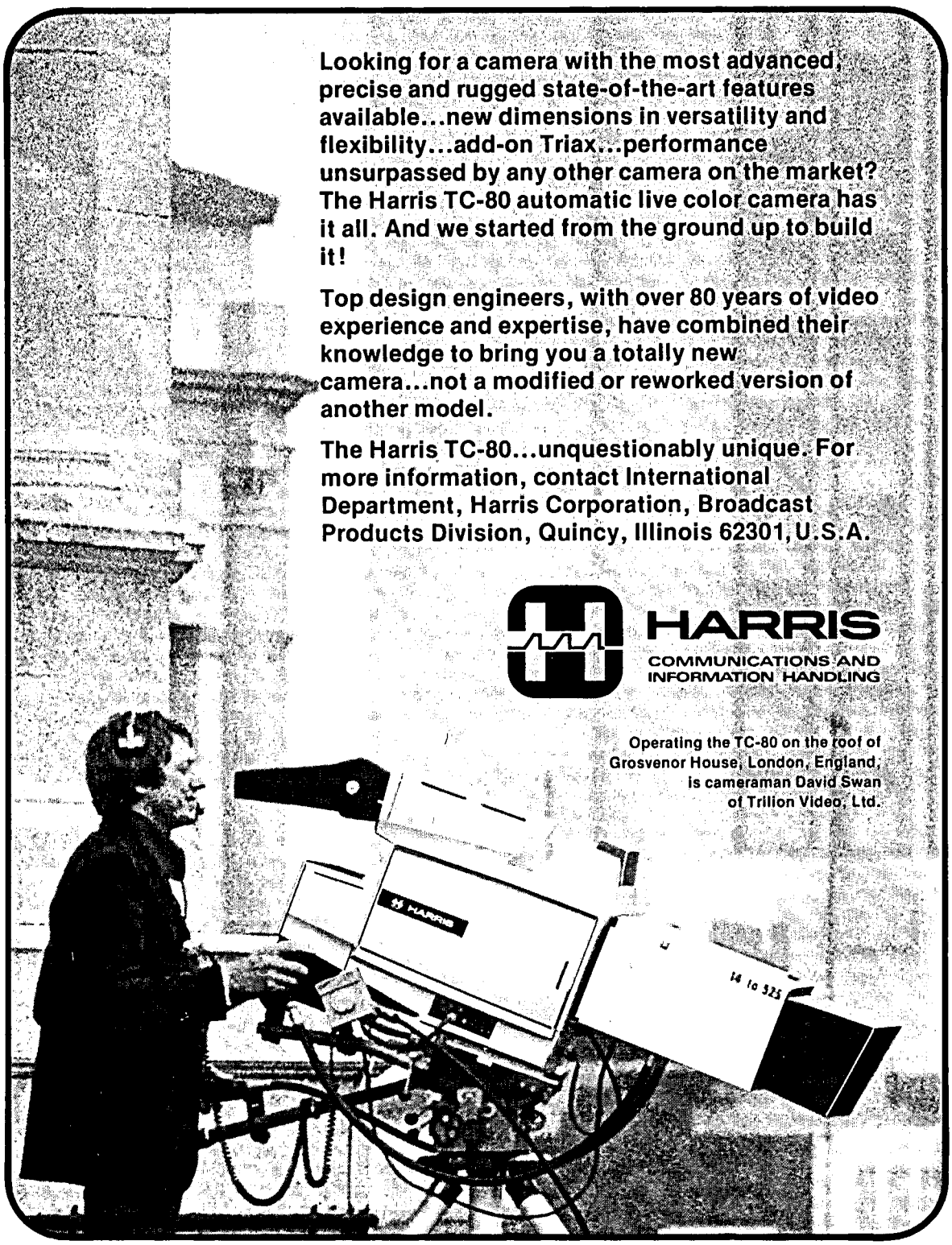
**Vladimir Kosma Zworykin,** 87, a pioneer in the development of television, has been elected to the National Inventors Hall of Fame. An Honorary Member of the SMPTE, he received the SMPTE Progress Medal in 1950 for outstanding contributions to the development of television. Elected an Honorary Vice-President of RCA Corp. following his retirement in 1954, he was provided with an office at the David Sarnoff Research Center where he engages in independent research in medical electronics and related fields.

At RCA Laboratories, Dr. Zworykin was involved in many television developments including the iconoscope — a revolutionary TV camera tube that made possible practical picture transmission — and the kinescope. He holds more than 120 U.S. patents on developments ranging from television to gunnery controls to electrically controlled missiles and automobiles.

Others elected with Dr. Zworykin to the National Inventors Hall of Fame are Edwin H. Land (Polaroid camera) and (posthumously) Lee de Forest (electronic tubes), George Eastman (Kodak) and George Steinmetz (electric power and transmission). Lee de Forest and George Eastman are on the Honor Roll of the Society.

**Joseph A. Flaherty** has been appointed to the new position of Vice-President, Engineering and Development, Production Facilities and Engineering. He has been a member of the professional engineering staff of CBS Television Network since 1957 and has been General Manager, Engineering and Development, since 1967. The Production Facilities and Engineering Department of CBS Television Network was formerly known as Operations and Engineering. Before joining CBS Flaherty was a member of the NBC technical staff in New York; earlier he had been a senior engineer with WDAF-TV in Kansas City, Mo.

# The Harris TC-80... New From The Ground Up



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Operating the TC-80 on the roof of Grosvenor House, London, England, is cameraman David Swan of Trilion Video, Ltd.

**Richard F. O'Brion** has joined JVC Industries, Inc., 58-75 Queens Midtown Expwy., Maspeth, NY 11378, it was announced by JVC President S. Hori. Before joining JVC O'Brion was with Sony Corp. of America as Vice-President of Marketing of Video Products. Earlier he had been affiliated with Ampex Corp. and with the A. B. DuMont Laboratories.

**Brant A. Hughes** has been appointed Rental Manager of the Chicago Office of Victor Duncan, Inc., it was announced by Victor Duncan, President. Hughes was formerly Assistant Manager of Rentals in Victor Duncan headquarters at 2659 Fondren, Dallas, TX 75206.

**Donald V. Kleffman** has been appointed Vice-President/General Manager of the Audio-Video Systems Division of Ampex Corp., 401 Broadway, Redwood City, CA 94063. Kleffman has been with Ampex since 1959, first as an applications engineer; later he held both product and marketing manager positions.

## Books, Booklets and Brochures

**A high-resolution, low-light-level TV camera** designed to operate all Westinghouse 25mm secondary-electron-conduction (SEC) and electron-bombarded-silicon (EBS) camera tubes is described in Technical Bulletin 86-557T available upon request from Westinghouse Electric Corp., Industrial and Government Tube Div., Westinghouse Circle, Horseheads, NY 14845. Applications for the camera (ETV-625E) include astronomy, microscopy, spectroscopy, electron microscopy and nondestructive testing. The bulletin describes the camera's construction and operating features and gives complete electrical, mechanical and environmental specifications. Dimensional diagrams of both the camera head and the control unit are included.

**A new photodiode brochure** entitled *World's Largest Electro Optic Detector Catalog* is available upon request from Quantrad Corp., 2261 S. Carmelina Ave., Los Angeles, CA 90064. The catalog gives technical and operational specifications for more than 40 devices. These silicon photodetectors include PIN large area devices, photovoltaic cells, long line detectors, and position sensing diodes.

**Sharp electrooptic devices** are described in a catalog available upon request from Quantrad Corp., 2261 S. Carmelina Ave., Los Angeles, CA 90064. Products covered include photodiodes, phototransistors, IR LEDs, opto isolators, self-scanned arrays, solar cells and detector-amplifier combinations. Operating parameters and physical descriptions of more than 50 devices are given.

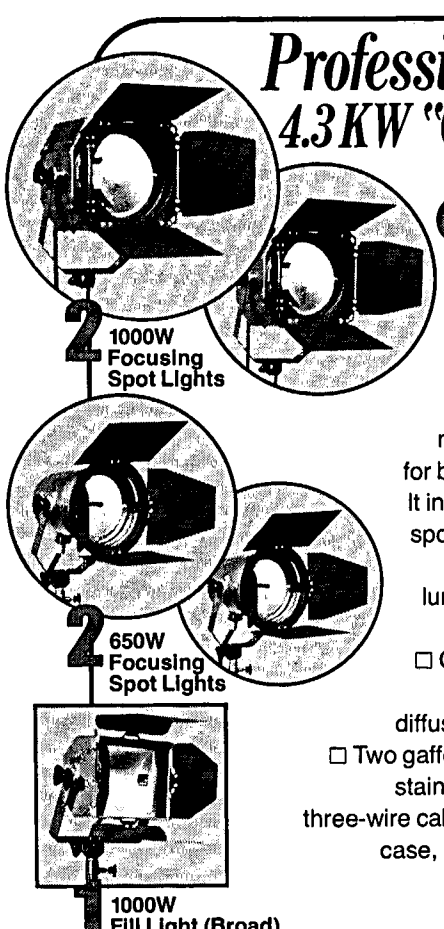
**The RTI 1977 Catalog** listing more than 100 new audiovisual items is available upon request from Research Technology Inc., P.O. Box 730, Skokie, IL 60076. The catalog lists the RTI line of film inspection/cleaning equipment, videotape conditioners and storage systems. RTI recently expanded their line of 16mm film inspection/cleaning equipment to include models for 35mm and super-8 films. The catalog also lists a low-priced line of portable cleaning units for filmstrips and 16mm/35mm/8mm films.

**Allen Products** motion-picture film processors are described in an illustrated brochure available upon request from The Allen Products Co., 180 Wampus Lane, Milford, CT 06460.

**101 Ways to Get More Out of Your Video Equipment,** an illustrated guide to better results from helical video equipment through modifications, maintenance, accessories and repairs, is available upon request from Adwar Video Corp., 100 Fifth Ave., New York, NY 10011.

**The Optical Industry & Systems Directory** (23rd edition) in two volumes (1036 pp.), described as the international encyclopedia of Optical, Electrooptical and Laser Technology, is available from The Optical Publishing Company, P.O. Box 1146, Pittsfield, MA 01201 at a price of $32 for the two-volume set if prepaid within the United States or $35 if invoiced. Outside the United States the price is $35, prepaid only. Volume II is available separately at a price of $12.95 (prepaid); $14.95 (invoiced); $14.95 prepaid only outside the United States. Volume I is not available separately. Both volumes are profusely illustrated.

Volume I contains two complete indexes where more than 1200 categories of products and services are indexed, first in alphabetical order and second in alphabetical order with major product categories. Under categories the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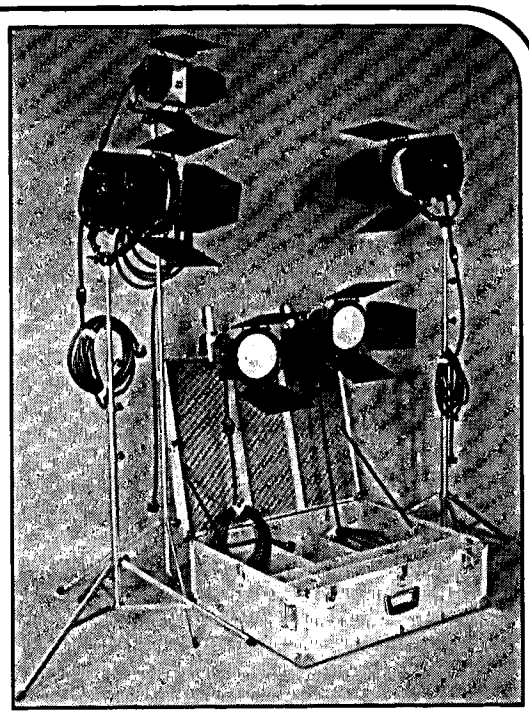

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