Report of the 113th Technical Conference

A new hotel of distinctive design and first-rate accommodations provided the setting of SMPTE's 113th Semiannual Technical Conference and Equipment Exhibit in Chicago April 8–14. The hotel, the Hyatt Regency O'Hare, was unusual architecturally. For example, the lobby was 12 stories high. Yet because it was designed as a convention hotel, the facilities for SMPTE's technical sessions and equipment exhibit were ideal.

The Conference was originally scheduled for a different, downtown, hotel. But the Hyatt's superior facilities made the change desirable. In the end, this proved a wise choice for those attending the Conference. The minor disadvantage of being far from downtown Chicago was outweighed by the excellence of the hotel and its proximity to the airport.

The Conference suffered unusually bad weather for that time of year (early April). High winds, snowstorms and torrential rain created hardship for many who planned to attend the Conference. Though the weather was a factor in the Conference's attendance, the total number who came was substantial and exceeded the attendance of recent Chicago Conferences.

The weather forced the cancellation or postponement of several technical papers. It was impossible for authors residing in snowbound areas to get to Chicago. Nevertheless, the Conference went on and no one was disappointed.

Conference Committees

The importance of local committees to the success of SMPTE Conferences cannot be minimized. The work performed by members of these committees is formidable simply because the needs of SMPTE Conferences are so substantial. It must be remembered that all committee work is voluntary. So the SMPTE and its members are indebted to those who gave their time and effort to put on such a large and successful undertaking as the 113th Conference.

There are two basic Conference committees: Program and Arrangements. Program Chairman was Hartwell T. Sweeney, Eastman Kodak Co., who had primary responsibility for putting together the week's technical papers program. Sweeney was assisted by topic chairmen who participated in solicitation of the papers for the first three days of the Conference. The topic chairmen, and their respective topics were: William Bowles, Calvin Communications, *Non-Video Display Systems;* Harry Paney, Arthur Anderson & Co., *Industrial TV and Motion Picture Operations;* Dick Kraemer, Iowa State University, *Motion Pictures and Television in Education;* William Hunter, WHAS-TV, *Television/CATV;* Sherwin Becker, Allied Film Lab., *Laboratory Practices;* William Hyzer, *High-Speed Photography and Instrumentation;* Thomas Spence, Ohio Bell Telephone, *Small Format — Manufacturing.*

The final two days of Conference week featured the Symposium on Video Cartridge, Cassette and Disc Player Systems — Packaged Programing. The Symposium Chairman was George W. Tressell, Battelle Memorial Institute; the Symposium Vice Chairman was Donald Buckelew, also of Battelle.

Members of the Arrangements Committee.

Matt Herman, Geo. W. Colburn Laboratory, was Arrangements Chairman. Byron Friend, Telecine Film Studio, Inc., was Arrangements Vice Chairman. Chairmen of committees in specific areas follows: John Ehrenberg, Bell & Howell, *Equipment Exhibit;* Jack Behrend, Behrend's, Inc., *Hotel Arrangements;* Ed Rinker, DeLuxe General of Illinois, Inc., *Registration;* Phyllis Abboud, Chicago Audio Visual, *Ladies Program;* Henry Kakehashi, International Film Bureau, *Short Film Subjects;* Joe Pusateri, Douglas Film Industries, *Transportation;* Al Johnson, Fischer Sygnet, *Membership;* and Harold Miller, Bell & Howell, *Public Address and Recording.*

Other committee chairmen were Bill Harder, Fred A. Niles Communications Center, *Projection;* Gene Webber, *Get-Together Luncheon;* Bruce Peterson, Peterson Enterprises, *Banquet;* George W. Smith, Jr., A. B. Dick Co., *Publicity;* and Harold Kinzle, Eskay Film Services, *Auditor.*

The ultimate responsibility for SMPTE Conferences lies in the hands of the Editorial Vice President Gerald G. Graham, National Film Board of Canada, for the Program part, and the Conference Vice President, Harry Teitelbaum, Hollywood Film Co., for the arrangements.

Get-Together Luncheon

The SMPTE Get-Together Luncheon, held at noon Monday, officially opened the SMPTE Conference. Presiding at the Luncheon was SMPTE President Byron S. Roudabush.

This luncheon was marked by the presentation of the first annual John Grierson International Technical Award. It was awarded to the late George Colburn and accepted by his wife, Mrs. Evelyn Colburn. Presenting the award to Mrs. Colburn, and delivering a brief talk on the origins of the award and the reasons for giving the first award to Mr. Colburn, was Gerald G. Graham, SMPTE Editorial Vice President and representative of the National Film Board of Canada which is sponsoring the award. Below are excerpts of Mr. Graham's comments.

Presentation Speech for the First Annual John Grierson International Technical Award

"I approach this task with a mixture of sadness and pride. It is difficult to speak of good friends who cannot be with us and yet it is a privilege to play some small part in commemorating their contribution to our industry.

Gerald G. Graham presents the first annual John Grierson award to Evelyn Colburn, wife of the late Geo. W. Colburn who was the recipient of the award.

"John Grierson was a distinguished international figure in the field of documentary and informational film production. Perhaps, his most memorable contribution was his inspirational influence on young filmmakers and technicians in many parts of the world.

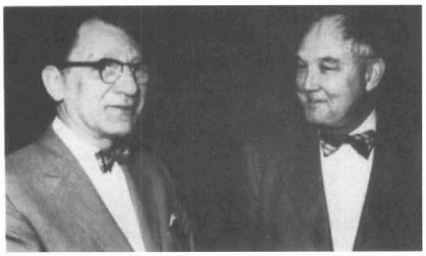
"Not long ago the Film Board produced a film on Grierson. One of my colleagues said, at that time: 'Grierson was neither P. T. Barnum, Billy Rose, Billy Sunday, Walter Winchell nor William Randolph Hearst. He was an educationist and a theorist of media communications. He worked within frameworks and existing media, utilizing and applying and developing and extending things. He did not fight in the Spanish War or the Chinese Revolution. He did not seek to overthrow governments but to work within them.

"He was truly a man for all seasons and each of us who was privileged to work with

him was impressed by his intimate knowledge of our particular area of interest.

"John Grierson was born in Kilmadock, Scotland. He received his Bachelor degree from the University of Glasgow and it is perhaps of particular interest to *this* audience to know that he received his Master's degree from the University of Chicago on a Rockefeller scholarship and this was followed by a Doctorate from the University of Glasgow.

"Grierson's professional interest was in mass communications and his career was varied and international in the broadest sense.



SMPTE President Byron S. Roudabush (left) and Get-Together Luncheon Guest Speaker Thomas P. Curtis.

"In England he was associated with the formation of the Empire Marketing Board, the Government Post Office Film Unit, the Central Film Library, the Film Centre. He served on the Films of Scotland Committee. As a filmmaker he produced such classics as *Drifters* in 1929; *The Song Of Ceylon* in 1934; *Nightmail* in 1936 and, in the 1950's, after several other careers in various countries, including the post of Director of Mass Communications for UNESCO, he became producer and host of a very successful Scottish television series called *This Wonderful World*.

"In 1938 John Grierson conducted a study which resulted in the formation of the National Film Board of Canada. He served as the Board's first Film Commissioner and as General Manager of Canada's Wartime Information Board until 1945. And he holds a unique place in our memory.

"He came to Canada as one of the great communicators of the English-speaking world, talking social responsibility and film, and talking incisively, persuasively and resourcefully. For the Canadians who met and heard Grierson in 1939 — from the Prime Minister down to the uncommitted young people — it was an almost magical meeting of the minds. Without that flash of sympathy and challenge nothing would have been possible; *with* it, all seemed possible, all was possible.

"Now a technical audience may wonder what relationship this kind of man would have with the Society of Motion Picture and Television Engineers. Here again another facet of his career should be noted. Grierson started as a cameraman in 1931 shooting with a spring-wound DeVry. He used wedges to hold his camera in position instead of a tripod in order to conserve his slender financial resources. Apparently, he didn't have much faith in an exposure meter since, as he noted, 'everything in which I am interested happens between *f*/5.6 and *f*/8.' Without question his most unique and unchallenged technical innovation was the modification of a foot-operated dentist's drill to serve as a film rewind.

"Grierson returned to Canada in 1969 at the age of 70 to serve as professor of mass communications at McGill University. Here once again he was able to capture his students whether he was lecturing to 500 or conducting a small seminar.

"On behalf of the National Film Board, I must say that we are particularly pleased that the first Annual John Grierson International Technical Award is being made *to the late George Colburn*, whose career covered much the same period of time between 1929 and 1972 as that of John Grierson, and who faced many of the same seemingly impossible obstacles in achieving recognition of his goals.

"In making this award the SMPTE is recognizing the unique contributions of a man who was concerned with an important part of the film industry which lies just outside of the more glamorous entertainment field. The dedicated amateur, the industrial photographer, the scientist, the non-theatrical producer were always assured of a sympathetic and interested listener and advisor in George Colburn. Certainly the young and inexperienced technical people at the NFB found endless help and support at the Colburn Laboratory without reference to the extremely modest volume of work they had to offer. Instruction, advice and encouragement were available for the asking.

"George Colburn's personal contributions to non-theatrical film technology were prodigious:

1928–1930: 9½mm to 16mm contact printer; optical printer to reduce 35mm, 28mm, 17½mm to 16mm.

1931–1940: 16mm head to reduce to 8mm; 16mm contact printer; second optical printer; 8mm title camera; 16mm sound printer, step printer and light changer.

1941–1950: Double-head 16mm printer; 16mm contact fader; new 8mm contact printer; 16mm to 8mm printer; triple-head 16mm contact printer; double-system conversion of 16mm DeVry projector.

1951–1960: 8mm kinescope recording system; high-speed 16mm color positive printers; 16mm color internegative printer; 35mm slide film "animation" camera with 3 motors, independent shutter.

1961–1970: Super-8 printer; new 16mm color-correction internegative printer; several super-8 processing adaptations; several multiple-head 16mm to super-8 printers, including one running 5 times normal speed; additional 16mm test-film camera; single-head super-8 record and playback unit.

1971–1972: Super-8 A&B roll printer with fades and dissolves; super-8 animation stands.

"John Grierson once said that 'he believed in 8mm films as long as they were not conceived by 8mm minds.' George Colburn certainly met that specification.

"The John Grierson International Technical Award presented by the Society of Motion Picture and Television Engineers on behalf of the National Film Board of Canada for outstanding contributions to the science and technology of equipment, processes or techniques related primarily to the production of documentary motion pictures.

"This inaugural presentation for 1973 is made to the late Mr. George Colburn for pioneering developments in the design and construction of 8mm printing and processing equipment for non-theatrical film audiences. Throughout his career Mr. Colburn persevered in his conviction and proved conclusively that education, industry and other related users of audiovisual motion pictures could be provided with specialized laboratory services in small gauge films of the highest professional calibre."

The Get-Together Luncheon also featured a talk by Thomas P. Curtis, Vice President, Encyclopaedia Britannica. At the time of the Conference, Curtis was Chairman of the Board of the Corp. for Public Broadcasting. He resigned from that position only days after his appearance at SMPTE. The following are excerpts from his luncheon talk.

On Technology: ". . . It is a particular pleasure for me to address such a distinguished professional organization. You are in the forefront of the technology that probably more than anything else, has made us indeed one world. . . .

". . . If we want to continue . . . with rapid technological advance, attention must be paid to the obsolescence created by this technology. For instance, those who have been trained in the old method of lectures and textbook will have to learn to use the new techniques that television and other audiovisual technological breakthroughs permit, but these things do go along together for further progress.

On Public Television: " . . . my definition of education is so broad that it certainly includes what most people talk about as public television and so I got into this thing because it looked like it needed some help. . . . Public television, as I view it should to do those things in our society that cannot be done through the commercial. We certainly should persuade commercial television to do all that it can, because that leaves what money we then have available for the things they can't do—programs for segmented audiences. . . .

". . . It is a pleasure to be associated with an industry that is as dynamic as this and I think we all face a very enviable future."

Program Highlights

The technical papers program had been divided into 10 sessions for Monday through Wednesday of Conference week: two on Laboratory Practices, three on Television/CATV, and one each on Motion Pictures and Television in Education, specialized Non-Video Display Systems, Industrial Television and Motion Picture Operations, High-Speed and Instrumentation Photography, and Small Format — Manufacturing. On Thursday and Friday, a Symposium on Video Cartridge, Cassette and Disc Player Systems — Packaged Programing was held.

Laboratory Practices

A 16mm Color Location Laboratory (Lampert Levy) describes a 23-ft self-contained mobile laboratory incorporating all the essential equipment and supporting elements necessary for quality processing of 16mm ME-4 and ECO-3 color films.

Computerized Process and Printer Control—Part II: Printer Control (Michelson & Scobey) details the use of a computerized system for analyzing densitometric data and producing the trim and voltage corrections to be made on the film printing machines. The computer program takes into account interlayer effects and automatically compares the sample densities to the laboratory reference densities.

New Approaches to Solving Static Problems on Photographic Film (Kunz) outlines the current methods of neutralizing static electricity, including the use of nuclear air ionizers in combination with a pair of non-woven cleaning fabric surfaces.

Improvements in Additive Color Printing on Reversal Films with Narrow-Band Filters (Stoye) presents the results of an experiment using narrow-band dichroic filters in a Bell & Howell color printer. Prints have been made using this method since January 1973. Control wedges are also being produced for further analysis.

Modifying Helical-Path Transports to Obtain Tracking Improvements (Anderson) demonstrated in a film presentation the inherent design defects encountered with existing helical-path transports. Several design modifications are described and their effectiveness is demonstrated on a test stand using a helical-path processing rack of the typical demand-drive system using spring-centered spools.

Potential Economic Effect of Public Law 92-500 (Zero Discharge Law) on the Motion-Picture Processing Industry (Hendrickson) discusses the present status of pollution control in the motion-picture industry and the possible economic effects of achieving the pollution control goals as specified by Congress. The major specific requirements of the new law were outlined along with the author's interpretation of what must be done in the motion-picture industry to meet each of the general goals described.

Variable-Function Screening-Room Counter System (Carter, Coppola & Neil) describes a multi-purpose multiple-counter system used in a rerecording and screening theater. Besides a conventional large-digit rear-projection display at the base of the screen, the system features three subcounters which are programable to display either footage or time, and which can actuate and select either one of the two standard 35mm projectors, or the 16mm projector located within the projection booth. All numeric operations for frame-to-footage conversions are performed within the computer circuits of this system.

On the Processing of Color Positive Stocks in Eastman Color Negative Developer (Bennett) presents the experiences of one laboratory in developing Eastman and Agfa-Gevaert color print materials in color negative chemistry. Sample results were shown.

Motion Pictures & Television in Education

A Comparison Between the Job Requirements Determined by the Motion-Picture Industry and the Film-Production Training Provided by Colleges and Universities in the U.S. (Kallas) reports on a portion of a survey of 170 motion-picture company executives and 103 schools offering film-production courses. The discrepancies that exist between the job requirements and the training available and certain conclusions were presented.

Station Engineering-Staff Contributions to a Television Production Curriculum (Wilson) describes the very significant contribution made by the professional and technical staff of WOI-TV to the learning experience of the students in Telecommunicative Arts and Journalism at Iowa State University. The University-owned station is a commercial, income-producing operation and an affiliate of the ABC Network.

Computer Animation—A Tool for Creative Teaching (Nilsson) The film illustrates how concepts can be depicted generally to give the student deeper insight into the significance of the subject matter under discussion. The accompanying paper discussed the factors that enter into the development of the film's content and also the factors that must be considered in making the decision to use the computer-animation technique for enhancing the material to be presented.

An Integrated-Circuit Crystal Oscillator and Speed Strobe for ¼-in Portable Synchronous Recorders (Holman) describes the circuitry, its implementation, and the light-emitting-diode strobe unit (for checking speed accuracy and synchronization). The design is implemented by means of metal-oxide-semiconductor inverters and binary-counter dividers, allowing for only two integrated circuits to perform all active functions. The unit described includes an input compatible with the Nagra QRR Radio-Bloop accessory. The standard output of this unit is 60 Hz with a 30-Hz option available by changing jumper connections on the circuit board.

3-D X-Ray Perception in a 2-D Film System—"The Living Skull" (Probst) demonstrates the usefulness of cineradiography in developing a sense of depth perception for the interpretation of two-dimensional radiographs. The problems of depth perception in x-ray plates are complicated by the registration in one plane (of the film) of all planes of the subject. The shapes and densities of the shadows overlap, to further impede perception.

The Education of Image-Makers of the Future—The State of the Art (Wagner) presented a capsule account of the objectives, facilities and programs in the training field of an international basis. Some ideas of future developments were offered.

Television/CATV

New Developments in Computer-Controlled Television Station Switchers (Young & Barlow) describes the installation of four identical television station continuity control rooms. The actual switching system is controlled by a small computer. Data input is from magnetic data cassettes rather than from punched cards. Standard data-processing machinery and CRT terminals display and process the full day's switching. By using a CRT terminal and keyboard, schedules can be revised to accommodate programing changes.

The TK-28 Telecine Camera Light-Control System (Seer & Bazin) describes the light-control assembly and discusses the reasons for certain design alternatives. The system described is said to provide

Past President Wilton R. Holm (left) and SMPTE Governor Joseph A. Flaherty at the pre-Get-Together Luncheon reception.

light-level control with a speed and accuracy difficult to match manually.

Color-Balance and Density Variations of Color Films Intended for Television—Report No. 2 (Zwick) concluded that the effort to bring 16mm films to the 35mm color balance is succeeding, and that the variation in color balance in all types of film has decreased. The reasons for the real differences in color between East and West Coast commercials should be ascertained and resolved. Similarly, the cause of undesirably thin prints should be investigated.

PCM-Encoded NTSC Color Television Subjective Tests (Goldberg) reports on a series of subjective tests to determine the importance of various parameters when encoding an NTSC 525-line 60-field composite television signal.

Design Requirements and Operational Features of a Dual Transmitter RF Switching System (Uyttendaele) discusses the provisions to avoid carrier breaks in a television transmitter plant by operating two identical, but physically separate, transmitters in parallel by means of suitable combining equipment.

Six Months of Super 8 in Broadcasting: A Progress Report (Cyberski) describes the experiences of station KDUB-TV in using Super-8 film for both news and commercial production. With respect to quality of on-air images, according to the author, it is often difficult to distinguish between image-enhanced super-8 newsfilm and unenhanced 16mm film. Various super-8 reduction prints have been aired that were, by all factors, virtually indistinguishable from 16mm or 35mm, and with magnetic sound that was quieter than most TV optical tracks. The challenge now facing

Robert M. Smith, SMPTE Treasurer (left) and Joseph T. Dougherty, SMPTE Financial Vice President.

members of the film industry is to produce high-resolution film that can be easily processed by TV stations for local use.

Digital Transmission for Cable Systems (Vogelman) outlined the advantages of using a digital system for the distribution of cable TV programing. Each receiving point in the long-range microwave link is capable of obtaining identical picture quality, since no build-up of distortion products results in the digital network.

The Bivicon® Tube — A New Double Vidicon (Spalding, Ochs & Luedicke) is a two-gun, two-target 1½-in vidicon designed for use in a single-tube color camera. It uses magnetic focus and deflection and can be operated in commercial 1½-in vidicon components. Limiting resolution of each signal exceeds 1000 television lines in the center of the raster, and ranges from 500 to 700 television lines in the corners.

Applications of the Bivicon® Tube (Flory) discusses the principal uses for this recently developed camera tube. It was originally produced for the HoloTape® prerecorded video playback system. Other applications are in color cameras for live TV programing, color telecine cameras, monochrome stereo TV cameras having enhanced resolution for a given camera size, and in surveillance applications.

The Silicon Diode Tube in Color Cameras — Two Years After the Fact (Haines) compares the characteristics of the silicon-diode tube in the red channel of a color camera with the usual lead-oxide tube. Practical experience with the silicon tube in terms of life, setup characteristics, resolution, lag and spectral response are discussed in detail.

Karma — A System for Storyboard Animation (Gracer) describes an interactive computer-graphics program which automatically produces the intermediate frames between each pair of storyboard frames drawn by the artist on a Sylvania data-input tablet. The tablet is interfaced with an IBM 1130/2250 computer. The intermediate frames are calculated by the computer and displayed on the 2250, from which the film is made.

Report of the Ad-Hoc Color Television Study Committee (Benson) summarized the continuing activities of this group to date. The committee was formed to determine the cause of significant and objectionable deviations in color as viewed on the home receiver and to recommend appropriate corrective action by the industry.

A Technical Look at Various Videotape Recording Formats (Anderson) summarized the relative advantages and disadvantages of quadruplex (transverse), helical and segmented-helical formats. The conclusions were that if a relatively high level of performance and operational flexibility is required, the cost of such equipment will be roughly the same, regardless of format. The wisest choice at present is to elect to use a format whose tradeoffs can be combined to produce a satisfactory product. The audience was reminded that many of the performance levels of a recorder have nothing to do with the recording format and are much more dependent upon things such as heads and tape.

Rural Telecommunications (Buckelew) discusses the potential for utilizing the existing channel capacity of cable television systems in combination with narrow-band facilities to deliver a variety of services to the less lucrative rural areas. The development of such a network could have wide social and economic impact. A pilot program was suggested to find the most effective combination of applications to serve the rural community.

A Time-Compression Multiplex System for Color Video Telephone Analog Transmission (Borsuk & Browne) presents a system for transmitting matrixed chrominance and luminance signals over a 1-MHz analog transmission network.

European Studio Facilities and Equipment (Nelson) describes the various European television facilities and details their development of entirely new types of production lighting equipment in order to effect cost savings. Among the developments are a pole-operated fixture which can be totally operated from the studio floor through the use of pole-type devices, a dual-filament tungsten-halogen lamp, where a single fixture head can be used for two wattages with no change in color temperature, and a new type of cyclorama lighting of extremely high efficiency.

H-Lock Servo and Direct Color Recovery System for Low-Cost Monochrome Helical VTRs (Kaemmerer, Acker & Paulson) told of the development of an adaptive videotape recorder servo interface module for field conversion of Ampex VR-7800 vertically locked helical-scan videotape recorders to horizontally locked operation. The correction signal produced is the result of comparing the magnitude, sign, rate of change and displacement of the off-tape sync pulses relative to stable reference sync. Alignment controls are provided to adjust the amplitude, polarity, cutoff frequency and dc offset of the signal to compensate for the individual videotape recorder tolerances and to phase the video output into the center of the time-base-corrector window.

Specialized Non-Video Display Systems

The Role of Super 8 in Photographic Surveillance (Wall) describes in detail some typical information-gathering applications where special super-8 cameras, having self-contained intervalometers, heavy-duty motors, remote-controlled features and lamps indicating film consumption, are well suited to the work. Security applications, time-and-motion studies, time-lapse studies and high-speed photography were some of the situations covered.

The Utilization of Optically Projected Display Systems Using 35mm Filmstrip and Automatically Coordinated Magnetic Soundtrack (Lord) discussed the substantial growth in recent years in the use of automatic sound filmstrips using the 35mm single-frame format coordinated with an impulsed, compact audio cassette. Small automatic projectors for individualized instruction have been combined with more creative film productions to provide a communications tool with a high degree of proven effectiveness.

Image-Enhancement and Containment Systems for Projected Film Formats (Hodges) presented the advantages of using high-brightness screens with high ambient-light rejection. Through the development of additional semispecular surfaces and new optical configurations, it is now possible to produce separate and relatively unopposed paths between an image beam and ambient light.

Portable Multimedia Rear-Screen Presentations (Follett) told of the recent multimedia presentation accomplished by the Des Moines Register and Tribune. It was shown on a 74 × 14-ft rear-projection screen (one of the largest portable rear screens ever constructed) and utilized 16 Carousel slide projectors and one 16mm arc projector. Four Spindler Sauppé Quadra Ques were used in tandem with a 4-track Teac stereo tape unit to program the presentation. Other presentations were discussed, all employing the rear-screen technique using variable-sized images.

Development of a Two-Hour Endless-Loop Cartridge-Loaded Projector System (Owen & Robak) outlined the design parameters of a projector system for use on commercial airlines. These requirements include reliable operation in an adverse environment, minimum volume and weight, and ease of operation by non-professional personnel.

Industrial TV & Motion-Picture Operations

Video — A New Industrial Revolution? (Krasin) summarizes the steps taken by Quaker Oats Company to minimize the high cost of motion-picture and television production through the use of in-house broadcast-quality video production facilities.

Audiovisuals in Corporate Communications (Zeller) discusses the use of audiovisual services in Allstate Insurance Company's training, informational and educational programs. Some challenges are offered to filmstrip hardware manufacturers.

Planning an Audiovisual Communication System for a Major Corporation (Thomas) provides an interesting example of the managerial and technical problems encountered in incorporating an extensive communications system into the new world headquarters facilities of Standard Oil Company (Indiana). The evolution of the system, the problems that remain, and some future plans were discussed.

Man's Best Friend in Business: Television (Wolf) relates U.S. Gypsum Company's experience in designing and installing a complete television production studio in its corporate headquarters to produce sales-training tapes for use in a multimedia training program. The program consists of first-person text segments and audio and video tapes coordinated through a study guide used by the salesmen.

Industrial Television and Motion-Picture Operations (Pepper) describes Ford Motor Company's Film and Electronic Communications Department which offers an in-house management information service on a closed-circuit color television system. The department also develops public relations programs for Ford's many divisions and subsidiaries and manages the Ford Film Library — one of the larger industrial film distribution centers and produces news-conference formats for the use of TV journalists. Basically this consists of providing a number of TV sound crews for visiting reporters and news directors. In addition to this department's efforts, a videocassette system has been initiated in

View of the Equipment Exhibit.

some 4,000 dealer's showrooms to present sales and service training, consumer merchandising and management information.

Small Format — Manufacturing

An Optimistic View of the Motion-Picture Industry in General and Super 8 in Particular (Bunchez) commented on the advances made in Vacuumate and No-En film treatments over the past few years and the improvements planned for the future.

A New Concept in Cartridge Design to Meet Variable Requirements for Industrial and Educational Use (Napfel & Schank) presented a technical analysis of a new super-8 projection cartridge system and demonstrated equipment incorporating the features described.

Productivity Considerations in Super-8 Printing System Design (Bowles, Curtis & Hedden) describes a three-headed continuous 16mm to super-8 optical reduction printer offering excellent picture and sound photographic quality. The equipment can produce 666 ft of combined super-8 picture and optical sound prints per minute. Operation with magnetic sound requirements was also discussed.

COR-JR/Super-8 Single-Purpose Version of COR Printer (Pfeiffer) explains the features and operation of this equipment which enables the smaller laboratories to meet their requirements for high-volume super-8 continuous optical printing from a standard 16mm internegative.

High-Speed & Instrumentation Photography

A program of particular interest to students, teachers, and vocational guidance personnel wanting latest information on career opportunities in high-speed photography and photographic instrumentation was held on Wednesday afternoon of the Conference week. Leading practitioners in the field described the latest equipment and techniques in high-speed photography for the benefit of students at both the college and high school levels.

Introduction to Instrumentation and High-Speed Photography (Hyzer) covered the fundamental concepts and basic techniques of high-speed photography.

High-Speed Rotating Prism Cameras (Shoberg) traced the evolution of rotating-prism cameras from the earliest Eastman Kodak and Western Electric Co. concepts to the single-shaft principles embodied in the latest Hycam and Photec cameras.

Oscilloscope Recording with a High-Speed Camera (Quinn) described the techniques used to record simultaneously pictorial information and oscilloscope traces on the same photographic film, for purposes of correlating the mechanical and electrical data.

High-Speed Photography in Machinery Analysis (Jantzen) cautioned students who are considering careers as independent high-speed photographers and instrumentation specialists that a broad-based academic preparation, followed by several years of practical experience, should be incorporated into their long-range plans.

High-Speed Photography in Applied Mechanics (Rowlands) described the various photographic techniques utilized by experimenters in the field of applied mechanics to measure stress and strain in mechanical components and materials. Photoelastic, moiré and holographic methods were discussed and illustrated.

The last two tutorial papers presented the *Applications of High-Speed Photography in the Automotive Industry*. The first paper by Painter centered on applications in the plant and laboratory, while the second paper (Lafer) covered automotive testing application.

Following this session's tutorial papers, the same panel of experts participated in an informal roundtable discussion with area students and their advisors on the subjects of educational requirements, employment opportunities and the pros and cons of future careers in this field. Students were admitted free to these special sessions.

Symposium on Video Cartridge, Cassette and Disc Player Systems — Packaged Programing

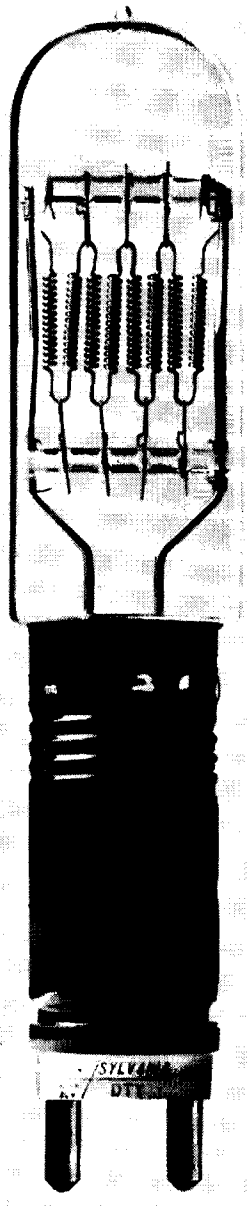
Time-Base Correction System for Videocassette Players (Paulson) summarizes the operational characteristics of the Delta 28/44-C6 Heterodyne Color Time-Base Correction System. Its principle applications are in CATV/CCTV color systems where the characteristics of quality of the viewer's receivers require its level of time-base stability. Its monochrome signal may meet FCC specifications for broadcast stability, but in any event it can be dubbed to a broadcast VTR for stable on-air playback.

A Continuous-Motion Film Videoplayer Using Super-8 Film (Babcock, Martin & Metzger) outlined the design requirements for equipment to display super-8 film over television systems and described the new mechanical, optical and electrical systems which comprise the Kodak Supermatic Film Videoplayer, Model VP-1. The resulting equipment allows the communicator to use the same super-8 for either videocassette programing via electronic display or direct projection, letting the audience size and situation dictate the preferred method of program presentation.

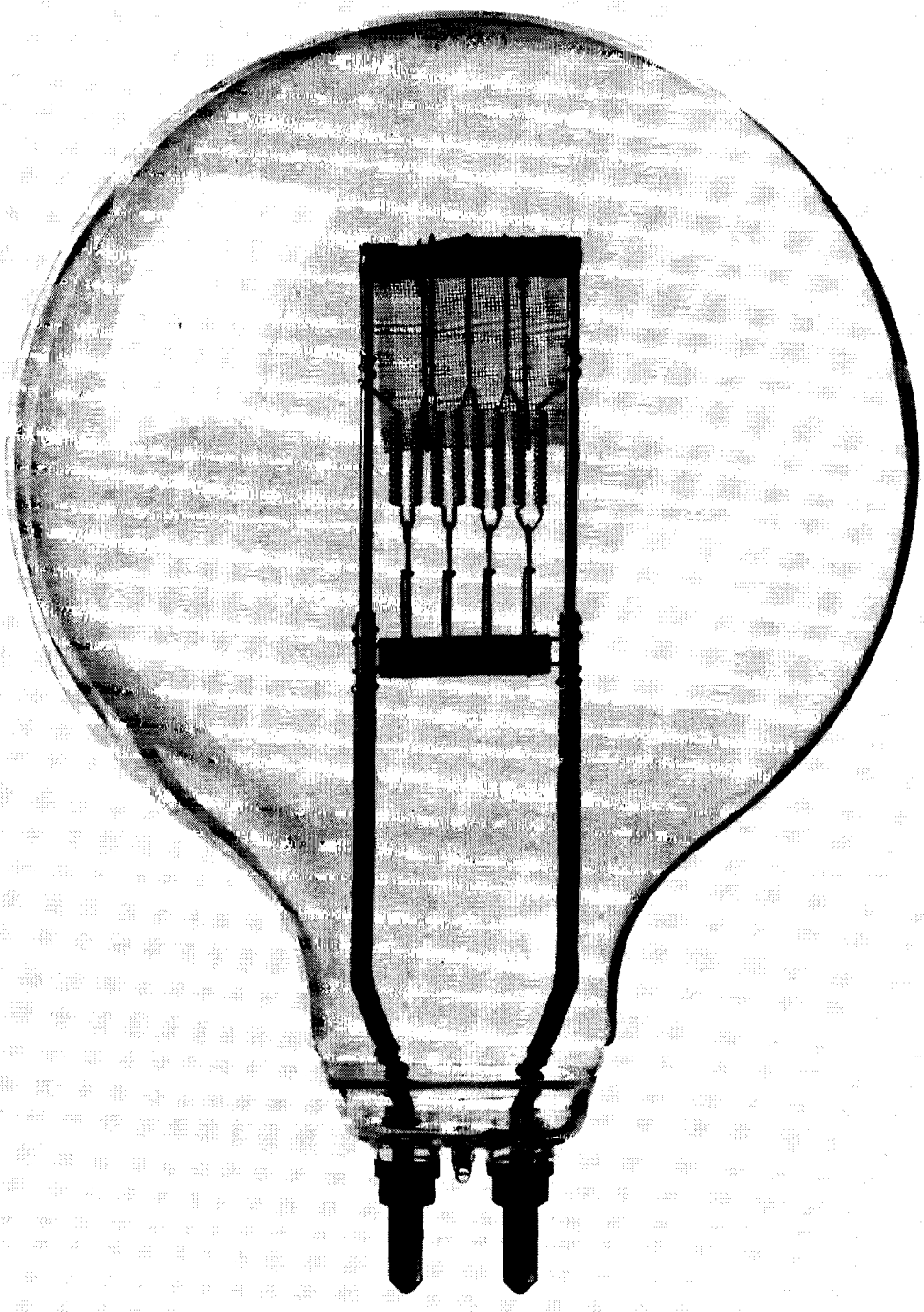
A Remote-Control System to Support a Videocassette Network for Continuing Education (Suchy & Westbrook) showed how a videocassette network can benefit from material routinely supplied from camera-equipped conference rooms, laboratories and auditoriums. Such a network can operate by remote control in both directions. A conference, training session, or a workshop can be taped simply by calling the control room. Using the same cable system, a staff member may watch a selected cassette in his office also by calling the control center.

The Videocassette Package: In-Depth Information (Lieberman, Millais & Millais) deals with the technological and conceptual approaches pursued by a company devoted exclusively to the video publishing industry, i.e., to planning, writing and producing a uniform library of high-quality videotapes from which videocassettes or cartridges can be produced in any format required.

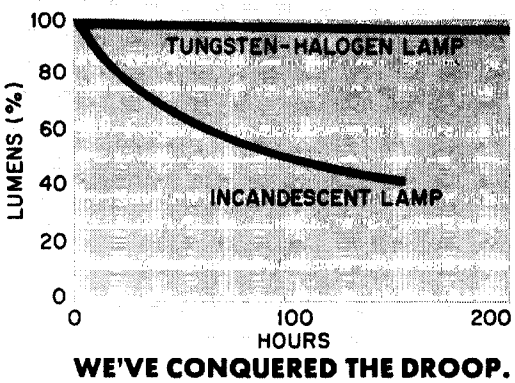
A One-Inch Video Cartridge Recorder Designed for Professional CCTV and CATV (Reynolds) points out the problems encountered in using many of the low-cost VCRs as origination devices for cable television, educational dial-access systems or even commercial broadcast television. A new VCR is described, using one-inch tape and displaying excellent time base stability, signal-to-noise ratio and horizontal resolution. The tape format, modulation system and self-threading mechanism used in this equipment are discussed.



10 KW TUNGSTEN-HALOGEN LAMP.



10 KW INCANDESCENT LAMP.



WE'VE CONQUERED THE DROOP.

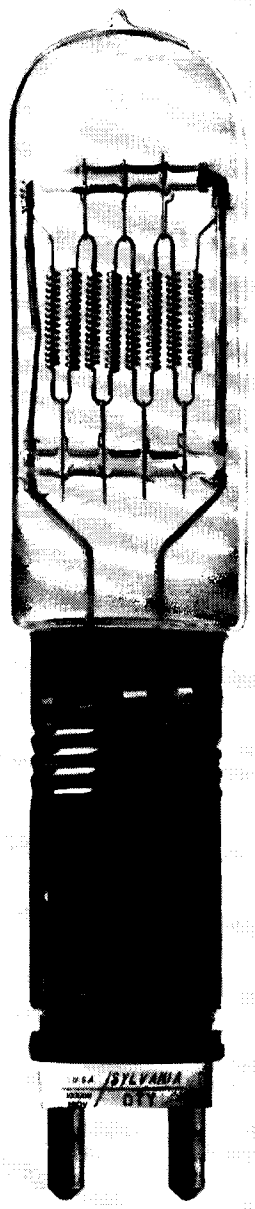
If you've ever watched those big, fat incandescents deteriorate, you know what a big, fat pain-in-the-neck that is. Their lumen output sinks and their color temperature drops, as the graph shows.

Now Sylvania tungsten-halogen lamps have come to the rescue.

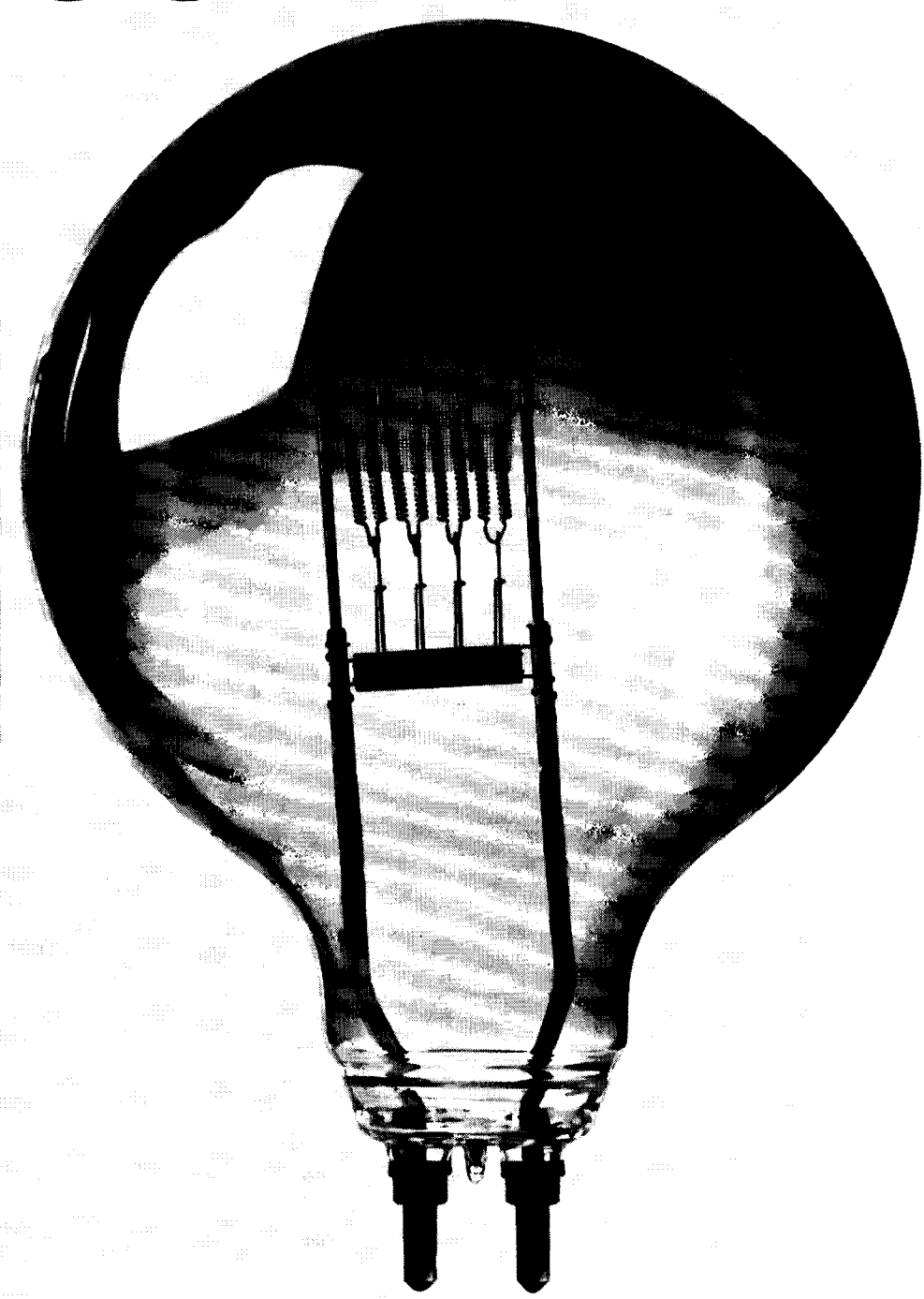
They don't blacken with age, so light output and color temperature don't go into a slump.

That means you don't have to keep

70 HOURS LATER.



10 KW TUNGSTEN-HALOGEN LAMP.



10 KW INCANDESCENT LAMP.

fiddling with the studio lights or camera settings. You get constant color rendition on color film and save money on print correction.

Tungsten-halogen lamps outlast the incandescents 2-to-1. (Or even 3-to-1, since you may have to throw away the blackened lamps before they conk out.)

Then there's size. Why should anyone want big, heavy glass balloons when he can have nice, slim little lamps that are easy to handle and store?

We've developed two complete lines of Sylvania tungsten-halogen lamps.

The first is a line of direct replacements. These lamps fit into the big, old sockets vacated by the big, fat incandescents.

The second is a line of even smaller tungsten-halogen lamps that you can use to replace our replacements once you've gotten rid of the old sockets and fixtures. They fit into entirely new, smaller, more efficient fixtures.

Ask us about both our lines. Right away.

Before another 70 hours go by.

We'll be glad to send you an illustrated brochure on each line. For your copies, write: Sylvania Lighting Center, Danvers, Mass. 01923

GTE SYLVANIA

Video Publishing/Hardware Marketplace (Minsker) summarizes the institutional and consumer markets for packaged television programing and hardware and points out how each market is developing in relation to videotape, film or disc systems.

Video on Demand — The Norelco VCR System (Citron) outlines the salient features of the Norelco VCR. Simplified modular construction, with plugable discrete components, is shown by means of slides and a working model.

Flexible Magnetic Video Disc Recorder (Foster) describes the operational characteristics of the Arvin video disc cassette recorder. The interchangeable, reusable cassettes are 13 in square and contain 1-mil Mylar-based magnetic discs. These discs rotate inside the cassette with the record/play head reading each of the concentric tracks. The recorder has only three moving parts and weighs 40 lbs.

Videocassette at New Trier Schools — Opening the Classroom to the World (Spatafora) highlights some of the reasons for using the videocassette system in today's elementary and high schools. As the educational dynamics of the videocassette is explored, related opportunities for business and industry become apparent. A sample was shown of cassette programing now in use.

In-Cartridge Scanning — A New Approach to Video Recording (Warren) described an in-cartridge scanning system that can be used as a regular television receiver, can record from either a TV camera or receiver, and can play prerecorded cartridges of one-hour duration.

The following papers were not presented at the Conference though they were scheduled on the Final Program.

Bleach Fixes Used in Color Photography (Kaufman)

Estar Polyester-Base Eastman Color Print Films (Perry)

The Optical Design of a Continuous Optical Reduction Printer (Lambrecht)

An Architectural-Design Project Related to University Motion-Picture Production (McKeown)

Personalized Learning in Physical Education — A Systems Approach (Schrader)

COR Printer with Simultaneous Magnetic Transfer (Wary)

Three-Dimensional Animation by Computer (Schnorr)

Equipment Exhibit

An exhibit of 48 booths of high-level professional motion-picture and television equipment was a major highlight of the Chicago Conference. The exhibit was contained in a compact but attractive room one level below the technical session auditoriums and the registration area.

The booths were occupied by 32 different companies, all leaders in their respective fields. As usual at SMPTE Conferences, motion-picture equipment dominated the exhibit.

Attendance at the exhibit was heavy at times, with a particularly large crowd attending the exhibit opening and cocktail party on Monday evening.

The exhibit, which required months of preparation was handled by Exhibit Chairman John Ehrenberg, Bell & Howell

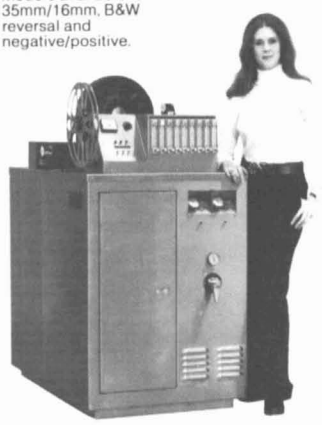
Jamieson film processors because...

...they're lower priced, operate more economically, and have proved themselves in 100s of installations in 23 countries.

We offer three basic groups or series of processors, and our patented, small reservoir tube tank is the key to them all. It combines the transport rack and solution tank in one small unit, which results in several major advantages:

- Film advances virtually tension-free. The demand top-overdrive film transport uses no clutches, floating rollers or film sprockets.
- Smaller machines take only half the floor space.
- Solution volume is reduced 15 times over open-tank designs.
- Temperature in primary solutions is controlled to an accuracy of a few hundredths of a degree.
- The elliptical shape of the tubes protects the film and provides high induced turbulation.

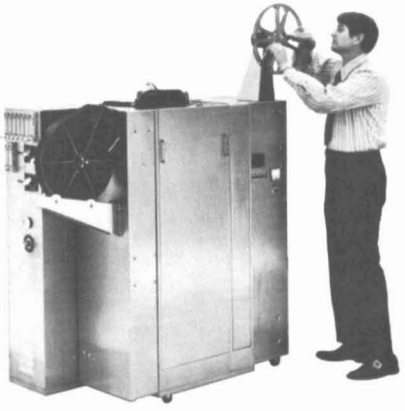
JAMIESON COMPAC 16/8
Conducts standard ME-4 at 20 FPM. Runs 16mm and 8mm interchangeably. Models available for 35mm/16mm, B&W reversal and negative/positive.



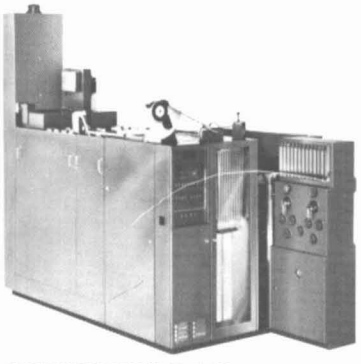
Other important features include: Lower maintenance and labor costs, and less power and water usage. The small volume of solution in the machine gives long-term stability and improved cleanliness. And film threading is both easier and faster, accomplished without removing the tank.

Because of our equipment's modularity and flexibility, we can custom design processors for combination processes or for special requirements.

Write for our new brochure and data sheets on all our models. And give us an opportunity to quote on your processor requirements.



JAMIESON MARK IV, Model A
Runs 16mm and 8mm Ektachrome at 30 FPM. Model B for ECO-3 and ME-4 with silver track. Other models for 35mm processes, including CRI.



JAMIESON MARK IX, Model B
Conducts ECO-3 and ME-4 for all 16mm, 8mm Ektachrome camera and print films at 65 to 75 FPM. Other models run Eastman Color and other processes in 16mm and 35mm.

☐ Yes, I'd like to see your new brochure and data sheets on your color and B&W film processors for 8mm, 16mm and 35mm film.

Name _____ Title _____

Firm _____ Division _____

Address _____

City _____ State _____ Zip _____

JAMIESON FILM COMPANY

EQUIPMENT DIVISION 9171 King Arthur Drive, Dallas, Texas 75247 **(214) 638-2660** Represented in Europe, the Middle East and South Africa by **W. Vinten Limited.**

Co. This ranks as one of the largest exhibits held by SMPTE in Chicago in recent years.

Companies that have exhibited are:

Angenieux Corp. of America
Arriflex Co. of America
Bell & Howell Co.
Berkey Colortran, Inc.
Canon, U.S.A., Inc.
Carter Equipment Co.
Century Strand, Inc.
Cinema Products Corp.
Communication Arts, Inc.
Victor Duncan, Inc.
Eastman Kodak Co.
Eclair Corp. of America
Frezzolini Electronics Inc.
General Electric Co.
General Enterprises, Inc.
General Rayfin Inc.
Hazeltine Corp.
Hervic Corp./Cinema Beaulieu
Hollywood Film Co.
Image Devices, Inc.
Javelin Div. — Apollo Lasers, Inc.
KEM Electronic Mechanic Corp.
Lowel-Light Photo Engineering
Mitchell Camera Corp.
Mole Richardson Co.
Nagra Magnetic Recorders, Inc.
Optical Radiation Corp.
Oxberry
Paillard Inc.
Peterson Enterprises, Inc.
Producers Service Corp.
Redlake Corp.
Vega Electronics

The Exhibit Directory providing equipment descriptions of most exhibitors appears in the March *Journal*, pp. 220, 222 and 224. For those who were unable to attend the Exhibit in Chicago, a slide/tape presentation of all the equipment shown at the Conference has been prepared for circulation at SMPTE Section meetings. Check your *News and Notes* for the date the presentation will be shown at your local meeting.

Victor Duncan (left) is congratulated by SMPTE President Roudabush for his company's winning of the SMPTE Exhibit Award.

Exhibit Award

Victor Duncan, Inc., 11043 Gratiot, Detroit, MI 18213, won the SMPTE Exhibit Award. The award is given on the basis of effectiveness, quality of presentation, and imagination, regardless of size of the display.

Duncan's exhibit showed a lot of planning and work. It took the space of four booths and showed an extremely wide-range of equipment tastefully and imaginatively.

Among the products shown at the booth were the Helivision helicopter camera mount, Ronford fluid heads and metal tripod legs, Guillotine double-wrap FR tape splicer, the Anton Bauer Battery System and a large assortment of other motion-picture equipment.

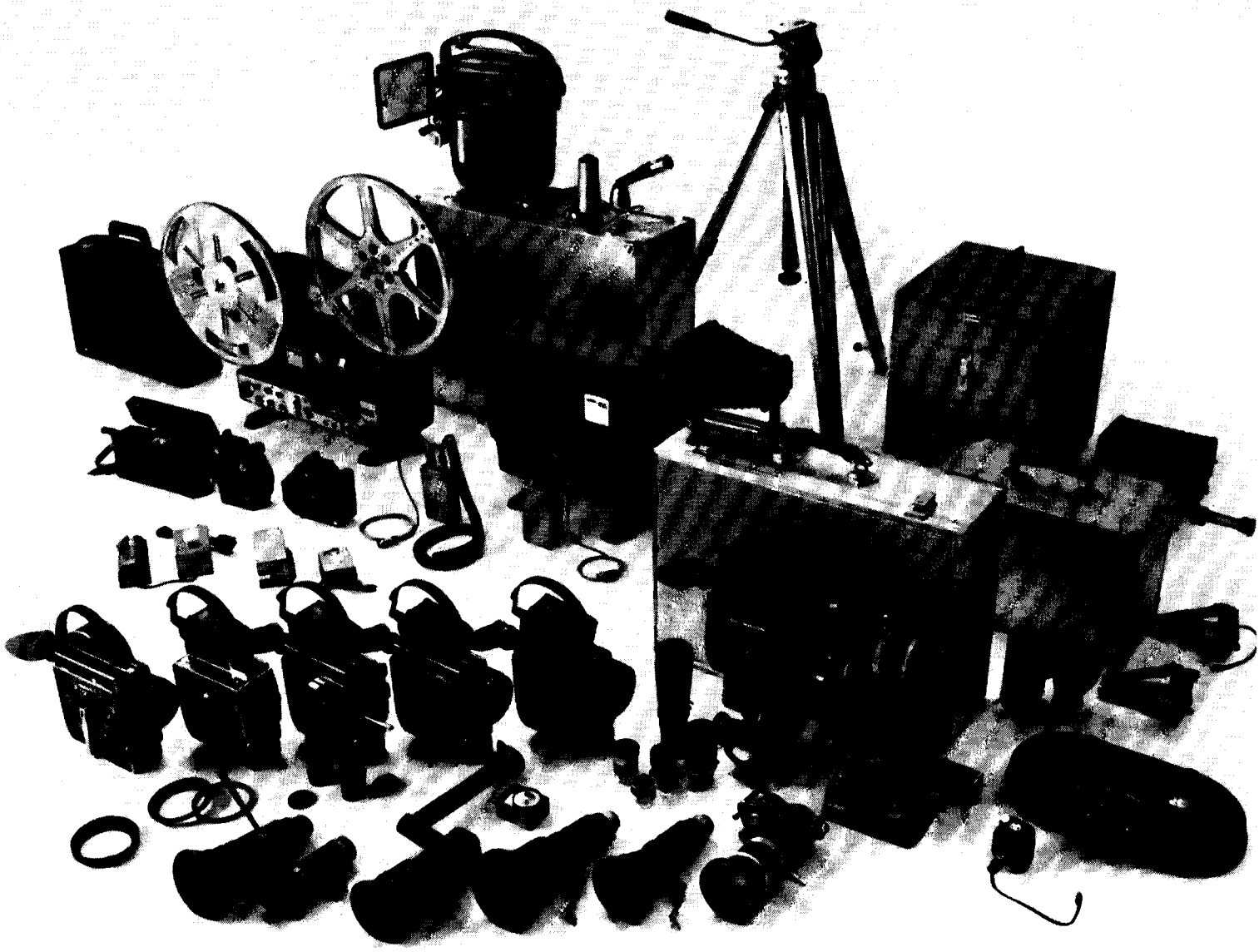
Manning the Victor Duncan booth were Victor Duncan, A.S.C., Lee A. Duncan, Norman L. Bleicher, Ray Hautala, Ginny Hart, Ron Ford, Joe Sibone, Robert C. Burrell, Sam Irwin, Frank Marasco, Heti B. Lloyd, and Virginia Knight.

A plaque commemorating the award has been presented to the company.

Ladies Program

The women attending the Conference were treated to several interesting activities during the week. The Ladies Program was arranged by Phyllis Abboud. Activities included Continental breakfasts most mornings, a demonstration by a beauty consultant, a trip to Woodfield Shopping Center, a visit to Haeger Pottery and a tour of John Hancock Center.

The Ladies Committee, the members of which served as hostesses throughout the week, included Helen Cims, Betty Colburn, Evelyn Colburn, Fran Colburn, Mary Herman, Nancy Hilliard, Evelyn Kallman, Ruth Kinzle, Gloria Koch, Shar-



THE WHOLE SHOOTING MATCH.

Maybe you're shooting documentaries. Or features. TV news. Or commercials (live or animated); travelogues; sports; wildlife; educational films; macrocine-photography or cinephotomicrography, you name it. Bolex can provide you with exactly the right camera body, lenses and accessories to assure you'll have just what you need when you need it. (And at prices that may surprise you with their economy.)

The cameras: You get to choose from five rugged camera bodies designed for hand held or tripod use. With either three-lens turret or bayonet mount, with spring motor or electric drive, with 100′ to 400′ film capacity, for silent filming or sync sound with sync pulse generator or crystal. And that's just the beginning.

Consider features like: automatic threading, flickerless reflex viewing and focusing with complete depth of field control, a filter slot behind the lens, single-frame counter, unlimited film rewind, variable speeds for accelerated and slowmotion filming, single frame filming, variable shutter with automatic control possibility, registration claw for total accuracy in picture steadiness even when films are blown up to 35mm.

The lenses: With the Bolex system, you can choose from 7 fixed focal length lenses, ranging all the way from 10mm super wide angle to long 150mm telephoto. And they all have built in macro focusing, automatic depth of field scales and diaphragm presetting so you can step down the aperture without taking your eye off the reflex finder. You can choose a lens as fast as f/1.1, or one that can focus down to one inch without accessories.

The system offers you seven zoom lenses with zoom ranges from 5:1 to 10:1. One of those is the Vario Switar 100 POE-4 with built-in power zoom, automatic light measuring through the lens, focusing as close as four feet and picture sharpness equal to any good fixed focal length lens.

The works: You can extend your basic equipment almost indefinitely with a wide range of accessories.

For instance: if you choose a spring-wound camera, you can automate easily with any one of three auxiliary motor drives, for time-lapse or animation, for variable speed shooting or for filming with sync pulse generator or crystal. The system offers you tripod; monopod; camera grips; blimps; an automatic fading device; cable releases; matte boxes (complete with masks); an underwater housing; attachable exposure meter; 400′ magazine; closeup lenses; extension tubes; optical magnetic sound projector.

It's quite a list. But that isn't all. The full story of Bolex's whole shooting match fills a 32 page book. Which we'll be happy to send you. Just write to Paillard Incorporated, 1900 Lower Road, Linden, N.J. 07036. You'll get a very professional response. Other products: Hasselblad cameras and accessories.

BOLEX 16
PAILLARD

on Peterson, Addie Peterson and Phyllis Zichterman.

Social Events

In addition to the Get-Together Luncheon, there were two other occasions where members and guests could get together and socialize.

On Sunday evening, the Eastman Kodak Co. sponsored a Wine and Cheese Party. This was held in the John Hancock Building. This was one of the week's highlights and one of the best attended events.

On Wednesday evening, the SMPTE Cocktail Party and Banquet was held. The Cocktail Party was courtesy of Peterson Enterprises. The Banquet featured a delicious meal, dancing, and excellent entertainment. The Banquet Chairman was Bruce Peterson, Peterson Enterprises.

Committee Meetings

Conference week is a time of great activity for SMPTE Committees. This is one of the few times it is convenient for full committees to meet. Nine engineering committees met: Sound, Standards, Color, Television, 16 and 8mm, Film Dimensions, Film Projection Practice, Photo-Instrumentation, and Laboratory Practice.

A joint meeting of the SMPTE Publications Advisory Committee and the Board of Editors was held on Wednesday Conference week. In addition, many of the Society's administrative committees met to discuss different aspects of the Society's affairs. The SMPTE Executive Committee and the SMPTE Board of Governors met on Sunday, April 8.

Short Film Subjects

Each session of the Conference opens with a short film, running anywhere from 10 to 30 minutes. The film program for this Conference is listed below.

Ballet Adagio (Courtesy: National Film Board of Canada; Dist. by Pyramid Films)

Hands, Eyes (Produced by Crawley Films, Ltd.; Dist. by International Film Bureau)

Cheetah (Courtesy: Encyclopaedia Britannica Educational Corp.)

November (Courtesy: National Film Board of Canada Dist. by Contemporary Films/McGraw Hill)

Sirene (Produced by Raoul Servais; Dist. by International Film Bureau)

Art Appreciation (Courtesy: Coronet Films)

Insomnia (Courtesy: CAPAC Productions)

Masculine or Feminine (Courtesy:Coronet Films)

Bannerfilm (Courtesy: National Film Board of Canada)

Introduction to Lasers (Courtesy: Encyclopaedia Britannica Educational Corp.)

Introduction to Holography (Courtesy: Encylopaedia Britannica Educational Corp.)

La Cucaracha (A 16mm reduction print made by Technicolor from the original 3-strip silver negative, by the imbibition transfer method. This was the first 3-strip live-action color picture shown in a theater. Courtesy: University Film Distributors, University of Southern California)

Waste (Dist. by International Film Bureau)

Acknowledgments

The Society expresses its thanks to the following companies and organizations for providing necessary services, equipment or gifts.

Coffee Club: Philip A Hunt Chemical Corp.

Wine and Cheese Party: Eastman Kodak Co.

Pre-Banquet Cocktail Party: Peterson Enterprises, Inc.

Short Film Subjects: Pyramid Films; International Film Bureau; Coronet Films; CAPAC Productions; National Film Board of Canada; Encyclopaedia Britannica Educational Corp.; University Film Distributors, University of Southern California.

Ladies Program: Behrend's, Inc.; Bell & Howell Co., Chicago; Chicago Audio Visual Services, Inc.; Geo. W. Colburn Laboratory, Inc.; DeLuxe General of Illinois, Inc.; Douglas Film Industries; Eastman Kodak Co.; Eskay Film Services; Frezzolini Electronics, Inc.; General Electric Co.; Hollywood Film Co.; Image Devices, Inc.; Motion Picture Enterprises; National Broadcasting Co. — WMAQ-TV; Fred A. Niles Communications Center; Peterson Enterprises, Inc.; W.R.S. Motion Picture Laboratory.

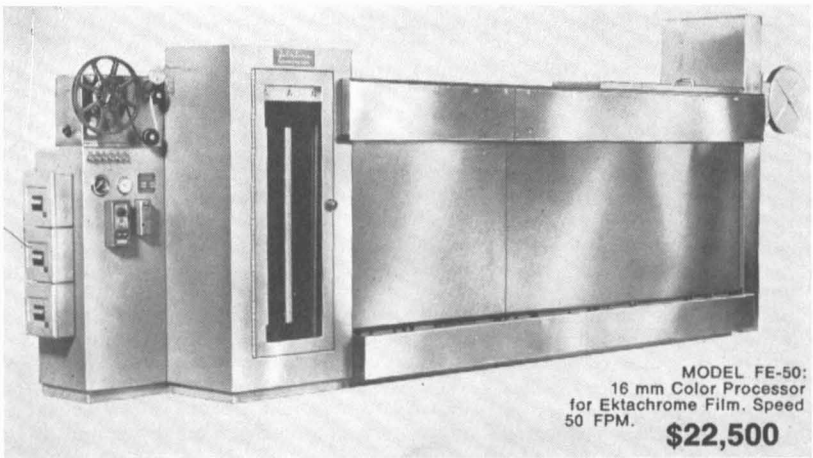
The Money-Makers

FILMLINE'S professional color film processors for motion picture laboratories.

The Filmline Models FE-30 and FE-50 are fast, foolproof, troublefree and long-lasting. They turn out consistently superior work. The design is backed by Filmline's reputation as the world's leading manufacturer of film processors for the motion picture laboratory industry.

Now enjoy the benefits of professional equipment incorporating exclusive Filmline features that have paced the state-of-the-art in commercial, industrial and defense installations at a cost lower than processors offering less.

Check the exclusive Filmline features below:



MODEL FE-50: 16 mm Color Processor for Ektachrome Film. Speed 50 FPM. **$22,500**

MODEL FE-30: 16mm Color Processor for Ektachrome film. Speed 30 FPM. **$16,400**

- **"FILMLINE OVERDRIVE FILM TRANSPORT SYSTEM"** This marvel of engineering completely eliminates film breakage, pulled perforations, scratches and operator error. The film can be deliberately stalled in the machine without film breakage or significant change of film footage in solutions. The heart of any film processor is the drive system. No other film drive system such as sprocket drive, bottom drive or simple clutch drives with floating lower assemblies can give you the performance capability of the unique Filmline Overdrive Film Transport System.
- **"TORQUE MOTOR TAKE-UP"** gives you constant film take-up and does not impose any stress or strain on the film itself. Completely independent of the film transport system. This FILMLINE feature is usually found in professional commercial processors but is incorporated on the FE-30 and FE-50 models as standard equipment. Don't settle for less!
- **"TEMP-GUARD"** positive temperature control system. Completely transistorized circuitry insures temperature control to well within processing tolerances. Temp-Guard controls temperatures accurately and without the problems of other systems of lesser sophistication.
- **"TURBO-FLOW"** impingement dryer. Shortens dry-to-dry time, improves film results, and carefully controls humidity content of your valuable (and sometimes rare) originals. Immediate projection capability is assured because the film dries flat without the usual curl associated with other film processors.
- **"ZERO DOWN TIME"** The reputation of any film processor is only as good as its reliability. The combination of the exclusive and special added Filmline features guarantees trouble-free operation with absolute minimum down-time and without continual operator adjustments. Recapture your original investment in 2 years on maintenance savings alone. Filmline's "Push the button and walk-away processing" allows inexperienced operators to turn out highest quality film.
- **"MATERIALS, CONSTRUCTION AND DESIGN"** All Filmline machines are constructed entirely of metal and tanks are type 316 stainless steel, heliarc welded to government specifications. The finest components available are used and rigid quality control standards are maintained.

Compare Filmline features to other processors costing more money. Feature-by-feature, a careful evaluation will convince you that Filmline offers you more for your investment.

Additional Features included in price of machine (Not as extras).

Magazine load, daylight operation ■ Feed-in time delay elevator (completely accessible) ■ Take-up time delay elevator (completely accessible) ■ Red brass bleach tank, shafts, etc. Prehardener solution filter ■ Precision Filmline Venturi air squeegee prior to drybox entry ■ Air vent on prehardener ■ Solid state variable speed D.C. drive main motor ■ Bottom drains and valves on all tanks ■ Extended development time up to two additional camera stops at 50 FPM ■ Pump recirculation of all eight solutions thru spray bars ■ Temperature is sensed in the recirculation line ■ All solutions temperature controlled, no chilled water required ■ Built-in air compressor ■ Captive bottom assemblies assure you constant footage in each solution ■ Change over from standard developing to extended developing can be accomplished in a matter of seconds ■ Impingement dryer allows shorter put through time

Partial listing of Filmline Color Installations: — NBC- New York, NBC- Washington, NBC- Cleveland, NBC- Chicago, CBS & ABC Networks, Eastman Kodak, Rochester.

Laboratories: De Luxe Labs, General Film Labs (Hollywood), Pathe-Labs, Precision Labs, Mecca Labs, Color Service Co., Capital Film Labs, Byron Film Labs, MGM, Movie Lab, Lab-TV, Technical Film Labs, Telecolor Film Labs, Guffanti Film Labs, A-One Labs, All-service Labs, NASA Cape Kennedy, Ford Motion Picture Labs.

TV Stations: WAPI-TV, WHP-TV, WMAL-TV, WXYZ-TV, WWL-TV, WMAR-TV, WJXT-TV, KETV-TV, WTOP-TV, WEAT-TV, WCKT-TV, WAVE-TV, WAVY-TV, KTVI-TV, WCPO-TV, KTAR-TV, WSYR-TV.

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