

Section Meetings

Detroit, October 16, 1991 — Professor Frank Westerwelt, Wayne State University (WSU), described the lecture hall of the future to the 25 members and guests of the Detroit Section. The facility comes complete with two remote-controlled cameras, color scanner, still store, and complete computer control from a touch-screen-controlled podium. He demonstrated the interactive One Touch system, which allows students to ask and answer questions from an outside location. The system identifies the student to the professor and it calculates the percentage of correct and incorrect responses to the professor's questions, thereby allowing the instructor to advance or backtrack in presenting his teaching material.

Barry Inman, Ford Communications Network, explained how his company and WSU teamed up to teach graduate-level computer design to engineers at Ford Motor Co. (FMC). He described the signal path between WSU and the Ford campus and demonstrated the interactive computer terminal used by FMC. The meeting, which was held at WSU, closed with an inspection of the equipment by the audience. — Helge Blucher (Secretary/Treasurer), Pro-Vision, Inc.

Houston, October 23, 1991 — The Macintosh computer's ability to harness live video, audio, graphics, animation, and transitions was demonstrated at the October meeting. Curt Stoehr, Digital F/X, described the company's Digital F/X and Soft F/X systems. The Digital F/X system supports a wide range of tape in a random access nonlinear editing format, which allows editing and previewing to be conducted in real time. It is designed as off-line rather than on-line, but provides the editor with an opportunity to use a full range of editing effects, transitions, and both character and graphic generation.

Soft F/X, which is software, allows standalone nonlinear editing on a Macintosh II. Once video is digitized, no other equipment is needed to operate with the software. All of the nonlinear functions are performed on the computer's hard disk. The meeting was attended by 55 people. — Robert Musburger (Secretary/Treasurer), University of Houston.

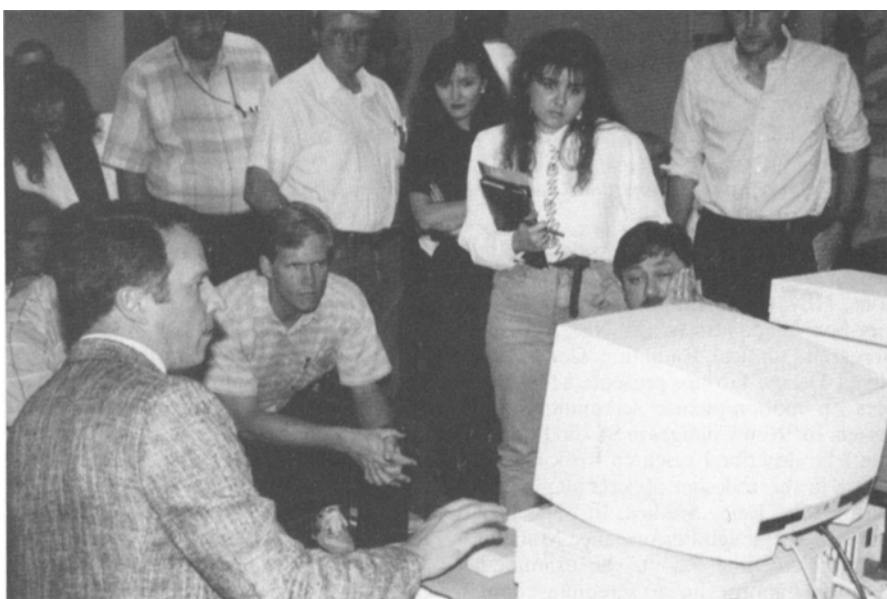
New England, September 11, 1991 — The September meeting, which was held at the New England Telephone Co. (NET), focused on the company's new video transport services via fiber optic networks. Mitch Able, NYNEX, and a number of his colleagues, discussed many of the newer services that the phone company will be

offering to broadcasters as an alternative to microwave or satellite links.

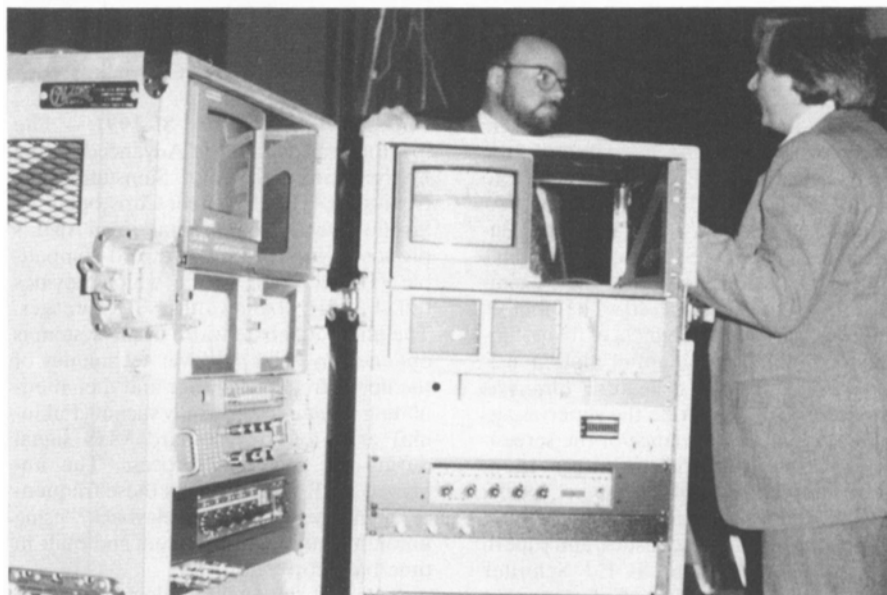
The meeting began with a history of fiber optical usage for video by NET, followed by an overview of the video transport services currently being offered and a preview of their future plans. A videotape of the utilization of fiber optics in a recent Boston Marathon was part of the presentation.

Video signal quality via fiber optics was demonstrated by monitors that were

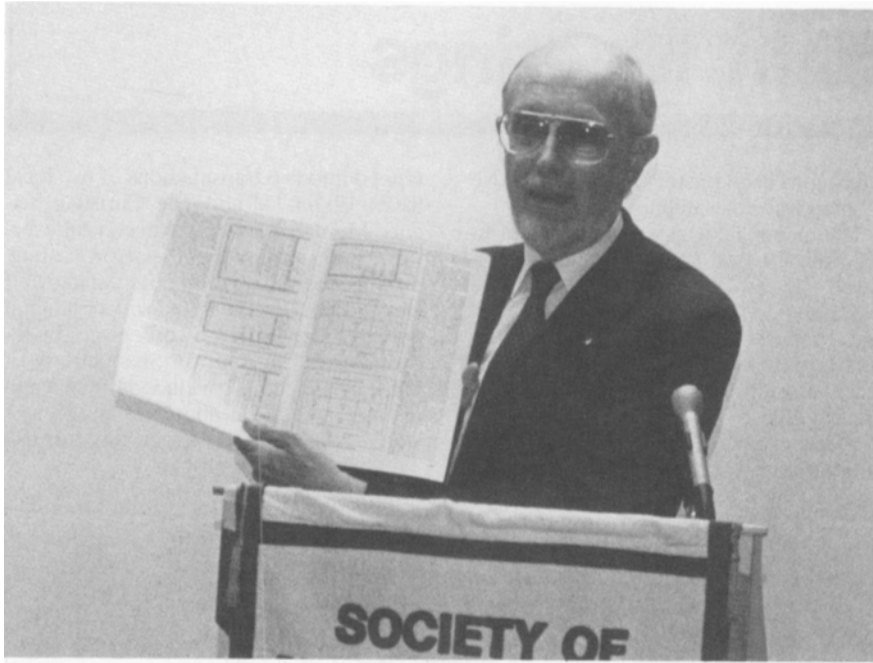
tapped into live transmissions of two local users, WDH-TV and The Christian Science Monitor Channel. A technical overview and examples of narrow-casting, distance learning, videoconferencing, and analog signal to integrated services digital network applications were given by P. Mottola, J. Ellis, and P. Shaughnessy of NET. The meeting concluded with a panel discussion and a question-and-answer session. — Edward Dextraze (Secretary/Treasurer), Raytheon Co.



Curt Stoehr, Digital F/X, demonstrating Macintosh-based off-line, nonlinear editing at the Houston Section meeting.



New England Section members viewing fiber-optic equipment at the September meeting.



Glenn Berggren, Optical Radiation Corp. and Sigma Design Group, discussing motion-picture screening room design during the New York Section meeting.

New York, September 11, 1991 — The September meeting was held at two locations, NBC Studios and Twentieth Century-Fox headquarters. At NBC, Glenn Berggren, Optical Radiation Corp. and Sigma Design Group, presented two papers on motion-picture screening room design. In "New Changes in Studio Projection," he described research work culminating in the redesign of screening room facilities at Disney Studios. In "The Design of a Very High Performance Motion-Picture Screening Room," he examined traditional approaches to screening room design. Through engineering analysis, he showed that the traditional methods are incorrect and explained system design principles that would provide substantive improvements in picture and sound quality. The principles were incorporated in the construction of the Twentieth Century-Fox screening room in Manhattan.

The 75-person audience visited the screening room, where the features of the SMPTE test film RP-40 (also referred to as SMPTE 35-PA-50 and SMPTE 35-PA-200) were explained by Ed Schuller, Entertainment Video Systems. The room's projection performance was then examined by projecting RP-40. The images showed exceptional evenness of focus, illumination, and a minimum of motion artifacts. A section of a feature film was projected to demonstrate the superior aural and visual performance of the screening room. The room features ideal viewer-to-picture-height ratios, a special toroidal-shaped screen, unique speaker placement, excellent acoustics, and superb projection equipment. — Ed Schuller (Test Materials Advisor), Entertainment Video Systems.

New York, October 16, 1991 — David Fibush, Tektronix, Inc., gave a presentation on the serializing of composite digital video as embodied in the proposed SMPTE standard. While serial distribution offers a practical means of routing digital video over coaxial cable, problems exist in quality-control monitoring of the signal. By means of the 1730D waveform monitor and serial output of the TSG-170D signal generator, Fibush demonstrated how the EYE pattern is used in showing the performance of the serial stream. Improper cable equalization and jitter are clearly visible in the waveform. He also described an error detection scheme proposed by Tektronix, which is suggested for incorporation into the serial digital standard. The meeting, held at the Museum of Television and Radio, was attended by 70 people. — J. H. Ballard (Past Chairman), NBC.

Philadelphia, October 8, 1991 — The meeting was held at the Advanced Media Laboratories (AML) of Samsung Electronics Co. Chief Engineer Christopher H. Strolle gave a slide presentation on AML's proposed improved downward-compatible VHS recording system, which provides full 4.2-MHz bandwidth NTSC images. The additional bandwidth in the system is obtained by using foldover techniques of the upper frequency range and then modulating them into spectrally vacant (Fukinuki) areas of the standard VHS signal during the recording process. The improved VCR then recovers these frequency components during playback, using unfolding and multitap filters and built-in time base correction.

A tour of the facility followed the presentation. The 27 members and guests

were then treated to sandwiches and salads by AML. The program was managed by Raymond Hallows, Film to Tape Transfer Service. — George F. Anderson III (Secretary/Treasurer), Ampex Corp.

San Francisco, October 16, 1991 — Multimedia Development was the topic of the October meeting, which was held at Dominican College. The meeting coincided with the school's "Tape 1 Multimedia Symposium."

Stephen C. Beck, Lapis Technologies, provided a videotape of presentations, exhibits, and technologies that were demonstrated at "ARTEC 91," an exposition recently held in Japan. Some of the unusual exhibits included an elaborate headdress, which resembled a fully lit Christmas tree, that was powered by a portable source worn by a group of dancers. Another exhibit consisted of a number of video monitors that were buried in sand to create the desired imagery. Beck commented that the monitors performed well despite being buried in sand because the sand functioned as a "heat sink" and did not interfere with the mechanical functions of the sets.

During the meeting it became evident that multimedia is a field that is very much in the experimental state, which helped to create a lively question-and-answer session. After the meeting, the 50 members and guests moved to an adjacent building where Tom Scott and other employees of LucasArts Entertainment Co. gave hands-on demonstrations of new technologies. — Vernon L. Kipping (Chairman), Consultant.

Toronto, October 8, 1991 — The theme of the October meeting was "Digital Video Compression Technologies." The program began with a paper entitled "Developments in Digital Video Compression," presented by Colin Boyd, Scientific Atlanta (Canada) Inc. He gave a brief summary of the historical aspects of satellite delivery technologies. He mentioned that his company developed the popular B-MAC system, which is now giving way to newer digital delivery modes. He provided reasons for going digital, which include decreased signal degradation, easier processing, more channels, and the ability of service providers to encrypt their signals.

The differences between discrete cosine transform and vector quantization compression technologies were discussed. Boyd outlined the salient features of each basic technique and noted that his company has adopted the vector quantization principle in product development because of its low receiver components, minimization of motion artifacts, and robustness of the signal from a transmission point of view. He outlined possibilities for future developments and said that as the vector quantization technique is highly memory dependent, future developments in the

semiconductor industry offer potential for improvements in both quality and cost. He concluded his presentation with a demonstration of the company's video compression technologies.

Terry Snazel, TSN Enterprises, presented a paper entitled "Video Compression from the Perspective of a National Sports Network." He examined the current status of the development of video compression systems and provided a speculative view of the potential applications of the technology and gave a description of a proposed operating model for a compressed video television delivery system. The SkyPix proposal was cited as offering customers 80 to 100 different television channels using 10 satellite transponders, which are directed to and priced in accordance with the consumer market.

The benefits of video compression were outlined, and it was shown that a standard, uncompressed digital television picture requires 140 Mbit/sec delivery rate while the newer technology requires in the order of 4 to 8 Mbit/sec delivery rates, when compressed. A description of intraframe compression and dealing with spatial components of the picture was provided, as was a discussion of interframe compression in the temporal domain.

Snazel noted that his company's requirements were very demanding in light



Tom Scott, LucasArts Entertainment Co. (left), demonstrating the company's new technologies to members of the San Francisco Section.

of the motion requirements of sports. He concluded the presentation with a video of a wide variety of manufacturers' compression schemes, which gave the audience an

opportunity to visualize the impairments and the relative merits of each particular technology. — C. Peter Laidlaw (Secretary/Treasurer), Imagineering Ltd.

Engineering News

Committee Information

SMPTE Engineering Committees meet to develop standards, practices, and engineering guidelines and to review existing documents to ensure that they are current with established engineering practices and are compatible with international standards.

Membership is open to those who have affirmed in writing that they are directly and/or materially affected and are willing and able to participate actively in the work.

Individuals interested in contributing to committee work should contact the SMPTE Engineering Dept. at SMPTE Headquarters, (914) 761-1100.

SMPTE Monthly Engineering Meeting Schedule

The adjacent calendar shows the dates and times of upcoming meetings and the cities where they will be held. Those requesting additional information on participation in these meetings should contact the Engineering Dept. at SMPTE Headquarters, (914) 761-1100.

March

2 Mon.	9:00 a.m. 5:00 p.m.	WG on 1/2-in. Composite Format V16.05 (K. Sadashige)	Sony Broadcast Montvale, N. J.
2 Mon.	9:00 a.m. 5:00 p.m.	S17 Subgroups	Sony Broadcast Montvale, N. J.
3 Tues.	9:00 a.m. 5:00 p.m.	S17 Subgroups	Sony Broadcast Montvale, N. J.
3 Tues.	9:00 a.m. 5:00 p.m.	WG on D-1 and D-2 Applications V16.03 (B. Weber)	Sony Broadcast Montvale, N. J.
3 Tues.	1:00 p.m. 5:00 p.m.	TV Rec. and Repro. Tech. V16 (T. Cavanagh)	Sony Broadcast Montvale, N. J.
4 Wed.	9:00 a.m. 5:00 p.m.	TV Signal Technology S17 (W. Nichols)	Sony Broadcast Montvale, N. J.
4 Wed.	9:00 a.m. 5:00 p.m.	P18 Subgroups	Sony Broadcast Montvale, N. J.
5 Thurs.	9:00 a.m. 5:00 p.m.	P18 Subgroups	Sony Broadcast Montvale, N. J.
6 Fri.	9:00 a.m. 2:00 p.m.	TV Production Technology P18 (M. Weiss)	Sony Broadcast Montvale, N. J.