

Section Meetings

Atlanta March 8, 1997

The Atlanta Section held its first all-day educational symposium, drawing members and nonmembers from as far away as North Carolina. The first speaker was Phil Livingston, Panasonic Broadcast, who began with background material on the Digital Video Consortium and went on to explain the processes used in DV-based compression systems. Then Gwenn Tune, Leitch, presented an overview of AES/EBU audio standards, relating both theoretical calculations and real-world data to the science of digital audio. She described devices made by Leitch and other companies that allow a high-performance, integrated system to be assembled. She was followed by Clyde Smith, Turner Entertainment Networks, who discussed issues related to the integration of video servers into the broadcast environment.

SMPTE Engineering Vice-President William Miller, Capital Cities/ABC, Inc., presented a report on the work of the



SMPTE Engineering Vice-President Bill Miller discusses SMPTE standardization efforts at the Atlanta educational symposium in March.



Clyde Smith addresses the Atlanta Section in March.

SMPTE/EBU Task Force on Harmonization, a group charged with creating standards for the exchange of program material as bit streams. Concluding the program was S. Merrill Weiss, consultant and author. After presenting a brief overview of the MPEG toolkit, Weiss began breaking the MPEG bitstream down into component parts and explained each part's syntax and structure. He then illustrated the Grand Alliance system in detail and contrasted other transmission methods such as ATM, SONET, ADSL, and COFDM. He concluded with an explanation of the work SMPTE was doing to define original coding methods and the challenges presented by switching compressed signals. — Dick Perin (Secretary/Treasurer), Sony Electronics.

Chicago February 13, 1997

Nearly 70 people came to the joint SMPTE/SBE meeting held in February at the WBBM-TV studio that was the site of the first Kennedy/Nixon debate; WBBM's Dave Haworth conducted tours of the facilities prior to the program. The first speaker, Bob Johnson, Loren Green Systems, gave an informative talk about proper grounding, pointing out that the foremost purpose of grounding is safety. Diagrams were shown of various methods of grounding at the service entrance, the distribution box, and the equipment area, and Johnson rated each of the common configurations with regard to noise immunity. Then Warren Schultz, WLS Radio, showed photographs of the renovations that were made on his station's transmitter, which had endured several years of lightning strikes. He then discussed the use of inductive coils, "V" gaps, ball gaps, and gas tubes as dissipaters and fuses to protect the transmission system. — Steve Robinson (Secretary/Treasurer), Serial Scene

SMPTE SECTION CALENDAR

Hong Kong

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Dates for Future Meetings:

May 1997: Digital Compression
May 1997: DVD
August 1997: VOD/IMS
November 1997: MPEG-2

San Francisco

For further information contact Section Chair Charles Hintz, KTVU Partnership, Inc./Fox, tel: (510) 874-0290, fax: (510) 272-9957, e-mail: charlesinca@aol.com

The 1997 San Francisco Section Second Saturday Tutorials Schedule

August 9, 1997:
Video Acquisition and Display

September 13, 1997:
Digital Audio and Compression

October 11, 1997: Growing into MPEG

November 8, 1997: Living with MPEG-2

All times are 9:30 a.m. to 4:00 p.m. Seminars 1, 3, and 4 will be held at Stanford University, Gates B-01 Computer Science Classroom, Palo Alto, Calif. Seminar 2 will be at Dolby Labs, 100 Potrero Ave., San Francisco, Calif.

Toronto

For further information contact Promotions Adviser Brad Fortner, Rogers Communications Centre, Ryerson Polytechnic University, tel: (416) 237-0625, fax: (416) 979-5203, e-mail: bfortner@acs.ryerson.ca

Dates for Future Meetings:

June 10, 1997: Film and Video Archiving

Future SMPTE Toronto Events:

May 14 to 15: The Multimedia Experience

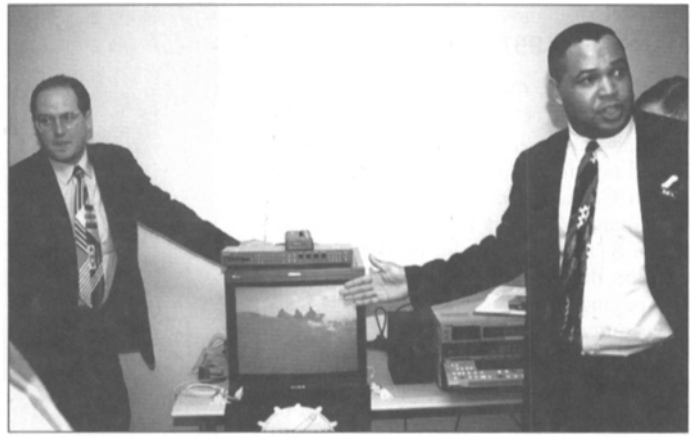
To publicize your Section events, please send announcements to SMPTE Headquarters, 595 W. Hartsdale Ave., White Plains, NY 10607, tel: (914) 761-1100, fax: (914) 761-3115, e-mail: edit@smpte.org. Information must be received by the 15th of the second month preceding issue date (e.g., April 15th for June issue).

Detroit January 14, 1997

Thirty-one members and guests were at the January meeting, held at WWJ-TV. Michael Taylor, Sony Corp., began by discussing the need for application-specific equipment for broadcast as opposed to industrial usage and outlined the design criteria for the Sony



Ed Boland demonstrates the Sony BVM-20 monitor at the Detroit meeting in January.



David Westermann (left) and Michael Taylor discuss the Sony Betacam-SX at Detroit's January meeting.

Betacam-SX line of VTRs. The unique feature of the Betacam-SX line is the inclusion of an internal hard disk drive to which taped video can be copied and then used as a standalone, disk-based, nonlinear editing system. Taylor also pointed out that since the SX is also backwards-compatible with the rest of the Betacam series of tape formats, it makes for a smooth transition to digital and disk-based video for users of those formats. He then went into the Sony implementation of the MPEG 4:2:2 profile at main level specification and compared the resultant sampling rates with other digital formats. An explanation of the DNW-A100 deck's operational and editing capabilities followed. Taylor demonstrated the case of operation as the deck's front panel layout is essentially similar to other Betacam machines. In addition to the record/playback and edit functions, he explained how the machine can also be used as a standalone time delay recorder, which

can give up to 12.8 hr with external drives. He concluded his portion of the program with some information on the field acquisition equipment available, as well as a demonstration of a laptop-computer based editing controller.

Ed Boland, Sony Corp., discussed the BVM-20 video monitor that was used as part of the equipment demonstration. The BVM-20 uses an external control panel, allowing many monitors to be controlled from a single panel. It also features advanced set-up functions, including self-alignment of colorimetry using either Sony's probe or those of various manufacturers including Philips and Minolta. Boland also demonstrated the LCD projector used for the slide display in Taylor's portion of the presentation. A question-and-answer period was followed by hands-on demonstrations for the attendees. — Frank Maynard (Secretary/Treasurer), WKBD-TV

Detroit

February 11, 1997

The February meeting was held at the Ford Motor Co. World Headquarters; 21 people attended. The evening's speaker was Jim Lafer, who spent over 30 years with Chrysler Corp. developing high-speed film photography techniques for use in motion analysis within the automobile industry. While with Chrysler, Lafer pioneered the use of high-speed video. Upon retirement, he joined Instrumentation Marketing Corp., which became NAC Visual Systems and was recently acquired by Kodak. His current firm represents companies and individuals prominent in high-speed film and video. Lafer gave a history of high-speed film and video, telling of an early camera system, the Fastax, which recorded at 7000 frames/sec and ran the film through the projector literally at supersonic speeds.

The politics of crash testing, the problems of synchronizing high-speed cameras, and aerospace applications were discussed. Video developments were covered, ranging from the Instar system, which recorded 240 frames/sec on 1-in. videotape, to systems that can record 100,000 frames/sec. As tape and camera technology improved, cameras got smaller and more rugged, and instruments that recorded on VHS tape were introduced.

A videotape was shown to the group depicting bumper impact and dummy crash tests, as well as a sequence showing a burning light bulb being shattered by a fast projectile to demonstrate the resolution and anti-blooming capabilities of current equipment. Lafer concluded the presentation with a live demonstration of the Weinberger Speedcam Lite, which recorded a small spring-loaded tire in contact with a rapidly-spinning bumpy cylinder to demonstrate the system's ability to analyze suspension systems. — Frank Maynard (Secretary/Treasurer), WKBD-TV



James Lafer demonstrates the Weinberger Speedcam Lite at the February meeting in Detroit.

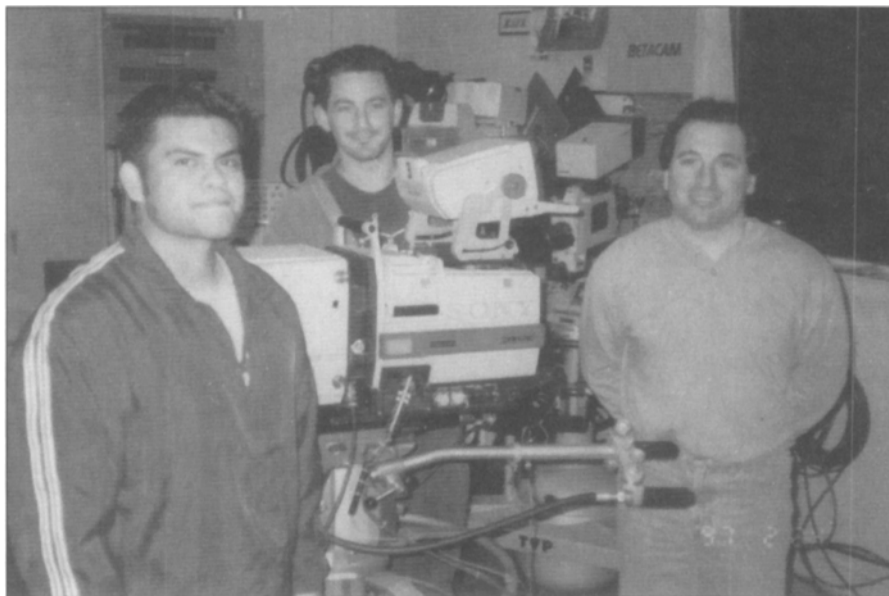
Detroit
March 11, 1997

Norman Trask, Caption Resource Center, Oakville, Ont., Canada, began the March meeting with a discussion of the economic and political aspects of closed captioning in Canada and the U.S. He said the Canadian model has been very similar to the U.S.'s, allowing the marketplace to develop the mechanism for implementing and paying for the service. In the U.S., a government/institutional funding model has fallen into place. He gave some statistics on the amount of programming that is currently captioned and is expected to be captioned, as well as the cost of captioning program material; with commercial sponsors, captioning is becoming a source of revenue in some Canadian broadcast organizations. An overview of the technical advances in captioning followed, with a discussion of improvements in real-time and off-line captioning equipment. One of the difficulties currently hindering real-time closed captioning efforts is the shortage of stenographers who can render captions fast enough to keep up with program material such as newscasts; this is being helped by the training provided by schools such as the three in the Toronto area dedicated to developing and training personnel with skills sufficient for real-time captioning. With reliable voice-recognition technology many years or decades off, the human interface will be the key for a long time to come.

His colleague Emmanuel Faraon demonstrated the Caption Resource Center's Voice Writer system, a computer-based off-line closed captioning system that stores the program material in compressed form on disk, and with a windowed interface, allows the operator to compose exact captions for each scene. These captions are later added to the program tape using a conventional captioning encoder fed with data from the Voice Writer. This has resulted in a savings of 10 to 30 percent in the time it takes to caption a program over the conventional method, which involves rolling a tape back and forth while composing captions. — Frank Maynard (Secretary/Treasurer), WKBD-TV

Hollywood
February 19, 1997

Six speakers from the Jet Propulsion Laboratory spoke to the 170 members and guests at the February meeting, giving an in-depth look at the October 1997 mission to Saturn. The spacecraft, named Cassini after the Italian astronomer, will undertake a seven-year journey to reach its destination. Valerie C. Thomas talked about the Star Finders that allow the spacecraft to orient itself accurately over vast distances.



From left to right, Hugo Ayala with Chapter Director of Activities John Kemps and President Robert Maniaci at the Napa Valley College meeting in February.

The Star Finder works in conjunction with a hemispherical resonator gyroscope to accurately hold position for the imaging systems. Pamela Hoffman described the design and testing of the pyro ring, which mates the spacecraft to the booster rocket. Cindy Kahn described the wide field and narrow field cameras that use the 1024 x 1024 1-in. CCD sensors that will provide the high-resolution images from the spacecraft. — Alan A. Hart (Chair), Modern VideoFilm

Mashpee
March 8, 1997

Student Chair Jonathan Forsythe introduced the three guest speakers: Steven Gambino, Strand Lighting Co., Russell Witikker, Echo Labs, and John Brooks, Brooks/Flemming Associates. Each of the speakers gave demonstrations of various pieces of equipment purchased by Mashpee High School. — Thomas N. Holmes, Student Secretary

Napa Valley College
February 24, 1997

Guest speaker Hugo Ayala, a 1996 graduate of Napa Valley College, gave the 30-member audience an overview of his education and professional career. Ayala began taking television production and basic electronics classes while in high school, and after graduating from the NVC Telecommunications program at the age of 19, he joined KCPN 24, Chico, Calif., as an entry level maintenance engineer. His job consists of repairs to and installation of television equipment. — Robert Maniaci, Student Chair

Nashville
February 20, 1997

Earl Higgins, Scitex Digital Video, and Anne Fowler, Niche Video Products, demonstrated the latest in nonlinear editors for finishing: the ImMix Stratasphere. The Stratasphere features two real-time streams of 4:2:2 video with alpha channel, four channels of stereo audio, and a title track. All effects were in real time with no rendering. The device also features Dveous effects with WARPS, Dual Light Sources, and Texture Effects from Abekas. The Stratasphere can composite up to 50 layers of video effects in a single pass. The meeting ended with a question-and-answer period. — Tom Hoffman (Secretary/Treasurer), MPL Film & Video

Philadelphia
March 11, 1997

The March meeting was held at the studios of WPSG-TV, with 33 members and non-members coming to see a presentation on digital television given by Mark A. Aitken, Comark. Aitken discussed the advantages and problems that could be encountered on the road to broadcasting on a digital standard. He outlined the development of digital technology and/or lack of it in digital equipment, routers, and distribution and test equipment. — James E. Landy (Chair), Landy Electronic Reps

Rocky Mountain
January 16, 1997

Neil Neubert, JVC, presented a tutorial on digital video, including the design deci-

sions made by his company and others in recording technology. The two-hour presentation was followed by a question-and-answer period. — Fred Baumgartner (Manager), KDVR-TV

Sacramento February 19, 1997

Forty people came to the February meeting, held at Flessing & Flessing, Auburn, Calif. Richard Jackson, Scitex Digital Video, gave a technical overview of his company's Sphere product family. He also discussed compression technology used in the post-production process. Then Jim Jupin, Flessing & Flessing, gave a tour of the facilities. The evening concluded with a comparison of digitally mastered video posted on a component digital (D-1) system, a composite digital (D-2) system, and the Sphere NLE. Composite artifacts were apparent in the D-2 process, while the D-1 and Sphere were virtually indistinguishable. — William Carlquist (Secretary/Treasurer), Tektronix, Grass Valley Products

San Francisco January 23, 1997

Over 150 people came to the January meeting, held at Mid-Point Technology Park, to hear about FireWire editing with the new DV-family tape format. Section Manager Peter Hammar, Hammar Communications, opened the meeting, observing that in the 1920s and 1930s, film pioneers successfully adapted the 16mm consumer film format to professional work, an early example of the process of consumer technologies migrating to professional, which has continued throughout this century.

The program continued with an overview of digital compression issues by Andy Hengel, Adaptec, Inc., whose company is partnered with DPS, Inc., in the development of the DPS DV-2000 Spark Direct DV/FireWire Desktop Editing System for Macintosh and PC. To digitally connect PC and Mac-based computer peripherals to DV-format VTRs, manufacturers chose Apple Computer's "FireWire," now the "IEEE 1394" standard, as their digital I/O interface. The FireWire I/O has a potential bandwidth of 400 Mbits/sec that can easily handle DV's compressed rate of 25 Mbits/sec, allowing several video streams on one bus while guaranteeing latency, bandwidth, and robust performance.

Brick Eksten, DPS, Inc., was the next speaker. Since the DV camcorder or record/reproduce deck has already captured, digitized, and compressed the audio and video, the job of editing that digital bit stream is relatively easy. The entire

FireWire editing process remains in the DCT digital domain, essentially lossless, although video transitions still show degradation, a problem he expects to solve by the end of the year. Eksten's demonstration showed a video clip edited using FireWire that was identical to the DV original. Transitions cannot be made in real-time, although Eksten believes that within two years, most FireWire editors will offer real-time editing. He explained the Adaptec/DPS approach to FireWire editing is heavily dependent on software, while competing FireWire editors require more digital hardware, e.g., DPS/Adaptec use a software codec, while others have hardware codecs.

Eksten pointed out that some computer makers plan to put FireWire I/Os on their motherboards, probably licensing some of the technology being developed for this current generation of FireWire plug-in boards. Someone in the audience suggested this might soon lead to broadcast-quality editing gear from your local computer store. In fact, industry commentators think the DV format and FireWire editing could revolutionize gathering and post-production by creating a large "middle class" of video producers, similar to today's desktop publishers. — Pete Hammar (Manager), Hammar Communications

San Francisco February 20, 1997

Seventy-nine members and guests met at Dolby Laboratories, San Francisco, to hear that company's Stephen Vernon present "The Beginners Guide to Dolby Digital — The Dolby AC-3 Audio Tutorial and Demonstration." As a member of the Digital Coder group at Dolby Labs, Vernon is one of the co-developers of AC-3. According to Vernon, audio compression exploits human perception in both the time and frequency domain; in the frequency domain, there are three factors that mask noise and in the time domain there is one masking factor. By identifying where hearing masks noise naturally, the Dolby Digital Coder group was able to place the compression artifact — noise — where it cannot be heard, or is heard very little in the case of severe compression.

AC-3 has been in active use for about five years in the production of Dolby Digital film soundtracks, in which the encoded bitstream is recorded in data blocks placed between the perforations along one edge of the film. Hundreds of theaters worldwide have been upgraded with digital playback systems and routinely exhibit movies in this format. AC-3 has been selected for use in both the digital transmission television in North America and the DVD digital video disk format due

soon. This program was prepared for the San Francisco SMPTE Tutorials, Seminar 4, and will be repeated September 13, 1997. — Charles Hintz (Chair), KTVU Partnership, Inc.

San Francisco March 20, 1997

Some 835 members and guests gathered at Paramount's Great America Imax Theater, Santa Clara, Calif., to hear Bill Shaw and David Keely, Imax Corp., present "Imax New Releases and the Technology Behind Them," which consisted of a description of techniques, the equipment, and future plans from Imax Corp. Films shown during the meeting included *Destiny in Space*; exploration of the last frontier, outer space. *Nova's Special Effects* showed recent filmmaking effects techniques, including clips from *Star Wars Trilogy Special Edition*, *Independence Day*, *Jumanji*, and *Kazaam*. The audience also saw *King Kong's Final Battle* and a starship chase scene choreographed with original *Star Wars* models newly shot in the IMAX format with spectacular scale and resolution. Finally, clips from *L5: First City in Space* illustrated how the filmmakers used data and research from NASA and leading scientists to create this realistic approximation of a working city in space. — Gary Youngs (Manager), Panasonic Broadcast

Toronto February 11, 1997

The March meeting focused on the Advanced Television Systems Committee's (ATSC) Digital Television Standard. Patrick Whittingham, Sony Broadcast Canada, began the evening with an overview the standards development process and then provided an explanation of the DTV standard.

Doug McKenzie, Westcam Entertainment, described the new standard as "an excellent and transparent window." He feels that the production industry's involvement in the design and rollout of HDTV is important. The HDTV transmission format will allow for a window with a 16:9 aspect ratio and 1080 lines.

Chris Bell, The Movie Network, completed the evening with a presentation on some of the implementation issues of the A/53 standard. He sits on the Advanced Broadcasting Systems of Canada Association (ABSOC). ABSOC is the body that represents Canada at the ATSC and provided input into the standard. In terms of traditional broadcasting, Bell warned that other implementation issues abound. — Brad Fortner (Promotions Advisor), Rogers Communications Centre, Ryerson Polytechnic University