

Section Meetings

Australia North Section's Successful 1997 SMPTE Conference Reflects New Optimism



From left to right: Australia North Section Paper Chair John Maizels, SMPTE President David L. George, and Australia Section Chair Gerry Brooks.

The outstanding success of the Australian SMPTE '97 Conference and Exhibition on July 1 to 4, 1997, in Sydney, is being viewed as the catalyst for a return-to-confidence in the local broadcast, film, and video industries.

A total of 6,910 visitors attended the four-day exhibition at the Darling Harbor Convention and Exhibition Center, while the conference attracted nearly 500 delegates over its four-day program. The attendees included more than 500 overseas visitors primarily from New Zealand, followed by an even mix from the rest of the Asia-Pacific region.

With the Olympics only three years away, telecoms deregulation in place, cable and satellite pay services finding their niche, the Fox studios under construction, and serious digital transformations slated for network broadcasting, the pervading air of caution has been replaced by the necessity to start making engineering and buying decisions. SMPTE '97 gave them that opportunity.

While all paper sessions were well patronized, the full-house attendance during sessions on Storage Technology, Broadcasting and the Olympics, and Transmission, reflected the desire by the local industry to play a contributing role in the engineering direction of major projects. There was also a need to prepare for the integration of a range of digital tech-

nologies by checking the progress of manufacturers and standards groups in their pursuit of format compatibility.

The SMPTE Dinner, held at Sydney's famous Taronga Zoo Park, was also an outstanding success. Guest of honor and SMPTE President David L. George helped Conference Chair John Maizels and Section Chair Gerry Brooks organize 200 guests in a night of play-money gambling, during which a station engineer on a roll offered a fistful of dollars as down-payment on his station's next digital format. The offer was taken in the spirit of the occasion and no contracts were left binding.

SMPTE '99 is scheduled for July 13 to 16, 1999, again in Sydney, only a year before the 2000 Olympics. An exhibitor questionnaire distributed two weeks after the show had 82% of this year's attendees recommitting for SMPTE '99 with a 30% average increase in stand size.

The diligence and hard work of Conference Chair John Maizels and Paper Committee member Dominic Case has also laid the foundation for another truly international conference in two year's time.

An exhausted, applauded, and well-satisfied SMPTE '97 Australia North Committee has now been transcoded into an energetic, excited committee preparing for the challenges of SMPTE '99.

Chicago

October 14, 1997

More than 35 people attended the joint SMPTE/SBE Chicago chapter meeting culminating a STV seminar hosted by Swiderski Electronics. Three presenters took turns at describing the future evolution of television in the wake of new advanced digital production and distribution standards. David Wiswell, Panasonic, covered broadcast studio implementation. He described three phases of using a true HDTV facility: the standard SDI (259M) infrastructure; ATSC pass-through from network with limited ability to modify the MPEG-2 stream locally; and originating HDTV programs. He also described what

SMPTE SECTION CALENDAR

New England

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Dates for future meetings

December 17

The New Digital Tape Formats

January 21, 1998

Nonlinear Editing Showcase

February 5-7

32nd SMPTE Advanced Motion Imaging Conference in Toronto

February 18

Digital Day Seminar on Management of Large Video Data Bases

March 18

DVD and AC3

April 15

NAB Wrap-up

May 20

Moving WLVI-TV: Tour and Presentation

June 17

Annual Retrospective and Barbecue at Video Transfer in Southboro

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

December 9, 1997

January 13, 1998

March 10, 1998

April (TBA), 1998

May 12, 1998

June 8, 1998



From left to right, Kaishin Go, Wicky Law, Noel Leung, Charles Cheung, Kwok-Luen Lam, Hideki Ohtaka, Wai-Boon Leung, Philip Wu, Pang-Hung Cheung, and David Leung at the September meeting in Hong Kong.

Panasonic believes will be the dominant formats, 525I, 525P, 1080I, and their respective applications. Steven Blondin, Discreet Logic, described his company's use of general purpose computer platforms and their software applications for resolution independent production. He stated that strong points to this open approach are improved resource utilization and collaboration. Open systems allow computer resources to be redeployed for various applications such as editing, graphics, rendering, or playout. Also, high-speed networks allow multiple users to work on projects simultaneously in a more collaborative manner. Finally, Allen Hansel, Hewlett Packard (HP), discussed HP's use of large open storage systems to play out programming as a replacement for tape-based systems. The new generation of servers now provide the features and reliability to plug into this application without compromise. — Steve Robinson (Secretary/Treasurer), Serial Scene

Chicago

September 25, 1997

Over 30 guests attended the joint SMPTE/SBE opening meeting of the 1997-1998 meeting schedule at the Com Ed Fisk Power Generation Station.

Greg Welch, vice-president of technical services for Commonwealth Edison, familiarized members with the Fisk Station, commissioned in 1903 as the first coal-fired power generating facility. Today Fisk operates Generator 19 which is capable of delivering nearly 350 MVA of power. The twin cross connected steam turbine generator was put on line in the 1950s. The generator's output is 20 kV and is increased to 138 kV for citywide distribution. Substations decrease the distribution to 12 kV.

Welch went on to explain various network distribution strategies. It was pointed out that harmonics, a constant source of concern for broadcast TV facilities, are a result of the type of loads commonly in use today. All switching power supplies used in electronic equipment contribute to harmonic generation. Welch also said weather and trees are frequent causes of power outages.

Dave Larson, public affairs director for Commonwealth Edison, addressed the pending issues of industry legislature deregulation. Consumers will have to choose separate vendors in the future, with each offering different aspects of power acquisition. For example, they will be able to choose a generation, transmission, and delivery company. The advantages are expected to bring competition resulting in better price performance for consumers. The Illinois energy bill will be voted on this fall.

A comprehensive tour of the facility was conducted following the presentation. — Steve Robinson (Secretary/Treasurer), Serial Scene

Hong Kong

September 9, 1997

Forty people attended the September meeting held at the Conference Hall of Shun Hing Centre. Section Chair Kwok-luen Lam introduced guest speaker Hideki Ohtaka from Matsushita Electric Industrial Co., Ltd., in Japan. Ohtaka presented information about the DCT-based compression process, and the features and compression process of DVCPRO compression. He concluded by comparing DVCPRO and MPEG-2. Ohtaka's presentation was excellent and informative as members were very interested in the formatting of compressed data on compression macro block, and compression of



Charles Hintz (standing) was guest speaker at the Napa Valley College meeting in September. Seated from left to right are Student Chair Anthony Cassano, Vice-Chair David Larson, and Web Master Hyun Tae Kim.



Guest Speaker Andy McGuire (l) Section Chair Anthony Casano at the Napa Valley College meeting in October.

DVCPRO50 and its ongoing developments.—David C. K. Leung (Secretary/Treasurer), Wharf Cable Ltd.

Napa Valley College September 10, 1997

Charles Hintz, Chair of SMPTE's San Francisco Chapter, took time out from his busy schedule to share his many years of experience in the broadcast industry with the 35 students present at the meeting. His knowledge, quick wit, and sense of humor won the respect of everyone in the audience. The stories he told gave color to the industry, bringing hope to the students struggling the most. Questions were asked concerning the Society's seminars and meetings, and current jobs in the industry were also inquired about. Hintz answered all questions and added his own footnotes. It was a great meeting and we look forward to seeing Mr. Hintz again in the future. —Anthony V. Casano, Student Chair

Napa Valley College October 8, 1997

There was standing room only available as 37 members attended the October meeting. Mobile truck layouts and working routines was the topic presented by guest speaker, Andy McGuire. He covered many aspects of national mobile television. Subjects ranged from the changeover to digital technology on board the new trucks to on-site setup and wiring. He shared a wealth of information with the audience and was limited only by the allotted time. McGuire was asked many questions by the students and his knowledge and good humor left many excited and ready to venture into the workforce.—Anthony V. Casano, Student Chair

Nashville September 18, 1997

Glen Trew of Trew Audio, Inc., demonstrated the new Genex GX-8000 M.O. (magneto-optical) recorder and the Lectrosionics frequency agile wireless microphone system to 14 members and a large group of Middle Tennessee State students. He discussed a few of the Genex features which include a 24-bit, 96-K resolution, removable media (5.25 in. disk), 8 tracks per unit (64 tracks stackable), and instant cueing.

The Lectrosionics 200B wireless system features 256 frequencies, auto-tracking front end, an internal "auto searching" spectrum analyzer, and RS-232 PC interface control. The demonstration was followed with a great question-and-answer session. —Tom Hoffman, (Secretary/Treasurer), The Filmworkers Club

Pasadena City College September 9, 1997

The opening meeting for the 1997-1998 school year was called to order at noon by faculty adviser, Gerald Finn. An introduction to SMPTE and its valuable relationship with the student chapter served as the basis for the meeting. This was the first time that many in the 32-member audience heard about membership benefits. Copies of the booklet detailing the benefits were distributed with membership applications.

Following a question-and-answer period, elections were held to determine the student chairperson for the coming year. I am pleased to announce that Josh Ochs has been elected Student Chairperson. —Gerald Finn, Faculty Advisor

Pasadena City College September 23, 1997

Craig Rovello, a freelance broadcast audio mixer was the guest speaker at September's second meeting. After some announcements, he was introduced to the 33-members audience. Rovello described the career path that led him to his current position. He said he began by volunteering at local clubs and looking over the shoulders of professional mixers, then he started meeting people in the industry and used them as contacts. According to Rovello, being humble and not acting all-knowing were actions that gained him the most respect. He advised the audience to commit only to what they can do so their word could be upheld when a job is offered, because reputations get easily circulated. Rovello proceeded to explain the difference between freelance and staff work. He felt the excitement of freelance made the profession enjoyable, but being on a staff at a production company is a lot more reliable for income.—Josh Ochs, Student Chair

Rochester October 14, 1997

William Kennedy and Phil Livingston, both of Panasonic, presented Digital Television (DTV) to High-Definition Television (HDTV) Transition with HD D-5 Technology Systems and Products to the 22-member audience. They spoke for over an hour on the following subjects: DTV transition; the DV Consortium; DVCPRO and its users (National, NBC, CBS, Time Warner, and FOX -31); the Panasonic philosophy on partnering (partners including Quantel, AVID, DV News Cutter, Microsoft, etc.); and the Panasonic DVCPRO in both 601 and HD sampling modes.

A review of DTV and HD as a subgrouping was made, using a pyramid to describe the digital hierarchy, with 1080 progressive 24 Hz at the peak as a future goal being encouraged by the Hollywood community; 1080i and 720P, by the networks and Hollywood for mastering, 525P, with some 1080i and 720P, by the broadcasters; as well as initial offerings in 601 video at the bottom of the pyramid.

A three-phase station conversion process-to-digital television was discussed. The phases started with network pass-through and ended with the local broadcast station being fully capable of generating programming in a totally digital environment. Issues surrounding the ATSC transmission standard robustness were also discussed. The issues presented show that at higher compression ratios, the group of pictures (GOP) is longer, or the "I" frames are further apart. Switching and insertion technology requires transition to occur on

"I" frames. Hence switching and insertion of video programming is planned at a network distribution rate (total of 45 Mb/secs) with shorter GOP's resulting in a shorter switch latency between data streams. The mole technology of the Atlantic project, has excited the industry because it holds the promise of improving the ability to switch for editing and insertion at any point in the data stream. The mole creates a helper signal that further defines the compression applied to the digital signal representation.

It was reported that with a high probability, NAB 98 would see D-5 being used in data applications. It was also pointed out that real estate exists within the D-5 footprint for additional storage of approximately 1.5 Mb/secs. Panasonic as well as all the major camera manufacturers are working on optical disk storage cameras, but the limiting issue is compression quality. The question is when will this be overcome with clever implementation. In response to a question on the displacement of tape with optical storage, Livingston pointed out that tape will remain the cheaper media for archival of video records, and both the optical and tape medias will continue to co-exist for the foreseeable future.—Arthur J. Cosgrove, Secretary/ Treasurer, Eastman Kodak Co.

San Francisco September 25, 1997

More than 75 people were in attendance for the presentations on DTV titled Servers, Storage, and Now-Shock: DTV Reality for Major-Market TV Stations, at KGO-TV. John Reuter, a broadcast television engineer who is now the platform product manager for the video server business at Philips Broadcast Television Systems, presented information on the Media Pool video server architecture. Michael Wilke from StorageTek talked about archival storage in the digital era, and Jim Casabella, chief engineer at KGO-TV, discussed his experiences with the Media Pool and StorageTek products.

Reuter stated that the Media Pool has been in development for a long time but has been overlooked because of a slower roll-out than some other server technologies. This is unfortunate because Media Pool's architecture is unique among servers in its features and tradeoffs. Unlike many of the "VTR replacements" offered by some in the traditional video industry, or the modified data servers coming out of the computer industry, Media Pool has been designed from the ground up as a scaleable, multichannel video server able to record and play back several channels of uncompressed ITU-R 601 video. Media Pool can also handle compressed video, with compression of up to 8:1. The current compression is motion

JPEG, but the Media Pool doesn't care internally; should MPEG or DVC codecs become available for Media Pool, they will plug into existing systems without modifications being necessary.

Media Pools consist of three major components. I/O is performed by a channel, which consists of ITU-R 601 video and audio configurable for 525/60 or 625/50 formats on a channel-by-channel basis, the M-JPEG compression card, and VTR control capabilities. Storage is performed by disk arrays, which incorporate redundant power supplies, multiple SCSI buses, and hot-swappable drives in a RAID 3 configuration. Finally, when more than four channels and/or arrays are used, a Data Transport Commutator — essentially a 16-position "electronic rotary switch" — is used as the central router tying together channels and arrays.

Up to eight arrays, each containing up to 42 disks, may be used in a single Media Pool and up to 12 channels may be configured. The number of channels and arrays combined must not exceed 16, the number of "positions" in the Commutator. With today's drives, Media Pool storage capacity ranges from 50 min to 36 h of uncompressed video. With compression, a maximum of 224 h may be stored because as hard-drive capacity increases, so does the Media Pool's. Depending on the mixing and matching of components, compression levels, number of simultaneous channels, and total storage capacities can be traded off against one another.

Media Pool also has a fast-wide SCSI-2 connection to StorageTek library systems for "near-line" or archival storage, and SDTI, also known as QSDI or CSDI connections are also available. Mike Wilke of StorageTek described the library systems currently on offer, which use a D-3 format digital tape in an endless-loop cartridge (like an 8-track audio cartridge). StorageTek archives are built as cylinders, with a central rotary robot arm to convey carts between storage shelves and data transports. Capacities range into the hundreds of terabytes; fortunately, StorageTek offers a comprehensive media-tracking database using an Oracle engine to keep track of all the storage.

Bundled software makes the whole thing work. The Media Pool comes with applications to emulate VTRs and cart machines, to manage streaming record/playback operations, to perform simple station automation, and to track and manage spots and programs. Networked PCs and workstations running X-Windows or Windows 3.1 GUIs allow access to system configuration, control functions from anywhere in the plant, and the Media Pool itself is open to control via Louth Automation protocol or SMPTE ES-LAN commands.

Casabella described his experience

bringing the Media Pool and StorageTek systems up at KGO-TV. Despite being out on the leading edge with this sort of installation, KGO has had relatively little trouble getting the equipment configured and working. The hardest part was getting the operations folks to stop worrying about the old analog tape-based cart machines and start focusing on the server system instead. This was finally accomplished by shutting down the cart machines and shipping them out, leaving the ops people nothing but the server to worry about. KGO currently has two Media Pools running parallel for redundancy, along with a single StorageTek Wolfcreek library system. The systems have been extremely reliable with only a remarkably low two or three hard disk failures in the seven months the system has been running. None of the failures has had any on-air impact.

Casabella and his associates took the assembled crowd on a facilities tour. They exhibited the Media Pool and StorageTek systems going quietly about the work formerly handled by multiple cart machines and standalone VTRs with an immense analog tape library. The attendees were also shown through master control and the news room, and were told about KGO's ongoing re-engineering efforts. The space formerly occupied by the tape library and cart machines is being reworked into non-linear edit bays and, eventually, a larger StorageTek installation, capable of containing all of KGO's filmed and videotaped materials since 1963 in near-line readiness, cross-indexed in a master database for streamlined access and retrieval.—Adam Wilt (Section Manager), Origin8 Video

Toronto June 10, 1997

With Canadian Pay TV services and other specialty channels putting greater demands on archived materials, the Toronto Section of SMPTE held its final monthly meeting of the 1996-1997 season discussing Archiving Film and Video.

The audience heard a mixed message concerning Canada's poor record of archiving its visual heritage along with hope that current efforts might turn the situation around. Archiving images involves preserving Canada's moving visual images. The Moviepix-funded project intends to restore 35mm prints of motion pictures stored on paper at the American Library of Congress for copyright purposes at the turn of the century. While some of the motion pictures had been transferred to 16mm film in 1950, this new restoration involves computer enhancement for aligning the frames to restore the pictures to their original state.

Jeannette Kopak, head of the Program Information Department for the Canadian

Broadcasting Corp., described the role and scope of the CBC sound and moving image archives. The CBC is the largest cultural institution in Canada, producing more material than any other organization in the country since 1952. She noted that the CBC has historically done a poor job in preserving its materials. During the 1970s and 80s, videotapes produced on 2-in. tape were stored in an old mortuary building alongside films with no environmental controls. She concluded her presentation with tours of the CBC's new videotape transfer lab and vaults. The facility was constructed to transfer the collection of videotape to digital Betacam and restore and refrigerate the aging collection of materials on film.

Toronto Section board member Mark Ritchie organized the meeting and refreshments were provided courtesy of Kodak Canada.—Brad Fortner (Promotions Advisor), Rogers Communications Centre, Ryerson Polytechnic University

Toronto

September 9, 1997

Fifty members gathered for the first meeting of the 1997-1998 season at Panasonic Camera Inc., to discuss Canadian camera technology innovations. Reid Robertson arranged for a look at camera motion systems innovations, as Canadians have a long history of development in the field. Attendees were treated to presentations from Canadian companies considered innovators in the field. Presenters included Wescam, Fly'n Gate, and TetherCam.

Wescam, arguably the most recognizable of the three companies, is known for the unique camera stabilization system it developed over 20 years ago. The company traces its roots to the military division of Westinghouse Canada. In the mid-1960s, Wescam started to develop gyro-stabilized camera technology for battlefield surveillance. Noxon Leavitt, a Westinghouse engineer and inventor of the technology, purchased the lab equipment and patents in 1974 and started the company with four employees. Presently, the company has over 300 employees.

Wescam mounts found their initial market in film and television production from helicopters. The mounting system would compensate for the motion created by helicopter engines allowing for their use in professional production. Gary Childs, of Wescam's Entertainment Division, told the audience the company has evolved to be much more than a helicopter system. Their entertainment mandate is to provide images and information from unique points of view. Today, 5 motion picture and 25 integrated video systems are finding their way into a variety of production uses. The products can be placed in boats,

cars, and specially built tracks. This has allowed Wescam the diversity to be used in the production of television for golf, rowing, auto racing, bobsledding, track and field, and live music.

Adoption of Wescam technology was evident at the 1996 Olympic Games in Atlanta where they provided 19 camera systems, along with 20 technicians and operators. The company captured events that included yachting, rowing, road cycling, mountain biking, gymnastics, the marathons, and track and field. Coverage of Donovan Bailey's spectacular 100-meter dash included the use of Rail Cam. Rail Cam is a track system onto which a remotely controlled Wescam is placed. It provided close-up action of the world's fastest runner. Mounted on the stadium floor next to the running track, the Rail Cam followed the athletes at their own speed and captured remarkable angles never seen before at the Olympics. The Rail Cam is remotely controlled using RS-422 control. Control includes all camera and lens functions along with steering, and remote CCU operation is also possible. Wescam systems were also utilized by law enforcement agencies for surveillance in Atlanta. The Atlanta Games were Wescam's fifth Olympic appearance with its first involvement being the Los Angeles Olympics in 1984.

The company also designs and manufactures the video transmission systems that accompanies their camera systems. This technology is used for the broadcast of news and live events around the globe. While Wescam images can go directly to satellite, they can also utilize focused microwave technology. This means live camera images from helicopters can connect with ground link systems. Their range can extend up to 115 miles. Depending upon the use, various configurations of Wescams are available. By varying lenses, some systems can collect information at great distances from the subject while other Wescam helicopter systems can work as close as 500 ft. In low-light surveillance situations, FLIR (Forward Looking Infrared) cameras, are finding their way into Wescam mounts.

Wescams employ one of two stabilization systems: an Inertial or a Gyro Stabilization System. Systems equipped with a "roll" function and a 2/3-in. CCD camera are costlier. A film system typically weighs about 220 lb and a video system weighs 180 lb. Wescam is currently moving into the ENG market with its largest sales in Japan to this point.

Paul Kneller of Toronto's Fly'n Gate, Inc., developed the idea for his camera motion system on the set of a low-budget film. While working in a confined space on the set, he and his partner, Evan Wilson, addressed the cinematic desires of the film's director by combining the rope,

steel cable, and pulley skills he learned as a rock climber. By rigging the appropriate gear Kneller was able to suspend Wilson in a bag on wires and get a shot not possible with traditional camera track or cranes. Hence, the idea for Fly'n Gate was established to create a traveling system that can be used in confined spaces without traditional rails and or cranes.

In refining his system, Paul added stepper motors and a camera-mounting system. By way of these two refinements, his computerized system became the world's first Repeat Motion, Multi-Axis Aerial Camera System. For each movement, he can plot up to 770 points within 16-millionths of an inch. While a human operator can still be suspended to get the shot, where applicable, cameras can be mounted in a newly developed "Megamount" gyro-controlled mount. This is ideal for situations where human operators are not required. The cameras can be set up in confined spaces in new and unique situations for production. For example, The Toronto Maple Leafs hockey team will experiment with a Fly'n Gate system mounted 15 meters above the ice surface. The camera follows the action by way of a remote joystick control and returns its live signal through a microwave link to Maple Leaf hockey broadcasters.

Ian Carwardine's idea for TetherCam came about from research conducted as a result of a failed airship effort. TetherCam employs a helium-filled, 50 in. long by 18 in. high, custom-made aerostat (tethered aerodynamic balloon) that suspends a Wescam over an event. The aerostat is connected to the ground by a tether cable which delivers both control and power to the Wescam. The tether also returns the camera image and other information to the ground. The aerostat itself serves as a prime advertising medium at an event.

The small balloon that Carwardine continues to refine can be flown up to 700 ft with the tether cable attached. The balloon operates silently and can be operational within 2 h of arriving at an event. It's attached to a golf cart on the ground so it can be relocated as required. The camera images are returned to the ground via a fiber-optic cable. Camera control, which originates on the ground, is achieved through specially designed hand-held and foot-operated controls. TetherCam has a long and growing list of credits. Golf, football, and auto-racing coverage has been among its most recent credits. Carwardine's business plan is to have ten of these systems operational by the end of 1998. He is also discovering that aerostat is generating interest for surveillance applications from the military and police.—Brad Fortner (Promotions Advisor), Rogers Communications Centre, Ryerson Polytechnic University