

IBC 78 – the 1978 International Broadcasting Convention

By JOSEPH ROIZEN

Measured against all previous statistics, the 1978 International Broadcasting Convention (IBC 78) was a resounding success. A record number of over 4000 delegates converged on the Wembley Conference Centre in North West London from more than 70 countries and spent a solid five days touring explicit exhibits or listening to learned lectures.

The new venue, though larger and better equipped for a TV exhibition than the Grosvenor House, still proved too small, and a few exhibitors ended up in remote locations, assigned to Porta-kabins in the parking lot. Nevertheless, interest was high, traffic was good, and the outstanding nature of the technical papers maintained the IBC tradition of significant information exchange established at the previous conferences.

With few exceptions, most of the major manufacturers featured PAL/SECAM versions of the hardware seen at the NAB show in Las Vegas earlier this year. If there are any technical breakthroughs in broadcast equipment, it seems that they are being saved for next year's NAB and Montreux exhibitions where both attendance and international impact will be larger.

The British have always been pioneers in television, and their latest innovations were in ample evidence at IBC 78. The two major research branches of the BBC (the UK's national network) and the IBA (the commercial network) each had exhibits reflecting the advanced work they are conducting to improve public television or create new products.

The IBA booth was perhaps the one attracting the most attention because of its digital VTR and ENG satellite link display. At specific intervals, two color monitors displayed full screen moving images in PAL, coming from a 1-in helical VTR converted to digital operation. The pictures, while not quite up to the quality of current 1-in Type B or Type C machines, were impressive. The VTR itself was not on display for the general public because it is regarded as still under development and not in production; instead the pictures were supplied by cable from the VTR located in a mobile van beneath the conference hall. (Of note in regard to the developing technology is the fact that IBA announced at the convention the signing of nonexclusive licensing agreements for Bosch-Fernseh and Sony to use their digital VTR process; rates have also been set for providing others with IBA digital VTR know-how.)

A contribution submitted on 27 November 1978 by Joseph Roizen, Telegen, 800 Welch Rd., Suite 354, Palo Alto, CA 94304. Copyright © 1979 by the Society of Motion Picture and Television Engineers, Inc.

All photographs accompanying this report were supplied by Donna Foster Roizen.

A subsequent visit to the van showed that the recorder was a Fernseh modified BCN studio machine with some additional card circuitry doing the digital work. The video heads rotate at double speed producing a 2000-in/s (50.8-m/s) writing velocity, but the tracks have been reduced to 2.4 mils (61 μm) with a 1.6-mil (40.6- μm) guard band. The signal-to-noise ratio is not as critical in digital recorders, so the track width can be narrowed. The sampling rate is $2f_{sc}$ (8.9 MHz) and error concealment techniques are used to overcome the effects of switching points and tape defects. As is typical with such video prototypes, no effort was made to digitally record the audio, and some questions regarding the standardization of audio sampling rates are still to be resolved. While the digital VTR may be on the horizon, it's not around the corner as an operational or competitive device.

The IBA's satellite link display was perhaps a more immediate indicator of the future of ENG in the UK and Europe. For the first time on this side of the Atlantic, they had set up a small transportable dish (2.5 m) on the patio of the Wembley Center, and zeroed in on an Orbital Test Satellite (OTS) stationed over equatorial Gabon. An evening Independent Television News broadcast was beamed on 12 GHz to the OTS and picked up on 14 GHz by earth stations at Crawley Court (IBA's research center), Goonhilly Downs (UK) and Fucino (Italy). Normal terrestrial microwave links were then used to distribute the program to the stations carrying this news insert. Four color monitors set up in the IBA exhibit showed the high quality source and return images from the OTS ground stations. The major aspect of this operation was that the British Post Office, which nor-

mally has jurisdiction over microwave circuits, was not involved. The implication was that now UK and European broadcasters can easily set up ENG links via satellite under their own aegis.

The BBC booth featured CEEFAX, CARFAX and digital noise reduction. As pioneers in teletext services, the BBC has constantly expanded these services to include greater editorial content for viewers equipped with decoders. This year they are experimenting with live news captioning for the deaf by using a stenographic shorthand keyboard (like those used in courtrooms) specially interfaced with the CEEFAX character-generating circuitry. Early results show promise, although the system still has trouble with words that sound the same but have different spellings or meanings (rain/reign, bare/bear, etc.).

The CARFAX system is something being proposed as a special radio service for motorists. Using a network of low power stations on a single frequency, local traffic messages would activate a special receiver in the vehicle with no manipulation on the part of the driver. Listeners at home would not be affected, although CARFAX components could be incorporated into domestic receivers if desired. The cost to the vehicle owner is small — \$10–\$30, depending on the model — and the specific service areas covered would give traffic information pertinent to drivers in the service region. Public trials of the system are now being planned by the BBC in cooperation with the Transport and Road Research Laboratory, other government departments, police forces and the IBA.

In the noise reduction field, BBC engineers have come up with a full fieldstore using 32 Fairchild CCDs which measures only 25 × 15 cm on a single card. Two



The IBA set up an experimental ENG program on the terrace of the Wembley Conference Centre, using a portable dish antenna and the OTS satellite. Here, an Independent Television News reporter presents the evening news in front of the Wembley Stadium twin towers.



Anticipation of the 1980 Olympics ran high among the exhibitors. This Thomson-CSF booth was one of several that either displayed an Olympics theme or proclaimed their "Official Supplier" status.

such units constitute a full frame of memory and are the core of a noise reduction system which automatically checks for image movements and adjusts the noise reduction action to optimize picture quality.

The BBC has also developed a small monochrome hard copy printer which can produce strip paper prints from a CEEFAX transmission.

The Commercial Exhibitors

The major exhibitors at the IBC were obviously the large UK based companies that provide a wide range of broadcast equipment to studios both at home and abroad. EEV, EMI, Link, Marconi, Pye (Philips) and Rank each had full product line exhibits showing their latest equipment. Marconi's entry into the VTR field was augmented by a CMX 340 editing system display, since they have become the UK representative for CMX as well. EMI showed their newest lightweight EFP camera called the 200B, next to an historical Emitron camera 30 years old. EEV, in addition to their full line of camera and power tubes, had a new high-precision studio clock system. The Pye/Philips display also included a 1-in Type C helical VTR called the PVR20. Rank's major innovation this year is a telecine system called TOPSY which permits direct time-code editing from film to tape.

Smaller British manufacturers were also in evidence around the exhibition area — Aston, Michael Cox, Crow, Dolby Labs, Keeline, Neve, Quantel, Seltech and Thorn to name a few. Aston's range of teletext equipment was impressive. Cox has expanded its PAL and SECAM product line and showed a 16-input SECAM switcher destined for the Moscow World Trade Center. Crow of Reading had a large display covering a variety of products such as Barco monitors, Arvin Echo disks and Porta Pattern test materials. They have just completed a large technical center for the

EBU headquarters in Brussels. The Kee-line booth featured the new Superstick editors from Convergence, and demonstrations of them drew constant crowds. Dolby Labs' exhibit of audio noise reduction equipment was augmented by a display of the Dolby FM system. Seltech fielded a wide line of broadcast accessories such as time-code generators and readers, sync-pulse generators, audio consoles and cart recorders. They have also recently become UK representatives for the Yves Faroudja line of video enhancers and comb filter separators. The Neve booth featured their professional audio mixing consoles. The newest device at Neve was called a NECAM computer-assisted mixdown system for multi-track recording applications. The Quantel special-effects devices using digital techniques and framestore memories were operating in PAL. The frequent demonstrations of these digital effects attracted considerable attention to their booth. The Thorn stand exhibited the wide range of lighting equipment that they manufacture and some of the news devices like the Scene Setter.

A fair number of large and small American companies exhibited at IBC. Ampex had one of the largest displays, showing quadruplex and helical VTRs, a variety of audio recorders, color TV cameras and slow-motion equipment.

RCA had opted to show their products at their own London facility (RCA House) and they invited interested broadcasters to attend TK 47 demonstrations which were very well put on. Their newest camera now operates on European standards, and its automated features were emphasized heavily. IVC had a substantial booth with the full product line. The 7000/7000P camera series and three varieties of VTRs were demonstrated by IVC members from offices around the world.

Tektronix and the Grass Valley Group had a combined display on the main floor,

with separate exhibits that featured each product line. Tektronix's new line of PAL and SECAM monitoring and measuring equipment was well presented. On the GVG side, the Effects-Memory (E-MEM) features of a large production switcher were demonstrated with an elaborate show for visitors in a multi-level viewing area. A wide variety of time-base correctors were to be found at both the Microtime booth and at the CVS display on the balcony level.

Datatron's editing equipment display combined a Rank telecine and several VTRs whose pictures could be controlled from time-code numbers and edited together instantaneously.

Bell & Howell had a variety of their own and Telemation products in adjacent booths. These included switchers, digital noise reducers, character generators, and the JVC line (which they represent in Europe).

Two U.S. firms, CMC and Spin Physics, offered head refurbishing services for quadruplex video heads. A last-minute entry for Vital gave visitors a chance to see the Squeezezoom system in action. Nurad had their Superquad, Quad and Goldenrod family of ENG microwave antennas. At the Merlin Engineering Works booth, President John Street described how VTRs could be custom-built.

The major equipment manufacturers of continental Europe were also at IBC, but in a lower key than the UK companies. Bosch-Fernseh concentrated their exhibit mostly around the BCN recorder and the new accessories for it. They have developed a slow-motion controller which provides a very convenient means of running the BCN as a slo-mo picture source. Thomson-CSF concentrated on their triax color camera line and a variety of Sony-built VTRs in the PAL/SECAM adaptation of the Type C format and the new European ENG U-Matic line. Some products from their U.S. division (Thomson-CSF Labs), such as the Vidifont character generator, were also on display, and their Electron Tube Division showed special TWT tubes for high-power satellite communications. Barco had their full color monitor line, and this year they have added a ruggedized, high-brightness, portable color monitor for EFP or ENG applications.

Schneider zoom lenses with new special configurations for ENG and EFP cameras were separately displayed at a dedicated booth and on some cameras around the exhibit. Rank Taylor Hobson and Angenieux lenses were well dispersed through IBC as well. AEG Telefunken had a variety of VHF broadcast transmitters featuring all solid state, modular construction and stereo encoding. Rohde & Schwarz, the German measuring instrument manufacturer, was represented by Aveley Electric and had a comprehensive display of precision electronics.

Japanese companies were at IBC in greater force than ever before. Asaca,

Ikegami, Hitachi, NEC, Fuji, Canon and Sony all had exhibits. Asaca's newest product is a video noise meter which operates on active signals. Ikegami and Hitachi, stressed their camera lines, especially their lightweight units like the HL-77 and SK-90 respectively. NEC showed solid state transmitters, portable ENG microwave gear and their new frame synchronizer with 16K RAM.

Sony mounted the most ambitious effort to enter the European broadcast market. A very unusual booth, centered on the main floor, housed an array of new Sony equipment that was being offered for broadcast applications. Lightweight color cameras (including the Sony version of the Microcam), U-Matic VTRs and simple editors designed for PAL and SECAM ENG work, and the PAL/SECAM BVH 1000 VTR now equipped with dynamic tracking which produces broadcastable slow- and stop-motion images even in reverse mode. The combination of an attractive display and top Sony executives from the UK (Howard Steele) and Tokyo (Akio Morita and Masahiko Morizono) drew an endless stream of delegates to the booth.

IBC Anticipates The Moscow Olympics

It was evident that many at IBC were already anticipating the forthcoming Olympics in Moscow. At least six manufacturers of audio and video equipment advertised, some with very visible displays, their appointment as "Official Suppliers to the 1980 Olympiad." Ampex had the original contract signed with Soviet television on prominent display in their booth. The Russians are ordering quadruplex VTRs, slow-motion disks and quantities of videotape from Ampex for use at the Spartacus Games in 1979 and subsequently at the Olympics. Electroimpex of Hungary had an extensive display of the range of equipment they are supplying to the Soviets for the Games. A 30-million dollar contract includes 70 complete radio and 18 TV studios, color monitors, commentators units (for the press) and SECAM test equipment. Thomson-CSF, the largest video equipment supplier to the Games, featured this theme in their stand. They are already delivering the 100 color cameras, 40 mobile microwave links, 39 color telecines, color monitors, character generators and the world's largest switching matrix (150 × 300) which Russian TV has ordered.

Marconi Instruments had a highly visible display of monitoring and measuring equipment that they are delivering to Moscow. Test line generators, inserters and analyzers provide continuous monitoring of signal transmission quality. Up to 24 parameters can be measured and compared against predetermined limits. All of this equipment will operate on the Soviet SECAM signal system.

NEC is also supplying a major switcher to the Moscow Games, but via NBC. Part of a large switcher for the NBC Burbank



Sir Michael Swan (right) current Chairman of the BBC governors and Sir Huw Wheldon (left), former BBC Director, visit with Howard Steele who was formerly IBA Engineering Director and is now Managing Director for Sony Europe.

studios will be packaged to go to Moscow with the rest of the gear NBC will need in order to cover the Games. Later it will return for integration into a permanent switching system being installed at the Burbank studios.

EMI is another "official supplier," having received a contract for more than a million dollars to provide cable TV equipment that will cover ten sports pavilions and enable viewing of sports activities in any venue at the other ones. This was the largest single order for CATV gear that EMI has ever had.

The Technical Papers at IBC

A large 344-page "Proceedings" book (Conference Publication Number 166) was needed to contain the full text of the 82 papers given. They covered the full gamut of currently interesting topics with emphasis on digital techniques, satellite broadcasting and teletext systems. The digital papers included proposed standards for 625-line PAL signals and some details on the IBA digital VTR. John Baldwin, known for his contributions on DICE (Digital Intercontinental Conversion Equipment), was involved in both of these presentations. Joachim Diermann and Kurt Wallace of Ampex presented a very carefully documented paper cautioning about the need for some concerted planning in the digital VTR area, so that there will be some uniformity in this field.

In the matter of quadruplex video recording vs 1-in helical recording, Charles Urban of the BBC, who read a paper that he and D. M. Bowd had prepared, displayed some graphic examples of multi-generation quadruplex pictures made with superhigh-band/pilot carrier systems, which were noticeably better than the 1-in helical, multi-generation tapes. Nevertheless, other proponents of Type B and Type C VTRs gave adequate reasons why either of these two video-recording systems was well suited to replacing quadruplex VTRs in the PAL and SECAM countries.

The teletext papers pointed to yet undreamed of potential services that the

viewer might get from future improvements in hardware and software. A variety of proposals for subtitling for the hearing-impaired were presented by BBC and IBA authors.

The combination of teletext with a home computer has opened up all sorts of new possibilities according to J. Hedger and R. H. Vivian, of the IBA, and W. J. Overington, an independent consultant. Telesoftware, as they call this system, would provide viewers with an endless array of video games, do mathematical functions, help education and even assist blind or disabled people in the home.

Several papers covered new or experimental plans for radio services that do not exist now. Papers were presented on station identification, automatic road hazard warnings, automatic receiver switching with subaudible tones and experience with quadruplex broadcasts.

As usual the IBC papers were first rate; the A/V equipment that was available for the authors or lecturers, however, left something to be desired. It is ironic to attend a conference on state-of-the-art communications and be confronted by unreliable or poor-quality visual aids.

The Social Side of IBC

The Wembley Conference Centre is 20-30 minutes by subway from the center of London and so presented something of a logistical problem to the delegate who wanted to get to the various social events put on by the organizers or the exhibitors at various sites around the city. The main reception was held at centuries-old Guildhall with its vaulted gothic chambers ringed with priceless stained glass windows and other art treasures; it seemed to attract every delegate available. Champagne and hors d'oeuvres disappeared rapidly as the chamber overflowed with broadcasters, exhibitors, press representatives and other invited guests. It was a pleasant evening in an awe inspiring setting.

Perhaps the most lavish social event at IBC was the Sony boat ride up the Thames.



Sony Board Chairman Akio Morita made it clear that Sony intends to develop and market broadcast equipment operating on the PAL and SECAM Standards.

The "Silver Barracuda" left the Westminster Pier at 7:30 p.m. loaded with many of the world's top television engineering executives and their wives. Even the three U.S. networks had their top technical staff on board. Japanese food and special servers flown in from Tokyo complemented a banquet-style setting of English food in-

cluding roast suckling pig and a diverse buffet of cold cuts. The well stocked bar with familiar drinks was well patronized before the banquet, but during the sit-down meal hot sake was served in little wooden mugs that were offered to the recipients as souvenirs of the occasion. A band played on the upper deck for those who wished to

dance, but many on board just enjoyed the chance to socialize. By midnight the happy but weary guests were listening to the chimes of Big Ben as they bid farewell to their hosts.

EEV, Thomson-CSF, the BBC, the IBA and many others, had parties or receptions for various groups that kept the convivial spirit of the delegates at a good level. The ladies' program was also well arranged, and in retrospect IBC 78 was a very pleasant experience.

Summary

In conclusion, the consensus gives IBC 78 a good rating. Aside from the A/V equipment that sometimes did not operate properly, most of the annoyances were minor and due in fact to the very success of the International Broadcasting Conventions. IBC 78 was actually rather too big for the Wembley facilities so that not all exhibitors and delegates were happy with their accommodations. In terms of the attendance statistics, number of exhibitors, quality of the papers program, and the pleasure of the social program, IBC 78 was a resounding success. Now the delegates and exhibitors can look forward to IBC 80, scheduled to be held in Brighton, England — a seaside resort that we are assured is equipped to accommodate the big show that the convention has become.

Standards & Recommended Practices

Approved SMPTE Recommended Practices

Acting on behalf of the Board of Governors, the Society's Executive Committee for Standards Approval on 4 October 1978 approved two SMPTE Recommended Practices: RP 36-1978, Positioning the Headwheel and Adjacent Tape Guides for 2-in Quadplex Video Magnetic Tape Recorders; and RP 81-1978, Specifications for Scanning-Beam Uniformity Test Film for 16-mm Motion-Picture Sound Reproducers.

Copies of SMPTE Recommended Practices are available from Society Headquarters for \$1.50 each.

Approved International Standard

The International Organization for Standardization (ISO) recently approved an International Standard, the technical content of which is published here for your information. ISO 3653-1978, Cinematography — Spindles for 8-mm Type S Motion-Picture Projector Reels/Spools — Dimensions, is in agreement with SMPTE Recommended Practice RP 50-1974, Dimensions for 8-

mm Type S (Super 8) Motion-Picture Projector Reel Spindles.

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Attention: Manufacturers of Television Production Switchers

The SMPTE Working Group on Editing Procedures is defining a standard edit decision list format to facilitate interchange of edit decision data between computerized editing systems. As part of this effort, a master list of wipe patterns will be prepared and assigned numerical codes. In order to ensure that as many patterns as possible are included, you are requested to furnish information regarding the wipe patterns available on your equipment to the responsible group member: Robert Lund, Video Corporation of America, 231 East 55 St., New York, NY 10022.