



Report on International Broadcasting Convention (IBC 80) *Brighton, England, 20-23 September 1980*

By ROBERT van der LEEDEN

Ever since the first IBC was held in 1967 at the Grosvenor House Hotel in London, it has grown exponentially. The most dramatic increase is represented by the number of delegates which, this year, passed the 5,000 mark (10 times that of the first Convention). A few more numbers: Total exhibition space amounted to 48,000 ft (an increase of 72 percent in relation to 1978).

There were 114 exhibitors, and delegates from 55 different countries participated. The fact that 40 percent of the delegates and exhibitors were from outside the United Kingdom shows that the organizers have succeeded in making this (originally British) event into an international show recognized all over the world as one of the major broadcasting conventions.

Sponsors for IBC 80 were the Society of Motion Picture and Television Engineers, the Electronic Engineering Association, the Institute of Electrical and Electronics Engineers, the Institution of Electrical Engineers, the Institution of Electronic and Radio Engineers, and the Royal Television Society.

Among those from the SMPTE who attended IBC 80 were President Robert M. Smith, Donald Breidt, Charles E. Anderson, William Connolly, Joseph Flaherty, Anthony Lind, Carlos Kennedy, and Joseph Roizen. Coordinator C. B. B. Wood had been appointed by the SMPTE as its representative at IBC for planning and logistics.

The Venue

On an overall basis Brighton turned out to be a better venue for the IBC than ever.

Perhaps the only serious problem was that there was inadequate hotel space available. Traditionally Brighton has been the seaside resort for Londoners, enjoying its heyday around the turn of the century. This is reflected in the way hotels are built and equipped. As a result, hotels as far away as 25 miles had to be used by delegates, with the obvious inconvenience of having to commute to Brighton every day. Some participants even preferred to stay in London, close to the shops and theaters.

Furthermore, bad weather really affects business in Brighton, especially for the remote TV vans which were on display at the seaside. One of the vans was even struck by lightning, but fortunately there was some sunshine as well, and the sunbathing British created a striking contrast with the delegates examining the vehicles.

The Exhibition

As usual, IBC showed more consolidation than innovation. New products, introduced earlier in the year, e.g. at the NAB show, appeared at IBC in the PAL and/or SECAM version, while improvements on existing products were frequently used to let visitors believe that something completely new was being introduced. In the following paragraphs we shall mainly deal with the real news at IBC.

Videotape Recorders

Similar to the previous IBC's, RCA had decided not to take a stand at the exhibition to show their products. Instead, they invited their customers to their U.K. base (at Sunbury) for one day seminars, and it was

there that the TR-800 1-in type C videotape recorder made its European debut. Other newcomers on the European 1-in type C front were NEC and Hitachi, the latter still showing the NTSC models with a promise of a PAL machine at Montreux. Ampex showed their true still frame capability on the VPR2B for the first time, the head scanning alternate fields at standstill, thus doubling the vertical resolution in comparison with still field capability.

In a hotel suite, Sony showed their progress with digital video recording. As before, a one-in machine was used as test-bed, this time operating with 4 heads and capable of recording and playing back digital PAL signals with a 12-4-4 component coding (sampling rates of 12 and 4 MHz for the luminance and chrominance signals respectively). Also shown by Sony, but really meant as an experiment, was a digital U-Matic recorder. At half the nominal tape speed, "many" (not further specified) heads on the drum, giant packing density, and a large rack of electronics, it demonstrated its capability of recording and reproducing composite video signals at a rate of 80 Mb/s on a standard cassette. The picture quality was reasonable and the error rate was obviously high. Although this was certainly an achievement, it must be doubted whether such demonstrations are of any practical commercial value.

It is now quite evident that the new high band U-Matic format is accepted by many European broadcasters for ENG applications and, apart from Sony, JVC also showed a complete range of this new generation of machines.

Electro-Voice's Greg Silsby talks about the Sentry 100 studio monitor



Production Studio, WRBR-FM, South Bend, Indiana.

In all the years I spent in broadcast and related studio production work, my greatest frustration was the fact that no manufacturer of loudspeaker systems seemed to know or care enough about the real needs of broadcasters to design a sensible monitor speaker system that was also sensibly priced.

Moving to the other side of the console presented a unique opportunity to change that and E-V was more than willing to listen. When I first described to Electro-Voice engineers what I knew the Sentry 100 had to be, I felt like the proverbial "kid in a candy store." I told them that size was critical. Because working space in the broadcast environment is often limited, the Sentry 100 had to fit in a standard 19" rack, and it had to fit *from the front, not the back*. However, the mounting hardware had to be a separate item so that broadcasters who don't want to rack mount it won't have to pay for the mounting.

The Sentry 100 also had to be very efficient as well as very accurate. It had to be designed so it could be driven to sound pressure levels a rock 'n roll D.J. could be happy with by the low output available from a console's internal monitor amplifier.

In the next breath I told them the Sentry 100 had to have a tweeter that wouldn't go up in smoke the first time someone accidentally shifted into fast forward with the tape heads engaged and the monitor amp on. This meant high-frequency power handling capability on the order of five

times that of conventional high frequency drivers.

Not only did it have to have a 3-dB-down point of 45 Hz, but the Sentry 100's response had to extend to 18,000 Hz with no more than a 3-dB variation.

And, since it's just not practical in the real world for the engineer to be directly on-axis of the tweeter, the Sentry 100 must have a uniform polar response. The engineer has to be able to hear exactly the same sound 30° off-axis as he does directly in front of the system.

Since I still had the floor, I decided to go all out and cover the nuisance items and other minor requirements that, when added together, amounted to a major improvement in functional monitor design. I wanted the Sentry 100 equipped with a high-frequency control that offered boost as well as cut, and it had to be mounted on the front of the loudspeaker where it not only could be seen but was accessible with the grille on or off.

I also didn't feel broadcasters should have to pay for form at the expense of function, so the walnut hi-fi cabinet was out. The Sentry 100 had to be attractive, but another furniture-styled cabinet with a fancy polyester or die-cut foam grille wasn't the answer to the broadcast industry's real needs.

And for a close I told E-V's engineers that a studio had to be able to purchase the Sentry 100 for essentially the same money as the current best-selling monitor system.

That was well over a year ago. Since that time I've spent many months listening critically to a parade of darn good prototypes, shaking my head and watching

some of the world's best speaker engineers disappear back into the lab to tweak and tune. And, I spent a lot of time on airplanes heading for places like Los Angeles, Grand Rapids, Charlotte and New York City with black boxes under my arm testing our designs on the ears of broadcast engineers.

The year was both frustrating yet enjoyable, not just for me but for Ray Newman and the other E-V engineers who were working on this project. At this year's NAB show it all turned out to be worth it. The Sentry 100's official rollout was universally accepted, and the pair of Sentry 100's at the Electro-Voice booth was complemented by another 20 Sentry 100's used by other manufacturers exhibiting their own products at the show.

What it all boiled down to when I first started the project was that I knew that the Sentry 100's most important characteristic had to be *sonic integrity*. I knew that if I wasn't happy, you wouldn't be happy. I'm happy.

Greg Silsby

Market Development Manager,
Professional Markets



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Session on Digital Television Coding Standards. Chairman Peter Ralnger is second from the right. From the left, speakers J. L. E. Baldwin, W. G. Connolly, and A. H. Jones.

One of the highlights of the Technical Program was the panel discussion on Digital Television Coding Standards. (L to R) Charles Ginsburg (Ampex), R. J. Taylor (Quantel), H. R. Groll (Bosch-Fernseh), R. F. Appleton (LWT-UK), C. R. Longman (BBC), and K. Barratt (Sony).



Cameras and Lenses

Link and Thomson CSF were the only manufacturers to introduce a completely new camera at IBC. The Link camera, Model 125, is a production camera with 1-in pickup tubes. Thomson CSF introduced their TTV-1525 camera using a 1-in tube in the green/luminance channel and 2/3-in tubes in the red and blue channels. Philips showed its LDK14S EFP camera for the first time—an improved version, with diode gun option, of the LDK14. Ampex presented its new BCC-20 camera with Spatial Error Correction. Also new for Europe was the Sony BVP330 P/S camera with 2/3-in tubes and, in general, there were many more EFP and ENG cameras on display, indicating that this market is the most active one in the broadcasting business.

Both Angenieux and Canon showed a new 25× lightweight ENG lens with a maximum aperture of *f*/1.4 and *f*/1.6 respectively. The Angenieux lens features a minimum object distance of 3 ft and weighs 13.6 lb, including servo motor for zoom control. Schneider and Fuji also showed a new range of ENG and EFP lenses.

CCD FilmScanner

Whereas until now Bosch Fernseh had only been showing a prototype of their CCD film scanner, at IBC 80 a production model was on display, and excellent film handling, including slow motion, jogging, still frame, and fast motion, was demonstrated. It accepts both 16- and 35-mm films and features a continuous capstan drive, thus enabling very gentle film handling. It was the first time that Telemation and Bosch Fernseh shared an exhibition stand in Europe.

Picture Processing

Inter-Electronics drew a great deal of attention with their Ultimatte-4 chromakeying system, designed by Petro Vlahos, who, in 1969, received an Oscar for his work on blue screen travelling matte. The unit is probably the best of its kind in the world. An impressive demonstration showed that it holds all transparencies such as smoke, dust, or glass, as well as natural soft edges on out-of-focus objects. It is a very sophisticated product, but is certainly not a "black box." We counted 35 active operational controls (non-remoteable), and it undoubtedly requires great operator skill and experience to stress the units' capabilities to their limits.

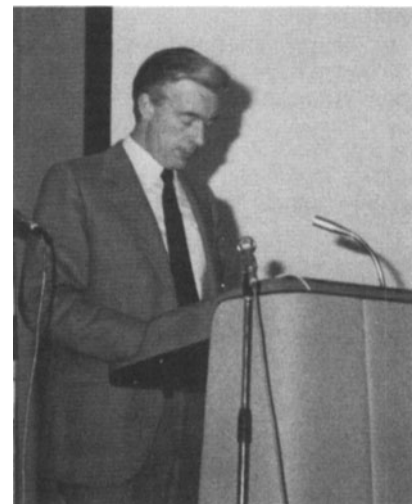
In a well-presented show Quantel demonstrated the latest features such as non-linear zoom, a digital shot box for storage of 70 different effects, an autosequence mode, and rotation at variable speeds over 360° of any size or shape of the picture. New was Quantel's Framestore Synchronizer with a storage capacity of 5.2 M bits and occupying only one unit of an industry standard 19-in rack. Quantel intends to take a similar show (immaculately presented by Sue Waring) to the next NAB show. During the Convention it was announced that the BBC had reached an agreement with Quantel for a license to incorporate Teletrack as part of their digital production effects equipment. It will be offered as a further option to the Digital Production Effects Unit DPE 5001. Teletrack is similar to the CBS Action Track System, which was described in the *SMPTE Journal*, October 1978.

Much more sophisticated in this field is the Ampex Video Art System (AVA), which had its European launch at IBC. This unit features no other controls than

just the electronic stylus. In addition it features a software filtering system, avoiding aliasing components at sharp edges, and a large on-line storage capacity for graphic work.

Coming back to the BBC, also shown was the first Advanced Conversion Equipment (ACE), the first 4-field digital standards converter reportedly the first to be virtually transparent in operation. With the proper decoders and encoders this unit, which occupies two complete 7 ft high racks, can convert between any two of the world's television standards.

Another noteworthy BBC project was a giant remote television scanner specially designed for very large productions with up to 30 video sources. To solve the usual space problems in television mobiles (dictated by traffic regulations), the walls of



A. H. Jones of BBC is presenting a paper on "Digital Television Standards."

Action Camera

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Donald Breidt, Executive Director, maintains a vigil at the SMPTE booth at IBC.

the central section of the vehicle can be driven out electrically to create a production area of 15 × 17 ft. One wall carries the monitor stack containing 24 monitors outside the main body, thus creating a comfortable viewing angle. The total length of the trailer is about 40 ft.

The IBA (Independent Broadcasting Authority) also showed some of the results of their work. They demonstrated recent developments in Teletext, including high definition teletext graphics. Part of IBA's work in satellite communications was also on view, including IBA designed digital video Codec equipment.

Transmitter and Microwaves

On the transmitter front, PYE TVT showed a new compact 10-kW UHF transmitter, making use of the latest Valvo klystron YK 1220. Efficiency of up to 47 percent peak sync is featured, and the tube can be operated at black heat when in passive reserve. Pye claims that the size reduction, in respect to its predecessors, amounts to a factor of 2. Marconi also announced a range of new UHF transmitters based on the new Valvo klystron.

Microwave Associates presented a complete range of microwave equipment, including new 2/2.5- and 7-GHz lightweight equipment in man-pack configuration, and with auto-tracking Skyscan receiving aerials for use with signals transmitted from helicopters.

Noteworthy was the presence, for the first time at IBC (and Europe), of Nurad Inc. of Baltimore, Maryland. They also exhibited a complete range of 2.5- and 7-GHz microwave equipment for ENG and EFP applications.

Also remarkable was the participation of Elektroimpex, representing four Hungarian companies. They are BEAG (audio studio equipment), Mechanical Laboratory (manufacturers of audio tape recorders), Hiradastechnika (CCTV and video-test

equipment), and MEGEP (camera support equipment).

Technical Sessions

The program for the technical sessions covered new techniques, systems, and developments, both analog and digital. In order to fit it all in the framework of the Convention, concurrent sessions were scheduled for the last three days.

Many papers are usually illustrated by examples in the form of slides, film, or videotaped pictures. The organizers were faced with the problem of enabling 600 people to see these pictures and allowing them to judge subjective quality concerning, for instance, television cameras with improved performance, etc. One possibility would be to use television receivers or monitors, but that would ideally require some 40 to 50 units. Cabling then becomes a major installation project, adjustment requires extra staff (delegates always think they have to change brightness, saturation, or contrast!), and pedestals in the audience obstruct the view of the speaker and slide screen. In view of all of this, the decision was made to use a color Eidophor. In spite of the improvements in picture quality achieved over the past years, the Eidophor still did not allow the subtle assessment that experts want to make. As already indicated above, a suitable alternative is, however, not so simple.

The Technical Program started off with five invited papers on the subject of Broadcasting Technology in the '80s. The session was chaired by Joseph Flaherty (CBS), and was given a provocative send-off by Boris Townsend (IBA-UK), who foresaw a crisis ahead in television technology. He said, "Engineers must occasionally turn their attention from their present preoccupation with tactics to the longer term strategy. If they do not, then we may well find that we have not satisfied the legitimate requirements of the public, or of

the program makers. . . ." Never before had the opening session drawn a full house, and the papers were followed by a discussion which was both informative and lively.

Many sessions dealt either directly or indirectly with digital video. In fact, this was started off by a meeting "behind closed doors" between the EBU (European Broadcasting Union) and manufacturers, on the day before the Convention started. Views were exchanged on digital standards for television studio equipment. The meeting was in two parts. First, the EBU representatives explained the current EBU position and the results of the experiments with the 12-4-4 coding standard. Mr. Guinet (Chairman of EBU Sub-Group V1, digital coding, processing, and transmission) explained that his Sub-Group hopes to formulate a proposal for a digital standard by January 1981. Following this, in a lively two-hour session, representatives of manufacturers gave their own views on the digital standards questions.

One session of the IBC was dedicated to Digital Television Coding Standards. There were three invited papers. H. Jones (BBC) reported on the EBU work and showed examples of digital and direct PAL signals. Unfortunately the Eidophor pictures did not allow us to see any difference. With the chromakey examples, on the other hand, shortcomings of the system could be seen clearly. W. Connolly gave a report on the work carried out by the SMPTE Study Group on Digital Television Tape Recording. Finally, J. Baldwin (IBA-UK) talked about Digital Coding Standards for Television Studios, highlighting the pros and cons of higher sampling rates. These papers were followed by a very interesting and worthwhile panel discussion during which users, as well as manufacturers, expressed their opinions on this topic,



J. L. E. Baldwin presenting a paper on "Digital Coding Standards for TV Studios."

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A new 35-2C with all the modifications costs about the same.

But with the 35-3, you also get a flat base, a registration-pin movement, up to 100 frames per second and 1000 foot magazines.

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One camera does it all.

You no longer need go out with several cameras and a boxful of motors. The Type 3 with its DC crystal motor will give you 5 to 50 fps built in, 50 to 100 fps with the HSU accessory. And there's a 24 fps out-of-sync warning visible in the viewfinder.

Up to 100 fps in less than a second.

Less than a second after you switch on, the 35-3 is up to speed.



Works with most 35BL accessories.

Seen here with rotating finder and 1000 ft magazine.



It's the most up-to-date M.O.S. camera in the world. Its body weighs 12 lbs.

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Registration-pin.

At 24 fps the Type 3's registration-pin/double-claw movement gives you image steadiness that's within optical printer standards. And you can't buy a camera with a steadier movement at 100 fps. There's a fixed gap film channel – no pressure plate except right at the aperture.

See what you get.

They pay you to *see*. This camera's particularly bright viewing makes that easier. You can use any ARRI mount lens with the

35-3 – plus the ARRI Follow-focus system and the Bridgeplate/Mattebox system. Various viewfinders are available, including deanamorphic. The shutter always stops open. And there's a video adapter.

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contributing a great deal to the general understanding of the involved problems.

All but one of the papers in the Recording and Storage session (chaired by J. Roizen) dealt with digital recording. P. Kelly (LWT-UK) described the requirements and wishes of the European broadcasters with regard to a digital video-recorder, based on a survey carried out by the EBU. It was quite evident that at least the same features are required as offered in the present 1-inch machines at a not much higher cost. M. Felix of Ampex described a possible format for such a digital VTR, giving details of the number of channels, drum size, audio recording, etc. J. Baldwin (IBA-UK) did the same, giving alternative solutions for different video sampling rates.

Teletext has established itself as an important topic for technical broadcasting conferences. One whole morning was dedicated to this subject. Three contributions described proposals to use teletext for subtitles. The Italian broadcasting organization (RAI) suggested a system for the insertion of a speech channel in the vertical interval, compatible with Teletext services. It could be used for a second language, commentary, and internal purposes. The system utilizes a sophisticated system to reduce the channel occupation by exploitation of the speech pauses.

Furthermore, papers were presented on many other subjects such as Signal Origination, Signal Processing, Signal Distribution, Transmitters, Satellites, Multi Channel Sound, and Measuring Techniques.

There was always a crowd around the Ampex Video Art System (AVA), which made its European debut at IBC 80. Features include very high quality graphics generation, on-line memory capacity of hundreds of pieces of graphic art, and stylus-only operation.



Social Events

There were an ample number of social activities around IBC 80. Full-time delegates were invited to a Civic Reception given by the Mayor of Brighton, Councillor John Leach, at the Brighton Convention Centre. The following day a champagne reception was held for all IBC participants at the Brighton Corn Exchange, which was built between 1803 and 1805 as an indoor riding school. It is attached to the Dome and was part of the world famous Royal Pavilion Estate when it was the seaside palace of King George IV. In spite of the heavy rain almost everybody seemed to have found their way to this magnificent historic place.

Ladies Program

A word of praise is deserved for the organizers of the Ladies Program. A well-balanced number of events had been organized. On the first Convention day there was a reception and buffet lunch, with the option of visiting the Royal Pavilion afterwards. During the second day the famous Glyndebourne Opera House was visited at the village of Glynde, where each summer there is an international season. The third day took the ladies to one of the few British wineries, the Merrydown Wine Company; the Bateman's house and grounds; and the Michelham Priory buildings. On the final day Roman sites at Fishbourne and the Goodwood House, seat of the Dukes of Richmond and Gordon, were visited. All tours were fully booked, well organized, and not pressed into too tight a time schedule. In particular, it was generally appre-



W. G. Connolly presenting a report on "The SMPTE Study Group on Digital Television Tape Recording."

ciated that the visits were much more on a tourist basis rather than commercially oriented.

Conclusion

IBC seems to have found its final base (for the time being) at Brighton. Organizers, exhibitors, and delegates will undoubtedly have learned much from this first seaside Broadcasting Convention, and this will almost certainly contribute to an even better Convention in 1982 (18-21 September).

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