JANUARY 1982 $3.00

BM/E

BROADCAST MANAGEMENT/ENGINEERING

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ENG away from home

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Is it better to take cash or credit cards?

How do you choose the right equipment?

Will there be problems with customs clearance?

What phone numbers should you have on hand?

Who can provide reliable satellite links?

How do you get sensitive material back home?

Where do you turn for help?

ALSO IN THIS ISSUE

Industry Leaders Look at 1982
SMPTE, AES Reports

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CMX 340X keys are grouped conveniently, color coded, dedicated and easy to reach. That's one reason it's as easy to operate as most limited capacity editors.

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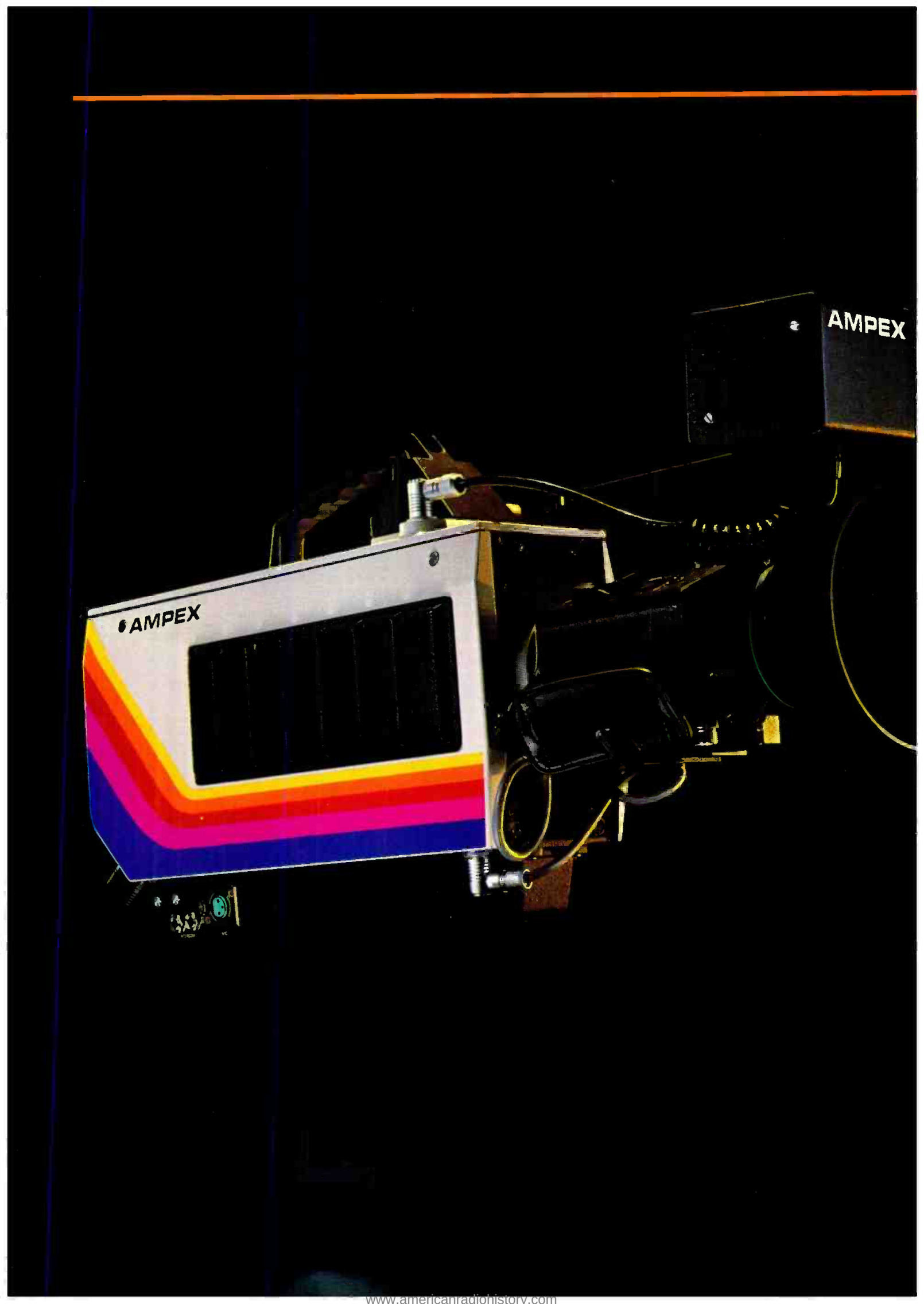
CMX ORROX



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Full-time digital control makes the BCC-20 Digicam a better camera for the 80s.

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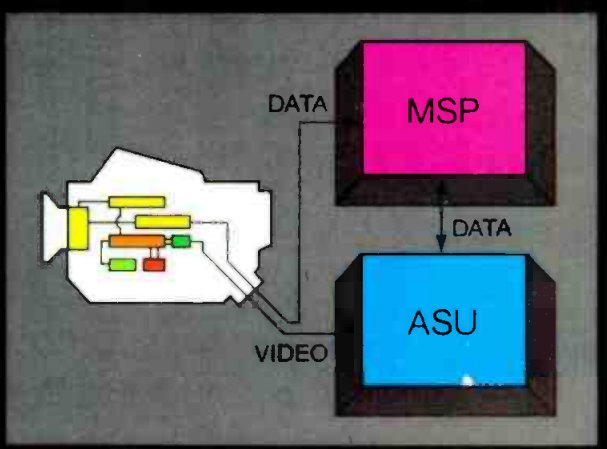
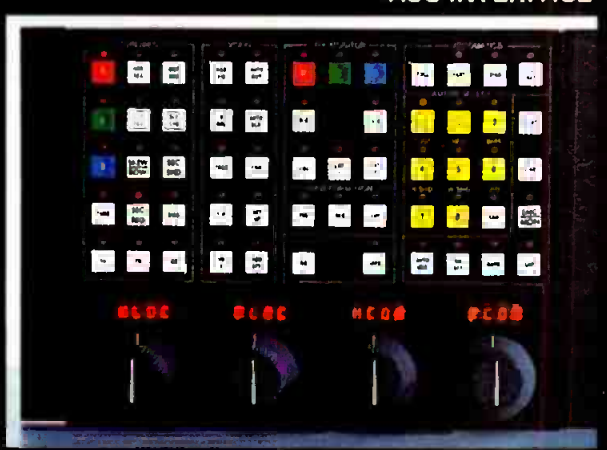
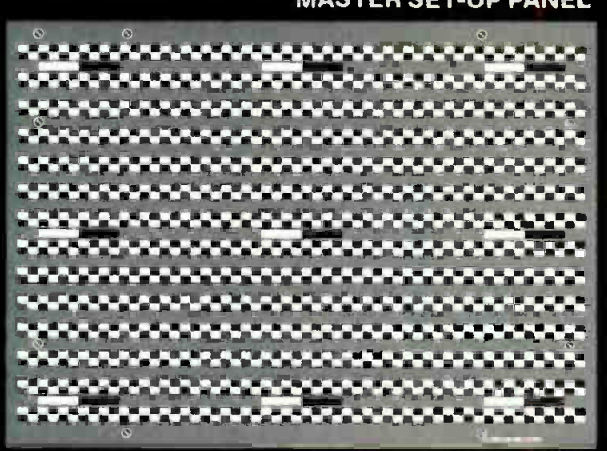


ASU INTERFACE



MASTER SET-UP PANEL



LENS DIASCOPE PATTERN

BM/E
BROADCAST MANAGEMENT/ENGINEERING

Learning how to cut through red tape is one of the lessons to be learned by broadcasters planning to shoot ENG away from home. Illustration by Christopher Lelia.

JANUARY 1982/VOLUME 18/NUMBER 1

Coming in February . . .
A Special Report on digital technology in broadcasting, including digital still stores, digital audio discs, computer graphics, art/paint systems. Plus Survey of Broadcast Industry Needs, and "Tax Tips for Stations"—a new monthly department.

BE SURE TO ENTER OUR NEW GREAT IDEAS CONTEST. DETAILS ON P. 111.

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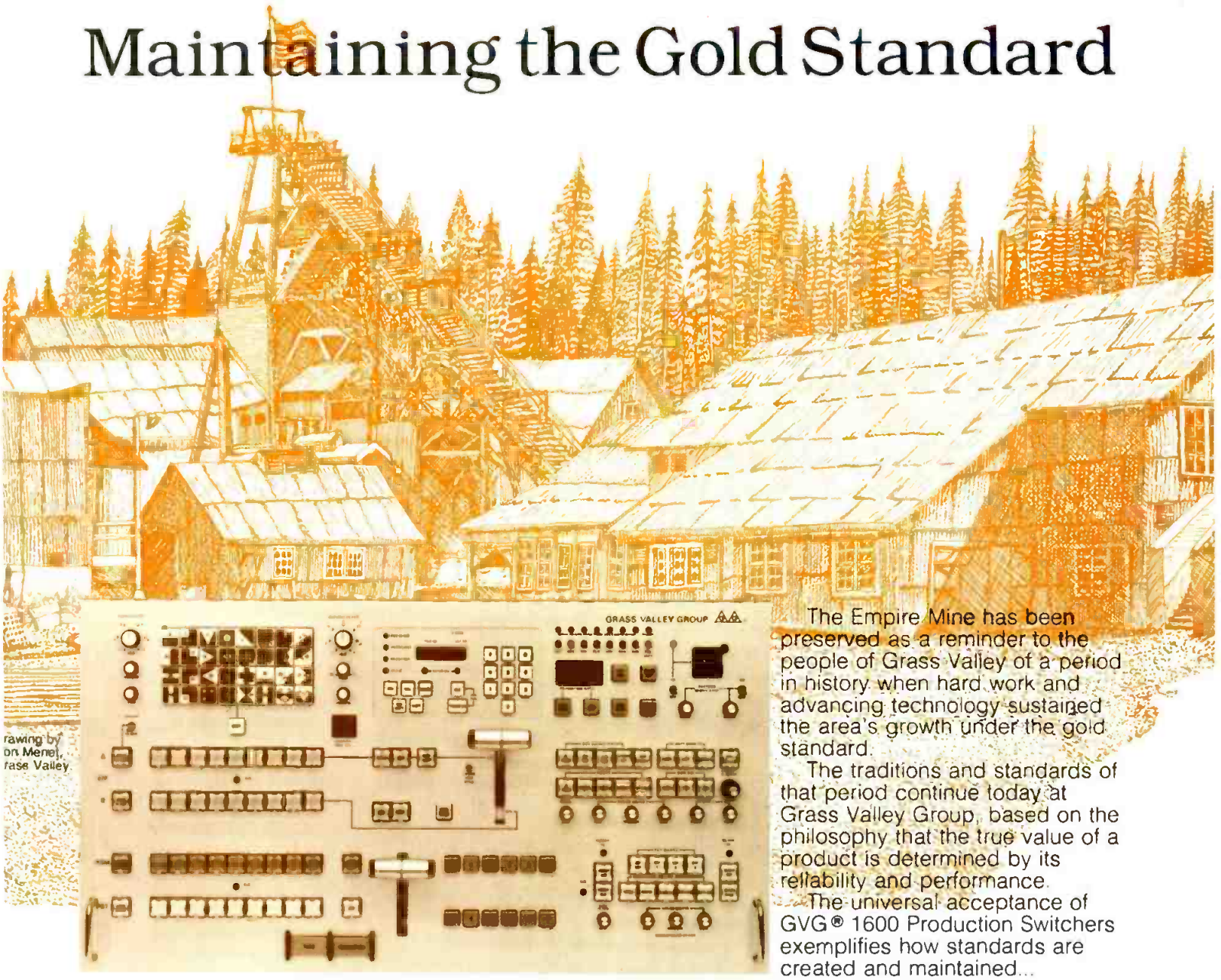

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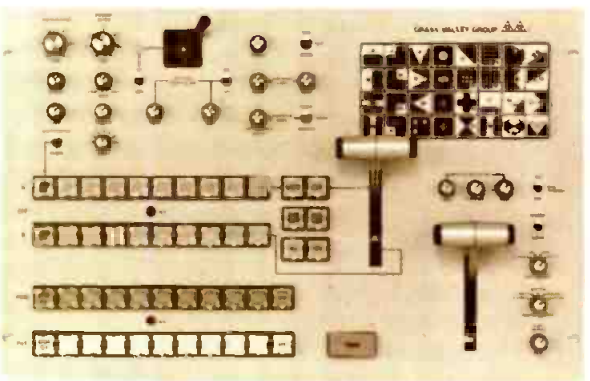

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EDITORIAL

We're Bullish on Broadcasting

ONE OF THE WALL STREET brokerage houses has been herding a bull through a china shop on television lately to show how confident it is on investing in America. Well, move over Merrill, Lynch—the outlook from the broadcast industry this year is just as bullish.

Despite a recession, the business picture reported by industry leaders is bright (see p. 56). In some areas there is not a spot to sell. One top executive for a TV group laments that he should have set prices higher in one hot market. That's not a bad problem to have these days.

Graveyard melody?

Is the industry simply whistling past the cemetery? We don't think so. Proof of solid business is cropping up all around. Revenues for 1981 were up substantially. Equipment manufacturers who were fearful when orders tapered off late last year are now seeing a return of activity as NAB draws near. And a look at the last deep recession indicates that broadcasting did not suffer from a stagnant economy then, and all else being equal, it should not take a dive now.

There is also excitement in the air concerning state of the art technology. The applications of microprocessors, the tiny slices of silicon packing the power of a computer, are sweeping the industry. Digital Electronics, which has already "converted" other industries, is now zeroing in on broadcasting, creating a multitude of new concerns for engineers.

Satellites are having great impact today and will continue to influence radio and TV in the coming year. Again, the application of this technology has helped boost the industry rather than threaten it. Recorder camera combinations are set to break into the ENG market, a subject of great concern in the coming year over competing formats. High definition television may be upon us sooner than expected—in any case, this will be a year in which serious efforts will be made to refine this technology.

Standards, too, will be in the spotlight as the digital technology mentioned above becomes more and more important to broadcasters. Meanwhile, the analog systems of today will continue to be upgraded as we enter a period of A-to-D conversion.

Keeping up with the parade

The fast business tempo coupled with this technological ferment is, of course, exciting to *BM/E*, too. We greet the new year with the same bullish expectations.

In this issue we asked industry leaders for their overview of 1982 and got a sampling of the optimism churning through an industry that is supposed to be under fire from new forms of information and entertainment.

In the February issue we will report results of the Twelfth Annual Survey of Broadcast Industry Needs, which will provide specific information on what broadcasters are doing to upgrade their plants this year. And in the March issue we will provide a comprehensive guide to the new equipment being introduced at the NAB show to meet those needs.

Overall, despite the problems that technological change always stirs up, this is—as one industry leader exclaimed—"a pretty good time to be in broadcasting."

This is the first of BM/E's regular monthly editorials commenting on issues affecting the broadcast industry and technology.

"It has what we need."

Harrison

John VanFrey knows what he needs. He is the supervising rerecording mixer at Walt Disney Productions and has been involved in just about everything Disney has done during his nineteen years there. He has had the opportunity to work with three generations of post production consoles.

"When we installed our Harrison post-production console three years ago, we had very specific requirements, and we needed a console that was reliable. Harrison was able to supply that console. It is very well thought out and technically excellent. It's dependable. It's quiet. It has what we need."

John VanFrey, Walt Disney Productions

Harrison Systems is known for its music recording consoles, but for the past couple of years we've been quietly building a reputation as a major supplier of sound post production consoles. Disney, Compact Video, Warner Hollywood, Samuel Goldwyn Studios, and others are using our PP-1 for motion picture sound.

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BROADCAST INDUSTRY NEWS

Affiliates Grumble at CBS Plan for Hour-Long News

CBS-TV affiliates had mixed reactions to the net's recently announced plan to lengthen the nightly network newscast, possibly to an hour.

"We're very much opposed to the expansion," insists Thomas Goodgame, general manager of KDKA-TV, Pittsburgh. Goodgame told *BM/E* he was "perfectly willing for CBS to expand their news anytime between 8:00 and 11:00 p.m., but complained, "I'm sure CBS feels the necessity to expand for very legitimate reasons . . . but they can't take any more time and leave the affiliates with anything." KDKA's licensee, Group W, has been a vocal opponent of expanded network news. Goodgame himself was chairman of the ABC affiliate body in 1976 when that net wanted to expand to an hour of news, only to be blocked by the affiliates. He thinks that concerted action by affiliates can stop the CBS move: "It is really a question of wills."

Meanwhile, CBS seems ready to battle for expansion, although exactly what kind has not yet been determined. Various proposals call for an hour-long broadcast, a 45-minute newscast, or a newscast that could be aired in half-hour or full-hour versions according to the desires of individual stations. The net is looking toward early 1983 as its target for the longer news.

NBC and ABC also hope to expand their newscasts, but, as with CBS, the going promises to be rough. NBC has already faced affiliate rebellion against its expansion plan, although the net reportedly has not given up the fight. ABC, while not presenting its affiliate board with a firm proposal, did suggest an hour of network news with local cutaways during each half-hour. Although ABC-TV President Jim Duffy termed the meeting with the affiliate board of governors "very positive," opposition was already lining up from some board members, including Thomas Cookerly of WJLA-TV, Washington, DC, who described himself as "adamantly opposed" to expanded news.

1982 Teletext Stampede Seen by CBS Executive

Broadcast teletext services will gain momentum in the industry this year, accordng to Harry E. Smith, vice president, technology at CBS. Foreseeing FCC approval of a standard by early spring (before the NAB convention?), Smith expects a stampede by broadcasters to offer the service and a stampede by TV set manufacturers to produce a top-of-the-line set with a built-in decoder. Smith predicts a half-dozen or so of these sets at the Consumer Electronics Show in 1983.

Addition of the decoder will add only about $100 to the cost of a receiver, Smith suggested in remarks made at the Paine Webber Mitchell Hutchins Conference on the Outlook for the Media, held in New York City December 8, 1981. Smith doesn't expect higher-priced set-top decoders will fly, but thinks this is unimportant since new set sales alone will be sufficient to launch the service with a bang.

Broadcasters are uniquely poised to begin teletext services, Smith said, since they already have news organizations and sales forces in place. He sees teletext's principal value as offering local information: a recap of local headlines, sports scores, the day's events, restaurant menus, and the like, with information not exceeding 100 to 200 pages to keep access time low.

Videotex (two-way interactive teletext) using telephone lines or cable will follow right on the heels of teletext, Smith says. For videotex to succeed, however, the information provided must be "gratifying" to users so they form a habit of using the service. Consumer acceptance of videotex will be tested in 200 homes in Ridgewood, NJ, this year in a joint project of CBS and AT&T.

Videotex databases will include 5000 to 10,000 pages since the user can access them immediately. These new services can generate $5 billion of new revenue in 10 years and perhaps $15 billion in 15 years, Smith said.

Working hard to become one of the country's largest suppliers of teletext programming is Time, Inc., which has already set up a full-scale teletext service production unit. The company's Video Group is currently developing a software service, based around the recently announced AT&T Presentation Level Protocol, an outgrowth of the Canadian Telidon and French Didon standards. A

Hilton, Wold to Launch Videoconference Service

Hilton Hotels Corp. has joined forces with the Robert Wold Co. to provide a broadcast-quality videoconferencing service. The new service, called The Hilton Communications Network, offers a turnkey package that includes a program design and production, satellite transmission and reception, and large screen projection, plus such hotel services as conference and sleeping room accommodations and catering.

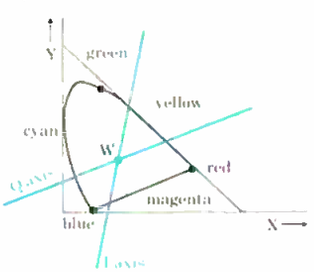
Wold, a veteran supplier of satellite hookups for the broadcast industry, plans to install permanent earth stations at several Hilton hotels. The closed-circuit conferences will be marketed to corporations, trade and professional associations, convention planners, educators, and other users. Marketing will be conducted jointly by Hilton and Wold.

Officials of the two companies beam as they announce the new venture. From left to right are Wayne Baruch, president of Wold Entertainment; James C. Collins, Hilton's senior VP of marketing; William H. Edwards, president of Hilton's Hotels Division; and Robert Wold, chairman of the Robert Wold Co.

HIGH I/Q

ASACA/ Shibasoku's CMM Series monitors decode color on the I/Q axis.

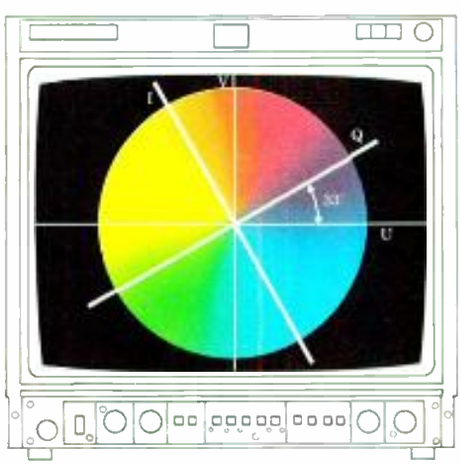
Asaca/Shibasoku's new high resolution monitors have the I-Q to deliver color performance other monitors simply cannot produce. Using R-Y, B-Y decoding no longer meets the demands of today's professional standards.



I-Q axes in color triangle.

The Asaca/Shibasoku monitor like the human eye resolves certain colors best: reds, oranges, yellows, and flesh tones. The I-Q decoding system enables the monitor to display these colors at a higher resolution using wide band demodulation of 1.3 MHz rather than 0.5 MHz as in R-Y, B-Y systems.

We cared enough to give you a monitor with the I-Q to reproduce the best possible pictures. We know you're smart enough to buy it.



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field trial of the national, satellite-distributed, full-channel teletext service is slated for this spring in San Diego.

Public Broadcast Ad Trial Gets Commission Go-Ahead

Public broadcast stations are lining up for the opportunity to air commercials as part of an experiment recently okayed by the Temporary Commission on Alternative Financing for Public Telecommunications, the group created by Congress and headed by FCC Commissioner James Quello. Proposals from interested stations are being handled by the Corporation for Public Broadcasting. CPB's Brooks Leffler, associate director of broadcast services, told *BM/E* a few days after the December 7 deadline that proposals were in from approximately 16 TV and 14 radio stations, with latecomers still trickling in and being accepted. "Politics has overshadowed the bureaucracy once again," Leffler sighed.

The public broadcasting stations selected for the trial—10 radio and 10 television—will be permitted to sell any form of paid announcement, including conventional commercials, at any time during the broadcast day. Ads will run only at the beginning and the end of programs. Radio programs over two hours long, however, may include commercials at station breaks. One one- to two-minute commercial cluster will be permitted per half-hour. The experiment will last 18 months.

The Temporary Commission has been negotiating with the talent unions, which in the past have given rate preference to noncommercial stations and have reservations about the experiment. Reportedly, the unions feel strongly that their members should receive commercial rates for work on any medium that carries commercials—including public stations. Talks were still underway at press time on this potentially sticky issue.

Not all PBS stations were eager to jump on the ad bandwagon, David Brugger of CPB explained to *BM/E*. Brugger said that several stations had contacted him to explain their nonparticipation in the experiment; reasons included state laws barring public stations from carrying advertising and stations' fear that ads would greatly reduce other sources of public support.

The Temporary Commission simultaneously initiated a public inquiry on alternative funding for public broadcasting, and some early commenters took a dim view of the ad test. NAB's letter noted the association's opposition to advertising on the public airwaves; as Shaun Sheehan of NAB's public affairs department explained to *BM/E*, the group has a "long-standing policy of believing that public broadcasting should be funded by the government." Sheehan said NAB feels the experiment is "inappropriate."

More opposition came from the National Task Force for Public Broadcasting, which termed the experiment an "atrocious redirection of the mission of public broadcasting."

Commercial broadcasters, of course, are concerned that public broadcasters, if allowed, may lure away precious advertisers. Things may not be so bad, though, counsels the NRBA's *Washington Memo*, prepared by the association's Washington counsel, Arent, Fox, Kintner, Plotkin and Kahn. Anything that helps keep public broadcasting, a rich source of news and public affairs programming, in good health may benefit commercial stations since the existence of all that programming encourages deregulation, the attorneys reason.

Picture shows Model 5462/16 TV Audio Console.

Price Surprise!

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News

Facing Budget Cutbacks, NPR Seeks Private Funds

The prospect of serious losses in government funding over the next few years has moved National Public Radio to go after private money with vigor. The net's new funding campaign, announced recently by NPR president Frank Mankiewicz, will seek to make up half of NPR's budget with private contributions.

The private funds will go to underwrite the net's programming services. Individual stations will still rely on the Corporation for Public Broadcasting to supply their financial needs.

Rather than selling spots on particular programs, NPR will ask contributors to donate to general news or entertainment funds. Donors will be given credit throughout the day. NPR is eyeing other fundraising plans as well—for example, selling cassette recordings of its programs. The net's extensive satellite links (described by *BM/E* in October, 1978, p. 39) may also be tapped for financial possibilities.

Satcom 3-R Goes Aloft; Service Starts this Month

Cable programmers begin the switch to the latest Satcom this month following November's successful launch. The new bird, RCA Americom's Satcom 3-R, replaces the unlucky Satcom 3, which was lost just after its liftoff late in 1979.

No hitches were experienced with the new satellite. Programmers with transponders on Satcom 1 will have their services switched to Satcom 3-R beginning this month. The switch will be gradual for a smooth transition.

Sometimes referred to as Cable Net One, the new bird will be entirely dedicated to television. Twenty-three of its 24 transponders are assigned to CATV programmers, with the fourth slated for occasional service. Satcom 3-R carries four on-board spare transponders and sufficient fuel to keep it in its orbital position for a decade.

The old Satcom 1 will remain in use, carrying other kinds of services for RCA Americom's customers. It is scheduled to be replaced by a new satellite in March, 1983. Expansion of RCA's cable net will continue this January 14 with the launch of Satcom 4, which will serve as a second cable bird. A satellite serving Alaska will be launched in October, 1982, to be operated jointly by RCA Americom and Alascom, Inc., a subsidiary of Pacific Power & Light. RCA has also asked permission to launch a replacement for Satcom 2 in August, 1983.

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The Young Are Still There

A NUMBER OF radio programming operations of the last several years have come about in response to the rediscovery of the older audience, the listeners whose ages stretch from early middle age up to 50 to 60 years. This has been a profitable rediscovery for quite a few software producers and broadcasters. An example is the runaway success of Al Ham's syndicated "The Music Of Your Life" (*BM/E,* November, 1981, p. 28).

The young adult, however, is still a major target for the radio programmer. Research establishes the 18 to 34 group as a "success center" in today's economy, including many individuals of rapidly rising financial status.

Our "Syndicators Revisited" column this month (p. 20) concentrates on Churchill Productions, now reaching a large audience with a format designed specifically for the young adult group. NBC's network operation, The Source, introduced two years ago, also aims at the young group.

Now the Columbia Broadcasting System is almost ready to go (startup is set for April, 1982) with a new network operation, RadioRadio, aimed at the young adult. RadioRadio will apparently benefit from the skill the industry has developed in recent years in sharpening its aim for specific demographic groups. The material will be produced by program units set up just for the purpose, and not borrowed from the regular CBS network radio production.

For example the news, written and put on the air by an entirely new staff, will be issued 24 hours a day in two-minute segments at 20 minutes after the hour. The tone will be light, with content and style adjusted to the young audience.

RadioRadio will also include four 90-second features, each styled for a specific daypart (they get lighter in tone toward evening). One is a news background story. A second is a series called *Self,* presenting views on a variety of topics chosen and prepared in an appealing fashion. A third series will be *Discovery,* capsuled reports on science, and a fourth, *Celebrations,* will offer stories on how people enjoy themselves.

Other, longer specials will be interspersed in the programming. Among them are celebrity interviews with a revolving series of well-known hosts. At least two long concert programs a month, *Live On Tape,* will be produced by RadioRadio.

The line-up also includes an ambitious long-form comedy series—hour-long productions recorded before live audiences, with original material created by a group of proven comedy artists. The star will be Andy Moses, actor and writer, who toured with the *National Lampoon* comedy revue, "That's Not Funny, That's Sick." He served as main writer for the troupe. Another principal will be Sarah Durkee, comedienne, playwright, and lyricist, who also starred in the *National Lampoon* revue. Jovin Montanaro will create special music for the comedy sequences.

A number of prominent comedy writers will contribute, all with success in material for the young adult group in various publications and shows. Each sequence will also star an important musical performer and be hosted by a guest star. The plan, in other words, uses personalities and material already well known to the young adult audience, creating a new music-plus-speech form.

The programming will be expanded as other needs are identified and the operation gains momentum. CBS, looking for an entirely new group of affiliates for RadioRadio, has already

signed up a considerable number.

The CBS net and RadioRadio, plus RKO, the new NBC and ABC nets, and Mutual Broadcasting, are leading the way to a new, much larger role for radio in national advertising. The national reach and demographic specificity of the new net operations give advertisers the service they need and earlier found difficult to assemble on radio. RadioRadio is another indication of the upbeat prospects for network radio expected this year. **BM/E**

Syndicators Revisited

Churchill Productions, Inc.
1130 E. Missouri, Suite 800
Phoenix, AZ 85014
Tel.: (602) 264-3331

WHEN THIS DEPARTMENT first reported on Churchill Productions in December, 1978, the operation was just a year old. It had been built on a "planned flow" Beautiful Music format that had been a 10-year success on KQYT, Phoenix, when Tom Churchill and his brother Mike operated the station.

Later, after the station was sold to Southern Broadcasting, it lost listeners and the new owners called the Churchills back to program it. Again the station soared in the ratings, and Tom and Mike Churchill decided to go into the syndication business. Tom Churchill became president and Mike Churchill vice president of the new venture.

Within a short period, Churchill Productions had three more subscribers and was a going concern. All the stations experienced large increases in listener response. The record was an especially good one on staying power: listeners, the studies indicated, tended to stay with the format, a form of loyalty that advertisers appreciate.

The original Beautiful Music format now has seven subscribers. One of them, WDOK, Cleveland, has been the highest rated station in its market.

The format has been continually refined, but like all such formats it presents to a syndicator a constant difficulty in finding the music. The Churchills, like others using Beautiful Music, have to go far afield to keep their lists fresh, with much of the material coming from the custom recording activities of various groups.

Radio One, a second format

Churchill now has a second format, *Radio One,* which at one year of age already has seven subscribers. Tom Churchill says *Radio One* is Adult Contemporary programming with strong emphasis on "contemporary." There are no old pieces that would be unfamiliar to the target 25 to 34 demographic group. The music consists of the hits of the '60s and '70s—the prime music for the baby-boom generation, now adult and grown beyond AOR or other rock formats.

These people, says Churchill, have not been caught by most programming intended for them. "Mellow" turned out to be simply "sad"—depressing and often unfa-

miliar at the same time. *Radio One,* while not "hard"music, is very much alive, Churchill says. It is designed to appeal strongly to young people on the move, the up-and-coming young adults who have developed an expansive lifestyle based on positive economics. They do not want rock superstars, nor do they devote themselves to Country music.

Proof is in the ratings

The proof of the idea is, of course, in the ratings. KISN, Salt Lake City, after one year with *Radio One*, increased its listenership among the 18 to 34 group by 264 percent, Tom Churchill says. Among females 18 to 49, the station went from thirteenth in the market to third. KMJK, Portland, OR, after two months on *Radio One* had sharply rising share figures: September/October 1981 was 3.4, October alone 6.4, for the 18 to 44 group. For women alone, the corresponding figures were 3.1 and 9.9.

Tom Churchill says that the fast turn-around for stations taking on the format has been a surprise. It seems that advertisers themselves like the music and are quickly won over by the station's sales efforts. Most of the stations taking on *Radio One* have increased business substantially almost at once.

The programs, Churchill explains, consist of the Adult Contemporary hits in "matched flow" segments each 10 minutes long. It is probably the only matched-flow Adult Contemporary format on the syndication market.

Within each 10-minute segment, the tunes are closely coordinated so that each one moves almost imperceptibly into the next. Not only are the levels brought near each other, but the main instrumentation is also matched between the end of one piece and the beginning of the following one. There is no gap, but rather a cross-fade between numbers.

With this format the listener tends to stay with the music, as already noted. All the Churchill stations have very strong quarter-hour figures. KISN, Salt Lake City, in the latest ratings figures, was number one in the market in listener loyalty.

The 10-minute segment plan gives the station five breaks per hour, rather than the four provided by the 15-minute segments often used in syndication. The plan also gives the station considerable flexibility in coordinating the music with the local talk segments that the station needs for its localism. Churchill is strong for a thoroughgoing local effort by each station.

The format works especially well in a live-assist operation mode, in which the station's own air personalities can dominate the station's image. The music, Tom Churchill notes, ends up sounding as though the DJ's are playing it right in the studio.

Radio One goes to the subscriber in the form of a basic library of 180 hours of music, plus 30 hours of new music every month. Tom Churchill points out that this is a much larger quantity of update music than syndicators generally supply. He says that Churchill Productions is aiming for an "upper tier" in the syndication market; he wants mostly live-assist operations in the 125 major markets. His music is not primarily designed for automation systems used in small markets, the tier attracting a good proportion of format syndicators.

His fees, too, with a minimum of $1000 a month, are in a different "tier" from those of many syndicators, where the average is in the range of $350 to $500 a month. Tom Churchill says that his market is not "better" than the other, but is simply the one he wants to serve. His success in it, like all real success in syndication, rests on a real feeling for the music, a sensitivity to the quality of each piece. **BM/E**

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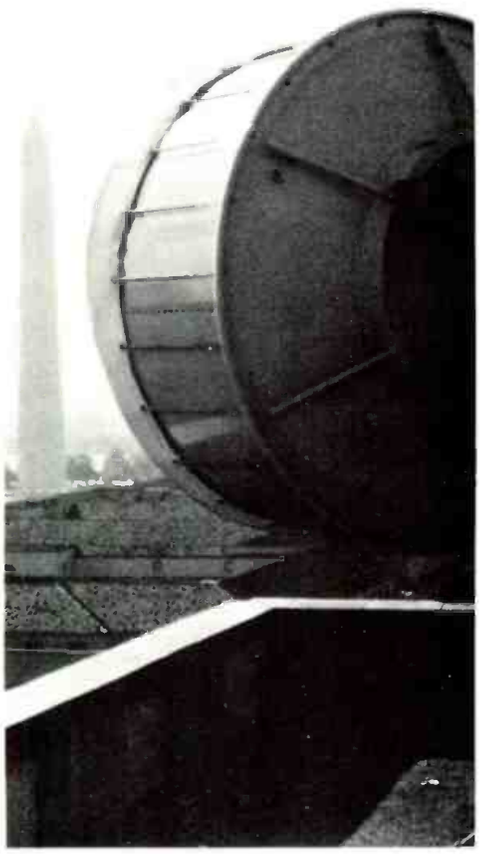

Pyramid's transmit/receive link on top of the National Press Club.

Washington News Builds a Pyramid

THE CONTINUED GROWTH and importance of local news has caused many stations to look outside their immediate locales for stories—providing the local viewer with a sense that the station's newsgathering capabilities are quite extensive. Washington, DC, therefore has become an important city in which to establish a bureau, giving the opportunity to interview local congressmen and senators on issues of concern to the local audience.

Unfortunately, the cost of maintaining a full-time news bureau is prohibitive for all but the largest group stations. An alternative is to employ the services of one of a number of new companies operating in Washington that provide coverage for local stations on an ad hoc or contractual basis.

One such company is Pyramid Video, which was created six years ago when Jackson Polk quit his job as an engineer at WTOP-TV (now WDVM) and bought a couple of Sony 2800s and an editor. He began producing local commercials with a friend who had a Sony DX-1200 camera.

Because Polk had one of the few 3/4-inch editing setups outside the networks, he started to get a lot of news editing assignments. To be more accessible to his clients, Polk moved his operation to downtown Washington within a few blocks of the network news bureaus.

Pyramid's first sales targets were foreign broadcasters and visiting network affiliates who often got squeezed out of network facilities. The network bureaus normally try to help out affiliates and foreign broadcasters, but when a major story breaks or deadlines get tight, the network's own needs come first.

"We made phone calls to the

A shoot arranged by Pyramid allowed WFTV, Orlando, reporter Bob Opsahl to transmit live from the White House lawn.

Pyramid's production/edit room at the National Press Building. A Convergence A/B roll editor is used in conjunction with ADDA VW-1 frame synchronizers.

TV Programming

Master control and duplication area includes ½-inch and ¾-inch recorders, a telco loop, and microwave transmitting/receiving equipment.

broadcast bureaus around town and said to them, 'We're four blocks from CBS . . . come and cut your piece here.' We knew the availability of editing time was irregular at the networks and we could give a confirmed time slot," explains Polk.

The other advantage offered by Pyramid was Polk's ability as an editor. "I had the experience to cut the piece as a network editor," says Polk. "It wasn't as if they were getting an untrained person who didn't know what he was doing. I was a network-quality editor who could put their pieces together, and all they had to do was run down the street and hand CBS the tape for the feed."

The Canadian Broadcasting Corporation (CBC) was one of the first customers, quickly followed by Japan's NHK and Italy's RAI and more. The word spread that if the networks were blocked, Pyramid was available. "That started happening so much," says Polk, "that the reverse became true: 'If Pyramid is blocked, go to the networks.' " As that end of the business kept growing, Polk decided to relocate to the National Press Building.

Most of the news operations in Washington, except for the networks, are in the National Press Building. It is ideally situated in a number of respects, on the main access road to the airport and the Pentagon, with the White House two blocks away and the Capitol less than a mile away.

At the top of the National Press Building is the National Press Club, which Pyramid made an extension of its broadcast operation by wiring a number of areas of the club so interviews could be done there.

Also in the Press Club is a small meeting room in which Pyramid arranged to do both live and taped interviews and inserts. Because the room has a view of the Washington Mon-

ument, "it makes a wonderful background for local stations. When you see the view, there is no doubt that you are in Washington," explains Polk.

With an eye toward staying ahead of the growing competition, Pyramid set up a microwave link on the roof of the National Press Building. An exclusive contract with the building gives Pyramid sole broadcast and microwave access to the roof. Pyramid currently rents microwave gear as needed, but has ordered its own equipment from Microwave Associates Communications. Pyramid has also become a common carrier and offers a service called Satellite Express™ for those who need to feed via satellite.

Pyramid Video has tried to position itself to handle all the needs of a news operation. Pyramid has four 3/4-inch editing suites equipped with Sony BVU-500 decks and Convergence controllers. Three of the editors are ES-102s; the fourth is an ES103S with A/B roll and effects capability. An ADDA VW-1 doubles as the TBC and the frame synchronizer.

There are two control rooms. One has an ISI 902 switcher and the other a 3M 1114. Both have Broadcast Electronics eight by two audio boards.

With Pyramid wired for both telco transmission and satellite feeds, its usefulness to local stations has increased. Arthur Alpert, news director at WDSU-TV, New Orleans, was a recent customer of Pyramid. The station sent its chief anchorman to Washington to interview the state's senators.

Pyramid arranged for everything from booking transponder time to edit facilities, control room, cameras, and technicians. "Pyramid was almost a turnkey operation," explains Alpert. "About the only thing we had to do was show up with our anchor and the senators."

Alpert isn't the only customer who feels confident about Pyramid's ability. During the inauguration, Pyramid provided technical support for 10 local stations and five foreign broadcasters. A week later, when the Iranian hostages came to Washington, Pyramid's client list had swelled to nearly 30, with most of the increased business coming by word of mouth. Nine foreign networks also used Pyramid's facilities.

Pyramid Video is not the only operation of its type in the nation's capital. But most of the others have tended to follow the trail that Pyramid blazed and few would deny that Pyramid practically invented this type of operation. **BM/E**

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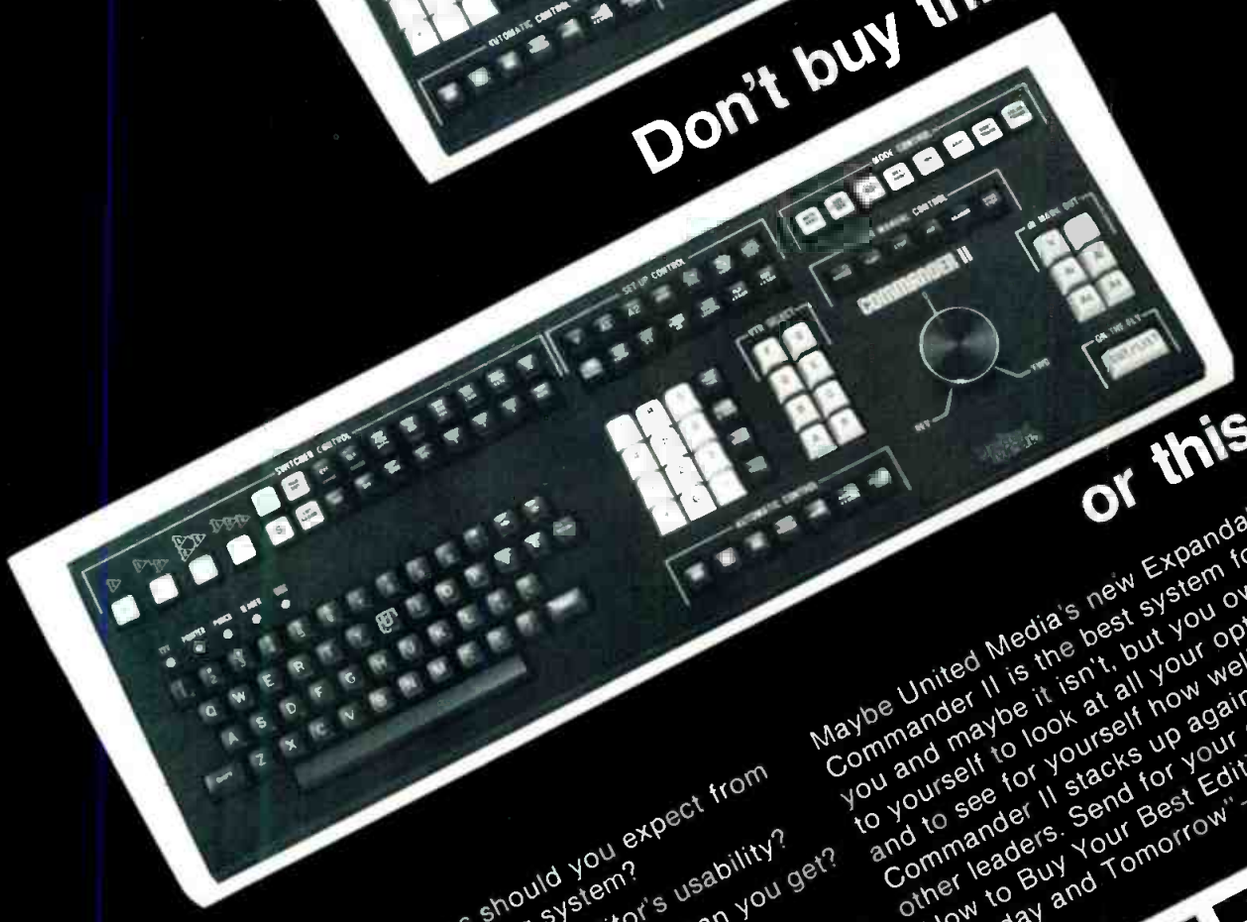

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Special Report

ENG: THE TOUGH GET GOING

"THE AMERICAN EXPRESS card—don't leave home without it" is a familiar caveat given to viewers contemplating a trip away from home. With it go the terrifying images of being lost in a foreign country and not knowing either the language or how to deal with foreign affairs. Unfortunately, for the broadcaster, simply having an internationally recognized credit card is not enough. As our Special Report on ENG away from home points out, well-orchestrated news coverage of distant events requires careful, planned coordination among dozens of members of the station staff.

Difficult as it is to send reporters and crews overseas or into tricky locations, however, the rewards are greater. The release of the American hostages from Iranian captivity is a sterling example: rather than taking a network feed, some stations dispatched crews to get first-hand, on-the-spot coverage of *their* heroes. Another example is disaster striking a foreign country with which a station shares a large local population.

As our Special Report points out over and over again, the station with the crew overseas—the one that can deliver the international story into its viewer's homes stamped with the unmistakable air of local interest—is the station that stands out in a market glutted with network feeds or superstation satellite news.

From the engineering point of view, the foreign shoot poses some special problems, as evidenced by ABC's experiences in setting up for the wedding of Prince Charles and Lady Diana. Here, of course, the local angle is not as important as providing the entire American viewing community with a "you are there" experience. In the ABC report it should be noted that the operation was not, as many have supposed, engineered for field production; strictly ENG-style, it used 3/4-inch VTRs and 2/3-inch pickup tube cameras almost exclusively. ABC's experiences are therefore relevant for any broadcaster.

Radio broadcasters have far fewer opportunities for foreign travel, even though the same local benefits can be enjoyed while the engineering problems are substantially fewer than television's. Nonetheless, radio broadcasters are traveling everywhere they can, including jumping out of an airplane for a report on skydiving—equipped to allow the station to carry the reporter live if it wants. Taking risks in radio coverage is no longer the sole prerogative of station management deciding to revamp the news department's hardware.

And how appropriate it is that so many of the stories radio and television will cover away from home will be about survival in one form or another—for the very act of moving outside the studio is one of the surest ways a station can assure its survival, too.

CONTENTS

SPECIAL REPORT

ENG AWAY FROM HOME

THE PRODUCER lay on the floor on his back with a hand mic raised as high as possible without it showing in the shot. The mic cable ran across the room to a roped-off area where the cameraman was set up. The subject of these audio acrobatics looked down at the prone producer quizzically. But if he had planned to say something profound about the occasion as he deposited his vote in the ballot box, he thought better of it.

The subject was Fidel Castro, and the occasion was the first election held in Cuba since Castro had seized power 20 years earlier. The producer was lying on his back on the floor trying to pick up Castro's audio with a hand mic because he had not considered the need for a shotgun mic when he planned the equipment list. The producer, from an American television station—the only one allowed to cover the 1976 Cuban elections—was a thousand miles away from his mic. It was a lesson he learned the hard way about travelling overseas on assignment: good planning will prevent you from being ridiculed by the leader of the first Communist country in the western hemisphere.

While the producer involved in this story can laugh about it now, at the time he was wondering why he hadn't stayed home where he could have called the assignment desk and had the courier bring over a shotgun mic. Why wasn't he back home exposing corruption at City Hall instead of trailing around after a fiery revolutionary hoping for an exclusive interview?

The reasons for doing stories overseas vary greatly from situation to situation. Why should a station commit its resources to cover a story in a foreign country when, for much less money, several truly local stories could be done? What advantage is there, if any, in sending reporters, technicians, and equipment on what many might consider a junket?

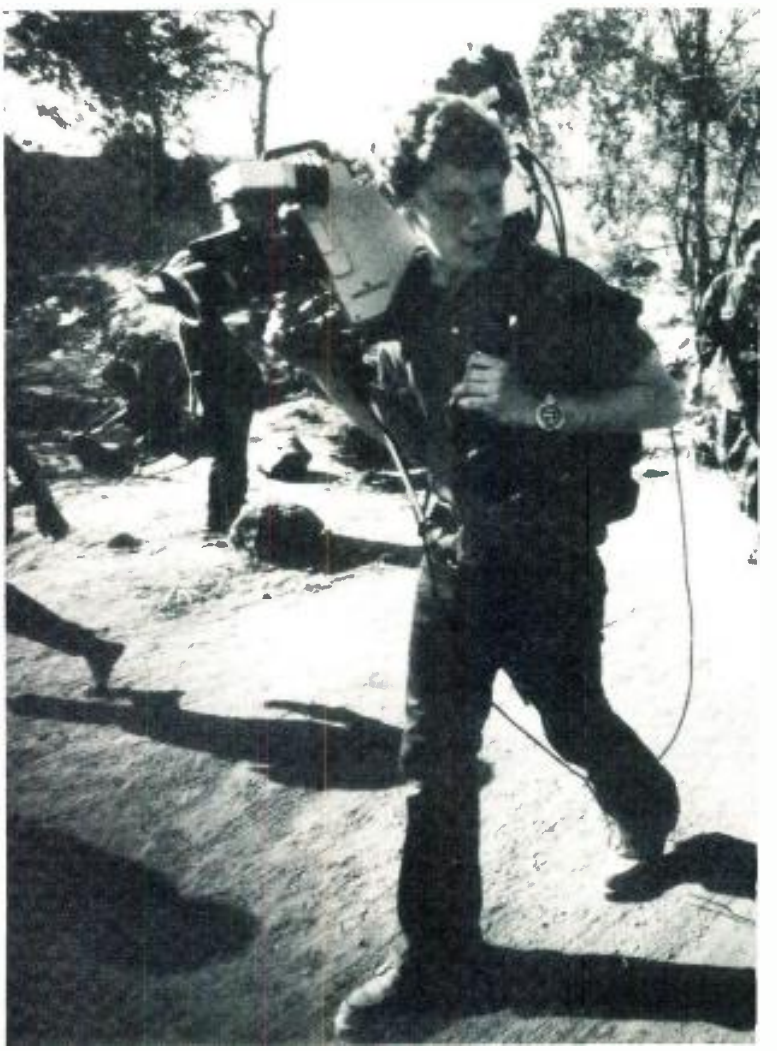
"The first reason, happily, is journalism," says Eric Ober, vice president of news for the CBS O&Os. Before assuming his present post, Ober was news director at WBBM-TV, Chicago. During his tenure there, the station went from number three to number one in the ratings, partially because Ober sent a number of his reporters on overseas trips.

"The reason for going overseas is to enhance the coverage for your local viewers," Ober explains. "Certain overseas stories have incredible local relevance." He cites the labor struggle in Poland. To many people in Chicago, what happens in Poland is as important as what happens in Chicago since the city has an enormous Polish population. "You've got Poles in Chicago who travel back and forth constantly for vacation or to visit relatives. To them, Poland is a very local issue and we would not be doing our journalistic duty if we ignored the story," concludes Ober.

Making preparations

The Von Ende Overseas Corollary to the Three Laws of Communications ("keep it simple, keep it simple, and keep it simple") states, "There is no such thing as over-preparation." Mike Von Ende, news director at WJBK-TV, Detroit, has strong opinions on the importance of planning for overseas trips (see *BM/E,* September, 1981, p. 29).

"Travel is expensive, and even with a good reason for going overseas you had better make sure that you are getting your money's worth," Von Ende stresses. He feels that if there must be problems, it is better to have



The urge to send reporters and crews out of the country is striking more and more local stations. Here is a look at some overseas experiences and what can be learned from them.

them here than in another country. Delays outside the U.S. can get expensive.

The major aspect of preparation is to make sure that all the paperwork is in order. This can get complicated, depending on where the station is sending its personnel. The key is to check and recheck what documents the country requires for personnel, and especially for equipment. The high cost of ENG equipment necessitates scrupulous adherence to the rules and regulations of foreign countries to prevent possible seizure. (For more details, see "Of Customs and Carnets" accompanying this story.)

The difficulty of getting visas for news personnel tends to rise in direct proportion to the political volatility of the granting country. About 40 stations sent reporters and crews to Wiesbaden to cover the return of the hostages from Iran; many of these stations made the trip with only two or three days' notice, but the West German government went out of its way to expedite things for journalists covering the story.

Poland was different, however. The Polish government was very slow and deliberate about granting visas to journalists, especially Americans, who wanted to cover the effect of the Solidarity labor movement on the country. It took two Detroit stations, WJBK and WDIV, nearly six months and the intervention of the entire Michigan Congressional delegation to get permission to go to Poland.

Once permission is obtained, the next component of planning is deciding what equipment to take. Three things should be considered when planning an equipment list: what country one is travelling to; what kind of shooting situations will be encountered; and what the backup position will be if something major goes wrong.

Skip Brand, [illegible] camera, and Phil Hejhtmanek, VTR operator, cover a story on Cambodian refugee camps for WBBM.

Equipment selection criteria

The destination can drastically affect what equipment is needed. The chances of picking up a spare camera battery are very good in Tokyo but ridiculous in Djibouti. Renting a tripod is a snap in London but impossible in Aitutaki. One way of keeping the equipment list down is to find out what equipment is available for rent. One option is to hire a completely outfitted crew in the country to which you are travelling, but this article will not cover that.

A blue-sky session with everyone involved in the proposed trip will not be wasted. Thinking about all possible shooting situations can help clarify what equipment is needed. Rain covers are not necessary for shooting in the Gobi, but a good hand vacuum cleaner for getting sand out of the recorder is a must.

A tripod is essential if the crew is going to spend hours waiting outside the base hospital in Wiesbaden, but it is excess baggage for tracking drug smugglers in the Colombian jungle from a helicopter. First consider all possible shooting situations and what equipment is needed; then think about handling those situations with the least amount of gear.

Preparing for major disasters is probably the best way to prevent them. What can be done if someone breaks into the photographer's room and steals the station's $50,000 camera? What happens if the drug smuggler resents being photographed and puts a 9 mm slug through the recorder? How does the station handle a government so piqued at some of the questions the reporter has been asking that it jails the entire crew?

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These are, of course, extreme cases, but preparing for them is the best way to avoid trouble.

A more ordinary problem is dealing with those inevitable glitches in the equipment. There are two approaches to dealing with broken ENG equipment while travelling overseas: the Twin Approach and the Wizard Approach. The Twin Approach calls for carrying a spare of everything from camera to screws. The Wizard Approach favors taking along the station's best maintenance technician to fix anything that goes wrong.

As with most theories, these approaches rarely work in the real world. Few stations have the resources to ship two ENG rigs out of the country for two to three weeks without seriously affecting coverage at home. An even more pressing problem develops with bringing the ENG maintenance technician, leaving the station unable to get equipment fixed until his return.

Fortunately, equipment failure is becoming less of a concern since most ENG equipment is built to take the abuse of field crews. Futher, packing the delicate equipment for shipping is no longer a problem; case manufacturers, having had enough experience with network ENG travel requirements, have designed cases to handle most situations. A look at any of their catalogs will show a dizzying array of cases for every purpose connected with overseas travel.

Language barriers

After all the advance preparations have been made, what will be encountered once the trip gets underway? The major problem will be language. A good interpreter—not just a person who translates, but someone more akin to a second producer—is a must. Such an interpreter knows the ins and outs of the country and can cut red tape, find people, lead the crew to the best places to eat, and keep them from making blunders that could land them in jail. According to Joe Moreland, a producer with WJBK, "Having the right interpreter can mean the difference between coming back with a good story and coming back with a great story."

Producer Terry Oprea of WDIV also believes that a good interpreter is a must; when Oprea went to Poland, however, he had to use the services of an interpreter provided by the government. Most Communist countries have a section of the Ministry of Information that provides services such as transportation, hotel accommodations, and interpreters to the foreign press.

Of Customs And Carnets

One of the biggest problems faced by broadcasters traveling overseas is knowing about customs requirements—both for bringing equipment into the foreign country and bringing it back into the U.S. The foreign country is apt to look at equipment you are bringing in as "merchandise for sale," requiring payment of import duties; the U.S., on your return, is likely to look at the same equipment as having been bought overseas, therefore requiring payment of an import duty to bring it back home.

To make certain you can bring your equipment back into the U.S., you need to have it inspected by a customs agent as you are leaving.The agent will compare the equipment in your cases and its serial numbers against a list you have prepared of the equipment, then sign the statement. In this way, when you bring the equipment back in, you have a document certifying that you brought it out. The list can be prepared on a U.S. Customs Certificate of Registration, Form 44-55, available in advance from your local U.S. Customs Office or at most airports. A less formal but equally valid method is to prepare the list on your official station letterhead. Be sure to list all serial numbers and all incidental gear such as filters, connectors, and adaptors. The form or letter requires at least five copies.

The form is usually certified as you leave the country by a customs agent at the airport. One note of caution: though customs is always around to meet incoming flights, no agent may be available at the time you want to leave. Call the airport in advance.

For further information on U.S. customs law, call Joe O'Gorman or Dick Coleman at the U.S. Customs office in Washington, DC, (202) 566-8157.

When dealing with a foreign country's customs laws, your first step should be to contact the foreign embassy, or consulate, or trade ministry here in the U.S. and get someone to discuss the laws. It is often the case that the laws on equipment importation are relaxed for news crews and you may be able to get by with the same list of equipment and serial numbers that you use for reentry into the U.S. At the World Conference of Broadcasting Unions held early last year in Tokyo, broadcasters from nine international broadcasting organizations passed resolutions aimed at easing the job of engineers who cover international events by simplifying the movement of ENG equipment through customs. Some of the organizations have already begun working to implement the resolutions, but no details are available at this time.

For some countries, a carnet is required. This is an official document issued by a nongovernmental agency, the United States Council of the International Chamber of Commerce, and then certified by various customs agencies as you travel. In the countries in which it is valid, the carnet permits the free passage of the equipment listed on it both into and out of the countries listed on the itinerary. The carnet is good for an entire year.

The carnet is not an inexpensive document to obtain. First, there is the filing fee—on a sliding scale up to $150 for $20,000 or more in equipment. The station should take care to list all equipment that it might possibly travel with for an entire year since equipment can be deleted from but not added to the list. Second, the carnet system requires the posting of a bond or letter of credit—good for 30 months from the time the carnet is issued—for 40 percent of the value of the equipment listed; this is to insure that the station adheres to the rules of the country and doesn't leave anything behind.

Even with a carnet, producers are warned to follow customs procedures to the letter. When going into or out of any country, be certain that a customs agent verifies the carnet and the equipment, or else taxes may be levied based on the country's claim that the equipment was not imported or exported properly. Another serious situation arises if equipment is stolen, since the country, if it suspects that you actually sold the equipment, may make you forfeit your bond.

For more information on the carnet system and to obtain the form itself, call United States Council offices throughout the U.S.: New York, (212) 354-4480; Chicago, (312) 364-7833; Los Angeles, (213) 386-0767; San Francisco, (415) 956-3356.

Many reporters feel that these state-supplied people are there as watchdogs and can be as much a hindrance as a help. But Oprea notes that a reporter or producer who has done adequate research and knows what is needed for the story can probably work well with the interpreter, and even enlist his willing cooperation on possibly sensitive stories.

Moreland took matters into his own hands by bringing his own interpreter from the U.S., who also acted as associate producer on the series. The interpreter was a noted Polish scholar who had travelled extensively throughout the country. Moreland had such a positive experience that he doesn't think that he would ever again travel without a handpicked interpreter.

The rules on what can be shot are different in almost every country in the world. The biggest prohibition involves showing military installations. Some countries stretch the definition of "military" to include the police. Some national monuments are not to be photographed; one may visit, but not videotape, Lenin's tomb.

Also check to see what the local taboos are concerning photographing the country's citizens. There is a very colorful and proud African tribe that does not like being photographed without permission. The local government spent a lot of time and money trying to suppress an incident in which a tourist took pictures after being warned not to and got a spear through his heart as an object lesson. An extreme reaction, but it still points out that local authorities are more likely to side with their citizens against a nosey foreign journalist.

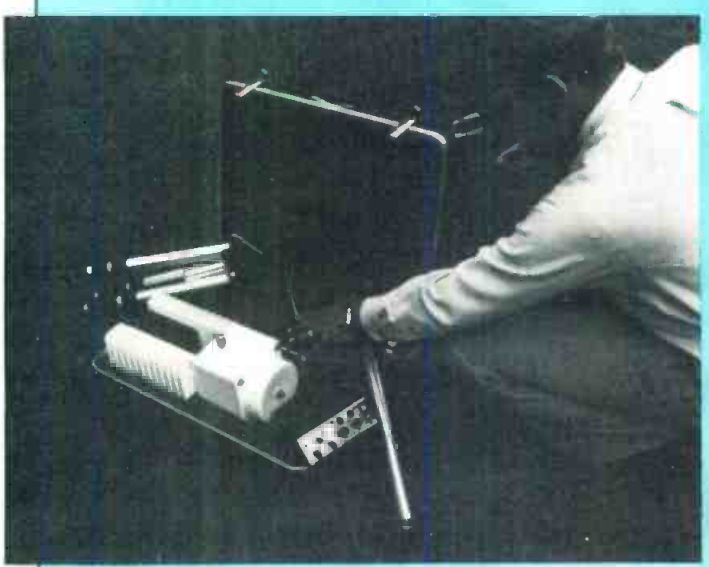
Producer Bill Kurtis, cameraman Peter Bertolini, and recordist Chuck Meier in Kenya in 1976 on assignment for WBBM. The story involved following a group of Moody's Bible Institute missionaries as they traveled from village to village.

Conducting interviews overseas is not like calling up the mayor for his comment on the bond issue. Government officials in foreign countries are not obliged to grant interviews. Even if they are so disposed, it tends to be at their pleasure, resulting in delays in everything connected with the government bureaucracy. The oil minister in Nigeria doesn't see the 6:00 news in Salt Lake City and therefore doesn't care about your deadline. On overseas trips, patience is a virtue.

Careful preparation at home can help minimize delays. A clear idea about what is hoped for on the trip helps in making equipment decisions and also focuses the scope of the story. Not having a firm idea about what is to be covered not only wastes time and money

Microwave On The Move

Stations traveling abroad may find it worth their while to carry their own microwave equipment, especially now that a couple of companies have come out with highly portable gear that meets international standards. The standards themselves are being urged by the Conference of Broadcast Unions, which met last year in Tokyo. Frequencies in the 400 to 500 MHz band are preferred by the conference for two-way communications, while 13 GHz and 40 GHz are preferred frequencies for point-to-point microwave connections, according to delegates.



Microwave Associates Communications' Mark A. Vida shows off the compact Mini-Mac.

Harris Farinon calls its new Global IX "the only portable video microwave transmitter you'll need in all the world," and backs up that claim by saying that this portable unit can cover any 2 GHz frequency plan in any country. The wideband transmitter allows the user to select up to 55 channels in each of 16 different frequency plans, with RF channels selected locally or remotely. It provides 3 W of wideband power (an auxiliary 12 W power amp is available); the transmitter interface can be either baseband video or true 70 MHz heterodyne. The 15-pound Global IX will also simultaneously transmit two audio channels. It can be powered from ac, a power belt, or a car battery and may be remotely controlled. Farinon says that the transmitter is designed for operation in extreme environmental conditions and that it incorporates multilevel shielding for RFI protection.

An ultra-miniature 2 GHz system in a suitcase is offered by Microwave Associates Communications—the Mini-Mac. Originally designed as an airborne unit for helicopter use, the Mini-Mac is packaged with a Quick-Set tripod that folds down to 24 inches. The transmitter weighs just 3.5 pounds (plus heat sink). It features a full 12 W power output, dual audio channels, and remote control capability. For flexibility where channels are crowded, the unit incorporates a high-stability 21-channel synthesizer. It also has internal VSWR and thermal protection. Options include 12 V dc, 115 V ac, or 230 V ac operation, making it suitable for portable applications worldwide.

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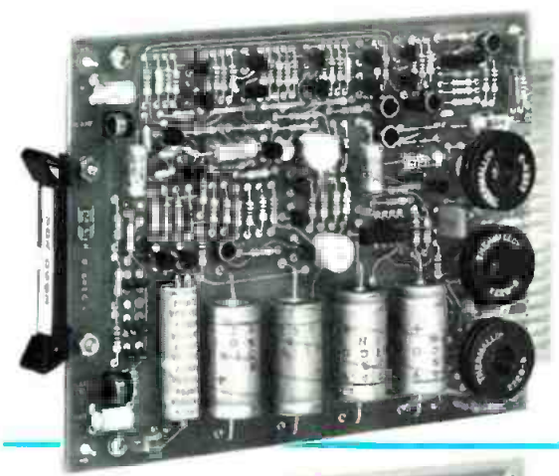

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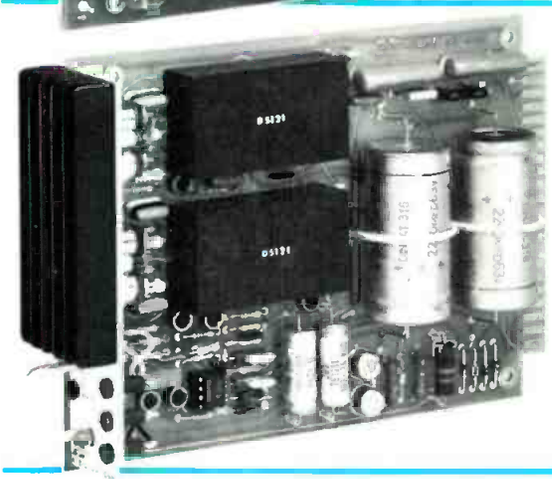

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but is journalistically irresponsible.

Getting the story on the air

Many stations plan foreign trips with an eye toward coming back home and editing at a more relaxed pace. But some events demand getting the story on the air at once. One possibility is to ship tape back by airplane; but this method is less timely than a satellite feed.

Currently, the best advice for a local station trying to feed material back to the U.S. from abroad via satellite is: don't do it yourself. A station handling a story unilaterally (for example, the visit of a local official to an international conference) should hire a satellite broker to handle the arrangements.

On major news events, where many stations are providing coverage, the networks usually arrange pool feeds for their affilitates. The station's only responsibility is to get the tape to the satellite feed point on time. Networks usually try to arrange editing equipment for affiliate use. But since they have their own coverage to worry about, the affiliates could be left out in the cold. Bringing editing equipment is therefore essential.

Arthur Alpert, news director at WDSU-TV, New Orleans, has yet to send a crew overseas, but agrees that sound news judgment should be the basis for deciding whether to go or not. "When the economic summit took place in Cancun, we thought about covering it," says Alpert. "But we felt that there just wasn't sufficient local relevance to the story. There was nothing

WBBM cameraman Skip Brown and VTR operator Philip Weldon outside the U.S. embassy in Tehran before American journalists were expelled.

that we could tell our viewers that they couldn't get from the network."

Some stations send reporters—particularly anchors—overseas for promotional reasons. Most news directors feel that the viewing public quickly sees through that ploy. "Having your anchor do a lot of standups in front of buildings in foreign capitols doesn't mean that he knows anything about the story. People are too smart to be taken in for long by gimmicks," says Jim Snyder, news director at WDIV.

Going overseas can be a big plus for your station. It can also be a big bust. If there are sound journalistic reasons for overseas travel, the audience will take note of that and respond to it. If the public sees overseas junkets as purely promotional hype, everyone loses. The station loses its audience and the audience loses a chance to be informed about something that affects the quality of their lives. **BM/E**

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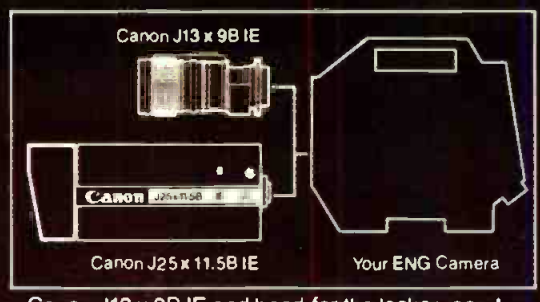

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RADIO ENG: YOU CAN TAKE IT WITH YOU

SPECIAL REPORT

Covering news and other activities "live" away from the studio has been a growing part of radio broadcasting for many years. Today's equipment for radio ENG can do an astonishing variety of jobs. This article describes a sampling of spectacular and unspectacular jobs, some of which may suggest to other broadcasters ENG activity that should not be missing.

IF A DISASTER of international interest occurred within a mile or two of your studio, would you be able to feed a top-grade, first hand, eye witness account of it to national and international radio networks?

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The stations described below have handily solved all these problems, as well as other more ordinary ones.

WADF tells the world

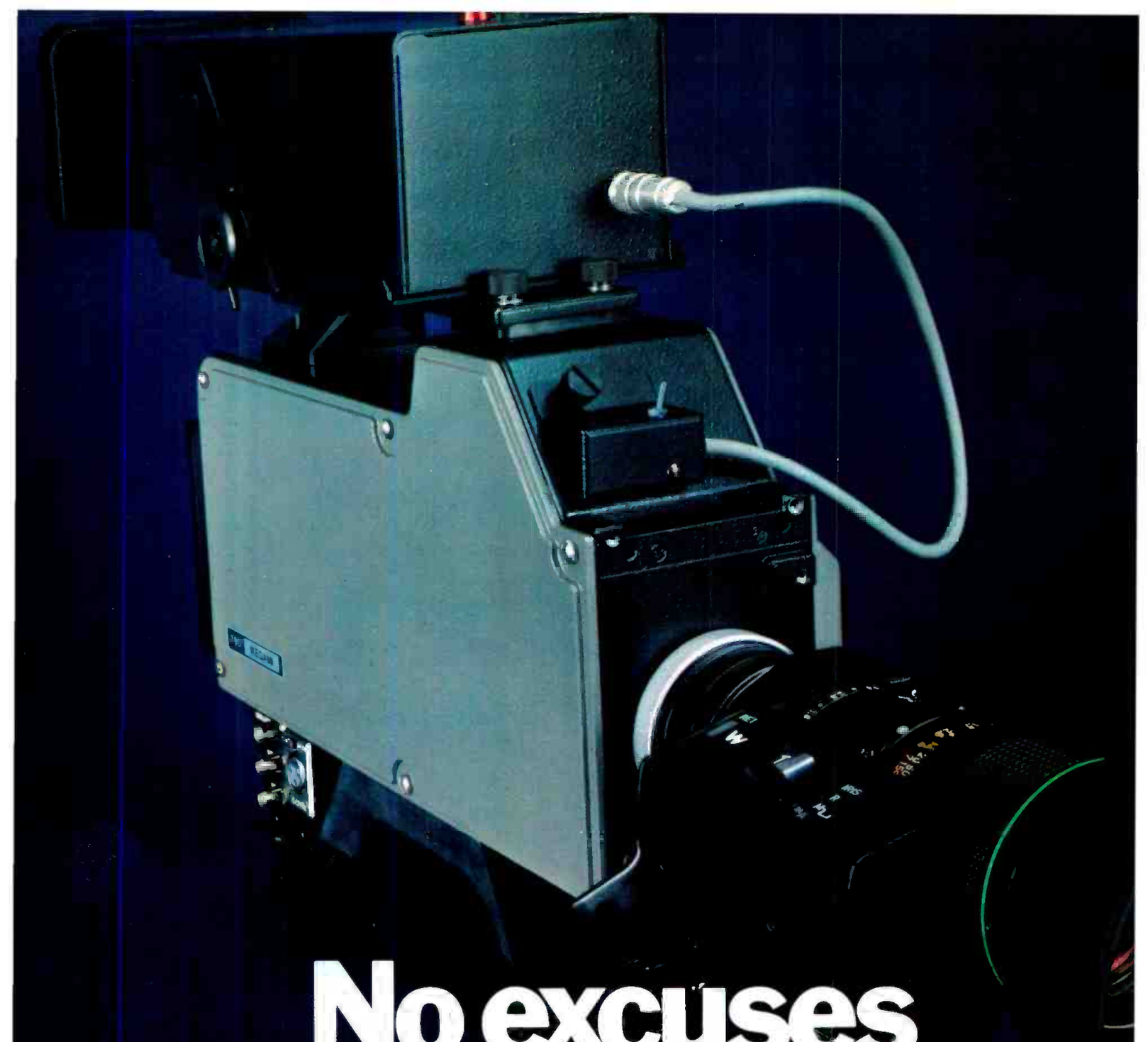
When sections of the balcony of the Hyatt Regency Hotel in Kansas City collapsed last March, stations WDAF-AM and FM had a reporter on the scene in a very short time, thanks in part to good connections with the police and fire department in the city. Obviously, no one was allowed inside the hotel at that point except the actual rescue crews. The WDAF reporter, with the blessing of the fire department, got a stand directly across the street from which he could see into the building.

This proved to be a highly advantageous position because some of the early reports out of the hotel were confused and conflicting. The WDAF man, by carefully checking what he saw with the proper authorities, developed a convincing picture of what was going on. His account was put on the air live not only by WDAF but also by ABC, NPR, and intermittently by the BBC in England.

His voice went from the scene directly to the studio via a Marti handheld transceiver, the RPT-2, which has played a large part in radio ENG in recent years. The operation was another example of WDAF's "live action" remote news style, with the reporter an actor in the event or following it very closely. This style requires continuous two-way communication between reporter and studio so that the studio operators can edit the report in the most interesting way for listeners.

Ron Chapman a few hundred feet above the earth on the way down. Communication with the KVIL studios was perfect all the way from the 3000-foot jump off. Antenna for UHF radio link to ground can be seen on back of helmet (see inset). Marti transmitter was in leather bag fastened to Chapman's waist.

To carry out this kind of remote, WDAF has a two-layer pickup net, linking the reporter, several news cars, and a mobile studio to the main plant. One layer of the net consists of Motorola walki-talkies, plus several 100-Watt repeaters for them. The repeaters are in the news



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cars and can be stationed wherever they are needed.

The second layer is the Marti UHF equipment, consisting of a battery of the RTP-2 handheld transceivers plus several higher-power repeaters in mobile rigs, or simply in hand portable form. The wide-band response and low distortion of the Marti equipment put the reporter and the scene on the air with excellent fidelity; the listener gets a sense of being right there. Depending on distance and terrain, both the Motorola and the Marti handheld units can reach the studio directly or can be relayed as needed.

Thus, the reporter at the Hyatt hotel collapse had both the Marti and the Motorola units slung on his belt, ready for instant use. He could tell the operators in the studio where he was, where he was going, and how it looked in a timely way. They in turn could tell listeners, say, "Jim is now moving toward the east end of the building—in a moment you will hear what he finds there." What he found there would reach the listener, with all the noises of the event coming through in high fidelity.

Al Kenyon, chief engineer, told *BM/E* that the two-way communications system has proven valuable even in simple remote pickups such as commercial coverage of small store sales. Again, the needed repeats for both the Marti and the Motorola would be in a car just outside, and the man on the inside would have the two handheld units.

In the studio, communication with the reporter is facilitated with announce microphones at the operating positions in the on-air room and the newsroom. These are connected by the push-to-talk button with the two-way communications system. The connection with the reporter can be continuous without disturbing on-air material or other station operations.

A variety of remote applications

Kenyon says that several other kinds of remotes are frequently carried out. On FM, between 6:00 a.m. and 9:00 a.m., there are often remotes from restaurants or other commercial spots in the city for talk shows with city celebrities. In some cases music is a part of these programs. Another disaster report was transmitted by an airborne reporter during morning drive time as he flew over Sedalia, MO, 80 miles away. The night before a tornado had ripped through a corner of the city, destroying everything in its path. Carried in the plane was WDAF's "Sky Spy" package, which includes both narrow-band and wide-band UHF high power transmitters and plugs directly into a power buss and an antenna connector in the plane. A 16-W narrow-band transmitter got the reporter back to the Kansas City studios in good enough shape to go directly on the air.

Live country music is picked up from time to time in cafes and night spots in the area. "As you can see," Kenyon concludes, "I am really up on RPUs for flexibility and independence . . ."

"Hello from up here . . . woosh!"

What would your first words be if you jumped from a plane at 3000 feet, and your parachute opened, and you knew that thousands of radio listeners were waiting to hear what you said on the way down?

Equipment set up at Decatur airport to receive signal from parachutist and relay it toward Dallas.

Ron Chapman, program director and morning drive personality at KVIL in Dallas, who made just such a jump on November 12, shouted: "My God, it all works!" He explained later that he meant both the parachute and the UHF radio system that linked him to the KVIL studio. He was cued in with the KVIL operators while in the plane, and they were still there as he started to fall to earth.

Chapman had conceived the idea of the jump about a month earlier, as a promotion for the station. It succeeded beyond all his expectations—virtually the entire city listened in. More than 500 people came to the tiny airport in Decatur where the jump was made to watch Chapman come down.

Don Everhart, chief operator at KVIL-AM, who put together the elaborate systems for getting the plunging Chapman on the air, described it in detail for *BM/E*. Chief engineer Jerry Klabunde worked closely with Everhart, as did associate Carl Ireland.

Decatur is about 80 miles from Dallas. Getting the signal back home took three UHF hops: from Chapman to the ground at Decatur; from Decatur to a high repeater in Fort Worth; and from there to the KVIL studios in downtown Dallas. This zig-zag route totalled about 120 miles. Everhart says he first thought of using an ad hoc telco net to simplify the logistics, but the telephone company could not or would not do the job within any reasonable time or at reasonable cost.

The UHF links, powered by Marti RPT-25 transmitters, worked perfectly, but getting the system as a whole in shape took careful, skillful advance planning and thorough testing. Everhart installed a Marti handheld receiver, multifrequency version, in a leather bag that could be fastened to Chapman's waist. A hole in the leather at the right spot allowed the mic cable to be plugged in when Chapman was ready; this also turned on the Marti unit.

In the helmet were installed two Plantronics tubular microphones with noise suppression. The associated head sets were acoustically peaked in the voice band to improve S/N ratio of incoming cues. The outgoing Marti signal, however, was wide-band. The bandwidth was trimmed somewhat by cavity filters along the ground-hop line, but enough highs were kept for a good

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reproduction of wind and plane noises for "reality."

On the back of the helmet was mounted a circularly polarized antenna for the Marti system, with a small sheet of aluminum as a ground plane. The CP design was carried out throughout the chain and allowed reduction of multipath distortion.

On the ground in Decatur were the Marti receiver and 25-W repeater, with CP antennas. Luckily, there was a 70-foot beacon tower at the airfield that could be used for the hop to Fort Worth. The transmitting antenna went to the top of the tower. The receiver was put there, too, to keep coax leads short. Also at the airport was a microphone on a long cable that could be keyed into the system. It was used to broadcast a view from the ground of the preparations—such as how Chapman looked getting into his gear and when he first came into view on the way down.

Everhart and his helpers proofed out the whole system two days ahead of the jump. Then, the day before, the system was put in final array and tested in place, by checking cues back and forth to the studio. A guard was hired to watch it at the airport overnight. Everhart says that the end-to-end S/N ratio was around 45 dB, fully good enough for the job.

After Chapman's first shout of triumph and relief, he told the radio audience about the spectacular view he was getting from aloft—"The most wonderful thing I ever saw"—and how he was directing the fall of the parachute, as cued from the ground. He said that he seemed to be getting no closer to the earth until the sudden change, apparently familiar to all parachutists, called "ground rush," when the ground seems to come toward the parachutist at express-train speed.

After his safe landing there was a champagne party at the airport. Later, Chapman, Everhart, and their associates had the satisfaction of knowing the stunt was a runaway success: virtually all Dallas had tuned in.

Digital to the rescue at WSCI

In Charleston, SC, WSCI is an FM outlet of the state's Educational TV Commission. As one of the National Public Radio stations, WSCI often has the responsibility for getting top-fidelity live music onto the NPR satellite net. The high quality of the satellite distribution channel throws the emphasis more than ever on the quality of the "feed."

A case in point was last summer's Spoleto music festival, now an annual event based in Charleston. The problem was to pick up the music live, in stereo in Charleston and get it to the NPR uplink in Columbia, SC, 110 miles away.

John Dozier, general manager of WSCI, told *BM/E* that the station had tried a variety of transmission methods. For the pickup in the hall, the microphones are fed into a Studer Model 069 remote console and thence to a Marti UHF transmitter, both carried in for the purpose. Dozier says that the Studer and the Marti interface beautifully and both perform well.

The UHF signal goes about four miles to an entry to

the telco microwave system in south Charleston. Last year it travelled to Columbia via the audio carriers in the telephone company's diplex system, instituted a few years back for the carriage of audio signals in television networking.

This system did not fully meet Dozier's quality requirements, however, so a new plan is being tested for the coming year. It will include a unit at the sending end for putting the stereo signal into digital form with one of the widely used units that converts audio material into a pseudo-video PCM signal. This will be fed to the regular telco line—either microwave or coax—for taking television signals over the distance.

At the receiving end a similar unit will recover the analog signal, which should have audio qualities totally unimpaired. WSCI has been trying out the JVC units for the job, and so far they seem to work well.

This story does not involve any spectaculary new technology, but does indicate that there is great resourcefulness in today's technology for solving ENG problems. Hundreds of radio stations today are using special ENG equipment and it seems likely that many could improve the efficiency and reach of their ENG operations by thinking hard about alternate technology.

An example of ingenuity in using equipment comes from WIFE in Indianapolis. This station changed hands in May, 1981, and left behind its rock-music past in favor of a 100 percent talk-and-news format.

The change meant that news went up to between 40 percent and 50 percent of air time. For the expanded coverage of local news, WIFE got several news cars with two-way Motorola UHF equipment. Other new facilities included dedicated telephone lines to the state capitol building and other constantly used news spots in the city.

To make interviews in the field more flexible, chief engineer Murray Smith developed an acoustic coupler to feed the receiver of the Comrex RF microphone directly into a dial-up telephone transmitter. With this arrangement a reporter interviewing persons in a crowd, for example, can move around and stay on the air through a dial-up telco connection.

Hundreds of radio stations are using UHF equipment in more or less routine fashion to get live remotes into studios. KRES in Moberly, MO, has a heavy program of local news, local sports, and community events, including events such as junior college basketball and the Veteran's Day Ceremony. A Marti UHF system connects the studio with operators in the field at all these events.

WFAA in Dallas is one of many stations using UHF equipment for live commercial pickups, as well as news and event coverage. A typical location commercial could originate from a restaurant, where the new chef is interviewed about his best recipes and his ideas on making a restaurant attractive.

A constant in most such operations is the need for cueing between station and remote operator, as spotlighted by the WDAF plan. The many different ways of doing this underline the variety of opportunities radio ENG offers creative managements today. **BM/E**

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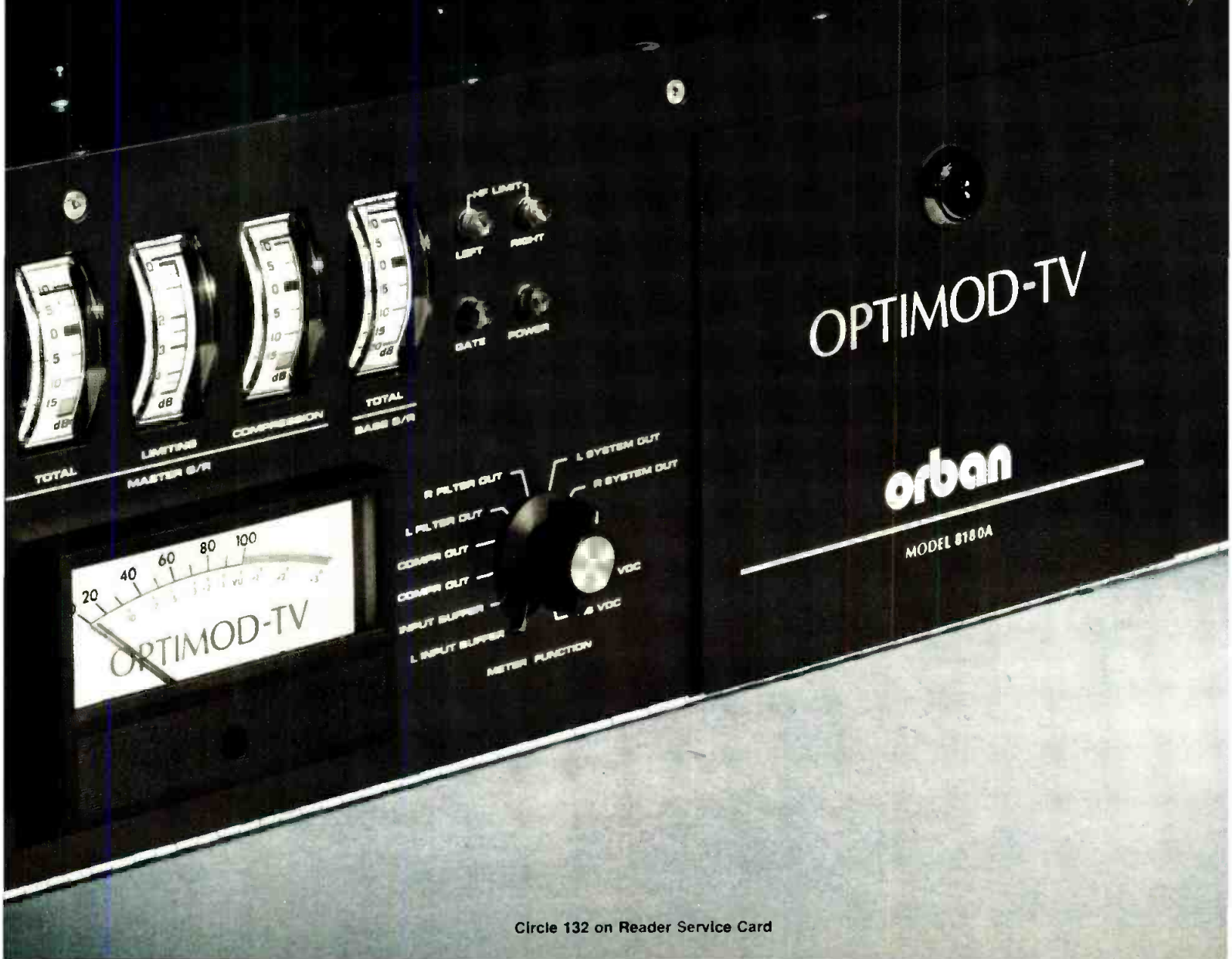

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SPECIAL ASSIGNMENT: THE ROYAL WEDDING

By Elliot Reed

A crack team at ABC Television coordinates coverage of major news events such as the recent royal wedding in England. Stations contemplating overseas assignments could benefit from its experiences.

NEWS OPERATIONS are not generally known for extensive preplanning; assigning crews to cover stories on an hour-by-hour basis is the more normal course of events. But when a major event *is* scheduled in advance and preplanning time is available, a news department can plan its coverage with the same attention to technical detail that is given to sports remotes and studio-produced talk shows.

The wedding of Prince Charles and Lady Diana Spencer was just such an event, with at least two months of preproduction time available to the networks and others planning first-hand coverage. This allowed ABC News to take full advantage of its "Special Events" group, which was given the awesome task of providing complete coverage of events relating to the wedding, utilizing ABC camera positions supplemented with feeds from local British broadcasters. At the same time, the operation had to be flexible enough to deal with any unexpected occurrences such as demonstrations or acts of violence.

In all, the unit ended up providing true top-to-bottom coverage for four ABC news programs (*Good Morning America, World News Tonight, Nightline,* and *Special Events*). Beginning with Good Morning America on July 27 and running through July 31, ABC carried the preparations, the fireworks display on the eve of the marriage, the royal procession, the ceremony at St. Paul's, the honeymoon departure, and a wrap-up prime-time special on the evening of the wedding—approximately 18 hours of programming.

For the event, ABC combined personnel from the U.S. and the net's London news bureau, rounding up a total of 60 technicians to set up and operate the equipment; five technical managers to design and coordinate the technical aspects and supervise the technical operations personnel; two traffic managers to coordinate and order all audio, video, and communications feeds among the remotes and coordinate the satellite feeds back to the U.S.; a unit manager to maintain control of technical costs; and approximately 65 people for production functions, cost control, researching, talent coordination, and the like.

Hardly an average news assignment, especially since it was overseas! And yet it was all accomplished within the technical guidelines and economic conditions imposed by the network news budget and not, as some have supposed, as if it were an EFP-type remote such as an Olympic Games.

Elliot Reed is technical manager, ABC Broadcast Operations and Engineering.

To provide pool coverage of the wedding procession, the BBC used several dozen Philips LDK-5 cameras with Schneider 30× 12.5 zooms.
(photo: BBC Engineering Publicity)

"Special Events" to the rescue

Special Events became involved in the operation some two months

before the wedding. A group within ABC News (headed by Bob Siegenthaler), it was formed several years ago to produce news programming of political conventions, inaugurations, and other major events. This group, along with the Broadcast Operations and Engineering division (headed by Julie Barnathan), coordinated the coverage.

At a meeting on May 18, 1981, technical planning for the royal wedding telecasts began, and a survey was conducted to determine equipment, personnel, and space requirements. Several problems had to be addressed in order to satisfy production needs within the cost guidelines: physical space for a coordinating control room; time necessary for construction, setup, and checkout at all locations; and customs problems with bringing equipment into England, including the preparation of carnets (documents that permit the temporary importation of equipment into participating countries without payment of import duties) and a possible strike by customs officials.

While the production department worked on the last two problems, Joseph Carr, Bill Maier, David Linnick, and I set out to design a control room that could be simply installed within the ABC London News Bureau during the two months that remained.

The first step in the design process was to set up a floor space at ABC's headquarters in New York City that precisely corresponded to the space that would be available in London. Racks of equipment were installed, interconnected, and tested in the precise configurations that would be used during the coverage. The only problem in working this way was that the power requirements would be different in England. In the New York mockup we therefore generated a 120 V, 50 Hz source to determine which equipment was capable of operating at the 50-cycle British frequency and which would have to be fed from a Cintec frequency converter to transform the 50 Hz English power into 60 Hz. We were able to test with 120 V since all power in England would be converted by transformers from 240 V to 120 V. Another consideration was the need for increased power availability for the air conditioning and equipment to be installed in London, and the London

A weary Elliot Reed contemplates the editing room set up at the Regency Center Hotel. Equipment included a Convergence ECS-103 editor, MCI/Quantel frame synchronizers and digital effects processors, and a Yamaha audio board.

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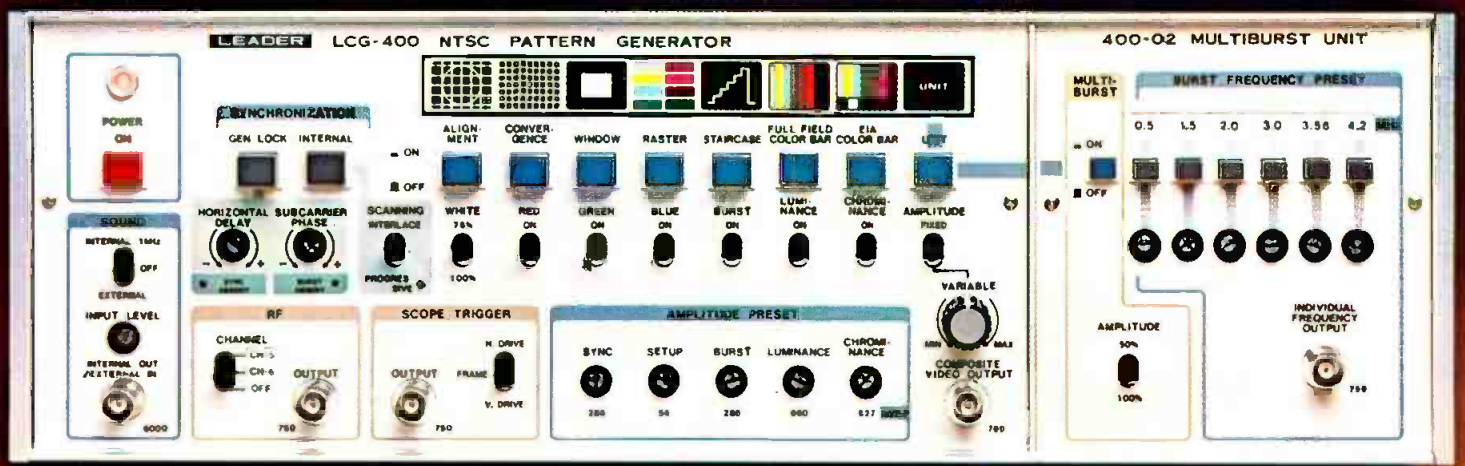

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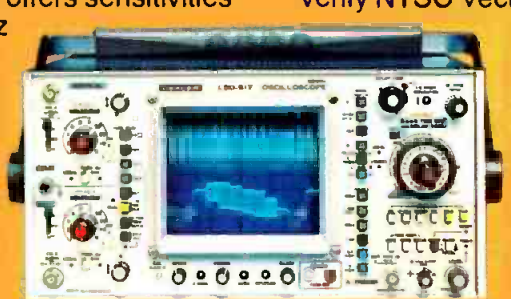

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electric company was advised in advance.

Considerable rack space in the main transmission area was reserved not only for power supplies, but also for 13 MCI/Quantel DFS-1550 frame synchronizers that were to handle incoming feeds from remote locations and make them synchronous to the production switcher, plus two standards converters to allow the 525-line ABC operation to take the British-supplied 625-line feeds. The output from the synchronizers and converters was fed to two seven-by-six ENG transmission packages that included equalizing DAs and in turn fed the production switcher.

ENG-type switching

The control room area was divided into three smaller rooms by plexiglass panels. The main production area contained an array of 31 monitors—much like a studio control room. Different in this operation, however, was that we used two small Crosspoint Latch production switchers, bused together so that the output of one became one of the inputs of the other. This provided the TD with access to all feeds. For special effects, we had a single-channel MCI/Quantel DPE-5000.

We also used, for the first time on air, a new Quantel DLS-6000 digital still store system. With it we had the ability to grab, sort, and store up to 800 stills on a floppy disk, with instant access to any. With two disks, we could record and access 1600 stills and dissolve from one to another. Further, stills could be displayed either full-frame or compressed. Since the experiment, ABC has purchased an actual production model from Quantel (the one we used in London was more of a prototype) and has placed an order for a number of

Wireless Microphones at ABC

By Phil Godfrey

A high-quality wireless microphone that performs as well as a wired microphone is a valuable asset to any TV production, particularly a large-scale news event. Recognizing the need for such a device, ABC chose the then-unused 940-950 MHz frequency band to develop (with Airborne Instruments Lab of Long Island) a portable wireless microphone. The mic was first used at the Mexico City Olympics in 1968, and then later that year saw service at the Presidential political conventions. At the same time, ABC and Microwave Associates developed a portable transmission system operating in the same band to transmit the TV camera remote control telecommands from the newly developed Ampex hand-held camera. Both of these systems were used by the ABC News and Sports departments until 1976, when ABC joined forces with Ikegami Electronics to develop a wireless microphone and camera command transmission system. These systems were successful, and stayed in service until 1980 when ABC adopted the new Sony Series 27 and 57 wireless microphone for this application.

ABC has most successfully used wireless mics for sporting events such as golf, football, and baseball, in addition to special news events such as political conventions, inauguration parades, and the like.

They are not without their own problems and constraints, however, including transmission range, frequency interference, multipath reflections due to nearby metal objects, and overall terrain conditions. In addition, the mechanical and human engineering considerations of dressing and maintaining the talent with a transmitter battery pack and antenna, plus insuring the return of equipment following a show, create additional drawbacks. Nevertheless, the mobility ABC has gained using wireless microphones has far outweighed the problems associated with them. Usually the size and weight of the transmitter is kept as small as possible, although we often add a linear power amplifier to the transmitter to increase range. The choice of receiver antenna and location, and the use of some type of diversity reception, are equally important.

When televising a program such as golf, we want to give the reporters complete mobility within the areas assigned to them. In this case, identical receivers are located at several different holes throughout the course; their outputs drive a diversity or voting device. In this way the strongest signal from the receiver closest to the reporter is selected. This type of extreme space diversity has also been successful for covering inauguration parades. With particularly difficult terrain, close space diversity reception reduces dropouts due to fading signals and multipath conditions. In both cases, receivers are usually placed as high as possible, usually on top of an 85- to 100-foot tower or ladder truck. High gain (8 to 10 dB), 20-degree beam width yagi antennas are used wherever possible. Automatic gain control is generally avoided to insure minimum distortion and maximum signal-to-noise ratio. An audio operator controls levels.

Transmitting TV camera remote control telecommand also has several rather unique problems. Dropouts and multipath reflections cannot be tolerated due to the immediate loss of camera control (usually genlock). ABC uses a portable TV camera telecommand control system transmitted within the audio bandwidth of the Sony wireless microphone. To enable a wide range of operation over large golf courses, a helium inflated tethered balloon (aerostat) is raised 300 to 500 feet in the air. This balloon serves as a platform for the Sony transmitter and omnidirectional transmitting antennas, allowing a wide latitude of operation.

A portable camera telecommand signal, transmitted within the audio bandwidth of the Sony wireless microphones, helps ABC cover sports and large-scale news events.

Phil Godfrey is manager of ABC's Engineering Laboratory.

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additional units.

The second area of the control room was reserved for Chyron IV graphics operations. The third area was for audio, with a Yamaha 32-by-16 board.

3/4-inch recording

For recording incoming feeds, editing, and playback to air, two separate videotape areas were established, one adjacent to the main control center at the News Bureau and the other directly across the street in the Regency Center Hotel. The tape areas and the main control area were joined with video and audio cables stretched over the street to reach the hotel. All switching to the various recorders was handled by four 3M audio-follow-video routing switchers, with a separate switching systems for natural sounds.

The videotape area next to the control room was used to play back material to air. In this room were the only one-inch machines in the entire operation—two Ampex VPR-2s to air prerecorded intros and bumpers that had been created back in New York. All other material that originated from London, including edited program material played back on two Sony BVU-200 decks alongside the one-inch machines, was shot and recorded strictly ENG style—on ¾-inch videocassettes.

Our decision to go with ¾-inch tape was prompted by several interconnected reasons. First, we had decided early on that we would be bringing almost all our equipment with us—15 tons of it! All our cameras and recorders were, naturally, 525-line format. To have set up a one-inch editing facility, we would have to have brought an enormous number of bulky one-inch decks with us since 525-line one-inch decks were not available for rental in England. Secondly, we did not feel there was enough time to install a one-inch facility in the limited space available. Thirdly, since all our field crews were working in the ¾-inch format, it did not make

Two Ikegami cameras provided master shots for ABC's coverage. (photo: Ann Limongello)

sense to get into a dual-format operation.

For recording and editing, six two-machine editing rooms were set up at the Regency Hotel. Four were equipped with Convergence ECS-103 editors with Sony BVU-200 decks (two could play material back to air). In addition, two off-line systems configured with Convergence ECS-90 editors and Sony VO-2860 decks were installed for viewing and rough cuts. The bulk of the actual post-production work, however, was performed with two Convergence Superstick systems, each configured with three BVU-200 decks, MCI/Quantel frame synchronizers, and DPE-5000s for special effects, small production switchers, and time code readers. Time code was recorded by all field crews on the address track of the BVU-110 recorders, leaving both audio tracks available for sound.

Coordinating remote locations

Coordination of the logistics at the various remote sites and the feeds from British broadcasters into the ABC operation fell to Chris Evans, manager of overseas operations for ABC's BO&E division. A total of 11 sites were involved, including seven camera locations along the parade route with a complement of nine cameras. These, together with a feed from the BBC, which was providing network pool coverage of the ceremony from St. Paul's Cathedral, and a feed from ITV, which was covering the parade, were cabled back to the News Bureau through video and audio loops provided by the British Post Office. Each location had one video line and two audio lines (one for program and the other for natural sounds).

ABC's London operation was based almost exclusively around ¾-inch equipment, including Sony BVU-200 decks. A single-channel Quantel DPE-5000 (to right of Convergence ECS-103 editor) was used for special effects.

Another important remote location was the camera providing a "beauty shot" of London and the dome of St. Paul's Cathedral. Located at the B.P. Building, this

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ABC's main control room at the London News Bureau included this Yamaha 32 × 16 audio console.

PC-70 with a 42× zoom lens was the only studio-type camera used in the operation. Two HL-77 cameras with Canon 18× zooms, located at the Abby Life Building and the British Railway trestle, provided additional master shots.

Perhaps the most elaborate remote site of all was the anchor position at Juxon House, across the street from St. Paul's. Here, two ENG-type cameras covered Barbara Walters and Peter Jennings while a third camera moved through the crowds and covered the guests emerging from the cathedral. A small control room here was outfitted with a portable Asaca production switcher.

Good Morning America originated daily programs from its own anchor position at the London Hilton. The twenty-sixth floor of the hotel was set up as a small studio with a three-camera remote production unit supplied by Trillion. Signals from two remote sites were first fed to the main control room at the News Bureau through the standard loops, then relayed to the Hilton. The incoming feeds were synchronized with two Quantel DFS-1550s, then integrated with studio material and edited tapes. The program signal from the Hilton was then relayed back to the News Bureau and fed out on the standard satellite pathway back to the U.S.

Communication among all the sites was considered critical to well-coordinated coverage. The main anchor sites had return video feeds, but each of the camera locations was handled as an independent remote site. Communication from the main control room was accomplished with a telephone twisted pair circuit, a two-way producer's coordination circuit, a director's PL to each camera operator as well as local directors at each site, and an IFB for talent and guests.

Covering this piece of history required a marriage of various broadcast technologies: a control center to monitor and to switch the various remotes; a high level of communication between all remote venues and the main control area; and an effective means of recording and editing videotape. All these requirements were met with portable equipment, digital technology, and sophisticated 3/4-inch editing systems. The flexibility and features of this equipment provided ABC with the means of presenting a storybook wedding in a storybook way to American viewers. **BM/E**

Things to do before leaving home

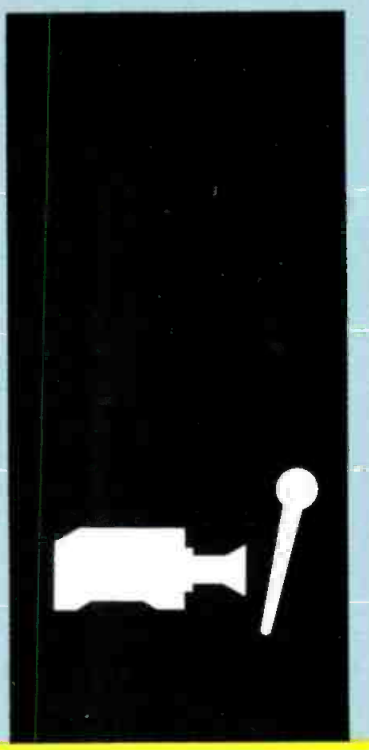
SPECIAL REPORT

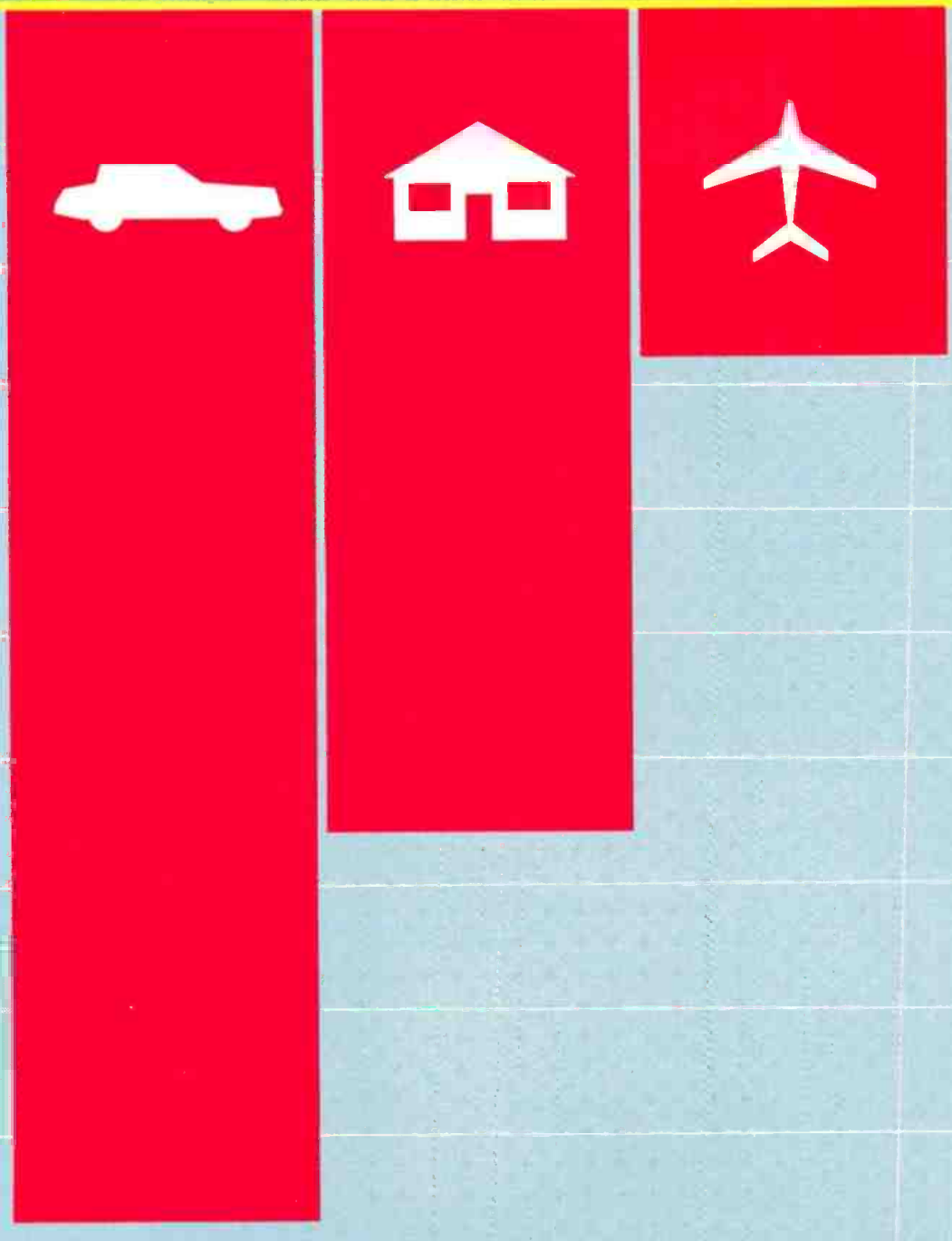
- ☐ Have a planning meeting involving all who will travel and make use of the material. What kind of shots will be most useful? What kind of sound? Who should be interviewed? Make sure everybody knows exactly what he or she is supposed to accomplish on the trip.
- ☐ Check with the embassy or consulate of the country you plan to visit: what kind of press credentials are required? Are visas necessary? Be certain all who plan to travel have current, valid passports.
- ☐ Select equipment based on specific assignment needs; take only what is required, plus whatever backup is appropriate. Check power availability for recharging batteries, using monitors, etc. Pack converters, inverters, etc. Select shipping cases that conform to airline specifications.
- ☐ If you plan to take microwave gear or RF microphone/intercom equipment, does it conform to worldwide frequency standards? Be certain the country you are visiting does not prohibit private use of microwave.
- ☐ Check with your insurance company to be certain foreign travel is not excluded from your equipment or personnel policies.
- ☐ Contact U.S. Customs for appropriate declaration forms. Contact the consulate or trade ministry of the country you will be visiting to find out whether a carnet and/or bond and/or letter of credit is required.
- ☐ Call the airport and be certain a customs agent will be available to inspect your equipment *before* you leave.
- ☐ Call the airline and check on excess baggage charges. Charges vary widely, particularly with foreign airlines; finding out you have to pay over $500 for your equipment cases should be done beforehand, not while checking in.
- ☐ Secure the services of an interpreter—one who has worked with news crews before, if possible.
- ☐ Make advance arrangements for getting material back home. If you plan to ship tape back, get the schedules of the airlines you will use and names of airline cargo expediters. If you have politically sensitive material, you may want to try to find an American citizen traveling home to carry it back by hand for you. Make sure you give the person names and numbers of those at the station to call in an emergency, and get the person's travel itinerary so he or she can be tracked down if necessary.
- ☐ Make a list of key phone numbers you will need while traveling, and distribute a copy to each member of your team. Include the local U.S. Embassy; foreign broadcasting and press organizations for help with equipment or legal problems; a satellite broker who can arrange feeds back to the U.S. if network time is not available; the coordinator of your network's pool feed coverage; and whom to call in an emergency, including station engineering and managements' home telephone numbers. In addition to foreign telephone numbers, try to secure telex numbers since phone service is sometimes unreliable overseas.
- ☐ Take as much cash as you don't mind having stolen; though American Express and other issuers of travelers checks will cash the checks into whatever currency you want, including U.S. dollars, traveling with cash can sometimes help you through sticky situations with government officials or customs agents. Take credit cards such as Amex, Visa, and Mastercard, which are accepted internationally.

TELEPHONE NUMBERS FOR MORE INFORMATION

U.S. Customs	Joe O'Gorman or Dick Coleman	(202) 566-8157
U.S. Council	for securing carnets	(212) 354-4480 (312) 364-7833 (213) 386-0767 (415) 956-3356
U.S. Dept of Commerce/International Trade Administration	Felix Cotten—for information on how to find a customs broker	(202) 377-4654
International Radio and Television Society/IRTS	Steve Labunski— for general information on traveling overseas, including country-by-country requirements	(212) 867-6650

INDUSTRY LEADERS LOOK AT 1982





What recession?

To paraphrase an old slogan, suppose Uncle Sam invited the broadcast industry to a recession and nobody showed up? That appears to be the case, as radio and TV company executives see it.

Entering the new year, it is difficult to find anyone among industry leaders who is not optimistic about business prospects. Moreover, they are also excited by the impact of new technology, in particular the availability of satellites and the rapid deployment of digital circuitry.

In short, rather than being depressed by the recession, broadcasters are eagerly pressing forward. Comments such as ". . . this is the most exciting time to be in broadcasting" were not uncommon.

Yes, there are problems. Cable TV and cable radio are cause for concern. Rising costs coupled with high interest rates nag at managers. New equipment arrives on the marketplace at a rocket pace, causing equally rapid obsolescence of the old.

Yet, when *BM/E* checked with a cross-section of industry leaders to find out what they expect in the coming year, the uniform response was upbeat. On the following pages is a summary of these opinions taken from interviews conducted at the end of November.

GENE JANKOWSKI

CBS Broadcast Group

Gene Jankowski, president of the CBS Broadcast Group, sees little change in the basic structure of broadcasting in the near or even in the long-term future. After the most profitable year in the company's history, Jankowski points out that the great bulk of that revenue came from the traditional forms of broadcasting, not the new technologies.

"There will be an increase in television homes next year and TV homes will continue to grow," Jankowski predicts. "Contrary to popular belief, most people spend their lives doing other things besides watching television. We've seen that when there are things on that are truly special, the total audience grows."

CBS is moving into the new business opportunities available in cable, teletext, and viewdata. "One of the positive signs of a very dynamic organization is one that can handle its current businesses in a very strong fashion and at the same time, invest in the future." Jankowski sees no conflict with a broadcasting company going into cable, which some see as a competitive business. He sees cable as an extension of the programming arm. Those TV homes that tend toward lighter viewing habits will tune in to the kind of programming not available on commercial networks.

Jankowski feels that there is a deregulation mood in Washington and looks with some optimism toward "some meaningful deregulation for the industry." His major thrust is to see less government involvement in programming. He cites the prime time access rule as what he terms "a de facto government intervention into the free enterprise system."

Jankowski sees not only the business aspects of broadcasting, but also its creative potential. "Television has a creative challenge the likes of which no other medium has had to face. The challenge is to find fresh programming ideas that the public is going to want to watch. The volume of programming points up the difficulty in finding new ideas that attract an audience and still wind up as a good business decision."

CBS's Jankowski.

RKO Radio's Burchill (center).

THOMAS F. BURCHILL

RKO Radio Networks

"The industry has been recession-proof in the past—there's no reason to expect otherwise now," says Thomas F. Burchill, president of RKO Radio Networks, looking at 1982.

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Burchill is certainly bullish as he assesses not only the fortunes of RKO Radio Networks but the outlook for all the networks. Revenues for the industry last year should increase 25 percent over 1980 and continue to gain for the next five years, he predicts.

The RKO executive sees an interesting trend in comparing radio and television. In the past TV was entirely mass-audience oriented and radio was totally local. But as the competitive situation has changed—driven in large part by new technologies such as satellites—the two media are turning around.

Burchill explains that TV was programmed vertically and radio, horizontally. Now radio is accessing more national feeds, becoming more vertical; television is going to localism, becoming more horizontal. Result: the two media are coming together from different directions.

Satellite links will become increasingly important in the coming year, according to Burchill. "This technology has improved our business not only in the quality of the sound compared to the 5 kHz land lines but in the increase in advertisers going after national radio audiences."

Riding this crest, RKO this year expects to increase the number of stations on its net that will take the three separate services, introduced each year since 1979. RKO Radio One, targeted at the 25 to 34 age group, started in '79 with a handful of affiliates and now has over 225 stations on board. RKO Two, which went on the air last September, carries news and features aimed at a somewhat older group from 34 to 45. It attracted 100 affiliates in just 10 weeks. Starting this month is phase two of RKO Radioshows, which debuted in September, featuring musical specials and interviews with popular entertainers.

However, the success among affiliates of the services offered is also cause for concern, he adds. "There have been new network services promised in the rush to expand satellite links. I hope all the promises others made are met. Otherwise, failures to deliver cut into the entire industry. We all lose credibility," Burchill warns.

DON OHLMEYER

NBC Sports

NBC Sports's Ohlmeyer.

"We just can't afford to be spending $100,000 to $150,000 every time we produce a football game," says Don Ohlmeyer, executive producer of NBC Sports. "It's just not cost-efficient. And we won't be able to stay in business and be competitive when people outside the networks can do the same thing for $10,000 or $20,000. This is something that management and the unions are going to have to work on together; we all have a vested interest in maintaining a position of primary interest in broadcasting, but we're not going to be able to do it if some cable company can produce for 20 percent of the cost."

Part of Ohlmeyer's solution is to decrease production costs with more flexible, lighter, easier to maintain field production equipment—like the Hitachi CMOS camera NBC adapted for use in a driver's helmet at the Indianapolis 500. But Ohlmeyer concedes that his network, like CBS, is far behind in the race to be the leader in what we have done is to be extremely creative with what we have—like the frame compression during our baseball coverage, for example. At ABC, Roone Arledge has been consistently pushing sports production and Julie Barnathan [ABC] has been very receptive to it all along, so they've become the number one network."

"My number one priority," explains Ohlmeyer, "would be to bring our post-production facilities up to the latest standards; right now, the equipment is almost ancient. Beyond that, I'm not certain. Sports has traditionally been what has pushed this medium creatively forward."

As to whether cable will make any inroads into traditional network sports strongholds, Ohlmeyer is extremely skeptical: "Where cable is going to have its impact is not going to be on the big events but on the day-to-day playing of basketball, baseball, and hockey. Congress simply isn't going to let them go after the Super Bowl or the World Series or things like that.

"I do think, however, that the networks are going to have to re-examine the enormous fees we're asked to pay for network exclusivity. The Chicago *Sun-Times* recently bought the Cubs, and the Atlanta team is distributed by SuperStation WTBS. Perhaps the time has come when it would be more profitable for a network to own a ball club."

JULIE BARNATHAN

ABC Broadcast Operations and Engineering

There are three areas in which Julie Barnathan, president of ABC's Broadcast Operations and Engineering, sees technology making a significant impact during the coming year. "The first is a greater use of electronic art, from just plain lower thirds to whole pictures to pictures that move and compress to what I call 'optical devices.' All those things that were done before on film and stills will be electronically generated. One example is the Dubner computer graphics system, which we have been working with for a number of years. We have three of the systems currently in use and have developed a number of our own programs. Another example is the MCI/Quantel DLS-6000 digital still store; we have ordered three and have an option for a total sale of 18 during the coming year.

"The second development will be the 'single-pack' camera/VCR units. But we think that before anybody buys one, the industry should have a standard. We don't think that one crew should be going around with Beta cartridges and the other with VHS and another with an altogether different format. I realize that Sony and RCA/Matsushita are in a 'battle to the death' over this thing, but we shouldn't have to be in the middle of it.

"The main reason for our interest in these units is their greater reliability. Any time that you can get rid of a cable connecting two things you have solved a lot of problems."

The third area of technology Barnathan expects to see more of is high definition television. "We're looking at HDTV—and we have been for some time," he claims. "We're working with Ikegami, which is also involved with HDTV. We'd like it to be based on a standard that could be easily converted to 525-line NTSC so that we could avoid a dual standard if, later on, it becomes popular.

"I still don't think we will be seeing a totally digital plant for a long time to come. Everyone will be using individual pieces of equipment, but we will still be constantly converting D/A and A/D.

CBS Radio's Hosking.

ABC Broadcasting's Barnathan (below).

"Right now, our main objective is to get everyone to help improve the quality of current television signals, to get everyone using satellite links wherever possible and clean up our studio equipment; the signal is only as good as its weakest link, and if there's a bad proc amp somewhere it ruins the whole thing. If everybody used even what we have available now—high-sensitivity pickup tubes, VIRS, satellite broadcast, digital signal processing—we'd have a standard NTSC image that the average home viewer couldn't tell apart from an HDTV display."

ROBERT L. HOSKING

CBS Radio Division

The prospects of network radio are excellent for 1982, according to Robert L. Hosking, president of the CBS Radio Division. Network income was up about 25 percent in 1981 over the year before, for the best year in history. The growth rate in the first quarter of 1982 probably will be somewhat less because of the very high level reached last year. But the year as a whole will certainly bring a further substantial advance.

"Network radio is coming of age, and will have an enlarged, more basic role in the radio broadcasting of the future," says Hosking. "It is a *complementary* role—the fundamental function of the individual radio broadcaster is localism, serving the needs of the community. The network supplies material that is essential to a strong audience position for the broadcaster. The material will have greatly increased variety, quality, and audience appeal in the coming year." He notes that the networks have had remarkable success in the last few years. Radio stations affiliated with a net have risen from 2054, or 32 percent of all stations, in 1970, to 3600 stations, or 47 percent of all, in 1980.

The expansion in the number and variety of network programs made possible by the multiple-channel capacity of the satellites will allow radio to serve the broadcasters, and the listener, far more effectively and attractively than ever before. The shift to the satellites will accelerate in 1982 and probably will be complete for all major nets by 1984. Land line distribution will be gone, Hosking predicts.

A good example of the diversification that is spreading among the nets is the new CBS operation, RadioRadio, which gets underway in the spring of this year. It will enlist an entirely new group of affiliates and be aimed specifically toward the 18 to 34 demographic. News will be written in shorter forms especially for this audience. Features will be designed for them. News and other material of top quality will be more and more needed by radio broadcasters, and the nets are showing they can supply this need.

"With this secure position in the American listener's scheme of things, radio's future looks splendid."

VINCENT WASILEWSKI

NAB

Vincent Wasilewski, president of the National Association of Broadcasters, looks to 1982 as the year in which a number of long-standing regulatory issues may be settled. "We hope to see more in the area of deregulation by the Commission and by the government in general," Wasilewski says. "We think

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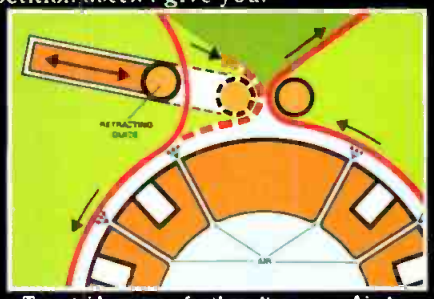

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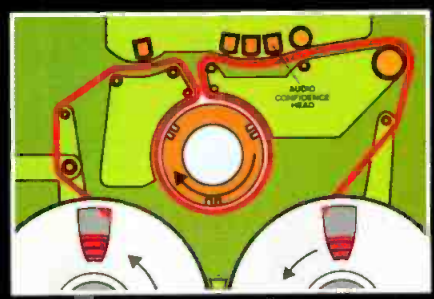

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that the outlook is rather bright."

Wasilewski also hopes that by the end of the year there will be an agreement on legislation dealing with cable, motion picture, and broadcasting copyrights. He thinks that a compromise can be worked out and that it will be accepted.

Direct broadcast satellites (DBS) are also a concern of the NAB. "We hope to impress upon Congress the need for a study of the direct broadcast satellite proposition feeling that this should be a matter for Congressional determination rather than the FCC's discretion," Wasilewski asserts.

While it has some legislative priorities, the NAB is more interested in the current trend toward a hands-off posture by the government. Having the broadcaster and not the government make program decisions is a clear goal.

"One thing that should happen in this technological progression," he predicts, "is a realization on the part of government that broadcasters should be a part of new technology rather than being prevented from participating in it."

Wasilewski is also pleased with the recent RARC meeting in Rio de Janeiro, in which the AM spacing problem was worked out.

New technology notwithstanding, Wasilewski sees the year in broadcasting as a good one. He believes that broadcasting will not suffer the effects of the economic downturn. Wasilewski sees an even more vigorous role for the NAB: "We feel that our association is in a very healthy state."

THOMAS E. WHEELER

NCTA

"The conflict in our regulatory relations with broadcasters is behind us, and the copyright issue only a remnant. The coming year will determine our relations with the telephone companies."

Would anyone in the last decade expect to hear this statement from a cable television spokesman? It is in fact the view of Thomas E. Wheeler, president of the National Cable Television Association.

Well, regulatory issues with broadcasters are not quite a thing of the past for the cable industry. Wheeler concedes that eliminating broadcast network cross-ownership restrictions is a big issue this year.

Referring to a study recently released by the FCC's Office of Plans and Policy that recommends lifting the ban, Wheeler comments, "NCTA has suggested that the economic and social implications have not been addressed. An impact analysis has yet to be done and should be done before the Commission takes any final action. Crossownership would allow an awful concentration of power—a network O&O with a cable franchise could get a stranglehold on a community. I grew up in a one-newspaper town and know what it's like."

This issue is important enough for NCTA to consider commissioning a study to analyze the impact of cross-ownership. "I would hesitate to let this decision go without more analysis," Wheeler adds. "After all, the days of public policy by intuition have passed."

Despite the ongoing regulatory hassles, 1982 "is a good year to operate in," says the NCTA president. "High interest rates and the state of the economy will have an effect on revenues, but nowhere near the decline the cable operators were hit with in the 1973-74 recession."

Another change since the '70s is greater caution by cable companies in promising multiple services that are not profitable. Wheeler points out that the technology to expand services is available, but companies are "easing in rather than jumping in." In some cases operators are walking away from franchise situations where the service demands are too expensive or unrealistic to deliver.

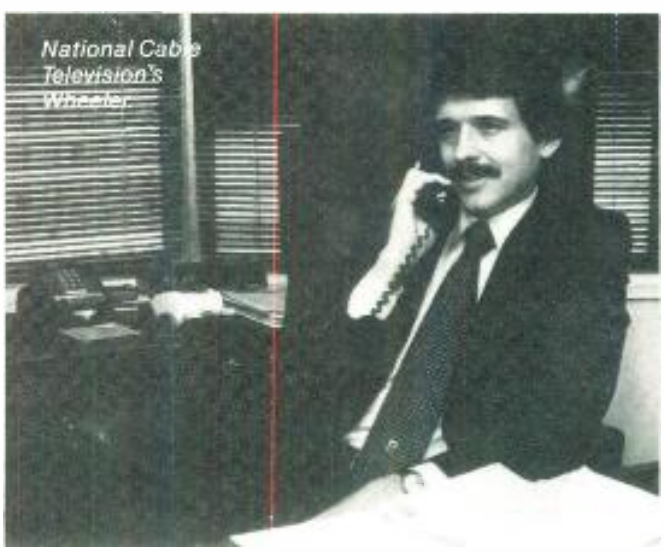
In the coming year Wheeler sees cause for concern over the non-federal regulators. As cable operators are becoming identified as common carriers, the traditional state common carrier regulators are trying to take over CATV, he fears.

RICHARD VERNE

NBC Radio

Radio is somewhat recession proof, Richard Verne, president of NBC Radio observes. In addition, in the last few years radio network dollars have exploded as the nets moved into a new era. He cites a number of trends this year that will continue to be operative in coming years:

NAB's Wasilewski.



National Cable Television's Wheeler

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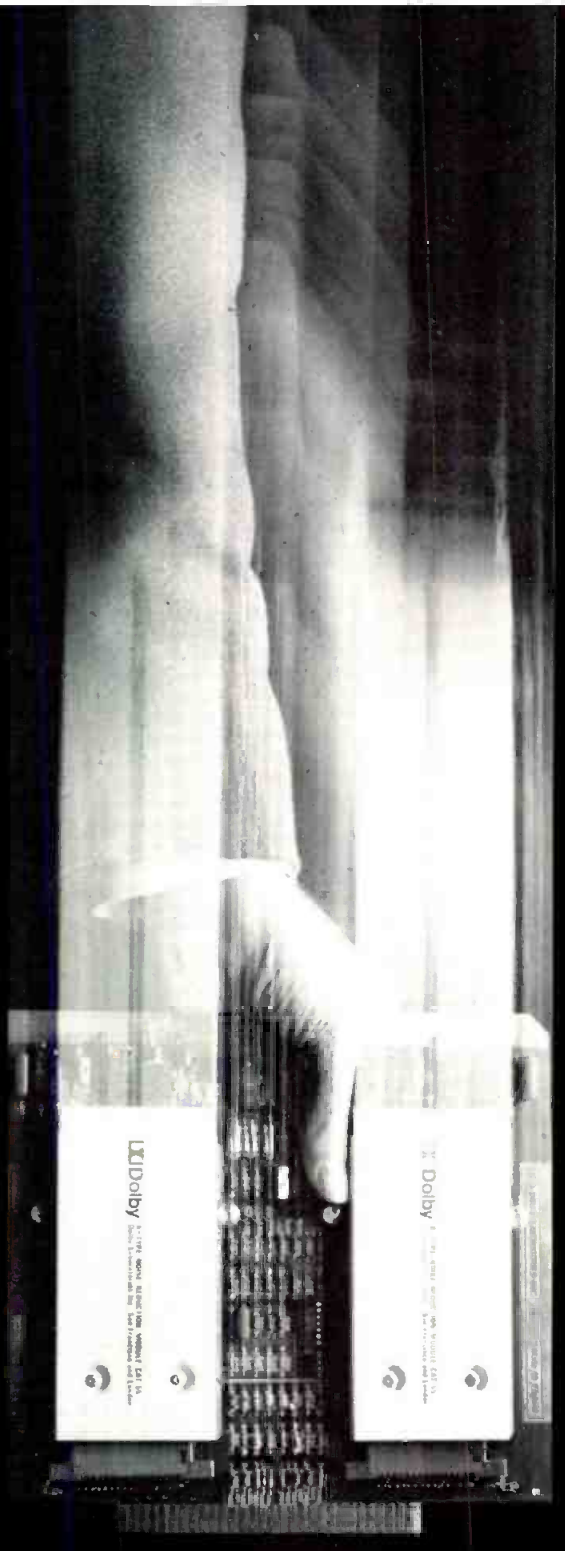

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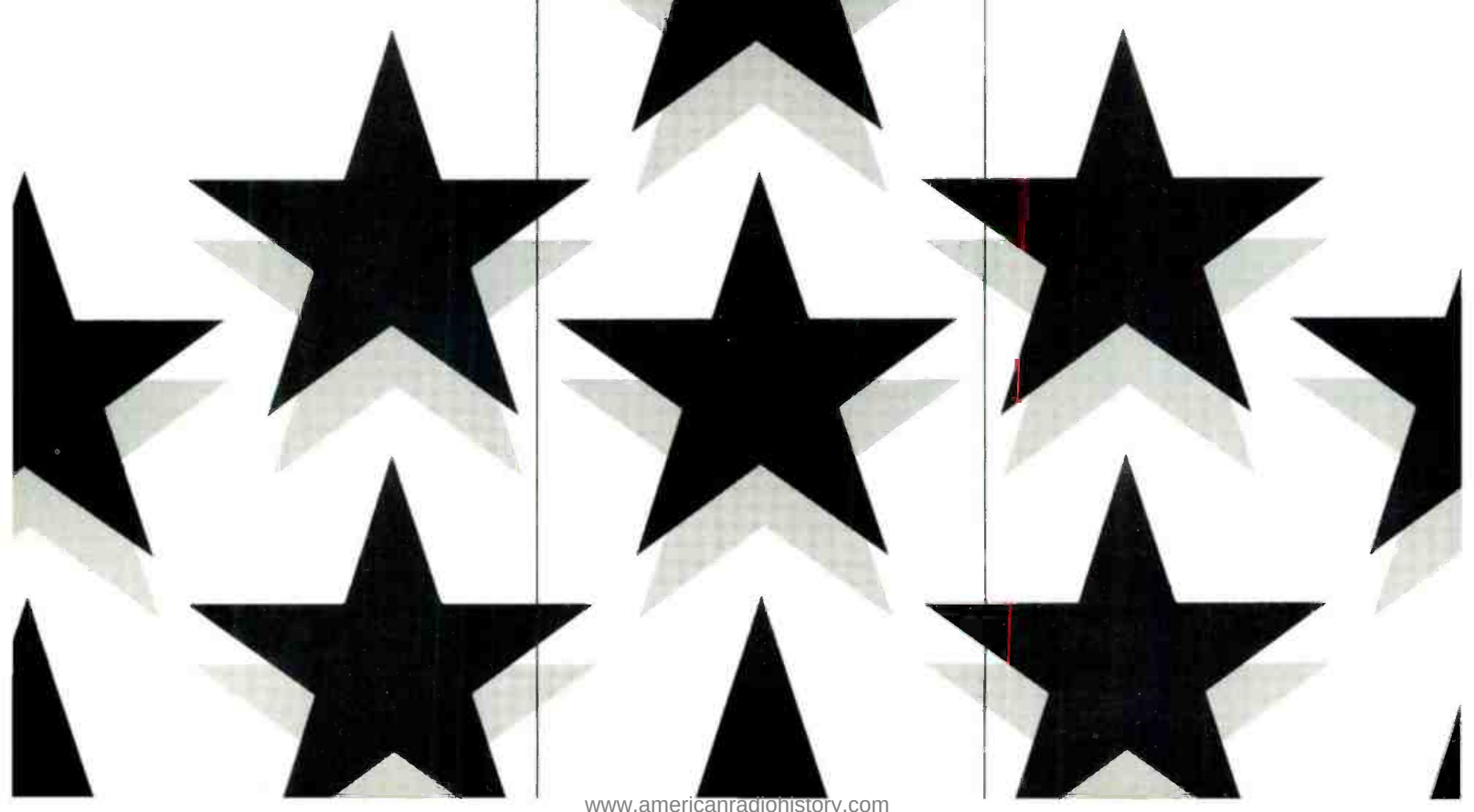


• The industry is learning better how to run radio nets, including the sharpening of demographic aims and delivery of audiences the advertisers want;

• The proliferation of nets itself builds the industry business;

• The ad agencies are finding that today's nets can give them national reach;

• There are many more salesmen selling network time;

• The satellites are transforming the nets into far more efficient operations.

NBC will move substantially into satellite delivery in 1982, says Verne, with all the O&O stations equipped for that before the end of the year. The whole net will be completely on the satellites by 1984, with about 600 earth terminals to serve affiliates.

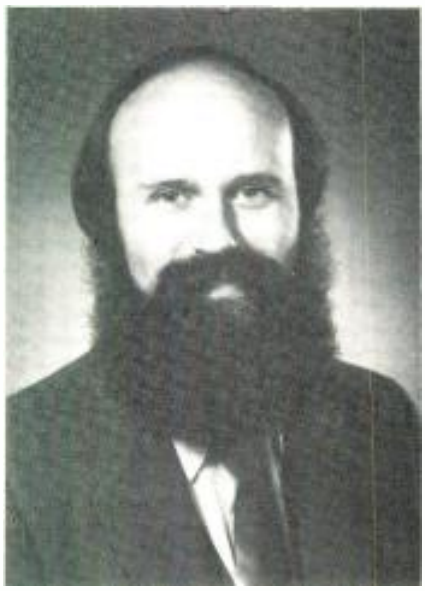
"NBC is moving to a digital satellite signal system," Verne notes. "That will allow us to deliver any programming we want with top fidelity."

He agrees that radio stations must have a base in localism to stay healthy; but they will be increasingly dependent on the networks for special material they need to compete in their local markets.

NBC will steadily expand and diversify its network programming to meet that need, according to Mr. Verne.

"For example," he explains, "the live music concerts that are important in programming for The Source can be expanded, and will benefit greatly from satellite delivery. We are actively developing many additional program ideas, which will be introduced in 1982 and the following years."

He predicted that there would be about 20 full-scale radio networks in a year or two, but he said this would be positive for the industry as a whole. The key will be programming designed for specific audiences.



Broadcast Programming International's Iles.

NBC Radio's Verne.

JOHN T. ILES, JR.

Broadcast Programming International

For John T. Iles, Jr., general manager of Broadcast Programming International, everything is coming up roses for the giant syndicator in 1982. With a couple of new program services in the offing and stations eager to try new things, BPI expects little slowdown this year.

"Getting syndication doesn't require big finances. In fact, stations are making a more diligent effort than ever to get new programming," he explains.

Even the growing importance of satellite transmission competing with BPI's reel-to-reel by mail service has not yet caused Iles to worry—though he is keeping an eye on satellites as reel-to-reel postage rates soar.

He too believes that localism will be a more and more vital part of the radio industry in 1982, but will not necessarily detract from syndication business. "Last year, for example, we mastered a series of classical music," Iles reports, "and one or two Country/Western format stations began using it on Sunday mornings as a transition after the local church sermon and before going back to Country music." This year BPI will expand the classical music from the shortened versions offered last year to full-length presentations.

Iles is also sanguine concerning FCC regulations. "As someone who holds a first phone license, I'm not happy about the removal of the license requirement—it's like a demotion. But I don't think the change will have a lot of impact. Station managers are well aware that they must have qualified people to run the transmitters. What they will miss is the certain sense of security they used to have with a first phone license in the house," he states.

The BPI general manager holds great expectations for digital technology. As a syndicator, it's not too far-fetched, he says, to envision delivering an entire library of programming in an envelope. The increased storage density promised by digital recording would be a major benefit to broadcasters and syndicators.

JOEL CHASEMAN

Post-Newsweek Stations

While optimistic about business in the coming year, Joel Chaseman, president of Post-Newsweek Stations, is careful about making generalizations.

"In the TV broadcast business during a soft economy it's important to know *where* you are looking when you forecast. There are some explosive markets without a spot to sell. Others are not bad, but not exactly

glowing. Some markets have more cable TV competition than others. Affiliates and independents differ, too. So you have to be very careful when looking at averages," he cautions.

Nevertheless, Chaseman agrees that 1982 will be good for television. "Advertisers that spend during a recession gain in share of market and also get more in the economic recovery. We like that thinking, especially since it has been proven to work."

A believer in localism in management as well as programming, he expects more responsibility to be shifted to individual stations. The function of the group operator needs to be re-examined, according to Chaseman, with an eye toward placing decision-making at the local level. The group operator functions as guide and provides special services, "but don't try to run it [the local station]."

On the technology front, Chaseman expects the trend toward miniaturization to accelerate. Smaller, lighter ENG and EFP equipment will continue to appear. He's looking into one-quarter inch tape as well as camera-tape recorder combinations.

Further down the road, high resolution television, such as the system recently demonstrated by Compact Video, looks interesting. However, there is a problem of compatibility with home receivers. Speaking of receivers, Chaseman, like many other broadcasters, is appalled by the messy reception that many TV sets provide and viewers' seeming tolerance of poor quality pictures.

Cox Broadcasting's Swanson.

Post-Newsweek Station's Chaseman (below).

"We spend a lot of time at the transmitter end trying to send out the best picture possible, only to find people looking at receivers with pictures that would drive you crazy. Set makers should go to automatic VIR tuning so that what we transmit could be seen," he suggests.

Despite his enthusiasm for the advent of digital technology in broadcasting, Chaseman finds problems in keeping up financially. "The generations of hardware are tumbling over each other and we can't digest them fast enough. The depreciation lines are choking us," he complains.

JOHN SWANSON

Cox Broadcasting

Whether we get a softer economy in 1982 or not, broadcasting must keep up the quality of its product, observes John Swanson, VP of engineering for Cox Broadcasting Corp. Broadcasters can weather a slump best with an improving product, not by cutting down, he adds.

"To deliver a top-grade product, broadcasters must have top-grade equipment," Swanson insists. "Top-grade personnel are essential too, but they can't do the job without the gear."

Up-to-date plant is also needed for efficiency of operation, which becomes even more important if business drops off. Cox is carrying out a phased refurbishing of the system's televison and radio stations. A number of different sectors of the operation will be affected, but in every case the changes will raise efficiency, or improve the quality of the signal, or both.

All the television stations now have satellite earth terminals, and two stations, one on the West coast and one on the East coast, will get uplink equipment. The receiving terminals allow the television stations to bring in special programs that are profitable for them.

Entertainment Tonight, the Hollywood show, is satellite-delivered and has been highly successful for the Cox stations. Many other specials will be added to the programming as time goes on. Cox's Washington bureau makes heavy use of the satellite net to deliver news to the TV stations. Swanson points to this as a good example of an attractive product—live Washington news—delivered with great cost efficiency.

Another part of the operation now being upgraded is the production of commercials for on-air use. Each station now has a space dedicated to production of ads, which Cox calls "retail services." The latest one-inch videotape recorders are used (the whole chain will be converted to one-inch videotaping during the coming year).

For the local news, which is a vital part of each station's localism, Cox has installed a full array of mobile ENG equipment, including trucks and helicopters, equipped with portable cameras and recording equipment, plus microwave radio. He predicts that ENG, on a level appropriate to the station's resources, will be a fixed element of local station operation.

PHILIP LOMBARDO

Corinthian Broadcasting

Philip Lombardo, president of Corinthian Broadcasting, is optimistic about the year in broadcasting. Despite a depressed economy in other

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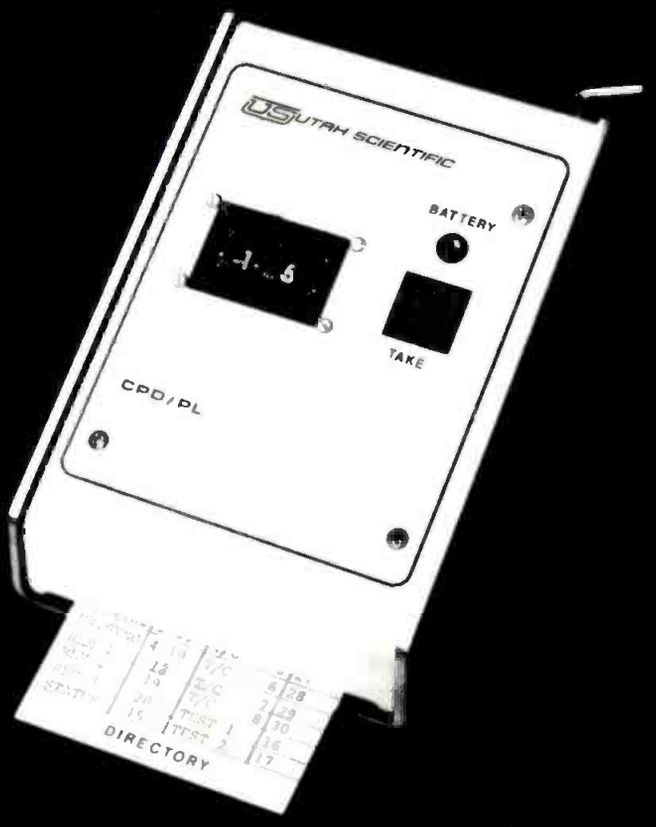

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quarters, he expects an increase in revenue for 1982.

Lombardo also feels that the future of broadcasting lies with the local stations. "I think that the broadcasting business from the television station side is going to continue to look for new and innovative ways to become more and more local entities," he says. "I think that you will see continued expansion of local news programming. I think that you will see attempts—some successful—at producing information-based programs outside of news."

Lombardo is backing up his views by committing the resources of Corinthian into a new afternoon information-based broadcast leading into the local news. He feels that his and other local stations are now in the position to take the risks necessary to produce quality local programs. The cost of acquiring other types of programming has risen so much, Lombardo avers, that it makes as much economic sense to produce programs locally as it does to produce that programming as a service to the community.

Like other broadcasters, Lombardo is not afraid of the new technologies. He thinks that cable still has a number of years of expansion to go before it will be in a position to erode any audience from broadcasting.

While Lombardo sees VCRs as the technology that the consumer wants, he is nonetheless concerned about the copyright issue. He believes that the recent court decision against Sony Corp. was correct, and thinks that it will be sustained. He believes that the manufacturers are going to have to address the issue soon.

Lombardo also thinks that some broadcasters have been short-sighted about the copyright issue. He sees it as part of other copyright issues that broadcasters ought to be concerned about, such as the retransmission of programming by cable systems. "The impact of the ruling could be far-reaching if sustained by the court," Lombardo warns.

"The one thing about our business is that it doesn't stand still. If you want to stay in broadcasting for the haul you have to be intrigued by its constant evolutionary nature. You can't live in the past—you have to live in the future. And you can only live in the future by anticipating it."

GARY STEVENS

Doubleday Broadcasting

The last quarter of 1981 showed some softening in radio business with national advertising a bit off, reports Gary Stevens, president of the Doubleday Broadcasting Company. The NAB's latest figures (for an earlier period) show sales up somewhat but profits down.

These figures indicate strongly, according to Stevens, that radio has to run a "trim shop" in 1982 to avoid getting caught with unabsorbed overhead. "This is the historic situation of an industry coming to the top of a rapid expansion," he told *BM/E,* "without careful control, costs will continue to go up as income levels off." However, this control does not mean sidestepping the investment needed to make older radio plants efficient and technically state-of-the-art as well as versatile in using programming. Doubleday has in recent years spent substantial sums to rebuild several stations, and is fully convinced that this will bring large returns in efficiency and competitive product quality.

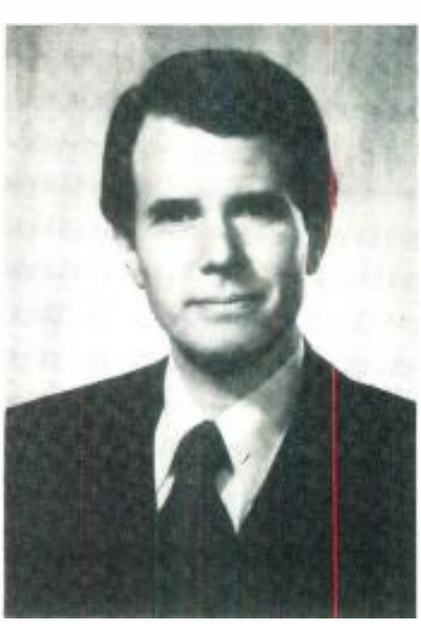
"A radio management with an old, inefficient plant producing a low-quality signal simply won't make it in the competitive '80s," he warns. "Radio is today a multi-billion dollar business, but making money in it requires more than ever sharp tools and sophisticated operations."

Stevens agrees that satellites are going to become the dominant distribution method. Doubleday, he says, will have earth terminals at all stations. But each station must preserve its local character, taking from the satellites certain kinds of special programs that fit into the "Doubleday mix."

Stevens believes that full-format satellite programs will not be bought by many stations in large markets. One reason some stations won't give large chunks of time to satellite programming is that the stations thereby lose air time for local spots, which are likely to be more profitable than the satellite programming. He offers this piece of advice: if the program is not essential to the operation, the radio management should not give up local spots for it.

A possible danger he sees in the proliferation of nets is that some might establish a kind of "radio discount

Corinthian Broadcasting's Lombardo.



Doubleday Broadcasting's Stevens.

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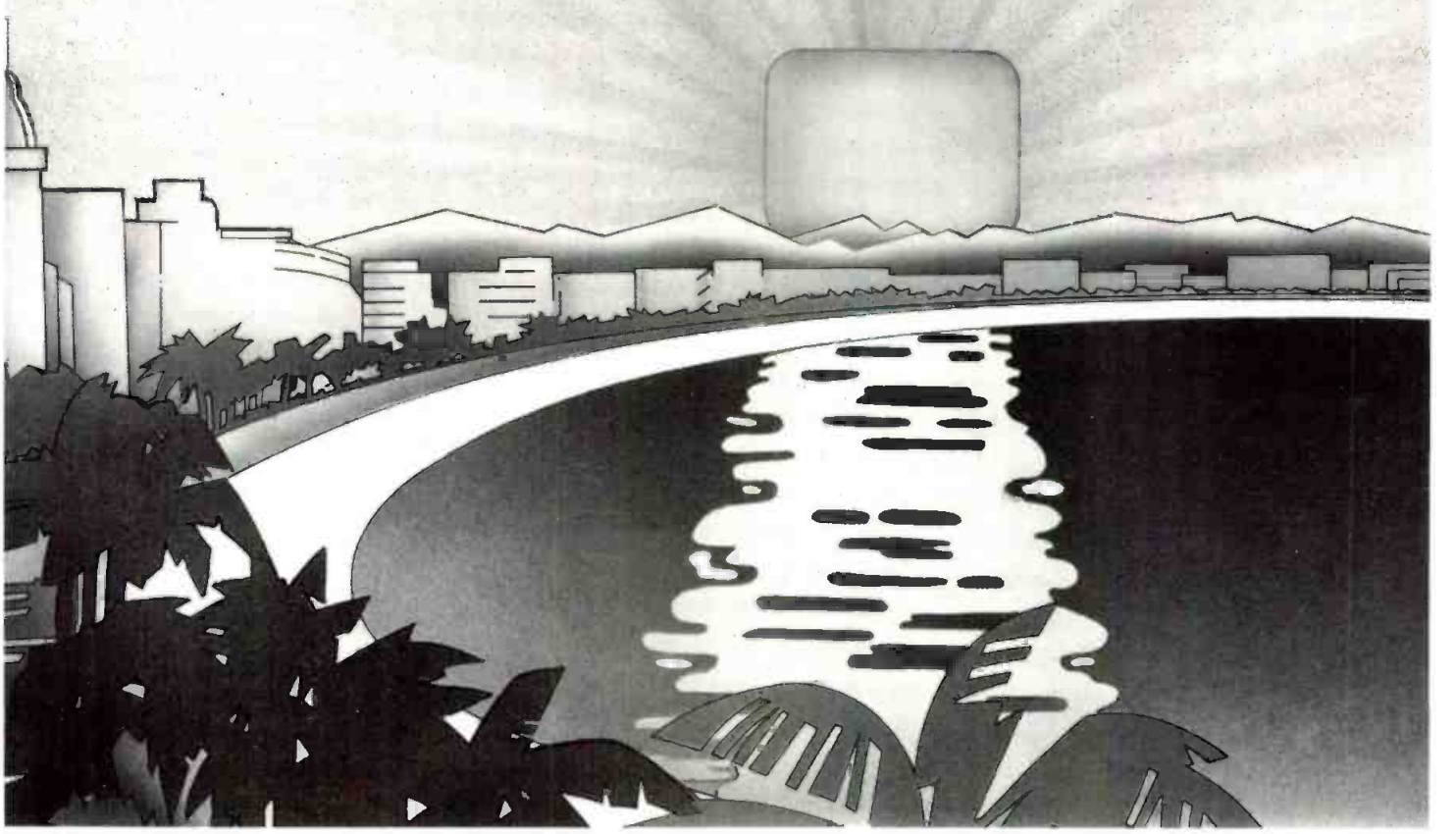

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store" giving advertisers cut rates to get business. "The satellite nets are going to be here in larger number," he observes, "but some of those set up in the early days will lose out when the competition matures. This is the normal shake-out in a new industry; nevertheless, well-run radio has a virtually unlimited future."

SIS KAPLAN
NRBA

Radio is looking forward to a prosperous 1982, but prosperity can only be insured by creative thinking and hard work. That's the outlook of NRBA president Sis Kaplan who sees a silver lining of sorts in the current economic slump.

"If we remain in the present slight recession, it is a problem for all businesses," Kaplan explains. "I don't think things are going to fall apart, but I think it is going to require creative selling and creative marketing within our industry. In the last recession, radio did quite well because when [ad] budgets get cut back, radio is the most efficient medium. And though some agencies don't look at it that way because radio is more difficult to buy than television, it works. When the money is not there to throw away, many times they will look more closely and put higher percentages of their dollars into radio."

Deregulation is possible in 1982, Kaplan says, but only if radio broadcasters work together. Kaplan emphasizes, "My cry to everyone is, 'Get off you fannies and go to work on this!' " NRBA, she notes, is staging a state-by-state effort to persuade Congress to enact proper deregulation legislation, and has raised over $75,000 so far, all of it from the board members.

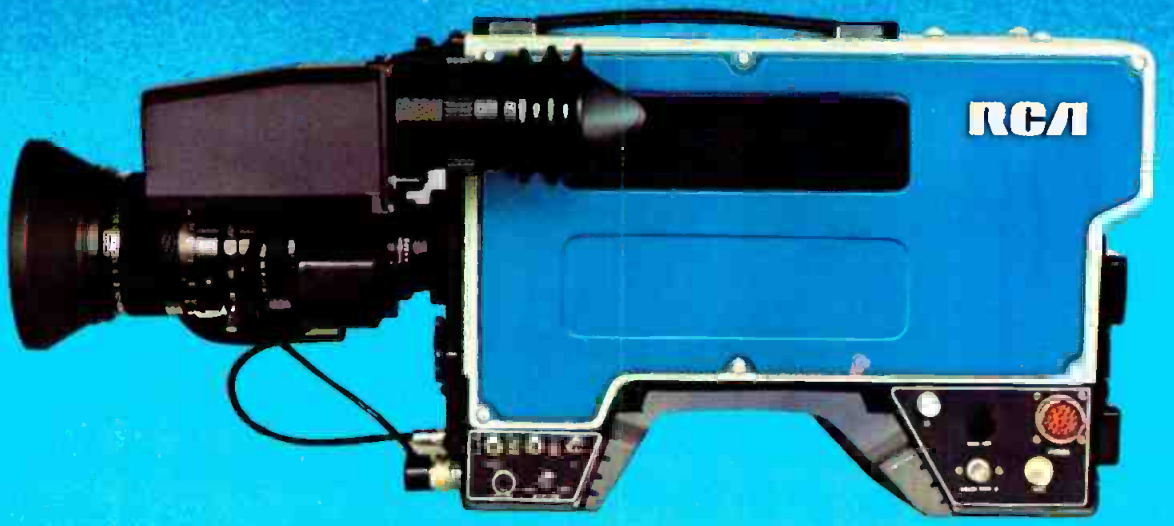
Kaplan welcomes the FCC's deregulation drive, but insists that true deregulation requires legislative backup from Congress.

"The deregulation efforts of the FCC, which are considerable, are nonetheless limited by the Communications Act," she complains. "I applaud everything that the FCC is doing within their own boundaries, but even the Chairman knows this or he wouldn't have sent up a legislative package himself. Broadcasters who are complacently sitting by because of the present status of the FCC should realize that if we have a change of ad-

Look good in bad light

Actual unretouched photograph showing TK-86 picture without Contrast Compression.

The same unretouched scene showing the TK-86 picture with RCA Contrast Compression.



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RCA

ministration, the FCC could go back to the way it was under [former chairman] Ferris."

And the NRBA itself—can it meet the NAB challenge? "It's no surprise that the NAB has been after us for years," Kaplan says. "NRBA's growth in the past year has been enormous—we've got hundreds and hundreds of new stations. There is a need for a radio-only organization. We are *radio*, and if we have to take a stand that deals with radio first, we do it.

"Starting years ago, we tried to tell the FCC and the Congress that there is a difference between radio and television. The recent deregulation legislation proves that there is a difference, and even though those in television were fighting it to some extent in the beginning, they now realize that what we did has helped television too. The truth of the matter is they are two different media, and the marketplace can govern in radio."

GEORGE BACK
NATPE

NATPE's Back.

According to George Back, president of NATPE, things couldn't look better for local stations seeking to enter the programming marketplace. "We've been saying all along that the one need all these distribution media, like cable and pay cable and home VCRs and the like, are going to have is programming," Back asserts. "Obviously, the bulk of it will come from traditional programming supply and distribution sources such as syndication companies. But a growing curve is going to come from local television.

"Local television is going to have to find a way of competing against declining network audience shares—and their only chance is to go more into establishing local market presence with locally produced programs. But then, having produced them, they may be able to find a whole new audience in basic cable stations around the country who are not as interested in their own local markets. The local station will, in other words, be able to 'dump' its programming on the rest of the country.

"It may even be possible—and I'm asking people to think very seriously about this now—that a local commercial TV station may be able to act as a flagship station for a statewide or even regional network of basic cable services."

As to future trends in types of programming, Back is equally bullish; an entire session at the upcoming NATPE Show will concentrate on "the next really true program form" in which new kinds of programming will be explored.

Says Back, "I think we are definitely going to see a rise in what I call 'non-fiction' programming—not news, but a whole new genre of programs such as *The New You Asked For It*. There are other examples too—such as *Entertainment Tonight*, which is based on a very sound idea of delivering entertainment news and information via satellite. The history of programming during the access time period has gone from game shows to animal shows to documentary shows to the

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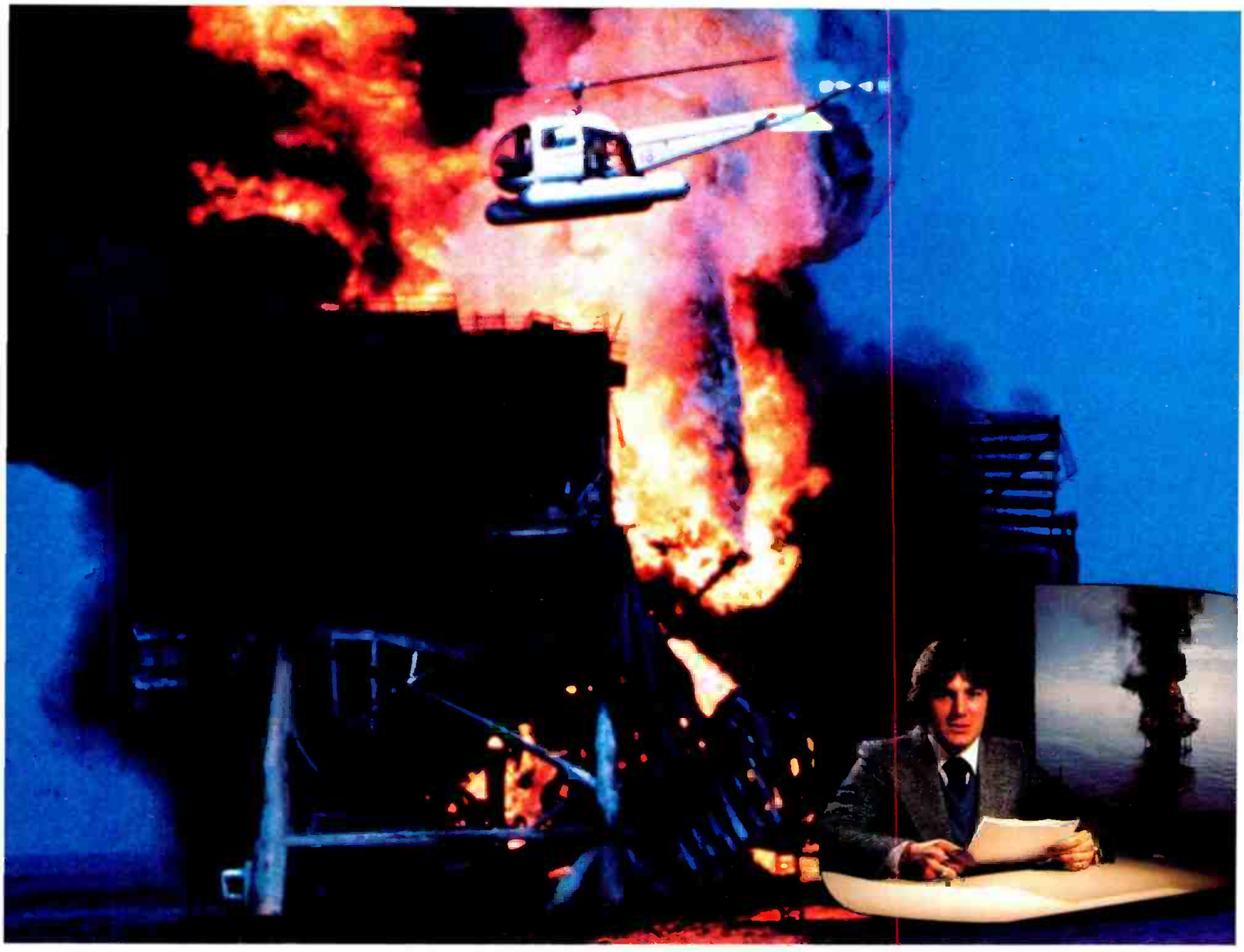

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current reality-type programming. All of these formats will probably continue to exist, but we're seeing more evolved programs in each genre—second- and third-generation talk shows, for example."

As to the access rule itself, NATPE's position is obviously strongly in favor of maintaining it—a position which Back feels is not incompatible with the public's desire for hour-long network newscasts.

Like many others in the broadcast industry, Back is convinced that the current economic hardships may, in fact, prove a boon to broadcasting. "The latest figures we're getting from Madison Avenue," he points out, "are that the fourth quarter of 1981 will see the greatest number of new product introductions on commercial television ever. This means that more sources than ever are finding television the pre-eminent marketing tool, enabling TV stations to substantially increase their rates by proving the economics of their viewers.

"Television has consistently proved that it runs counter to the economics of the country. Besides the obvious energy savings of being able to sit in the living room and not drive to the theater and the movies, I think we're giving people more and more reason for staying home, especially with the home video recording machines that let viewers be their own programmers.

"There has been some effect on broadcast advertising revenues," he concludes, "but it's simply not that drastic. We predicted perhaps a 15 percent rise and it's only amounting to 12 percent. But it's a rise nonetheless, and along with it the programming industry is rising. This is an exciting time to be in this business."

ERNIE SCHULTZ
RTNDA

Ernie Schultz, executive vice president of the Radio-Television News Directors Association, comes to the organization at a time when a long-term fight by the group may bear fruit. RTNDA is a strong opponent of current FCC regulations that hamper news coverage. Schultz feels that the repeal of Section 315 is a 1982 priority of RTNDA.

"We have never believed that there is any valid reason for the government to be concerned with the regulation of the content of news, whether it's print, electronic, word of mouth, written on a wall, or typed at home and passed out on street corners," Schultz insists. "Despite the mood in Congress, we think that we have a real chance in 1982 to convince them that the FCC is right and that the rules should be repealed."

Schultz has mixed emotions about some of the technical tools available to news directors. He believes that satellites have immense value, but worries that some news departments might not use them properly.

"The question is, how will satellites be used?" asks Schultz. "Will they be used for fluff, or will they be used for content?" Because of the cost of earth stations, Schultz is concerned that many stations may insist on using their dishes for less than sound journalistic reasons.

Schultz has no fear that competing sources of news will affect the public's dependence on the regularly scheduled local newscasts at 6:00 and 11:00 p.m. "I think that if you are not home for some reason, you will turn to those services [teletext or viewdata] to find out if World War III has broken out, but I still think that when you want to know what happened in your town you are going to turn on the local news."

RTNDA's Schultz.

Schultz is optimistic about the coming year in broadcasting. He sees a continued growth in the importance of news and information and believes that removal of government regulations limiting the news gathering effort is a key to that continued growth. Technology will continue to play a big part in how news is gathered, but it must be used carefully and not just because it's available, he maintains. **BM/E**

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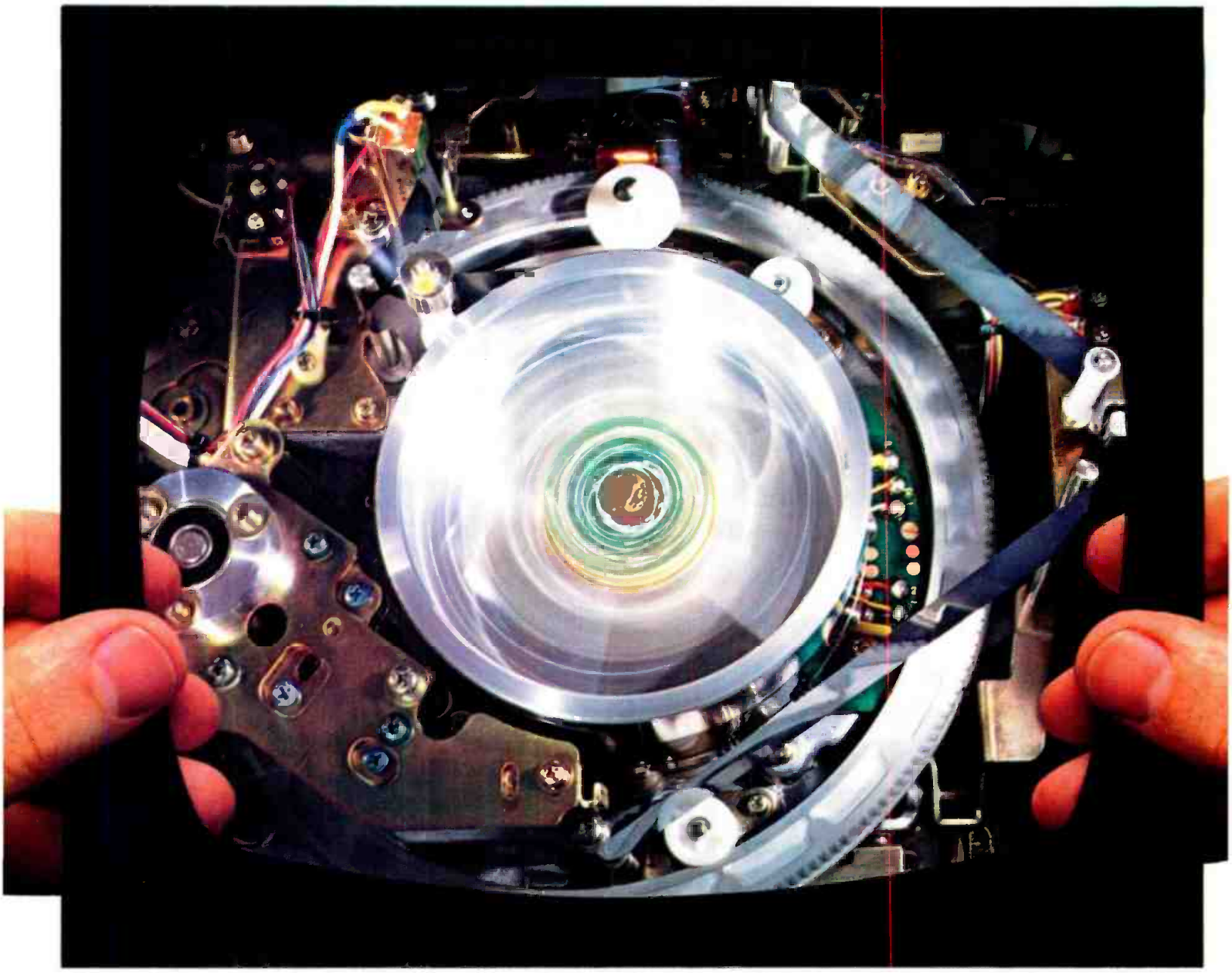

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SMPTE Fall Conference: The Broadcast Perspective

AS REPORTED last month, the 1981 SMPTE technical conference and equipment exhibit, held in Los Angeles in late October, highlighted an industry in transition. High definition television, a merging of film and video technologies, and worldwide digital standard setting were some of the most hotly discussed and debated subjects among attendees, who seemed to represent equally the broadcast and entertainment production industries.

This second installment of the SMPTE report contains a detailed look at the show, particularly at some of the new hardware developments shown by manufacturers. This report, it should be noted, is designed to digest the show's highlights for broadcasters and those at production facilities; it in no way pretends to be "complete," and offers virtually no coverage of film-related products such as lab equipment or optical printers.

Camera/VCR combo developments

"This version of the Betacam single-piece camera/VCR is very close to the version which will be delivered as a final product," explained Peter Lowten, Sony product manager. The announcement also revealed that Sony has adopted a two-track recording format for the Beta-style cassettes of its camera/VCR combo and new BVW-10 Betacam player.

Both statements made it clear that Sony is moving aggressively into the single-piece combo area. Weighing but 17 pounds with a one-hour battery and lens, the Betacam is certainly the lightest single-piece unit around. The camera side, virtually identical with Sony's BVP-110 ENG camera, delivers 400-line H resolution with a luminance S/N of 50 dB from the single HBST one-inch pickup tube. The recording format offers 46 dB S/N (chrominance). Tape speed in the new Y/C format is 4.7 ips, with a head writing speed of 270 ips.

That the product is close to the final version is also obvious in Sony's "packaging" approach to the system. The new player, for instance, is designed to be completely compatible with other decks in an editing configuration, with simple RS-422 interconnect. The player is a rack-mountable, front-loading unit, differing little in appearance (or function) from the new Sony BVU-800 U-Matic editing deck.

Somewhat surprising was RCA's decision not to exhibit its Hawkeye single-piece system on the show floor, where the exhibit concentrated on the TK-47 studio camera, TK-86 ENG field camera, and the TK-79C telecine camera system with event programmer, color correctors, and projectors.

Ampex's ACE Touchscreen editing system for on-line and off-line editing (top). Shown at left is CEI's 310 camera with microprocessor setup.

Up in RCA's hospitality suite, however, Hawkeye was in full view. It appears little changed from the version that was exhibited at NAB and RTNDA—a camera with three half-inch pickup tubes and a recorder with RCA's new ChromaTrack recording format (three tracks recorded on standard VHS-type videocassettes). The total weight of the system is 23 pounds, including one-hour battery and 12X zoom lens. Available with either genlock or remote control adapter modules in addition to the snap-on recorder, the camera delivers 400 lines H resolution with 52 dB S/N (at f/1.4, 60 percent reflectance). In addition, 9 and 18 dB gain are available together with auto white and black balancing and comet tail suppression. Tubes for the new camera include a half-inch Plumbicon from Amperex and a half-inch Saticon from RCA.

The recorder format—offering video, two full frequency audio tracks, and a time code track—has a luminance bandwidth of 3 MHz, chrominance bandwidth of 1 MHz, and chrominance S/N of 48 dB.

Panasonic, too, promised that its "B Series" single-piece system would be in a final version by December and would be deliverable as a product by NAB time.

As had been predicted, Ikegami won't be left behind in the development of single-piece ENG systems, especially since it was revealed that ABC is seriously investigating the single-piece systems and has usually looked to Ikegami for new field camera developments. Ikegami's answer on the camera end is its HL-83 compact ENG camera—using standard 2/3-inch pickup tubes to provide more than 500 lines H resolution with 55 dB S/N. Auto white balance and beam stretch are standard.

Ikegami's solution to the on-board recorder is not yet fully developed. At SMPTE, the camera was shown with the 1/4-inch recorder originally de-

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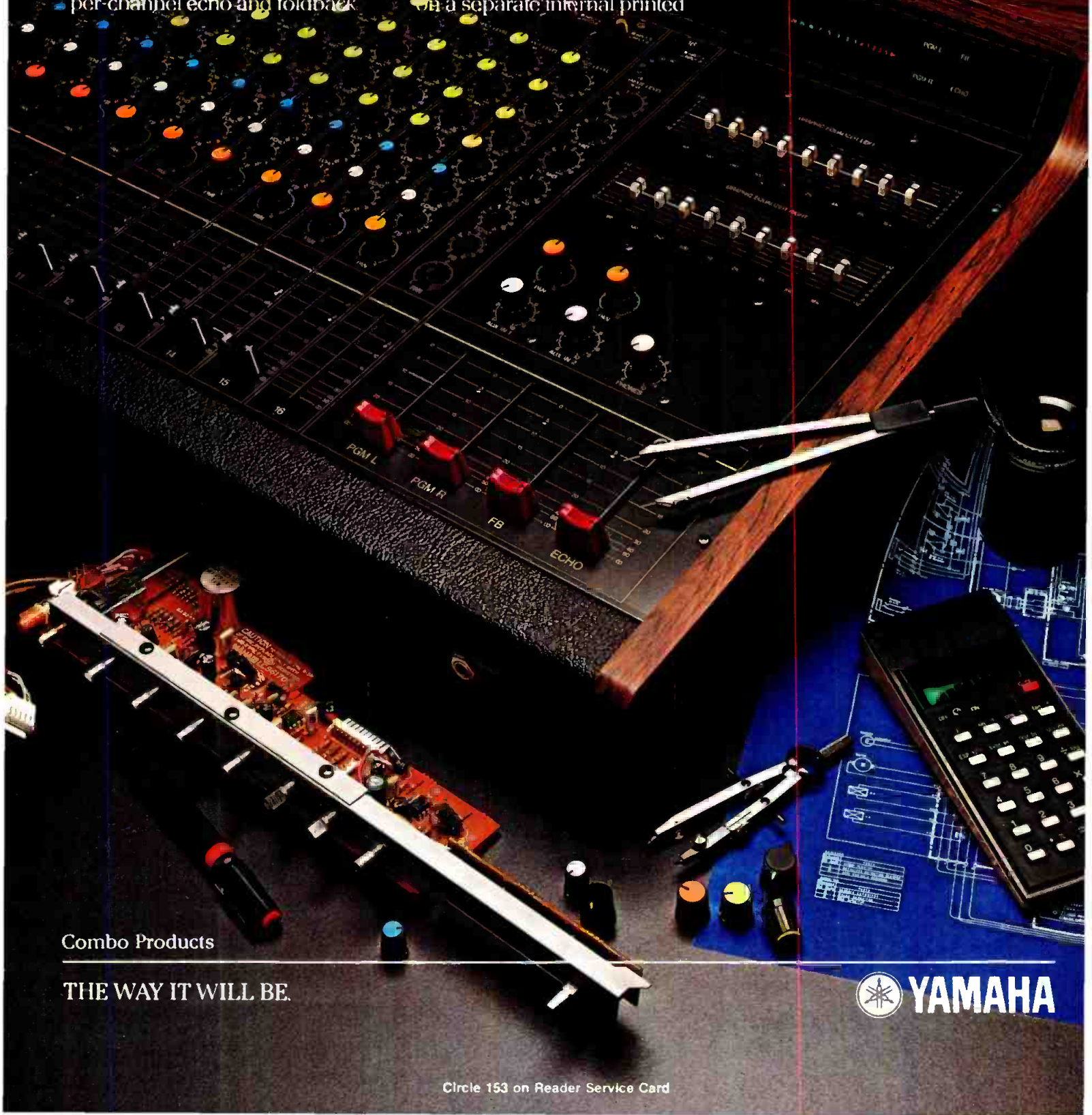

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veloped by Technicolor for home video applications, then modified by For-A for ENG operations and demonstrated at the NAB interfaced with a Nippon TV camera. Specs on the For-A/Nippon TV system put it well below what might be expected for a broadcast system, but Ikegami is still unwilling to speculate as to whether this will be the final configuration for its entry into the single-piece market.

SMPTE itself may shortly become involved in the camera/VCR question. Responding to petitions from broadcasters, an ad hoc study group has been set up to consider recommending a recording format standard. SMPTE leadership is not convinced, however, that the climate is right for the discussion at this time.

EC cameras spark interest

Presumably because it was the SMPTE show, with many film producers in attendance, interest was keen among show attendees in the electronic cinematography cameras. Not to be confused with high definition TV cameras, the EC-35 from Ikegami and the Panacam (a joint development of CEI and Panavision), offer those used to working in the film medium a video camera that looks and feels like its mechanical counterpart.

Other camera developments

Strongly featured at the Central Dynamics/Philips/American Data booth was the new Philips LDK-44 camera, though one suspects this may be the Philips Video 80 camera in a different disguise. In its ENG configuration it sports three 2/3-inch Plumbicons, self-contained electronics and power packs, and a 1.5-inch viewfinder. In its EFP configuration with up to three cameras, it changes complexion rapidly: the electronics packs may be rack-mounted alongside one another and interfaced with the same microprocessor to provide simultaneous automatic setup of all cameras in the system, and the viewfinder becomes a 4.5-inch top-mounting studio-type finder, arranged on a set of hinges that permit its angle to be changed to suit the operator.

Philips also demonstrated the newest version of its LDK series, the 14S. Adaptable for ENG, field, or studio use, it features low-noise FETs, dynamic beam control, auto white and black balancing, auto centering, and up to 18 dB gain. A snap-on triax adaptor, simple replacement of a single PC board, and five-inch viewfinder convert the camera for studio use.

Most other companies with ENG cameras to offer were on hand to show their latest developments. Toshiba's PK-60, for instance, appears to be gaining in newsroom popularity because of its light weight (9.2 pounds including viewfinder) and S/N of 54 dB. The camera features a digital auto set-up unit that aligns the camera, locks it in, and then can be transferred to other cameras in the system.

Also following the movement towards lighter weight ENG cameras, Hitachi showed a production model of its SK-81, weighing under 10 pounds (without lens). A stripped-down version of the $33,000 top-of-the-line SK-91, it costs only $22,000.

Panasonic's version of the camera/VCR combo.

Also weighing in in the lightweight class (under nine pounds without viewfinder) was JVC's new KY-1900U ENG camera, costing only $5000 with manual 6:1 zoom. Using three 2/3-inch tubes, it claims 500 lines of H resolution with 52 dB S/N and features automatic beam control, auto white balance (with digital memory) and 9 dB gain.

Of equal interest were the Ampex BCC-20 Digicam with "spacial error correction" and digital electronics, the Fernseh KCA-100, the MC-301and MC-701 from Thomson-CSF, the MNC-80A from NEC, and the MNC-81A from Cinema Products, though there were few new advances.

On the studio camera end, one of the highlights was Hitachi's SK-110, a version of the company's SK-100 camera modified for use by the CBS network. The modification package is now available to all broadcasters.

Also on display were the Ikegami HK-312 and Fernseh KCK.

Kodak bolsters film interest

Interest in film cameras was naturally high, especially following the announcement by Kodak at the show of two brand-new film stocks. The first, 7251, designed for both news and sports applications, is high-speed reversal stock balanced for daylight illumination; the 400 ASA film is entirely compatible with existing VNF-1

"OUR CONVERGENCE EDITING SYSTEMS REALLY DELIVER"

Isaac Hersly, ABC

Isaac Hersly, Equipment Planning Engineer for ABC Broadcast Operations, selected Convergence ECS-100 joystick videotape editing systems for his Network for many reasons – dependability, easy operation, affordability – But most of all, for the standard features that make these microprocessor-based editing systems top performers in the most demanding broadcast environment.

ABC uses Convergence editing equipment for ABC Network News, 20/20, sporting events, and countless other productions such as their outstanding coverage of the 1980 Winter Olympics, and the 1980 Republican and Democratic National Conventions. Hersly says, "With Convergence editing systems, expanded use of ENG camera crews is possible, and the American public sees better prime time network news."

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and RVNP processing solutions and can literally be stapled together with either of the existing news stocks. The chief advantage of the emulsion is its 400 ASA speed, permitting extreme slow motion (requiring high shutter speeds) to be shot without force-processing; the film can be easily pushed, however, to 1600 ASA.

The other Kodak development—a brand-new, high-speed negative film with an ASA of 250, but capable of being force-processed to ASA 1000—is likely to have extensive impact on the television production industry.

Lenses lose weight

As has been the trend for several years, lens manufacturers have been helping lower the weight of portable cameras by offering lighter and lighter models. All major lens manufacturers—Angenieux, Fujinon, Canon, and Schneider—are actively engaged in lens development programs for the new half-inch and single tri-stripe one-inch tube cameras.

For ⅔-inch cameras, Canon introduced a brand-new lens, the J13X9B 1E 11, a 13X zoom weighing just 3.2 pounds, including servo drive. The maximum aperture is f/1.6 with a 9 mm to 234 mm range with 2X extender. Minimum object distance is only 0.8 m from the front element.

At Fujinon the news was of the new P28x15 zoom lens for 1¼-inch tube studio cameras such as the Ikegami HK-312. The 28X zoom incorporates an optical pattern projector for automatic camera alignment systems together with a 1.7X extender. The range is 15 mm to 714 mm with extender, while the aperture is f/2.2 to 150 mm and f/3.0 at 300 mm.

Fujinon also showed its 30X11 zoom for ENG/EFP cameras. With an 11 mm to 330 mm range (with 2X extender) this is the longest focal length lens currently available for ⅔-inch tube cameras. (For more details on Fujinon's offerings, see Broadcast Equipment section.)

Angenieux featured its 15X9 zoom for ENG/EFP cameras, with a 9 mm to 135 mm range. Special weatherproofing features are incorporated in the lens's design, including a thumb-operated focusing mechanism that eliminates the focusing ring. In this way the lens is rendered virtually rainproof.

Schneider, which has bought out its American distributor, Tele-Cine, featured its 14X zoom for ENG/EFP cameras. The range is 9 mm to 126 mm (or 18 mm to 252 mm with the built-in 2X extender). An aspheric lens attachment also permits extreme wide angle zooms, converting the lens into a 6.3 mm to 9 mm style. The aperture is f/1.7 throughout.

Film/tape interface explored

The interface between film and tape, and especially the possibility of shooting in film to get optimum quality, then transfering to videotape to take advantage of the speed of electronic editing, was a major focus of the show. Two entire technical sessions were devoted to the subject, with papers presenting possibilities for both optimizing the film-to-tape-to-film transfer process and for using HDTV as a way of producing high-quality "film-like" images in the first place.

Telecines, therefore, are obviously becoming more and more important, as evidenced by the number of manufacturers promoting them at the equipment exhibit. RCA has already been mentioned. Crowds were consistently large at Rank Cintel's booth, where the Mark III flying spot scanner telecine was demonstrated, together with the TOPSY program for scene-by-scene color correction and Digiscan, which permits a number of operational benefits during the transfer process.

Ikegami's new TKC-900 telecine camera was also strongly featured. A description can be found in our new products section.

Editing systems provide interface

Matching the increased interest in telecines and high-quality video cameras has come the attempt by manufacturers of some of the major microprocessor-based editing systems to apply high-speed electronic post-production to the film editing process.

CMX/Orrox, for instance, in addition to displaying its popular The Edge and 340X editors, had its brand new FLM-1 on view. The editor/controller offers the editor bi-direction control of sprocketed film transports (such as dubbers and flatbed editors) outfitted with SMPTE shaft encoders and readers. Like a standard video editor, the FLM allows time code selection of edit points, plus preview and review. Best of all, film editing decisions are recorded on a VTR so that no film needs to be cut until the edit is locked down.

Another approach to interfacing film and video is taken by manufacturers such as Harris, with its EPIC editor, and Convergence, with its ECS-104 system. Both offer the producer who shoots in film the opportunity to edit with sophisticated, microprocessor electronics, and then

return to the original film for the final printing stage—armed with a computer-generated shot list. Like an edit decision list, the printout contains the in and out edit points for each cut, but is logged in film frame numbers for film lab technicians.

The Harris system, coupled with time code equipment from Gray Engineering, is being used at Walt Disney Productions. In the Gray/Harris system, time code is updated every field during film-to-tape transfer to prevent the video system from making edits on the spurious frames that are generated during the transfer of 24 fps to 30 fps. For shooting film that will be immediately transferred to tape, a time code generator such as Skotel's—which can generate at either 24 or 30 fps rates—might be appropriate.

On the more strictly television-related end, JVC unveiled its new VE-90 joystick-controlled editor. More details will be found in the new products section in February.

New to the SMPTE show was Sony's BVE-800 editor, which complements the new BVU-800 decks. Capable of controlling up to three machines, the system stores 128 edit decisions.

Also new to SMPTE was the Ampex Touchscreen ACE editor. The multisource system (up to 20 ATRs, VTRs, or other sources) utilizes both a large-scale joystick whose functons vary according to the mode, and a prompted CRT display of the full edit decision list and various operational controls. To edit, the operator simply touches a finger to the appropriate section on the Touchscreen, eliminating the need for keyboard or lightpen entry.

A somewhat similar approach to finger-activated editing was demonstrated by Control Video—The Lightfinger, now a fully developed product based on the prototype shown at NAB. The CRT displays a set of machine controls as if they were the buttons on the VTRs themselves, with finger touches creating the same results. The CRT display incorporates SMPTE time code addressing and Control's unique forward/reverse multi-speed "stroke" control.

At Datatron, the news was the Smart Scan option for the Vanguard editor. Demonstrated controlling five one-inch VTRs (from four different manufacturers) and a Grass Valley 1600-1X switcher with E-MEM and Quantel DPE-5000 effects, the option-equipped editor can now make full use of the various Dynamic Tracking and AST tracking slow motion capabilities of type C VTRs.

Datatron also had several improvements for its three-machine Tempo editor, including split edits, auto assembly from two program sources, up to 320 events of edit list memory with list management, and a new switcher interface for the ISI 1201 and 1206 models.

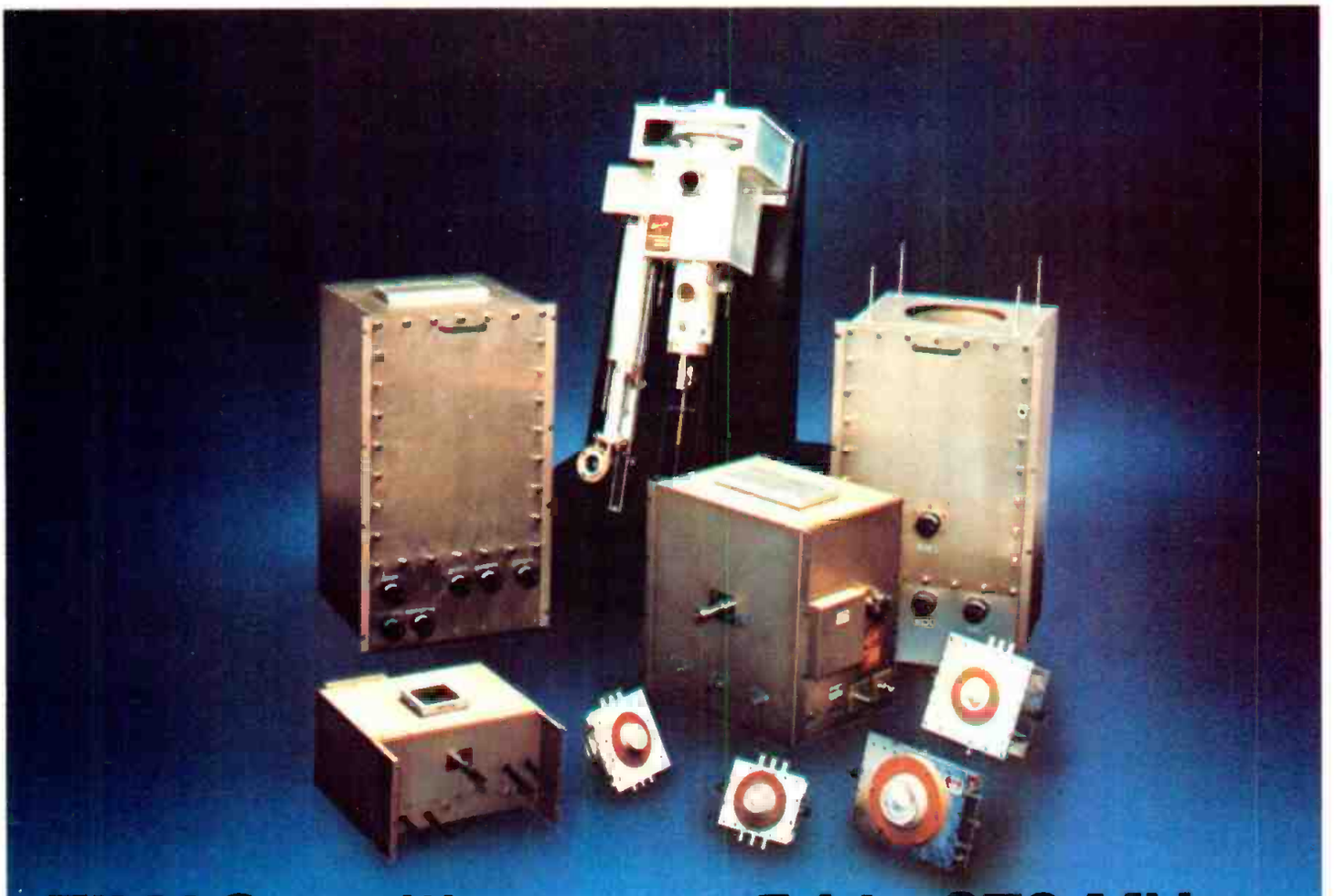
Videomedia featured its Z-6000 multisource editor with switcher interface and list management.

Looking good!

Despite wide-scale industry interest in the new digital art/paint systems, few were actually displayed at the show. Notable for their absences were the Ampex AVA, the Aurora Videographics (discussed in a paper), the new MCI/Quantel paint system, and others. An Ampex spokesperson said the AVA was simply booked elsewhere.

One of the systems that was displayed was the Xiphias Videograph, based around a Ramtek 6214 graphics generator. The $50,000 system, which incorporates both a magnetic stylus and keyboard-prompted mode selection, was demonstrated in conjunction with the Eigen slow motion recorder.

Though digital art systems were not



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CV-2250	3CX10,000U7	170–227	10 kW†
CV-2400	8874	420–450	300/1250 W*
CV-2800	3CX400U7	850–970	225 W
CV-2810	3CX400U7	910–970	190 W

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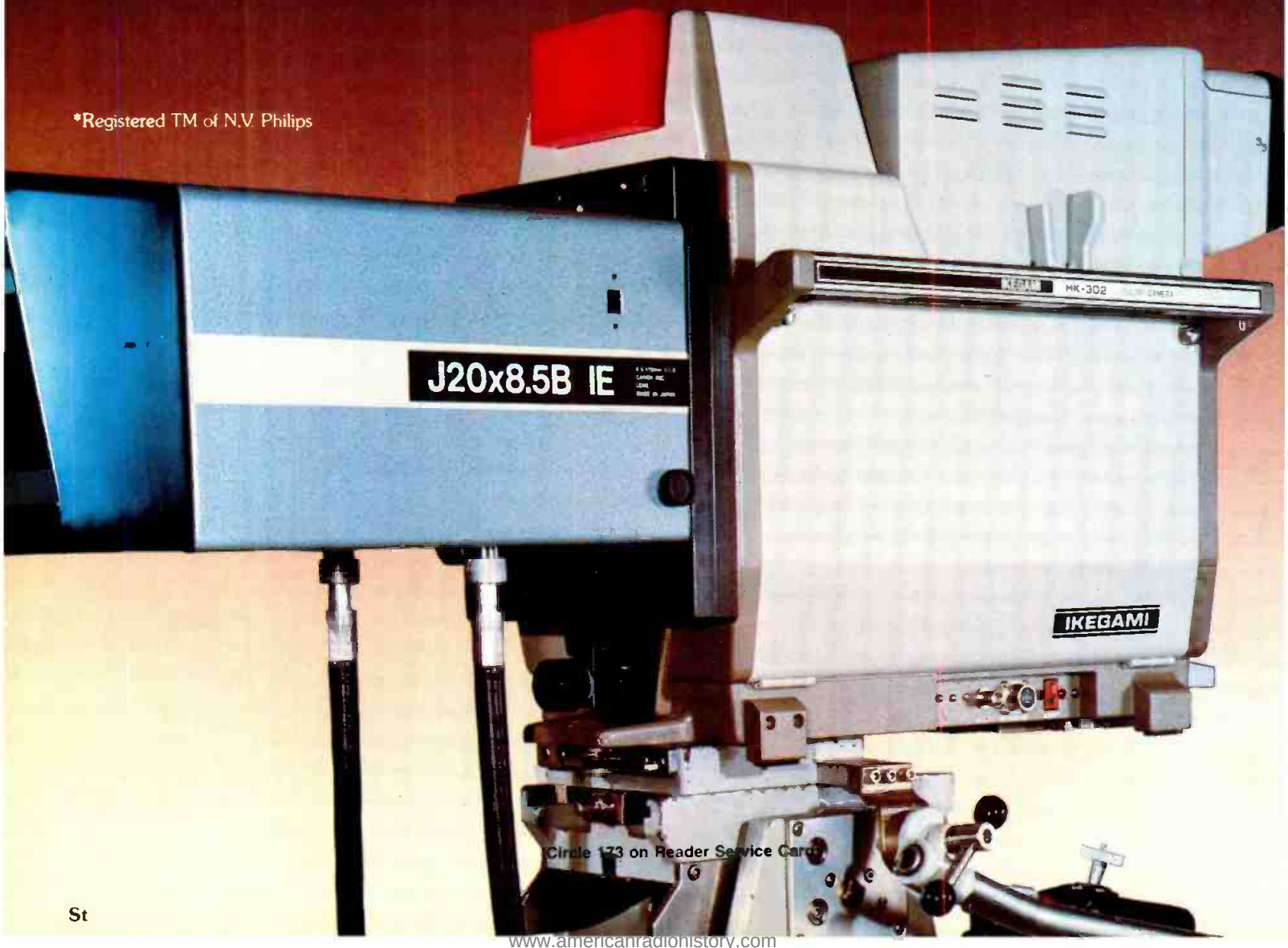

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that much in evidence, production switchers and digital effects processors were everywhere.

One of the new products on display—at the RCA booth since RCA is a major distributor—was the Digifex digital effects processor from Digital Services Corp. This extremely low-cost system ($29,500, with an optional additional disk drive for increased memory at $5000) works with two inputs: a keying signal from either a camera or character generator (synchronous) that is stored and manipulated over a second synchronous source. Effect patterns include spin, flip, rotation, compression, and expansion in various combinations—over 200 patterns in all.

Grass Valley showed a new, slimmed-down version of its popular 300 Series switcher with only two M/Es. The 300-2B has 16 inputs, E-MEM effects memory system on each M/E, and internal interface for the DVE Mark II digital effects package. It is fully programmable for what Grass Valley calls "Personality Programming Functions" —assignment of RGB inputs to primary video inputs, assignment of external chroma keyers to video inputs, programmable wipe patterns (four programmable registers to supplement the 40 preprogrammed patterns), etc. Four input buses per M/E plus unlimited effects reentry make the switcher ideal for post-production applications.

Ampex, too, showed its new AVC-21 microprocessor-based switcher. One of its main features is that all panel control knobs have been replaced with up/down and on/off pushbuttons and pattern positioners. The key memory system permits storage and recall of up to four separate key setups for each key source.

The Vital production switcher line (including the new Saturn four-M/E systems and SqueeZoom digital effects processor) unfortunately was not displayed at the show; instead, Vital invited attendees to a demonstration at a nearby facility. SqueeZoom now incorporates mosaic, posterization, and "star trail" effects.

CDL featured the eight-bus version of its CD-480 two-M/E switcher, interfaced with the CAP automation system that allows changes to be made frame-by-frame if desired. Each SFX module can control up to four video sources for complex effects such as a dissolve to a wipe behind a key.

Demonstrated at the same booth were the American Data 3100 Series switchers with ACTS automation control. Of all the product lines merged together by the CDC acquisition of Philips and ADC, this is the only potential overlap; a CDC spokesman pointed out, however, that the 480 switchers begin in price where the ADC switcher line leaves off, making the product lines more compatible than originally thought.

Panasonic, meanwhile, demonstrated its AV-800 digital production switcher, introduced at NAB. The fully digital system incorporates 64 wipe patterns and two M/E amps, though each M/E can create many different combinations of effects.

Fernseh showed the BFS-9B VTR incorporating the TDF-2 framestore.

NEC gave a convincing demonstration of the DME digital effects generator, drawing considerable attention with the unit's mosaic and flip capabilities.

MCI/Quantel concentrated its display on its new line of less expensive products—the DPE-5000/SP effects generator and the DFS-1750 digital framestore/TBC (more later). The single-channel DPE-500/SP has features such as infinite compression, zoom to twice normal size, variable picture positioning, freeze and freeze update, 40-event memory register, border generator, and Digiflip for both flips and tumbles—all in 8¾ inches of rack space, including microprocessor.

A brand-new digital image processing system was demonstrated by ADDA. Known as VIP (Video Image Processing), it offers joystick control panels to manipulate horizontal, vertical, and size parameters of an image, thus acting as a compressor/positioner. Operation of the joystick to affect position, size, or position/size is controlled by a set of pushbuttons on the control console, as is the selection of six programmable memory registers; memorized sequences can themselves be sequenced, leading to extensive preprogrammed event strings. Up to four control consoles can be interconnected in the system to access the framestore proc-

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essor, with only coax cabling between units.

Fernseh showed its brand-new slide store system, BFS-9B which is based on the BCN-51 Type B one-inch VTR. Incorporating a Fernseh TDF-2 framestore, the system permits storage and random access recall of up to 135,000 frames on a 90-minute reel of one-inch tape. Up to 99 cue points are available for instant frame or field grabbing or playback.

The VE-90 videotape editor with joystick control is just one of U.S. JVC Corp.'s new systems.

Another major force in this type of equipment is Echo Science Corp., which was bought recently from Arvin Industries by Precision Data, Inc. The EFS-1A, aptly dubbed "the image maker," is based around a floppy diskette that records one frame at a time. Playback speed is infinitely variable, permitting the device to be used either for still storage or as a slow motion recorder and playback unit. A dual system is also available, allowing transitions between stored frames.

Slow-motion recorders were also in evidence. The Eigen system has already been mentioned in conjunction with the Xiphias computer graphics unit. Almost every manufacturer of one-inch VTRs also has a slow motion controller for its system, interfaced with the various track following and scanning schemes for both forward and reverse operation up to 40X play speed or extreme slow motion.

Also of considerable interest at SMPTE were the new systems for creating frame-by-frame video animation on one-inch VTRs. Convergence made much of its AniVid controller—an editor-like microprocessor-based unit that automatically exposes a single frame on a one-inch VTR (or a group of frames for less sophisticated animation), then rewinds, recues, and waits for instructions to shoot the next frame. Interface with a ¾-inch VCR and a computer graphics generator are also possible.

A new approach was shown by 3M, which had previewed the system at a press conference earlier in the year (*BM/E*, November, 1981, p. 16). The 3M approach to video animation utilizes its TT-7000 one-inch VTR and the 3M-developed track following feature. In the 3M system, a tape positioning tachometer precisely positions the recording head at the next track, enabling the frame to be recorded while the tape is stationary. The unit then simply advances to the next track and parks, waiting for further instructions. Thus the entire preroll/recue procedure is eliminated.

Character generators were also on view throughout the exhibit, including the 3M D-8800, the Fernseh Compositor, the Chyron IV and RGU, and the System Concepts Quantafont Q-7. Despite announcements made at the last NAB, the Q-8 font loadable character generator is still some time off and may not be ready in time for this year's NAB; instead, System Concepts is concentrating on its remote keyboard interface for the Q-7 and an automatic subtitling option that calls up titles based on preentered SMPTE time indicators. Chyron, meanwhile, is concentrating on its camera-based font compose program and on its Channel Control Module, which permits mixing of two channels in a dual-

channel Chyron IV or RGU system, including mixing, keying, wiping and other special effects. Chyron promises a brand-new graphics software package in time for the NAB.

The most exciting development in character generators continues to be Thomson-CSF's Vidifont Graphics V—a character generator that could rightly be included in a discussion of digital graphics systems since it incorporates a bit-mapped framestore and a magnetic drawing tablet. Not only are characters and symbols stored on various levels of the framestore, permitting elements within a multi-layer image to be shifted without affecting the rest of the composition, but the framestore permits composition along any axis—horizontal, vertical, or diagonal. This frees the messages from characteristic character generator composing formats.

Digital signal processing

Vowing that the newly reenergized company would be making "one new product introduction every month between now and NAB," Digital Video Systems proudly displayed both its older DFS-1 line, including the digital TBC and the digital framestore, and the newer Phaser IV and Phaser II. The Phaser II is DVS' top-of-the-line digital unit—a complete framestore/TBC synchronizer with features such as multiple microprocessor control, digital velocity compensator, and

The T-120 digital time base corrector from Microtime.

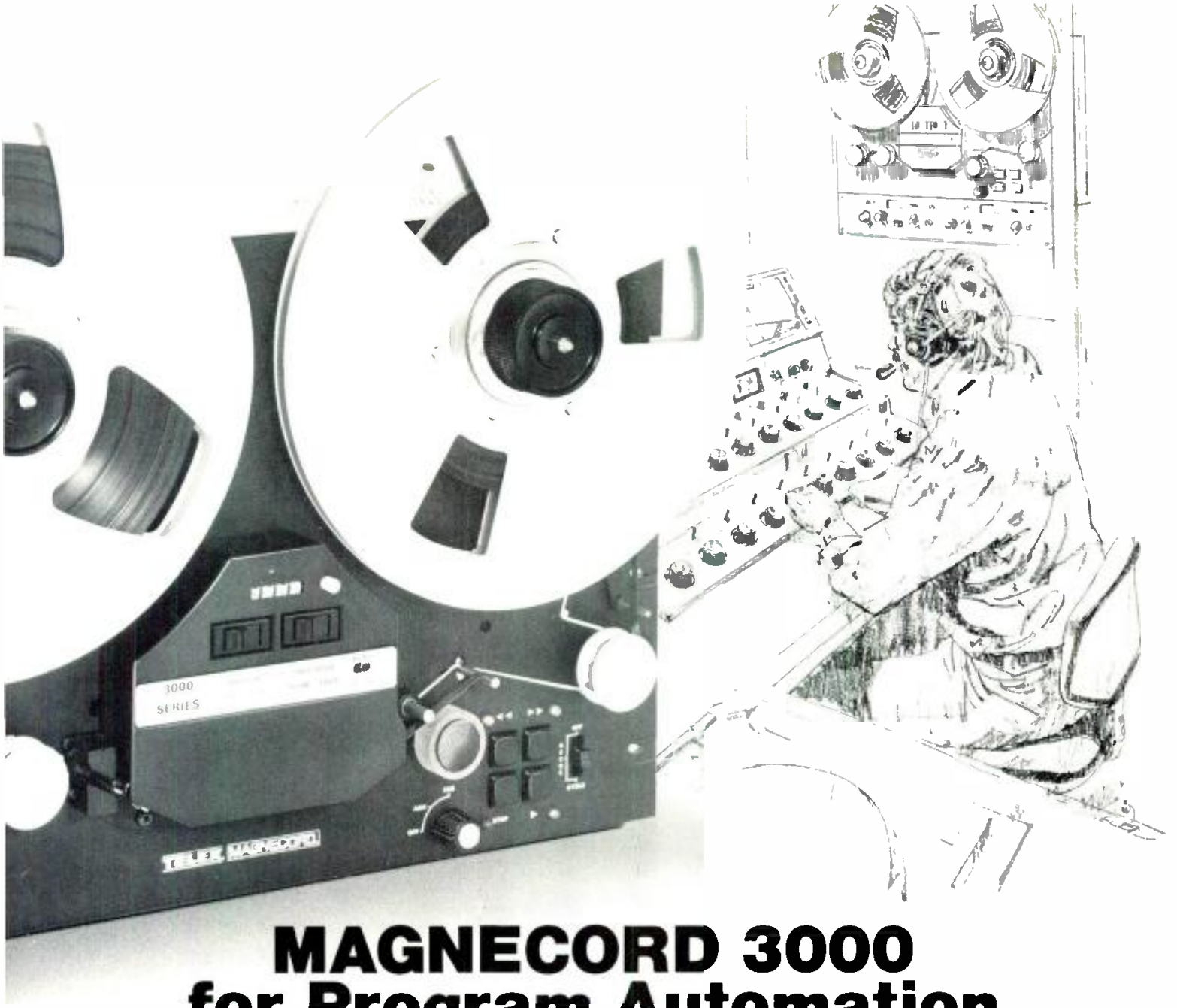
clean hot switching between non-synchronous heterodyne and direct color signals. It has a three-line adaptive comb filter and 11-line hysteresis, and freezes the last picture before signal interruption.

Microtime, too, had its latest-generation TBC on display, the T-120. The $9950 unit features eight-bit, four times fsc digital sampling, with a 15-line window for correction of even large gyro errors. Ideal for mobile and ENG use in its 3.5-inch high rack-mountable package, it has a top-opening electronics chassis allowing circuit boards to be fanned open for servicing, thereby eliminating extender cards. The T-120 was shown in conjunction with Microtime's 2100 image processor and enhancer for heterodyne VTRs and 2525 digital TBC/synchronizer.

Edutron brought its Y-688 "Total Error Corrector," which provides full image processing of either composite or component signals. The unit includes H and V image enhancement, H detail improvement, a two-line velocity compensator, and a 32-line window to correct a variety of other problems. Full proc amp and TBC controls provide adjustment of all blanking widths and phase adjustments.

MCI/Quantel exhibited its full line of digital processing equipment, including the DFS-1550 heterodyne/direct color TBC and frame synchronizer and the DFS-1750. Billed as the world's smallest digital framestore/synchronizer, the DFS-1750 occupies only 1 3/4 inches of rack space. It features an infinite window TBC, freeze, fast hot cuts, and a built-in reference signal.

A new digital TBC from Sony—the BVT-800—is designed to work in conjunction with the new BVU-800 VCR. Costing in the $10,000 region, it provides viewable pictures up to 40X play



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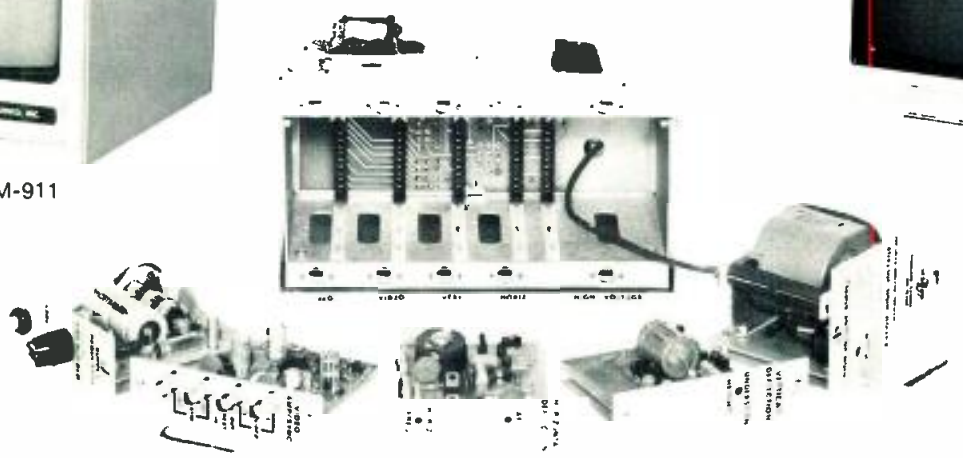

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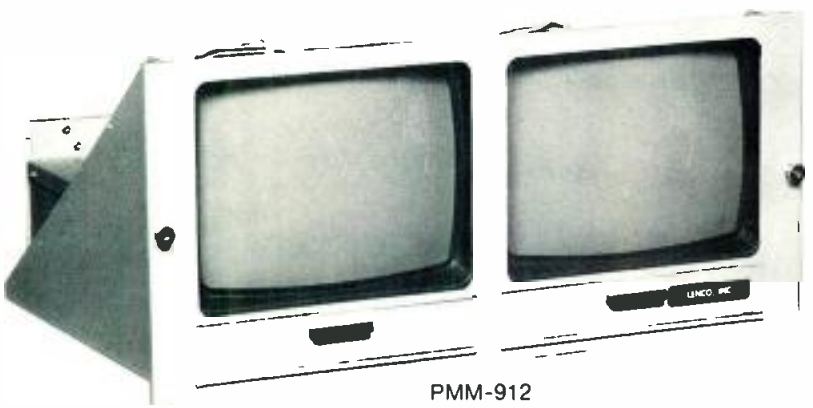

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speed forward or reverse, plus timed signals for the dynamic tracking capabilities of the BVU-820. A one-line DOC is incorporated.

Microwave systems

Manufacturers of production microwave systems paid a surprising amount of attention to the SMPTE show, with exhibits usually associated with "strictly broadcasting" shows such as RTNDA and NAB.

Microwave Associates Communications drew considerable interest with its Mac-Cat, a computerized remote control CRT display monitor. This monitor allows not only remote control of all elements within the system and real-time communication among the various control stations, but also computer-aided plotting of best signal pathways and determination of which ENG units are available for assignment.

Brand new from M.A.C. is the Mini-Mac, an extremely small 2 GHz, 21-channel transmitter weighing 3.5 pounds, plus heat sink. Originally designed for helicopter mounting, it has been adapted for land-based ENG use. It is packaged in a small suitcase with a special Quick-Set tripod that can be folded to just 24 inches.

At Harris Farinon the word was also "miniature"—both for the miniature portable microwave link (fully self-contained with selectable 7, 8, 11, 12, or 13 GHz operation) and the miniature 2/2.5 GHz transmitter operating on either ac or dc power with a 1 W output and up to two audio channels. The RF frequency is locked to any of 12 crystal reference frequencies.

Besides its new Superquad II receiving antenna, Nurad concentrated on its Copter Pod and Mini Pod airborne ENG systems. Both incorporate Nurad's four CP directional antennas to provide optimum transmitting strength depending on which way the helicopter is oriented; once the direction of the receive site is dialed in by the operator, switching between the four antennas is automatic. Both pods—which mount easily under the cockpit and require no retraction gear—also contain an omnidirectional receiving antenna enabling the helicopter to act as a relay. The Copter Pod is fully self-contained, while the Mini-Pod requires an external power supply and power amplifier.

Let there be light!

From both the feature film and television sides of the business, consid-

NEWS FEATURE

erable interest continues in HMI and CID lights—in the TV studio primarily because of their far cooler operating temperatures. At the SMPTE show, almost a dozen companies were showing fixtures for the Osram HMI bulb and the Cinemills Daymax "HMI-type" bulb, among them Strand Century/Ianiro, Arriflex, LTM, Electronic Applications, F&B/Ceco, Belden/Lee, Cinema Products/RDS, Mole-Richardson, and Colortran.

Several developments have been taking place in this type of lighting. One of the most noticable was the introduction of a new 6000 W bulb at the show, considerably brighter than the 4 kW bulb previously available. On the other hand, many companies are now offering small, 220 W HMI lights, battery-operated and ideal for ENG applications.

Lee Lighting has introduced a new ballast unit for HMIs that it promises to be flicker-free. A similar, solid state, lightweight ballast was introduced by Electronic Applications.

Other lighting manufacturers were in evidence throughout the show. Cool Light featured its answer to cooler lighting using standard quartz-type bulbs—in a specially designed socket and mounting system modeled after medical operating room lights; configurations range from fay lights to the portable Mini-Cool. Frezzolini had its camera-mounting light on display as did Anton/Bauer. Other companies also made a bid for lighting in ENG/EFP applications—such as the Cinema Products Bubbelite, location lighting kits from Lowel (the Tota Lite, Omni Lite, D Kit, and Soft Light), Colortran, Mole-Richardson, and Lee Lighting.

Sylvania/GTE also had an answer for cooling down the TV studio—a 4000 W fill light providing 102 lumens/W, about four times more efficient than tungsten-halogen lamps.

Lighting control systems were also in evidence. Strand-Century featured its new Mantrix modular electronic dimming console while Kliegl put on an impressive exhibition of its Performer II capabilities and Skirpan showed its dimming system as part of the display of Compact Video (Skirpan's new parent company).

Grip equipment, particularly because of the show's Hollywood location, was strongly featured. The Matthews Studio Equipment Tulip Crane was perhaps the most noticeable item, though fire regulations prohibited Matthews from giving rides to brave attendees. The modular, transportable crane works either on pneumatic tires or standard tracking wheels and can also be mounted in back of a truck, ideal for tracking shots during a parade.

Listec, too, showed the Vinten Dolphin crane arm, which provides both tracking and crane-like movements in a format somewhat smaller than a full crane.

Tripod manufacturers at the show included O'Connor, with its by-now-famous Hydroped, billed as "deflectionless" since it compensates for "backlash". Professional Equipment and Bogen were also on hand.

Batteries for all applications, including both cameras and lighting, were shown at Anton/Bauer, Frezzolini, and Electronic Applications (which featured the Christie Reflex 20 fast-charging system).

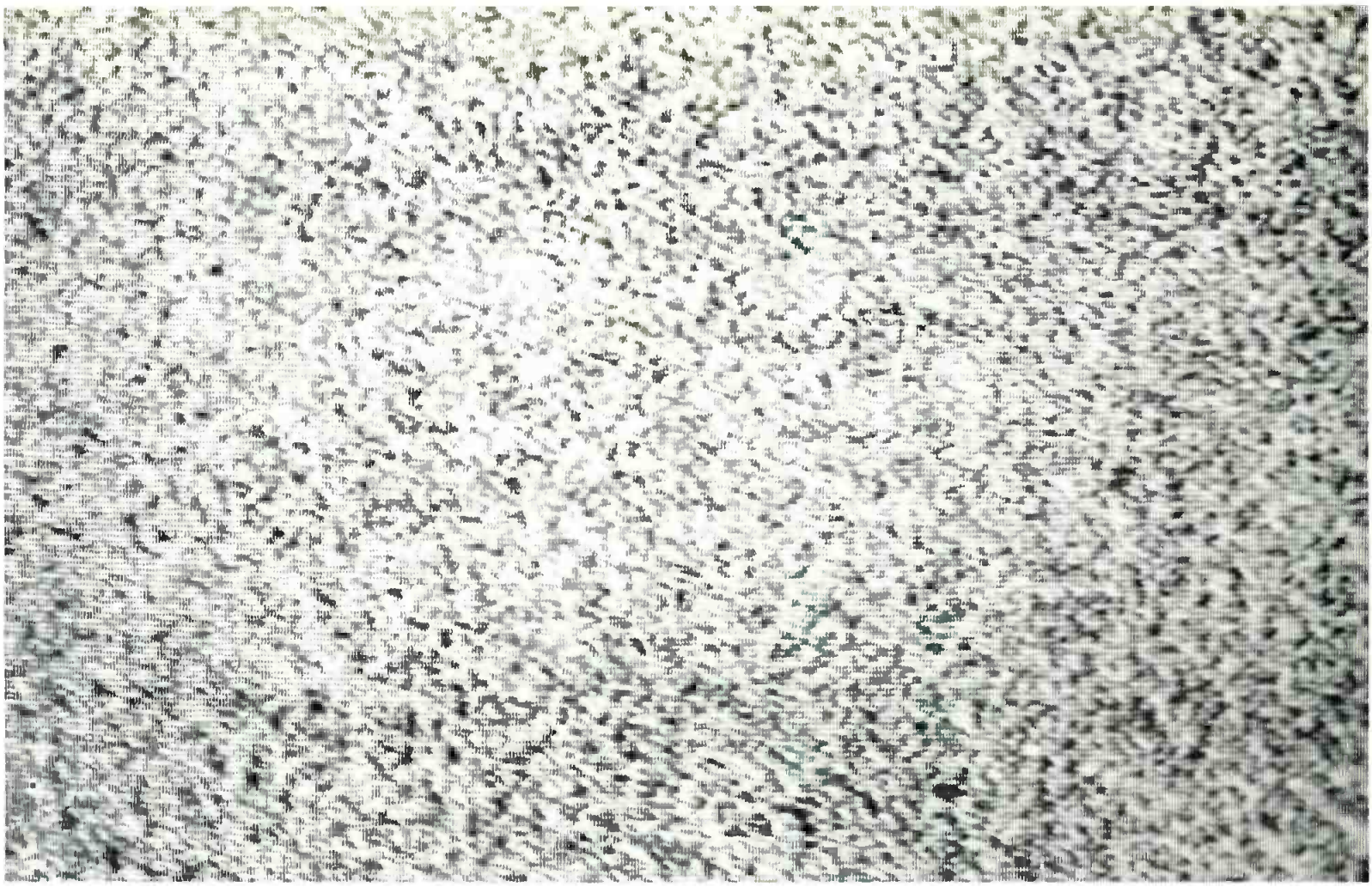
There was also some interest in prompting systems, with the Listec Digivision, Q-TV/Telesync, and Telescript systems all up and running. Cinema Products continued to demonstrate its EFP camera-mounting Camraprompter system.

On the audio side

Because the AES show began in New York so soon after the SMPTE show closed, most manufacturers of audio equipment held out from the SMPTE exhibit. Exceptions were manufacturers of intercom and IFB equipment, who attended SMPTE in force. Among them were Clear-Com, RTS (now a division of Compact Video), Television Equipment Associates, Swintek (at the Alan Gordon Enterprises booth), and R-Columbia. The last is making a considerable dent in the market with its wireless headsets, which operate over a 150-yard range and can interface with conventional equipment. Cetec-Vega and Clear-Com products will be discussed in detail in the February new products section.

Dolby took out booth space to promote its new SP Series 24-channel audio noise reduction system, primarily intended for use at recording studios, and the availability of its noise reduction cards for one-inch Type C VTRs. The card for the Sony BVH decks, which incorporates both Dolby noise reduction and the complete audio circuitry for the recorder packaged into a neat, plug-in module, is finding widespread acceptance.

Other audio companies exhibiting at the show included Sennheiser, with its full line of microphones, including shotgun and RF models; Nagra, with its line of portable 1/4-inch audio tape recorders that can be outfitted with time code modules; Comprehensive Video, with the CVMM belt-worn, battery-powered mic mixer; and



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NEWS FEATURE

Coherent Communications, which showed a new miniature microphone, a newly repackaged Artek RF mic system, and a new portable mic mixer with four inputs and two outputs.

Some test and measurement equipment was also shown, although again not nearly as much as at NAB. A brand-new device from Amtron, the AG 341, is a standalone display generator providing pulse cross, safe action, safe title, and digitally generated cursor signals. The displays, which include both analog and digital signals, can be used individually or in any combination. The one-microsecond intervals of the cursor permit accurate measurement of blanking intervals in the pulse cross mode and precise title positioning when used alone. The unit has an optional remote control panel.

Philips Test and Measurement brought two new 250 MHz scopes, one with delayed sweep. Philips T&M also featured its PM5570 video test signal generator for transmission equipment and its logic analyzer, which can be multiplexed to disassemble multiple microprocessors.

At Marconi Instruments' booth it was revealed that sales of the Television Intervision Timer have fallen off considerably, perhaps reflecting the FCC's more relaxed rule enforcement. Marconi did demonstrate some of its products in the AM/FM signal generation, modulation meter, intermodulation/baseband, and PCM test gear areas. The 200 MHz and 1.25 GHz models of its spectrum analyzer are now available.

Lenco gave SMPTE attendees a look at its Videoscope. A test pattern displayed on a standard B&W monitor provides an instant reference for measurements of blanking widths and permits even a non-technical operator with a means of adjusting and then verifying sc/h phase. Lenco's 300 System video test set, providing 29 test signals in addition to a digital sync generator, was also demonstrated.

Test gear was also shown by Videotek, whose display concentrated on its TSM-5 waveform monitor and matching VSM-5 vectorscope. Also of interest was the VM-15, a 15-inch color monitor featuring A/B inputs, dc restoration, pulse cross mode, internal or external sync and raster size regulation with varying APL levels—all in 12 ¼ inches of rack space.

Ikegami, Asaca, Rohde & Schwarz (Barco), JVC, Sony, Panasonic, Videotek, and Fernseh also featured their lines of color monitors. **BM/E**

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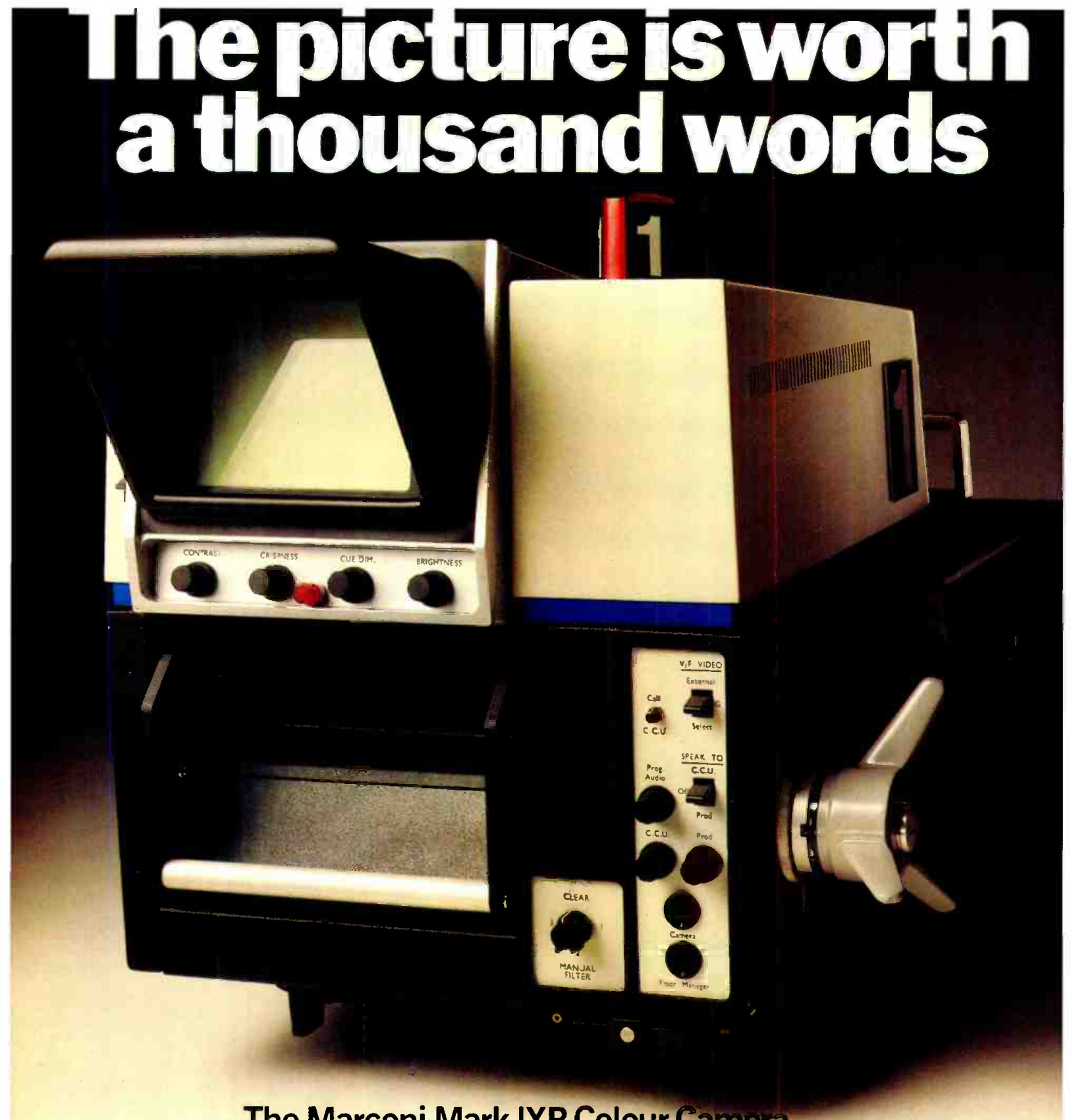

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BM/E NEWS FEATURE

SMPTE Agrees On Worldwide Digital Standard

By Bob Paulson

TO MANY of the attendees at the recent SMPTE conference in Los Angeles, the most significant report concerning standards was the SMPTE's endorsement of the CCIR Document 11/5031 E—a draft recommendation titled "Encoding Parameters of Digital Television for Studios." Described in a paper presented by William Connolly, chairman of the society's study group on digital tape recording, the recommendation will be forwarded to the U.S. committee of the CCIR (mostly members of the FCC) who will be attending the CCIR Plenary Session in February. It is almost certain to call for the adoption of the standard.

Once this draft document is approved, it will pave the way for the long-awaited single worldwide digital standard applicable to both production and post-production equipment in the NTSC, PAL, and SECAM formats. In brief, its specifications call for the component coding of the input RGB signal, with the same number of samples per active (visible) scanning line in both 625 and 525 raster scanning formats. The sampling frequency is fixed at 13.5 MHz for the luminance signal and 6.75 MHz for each of the two color difference signals.

The actual wording of the draft document is as follows:

The CCIR, considering

(a) that there are clear advantages for television broadcasters and program producers in digital studio standards which have the greatest number of significant parameter values common to 525-line and 625-line systems;

(b) that a worldwide compatible digital approach will permit the development of equipment with many common features, permit operating economies, and facilitate the international exchange of programs;

(c) that an extensible family of compatible digital coding standards is desirable. Members of such a family could correspond to different quality levels, facilitate additional processing required by present production techniques, and cater to future needs;

(d) that a system based on the coding of components is able to meet some, and perhaps all, of these desirable objectives;

(e) that the co-siting of samples representing luminance and color-difference signals (or, if used, the red, green and blue signals) facilitates the processing of digital component signals, required by present production techniques,

Recommends

that the following be used as a basis for digital coding standards for television studios in both the 525-line and 625-line areas of the world:

1. Component coding;
2. Extensible family of compatible digital coding standards;
3. Specifications applicable to any member of the family;
4. Encoding parameters for the 4:2:2 member of the family (Table I).

The immediate implication of the new standard is that product designs using composite coding at a sampling rate three or four times subcarrier frequency may become immediately obsolete unless hybrid systems are designed to contain D-to-D transcoders at interfaces between "old" and "new" digital video products.

Comparison of the component coding sampling frequency of 13.5 MHz to the NTSC 14.3 MHz com-

Bob Paulson is *BM/E's* special assignments editor.

Proposed Encoding Parameter Values For the 4:2:2 Member Of The Family

Parameters[1]	525 line, 60 field per second systems	625-line, 50 field per second systems
1. Coded Signals	Y, R-Y, B-Y	
2. Number of samples per total line:		
• Luminance (Y)	858	864
• Color-difference (R-Y, B-Y)	429	432
3. Sampling Structure	Orthogonal, line, field and picture repetitive. R-Y and B-Y samples co-sited with odd (first, third, fifth, etc.) Y samples in each line.	
4. Sampling Frequency:		
• Luminance	13.5 MHz	
• Color difference	6.75 MHz	
5. Form of Coding	Uniformly quantized PCM, eight bits per sample, for the luminance signal and each color-difference signal	
6. Number of samples per digital active line:		
• Luminance	720	
• Color difference	360	
7. Correspondence between video signal levels and quantization levels:		
• Luminance	220 quantization levels with the black level corresponding to level 16 and the peak white level corresponding to level 235	
• Color difference	224 quantization levels in the center part of the quantization scale with zero signal corresponding to level 128	

1. Signal parameters are identical between 525- and 625-line systems except for total samples per line

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posite 4_{fsc} rate makes obvious the fact that these D-to-D transcoders will have to be quite sophisticated, and therefore quite expensive. Some NTSC manufacturers are concerned about the future cost and development time required if this standard is adopted. PAL country manufacturers have similar concerns.

Finally, broadcasters looking to the world communications networks (land line, terrestrial and satellite microwave) also find difficulties with a "universal digital video standard." The bandwidths, sampling rates, and bit resolutions of existing and proposed digital transmission systems bear integer relationships with the Table I numbers only by accident.

SMPTE's October 29 press release heralded the proposed standard as an "international agreement of worldwide significance [that] will permit the development of equipment with many common features, permitting operating economics [sic] and facilitating the exchange of programs in digital form. Of major significance is that 40 years after the introduction of TV broadcasting, the digital video specification is the first step toward a single worldwide television system."

The question being raised by some broadcasters is how many more steps will have to be taken towards the single worldwide system. Dr. Richard Green, chairman of the Drafting Group that prepared the CCIR document, departed from his prepared paper describing the standard to express his concern that the journey towards the ultimate all-digital system may be other than an "orderly evolution" along a single path. He characterized the possible multiplicity of standards along the way as "scarey."

Real-world production requirements and the profit motive are going to influence how many paths are going to appear. From a practical standpoint, for instance, a 4_{fsc} digital video recorder (tape *or* optical disk) is the most important product to introduce to eliminate codecs in post-production. The recorded signal, however, could be component, requiring a far simpler direct digital interface to current and emerging digital effects equipment.

Those wanting to get involved in the standards-setting process that will determine the continuing direction and pace of the digital journey can contact Alex Alden, engineering services manager of SMPTE, at (914)472-6606. He can provide the name and phone number of the chairman of an appropriate group. **BM/E**

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BM/E
NEWS FEATURE

AES Meet Shows Digital Disk on Arrival Track

THE DIGITAL AUDIO DISK (DAD), potentially the most powerful carrier of digital technology into home high fidelity, broadcasting, and audio communications systems, now has a clear track to wide-scale use in the next year or two. Evidence that the DAD is ready to move accumulated at the seventieth convention of the Audio Engineering Society, held October 30 through November 2 at the Waldorf-Astoria Hotel in New York City.

The convention was an outstanding success with the professional audio community, drawing more than 6000 registrants and nearly 200 exhibitors. About 75 technical papers covered the frontier of audio advance, and a number of workshops devoted to audio operating practice were "standing room only."

Of overriding importance in clearing the way for the DAD is agreement on a technical format among large electronics companies around the world. As reported earlier, Sony and Philips some time ago jointly adopted a 16-bit linear format with 44.1 kHz sampling frequency. This allows the system to have a dynamic range above 90 dB and upper frequency limit of 20 kHz.

Curtis Chan, manager of engineering for Sony's Professional Audio/Digital Audio Division, told *BM/E:* "Sony has been a pioneer in digital audio technology over 10 years . . . Digital audio for the home is about to become a reality. The DAD will lead to an entirely new era in home high fidelity."

At the show a number of other companies—including Pioneer, Studer, JVC, Matsushita, and Mitsubishi—confirmed decisions to use this standard. Others who have announced adherence at various times are Crown, Dual, Nakamichi, Nippon Columbia, Onkyo, Thomson, and Kenwood. The Sony-Philips DAD format is thus the world standard, with official endorsement sure to follow. The four-inch disk is played from the inside out, read by a laser beam. Angular velocity varies from 500 rpm at the inside to 200 rpm at the outside. Playing time is one hour per side.

An important new device from Studer is the SPC-16 converter which changes the sampling rate of digital recordings over a wide range.

A valuable bonus in the design is ample room on the disk for control, synchronizing, or address tracks. These carry exciting potential for broadcasters as well as other users. Next month *BM/E* will discuss in detail the technology of the DAD and its meaning for broadcasters.

Other digital developments

Demonstrations of the DAD by Sony, Pioneer and others were in evidence throughout the show. Also pulling crowds, however, was a new digital device from Studer, the SFC-16, which converts digital recordings from one sampling frequency to another, over a wide range. The SFC-16 will make all the existing digitally mastered recordings available for issuance on the DAD without the complex, distortion-producing process of converting them to analog form and back again to digital.

Mitsubishi had in operation its X-80, a two-track, 16-bit linear digital mastering recorder now in use for many recording masters. Mitsubishi has worked out a scheme making razor-blade editing practical; the cut-and-splice triggers an automatic 2.5 ms crossfade.

JVC injected a new element into the digital ferment—a system for PCM recording and playback on cassette tapes the size of the audio cassette. JVC showed a deck embodying the system, and the sound quality it produced was excellent.

3M had on hand its 32-track digital mastering recorder, playing a demo tape that illustrated the main advantages of digital recording, including the absence of degradation through 10 generations of dubbing.

Soundstream, the first company to put in operation a digital mastering recorder (*BM/E*, February, 1977), gave an impressive demonstration of recordings mastered on the machine. Soundstream released a list of the more than 150 commercial recordings made on the recorder to date. The machine is sold on a limited basis only; most use has been through rental to record producers.

Technics of Matsushita announced two digital units: a digital mixer/equalizer and a digital audio reverberator. The eight-channel mixer handles signals in digital form, avoiding the degeneration of conversions back to analog. It has flexible equalization, also applied to the signal in digital form.

Audio processing: more refinement

The digital reverberator, of course, comes under the head of audio processing. It simulates six successive reflections and can hold three programmable memories, each with data on initial and late reflections in low, mid, and high range.

Lexicon, with some claim to starting the audio digital sweep with its Delta processor systems of 1970 and thereafter, brought a brand-new digital reverberation system, model 224X. This enlarges the functions of model 224, now in wide use, which Lexicon will continue to sell. The 224X has 15 kHz bandwidth, a variable bandwidth control, automatic changes of reverb time when the music stops for a long "sustain," storage of 36 user programs with instant recall, reverb times from 0.6 to

70 seconds. Delivery will be in March.

Eventide Clockworks had in operation its new SP2016 programmable effects processor, a software-based system that provides a wide range of special effects and digital reverb. Software modules can be plugged in, for example, for many different reverb effects, with the parameters adjustable by the user. The number and variety of special effects available are extremely large; the company plans to develop more and more software modules, but users can themselves develop software in the field.

Marshall Electronic had its new 5402 delay unit (another software special effects system) and the AR-300, a device for producing a signal like the signal from tape machines, developed for recording studios who use it to adjust processors.

MicMix brought the Dynafex, a new noise reduction system and noise gate that the company says can reduce noise in an already noisy source by up to 30 dB. The company also introduced the XL-515, a new artificial reverb system with three basic programmed modes—"plate," "room" and "hall"—and flexible adjustment of each.

Another new reverberation system at the show was Ursa Major's 8X32 which has 64 registers for program storage. There are four basic programs, each individually adjustable over a wide range. The early reflections and the later decay time are adjusted separately. Input mute silences the direct signal path so the reverb can decay naturally.

Rupert Neve demonstrated their automated console system with provision for synchronization of audio and video tracks. Monitor shows status of video track.

AKG also had a new reverb unit, the BX25-E, a two-channel version of the company's long-used spring reverb systems. The BX25-E has all the adjustment flexibility of the earlier systems, plus the two channels usable together in stereo, or separately.

Aphex, creators of the "aural excitement" technique, brought a new unit in the series, AX-II, designed expressly for broadcast use. Input and output characteristics are standard for broadcast studios. The makers claim the unit will add improved intelligibility, clarity, and "presence" to the program.

Orban introduced a new compressor/limiter/noise gate/de-esser for recording studios and broadcast production work, model 424A. The 424A uses AGC technique from the FM Optimod and has adjustable attack and release times and compression ratio, defeatable gate, and distortion-cancelling circuits. It will be ready early this year.

dbx had three new units. The 160X compressor/limiter is an advanced version of the model 160, with switchable choice of "rounded" or hard-knee compression and dual display for continuous monitoring of operation. Model 180 is a noise reduction system with two encode and two decode channels, with design centered on high operating levels; it can expand dynamic range of high-quality tape recorders, for example. The F-900 frame holds up to eight active units in the 900 processing

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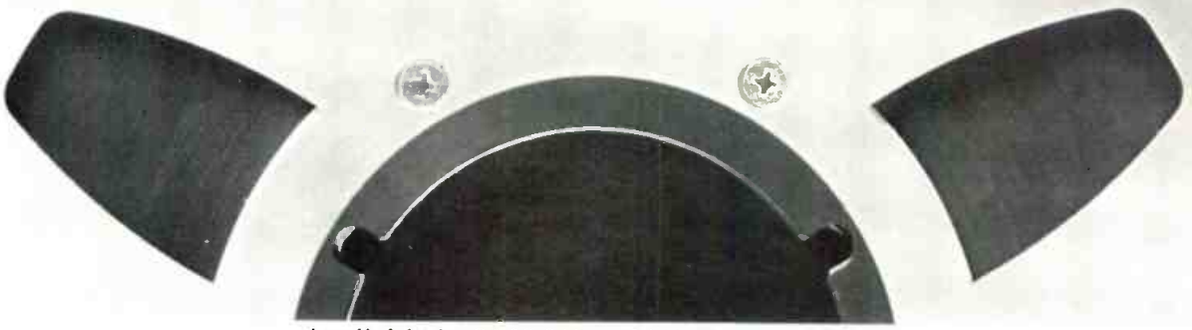

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series; it uses an external power supply.

The Mike Shop of Elmont, NY, showed noise reduction systems, the "BEL" series, with technology apparently somewhat like that of dbx. The moderate prices suggest that the units should find applications by broadcasters on tight budgets.

Dolby brought a new package of its Type A noise reduction system, which puts up to 24 channels in only 12¼ inches of rack space. This SP Series is aimed specifically for production work in radio and television. (For additional information, see Broadcast Equipment Products, pg. 113.)

Microphones, tape recorders

Audio-Technica, AKG, and Neumann all brought new microphones, generally with improved characteristics. Revox, Otari, and Ampex brought new tape recorders: Revox had the PR99, a refinement of the B67 series which has been so widely used for a number of years; Otari showed the new MR-10 series, four-track and eight-track mastering recorders using quarter-inch and half-inch tape, respectively.

Ampex introduced the ATR-800, a new unit utilizing the technology of the ATR-100 and designed specifically for broadcast use. It has a number of operating facilities that make it flexible and easy to use in a broadcast station. (For additional information, see Broadcast Equipment Products, pg. 113.)

JBL introduced its new "bi-radial" monitors, with a new horn design that distributes the high frequencies over a wide angle to reduce frequency change with listening position change.

The rising emphasis on the quality of monitor speakers was also reflected in designs from Eastern Acoustic Works of Framingham, MA, a new firm in the field. Its speakers gave evidence of close attention to many subtleties of performance.

A monitor speaker in wide use, the Electro-Voice Sentry 100, appeared in a somewhat refined version as the Sentry 100A. Electro-Voice said that the high frequency response has been given final smoothing for very high precision in this range.

An approach to test equipment design running counter to the dominant trend to automation, multifunctioning ultra-precision, and high prices came from Sescom. Some broadcasters may welcome one or more of the four small portable units: a harmonic distortion analyzer, an audio generator, an ac voltmeter, and an audio frequency meter, priced from about $80 to about $130 each.

Sound Technology expanded its commitment to high-precision testing with the new model 1020A FM alignment generator. Aimed for measurement and evaluation of high-performance receivers and tuners, the new unit claims internal distortion under 0.01 percent, digital RF readout, 10 kHz resolution, selectable preemphasis, and accuracy of 0.1 dB.

Crown had an advanced version of the Badap spectrum analyzer system, with eight memories and a readout screen using colors to distinguish data. Amber brought the new Model 4500 automatic distortion analyzer, which sweeps the frequency range, and shows a plot of distortion. It also has a noise readout.

Saki Magnetics had new audio posts for Ampex and RCA two-inch VTRs, new ferrite heads for Studer Revox recorders, and new heads for the Ampex ATR-100.

BTX demonstrated "The Shadow," a new synchronizing system for any combination of audio and video machines. **BM/E**

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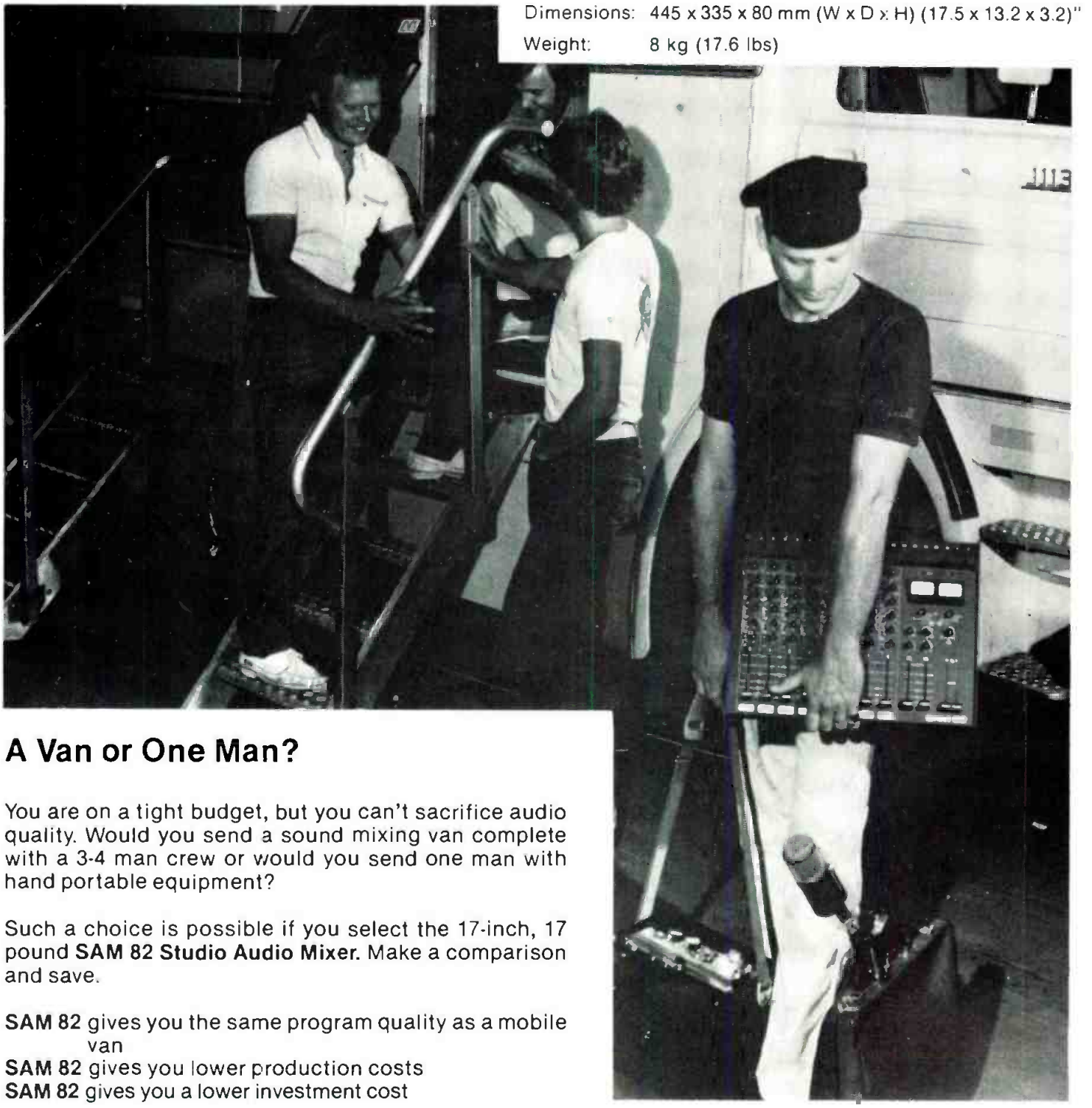

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At 1¾ inches high, the new Quantel DFS 1750 is the world's smallest digital framestore synchronizer.

Obviously it occupies less rack space than any other unit. And weighs less. And consumes less power. But it does much more.

It has an infinite window heterodyne TBC, freeze, fast hot cuts, built-in reference signals and test circuitry, full proc amp controls, and a digital I/O interface.

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INTERPRETING THE FCC RULES & REGULATIONS

Broadcaster's First Amendment Rights Upheld

By Lee G. Lovett and Joseph F. Hennessey; Lovett, Hennessey, Stambler & Siebert, P.C., Washington, D.C.

THE UNITED STATES Court of Appeals has strongly endorsed broadcaster's First Amendment rights in a decision released in September. Although the case, *Muir v. Alabama Educational Television Commission*[1] involved a public television station licensee, the substance of the opinion is important to all broadcasters. The court held that the decision not to air a previously scheduled program was an editorial decision protected by the First Amendment. An unwilling speaker cannot be forced to speak.

In this article, we will briefly discuss the issues outlined by the Court of Appeals. We will also briefly review the background of the case which led to this decision by the Fifth Circuit of the Court of Appeals.

The Alabama Educational Television Commission (AETC) is the licensee of nine noncommercial educational television stations in Alabama. AETC funds operations through a combination of state appropriations, matching federal funds (through the Corporation for Public Broadcasting) and private contributions. On May 10, 1980, AETC announced a decision not to broadcast *Death of a Princess,* a controversial drama/documentary about the events which purportedly surrounded the public execution of a Saudi Arabian princess and her lover in 1977. The Saudi government, as well as companies doing business in Saudi Arabia, protested the film's exhibition both here and in Great Britain. AETC based its May 10 decision to cancel the program on a fear for the personal safety and well-being of Alabama citizens working in the Middle East. Several other public television stations also declined to air the program for similar reasons.

Alabama residents who had planned to watch the program went to court in order to compel AETC to broadcast the film. The Federal District Court refused to grant the request of Muir and his fellow Alabamans. Muir appealed the district judge's decision. The Court of Appeals affirmed the lower court ruling, resulting in the decision discussed here.

Editorial freedom from censorship

The Court of Appeals held that public and private broadcasters may safely be treated identically for constitutional reasons if the functions under review are essentially identical. Of course, the challenged function of AETC in deciding to cancel a program like *Death of a Princess* is identical to similar functions performed by private broadcasters. Indeed, the appellants (Muir and company) conceded as much. However, Muir sought to distinguish the two situations by arguing that AETC is "owned" by the government. As such, Muir argued, First Amendment restrictions against government censorship bound AETC to broadcast the program.

The court acknowledged the tension between competing interests: freedom from governmental intrusion and censorship on the one hand and editorial freedom and responsibilities embodied in both the Constitution and the Communications Act on the other. Under the act, licensees have the absolute and non-delegable responsibility to select the programs to be broadcast. In fact, AETC once lost its license in part because of its failure to maintain exclusive authority over all of its programming decisions.[2] Public broadcasters do not differ from other broadcasters in their need for freedom to make every day programming decisions. As a result of these decisions, some programs must be rejected in favor of others. In the court's opinion, "If initial rejection of some programs were considered a form of constitutionally forbidden censorship, every public television station would violate the Constitution with virtually every choice it made."[3]

The court specifically likened the decision to cancel a scheduled broadcast to the decision to schedule the program originally. "No reason in fact or law appears for treating the former differently from the latter in this case."[4]

We would point out that Congress, the Federal Communications Commission and the courts have given licensees broad discretion in programming decisions, ranging from individual programs to entire formats. Early in 1981, the U.S. Supreme Court upheld an FCC decision eliminating restrictions on entertainment format changes by analogizing to the broad discretion the Commission has afforded licensees in selecting both entertainment and non-entertainment programs.[5] Thus, in this case, there was no reason to overrule the decision by

[1] ____ F.2d ____, 50 RR2d 275 (5th Cir. 1981).
[2] *Alabama Educational Television Commission*, 50 FCC2d 461, 32 RR2d 539 (1975).
[3] *Muir*, supra., 50 RR2d at 280.
[4] *Id.*, 281.
[5] *FCC v. WNCN Listeners' Guild*, ____ U.S. ____, 49 U.S.L.W. 4306 (March 24, 1981).
[6] *Muir*, supra., 50 RR2d at 281.

AETC absent any finding that "the government of Alabama is really operating the electronic press."[6] The Court of Appeals found nothing in the record of the case to support the charge. If AETC were forced to air the program, however, it would amount to "seeking to force an unwilling speaker to speak."[7]

Broadcasting rights v. public access

In holding that the First Amendment rights of broadcasters reside equally in noncommercial public licensees such as AETC, the Court of Appeals was also ruling that public broadcasters, like commercial broadcasters, are protected from claims for public access. In its 1973 *CBS* decision, the Supreme Court concluded that a right of public access was fundamentally inconsistent with the reponsibilities imposed on broadcasters to serve the public interest.[8] In the 1979 *Midwest Video II* case, the Supreme Court reiterated its finding that public access would conflict with the independence of individual licensees, particularly since "[t]he language of Section 3(h) of [the Communications Act] is unequivocal; it stipulates that broadcasters shall not be treated as common carriers."[9]

In the case of public broadcasting, the Court of Appeals decided:

> that the government owns or financially supports a speech medium does not alone create a public right of access to that medium, much less a public right to force that medium to present a particular film.[10]

It is only when the government has created a public forum dedicted to public use that a right of access might come into existence. However, in the case of AETC, it is a licensee vested with the public trust by the FCC. As the Court of Appeals noted, "the character and activity of AETC, and its essential purpose, make clear that it is a place for exercise of the editorial function, that is, of AETC's free press rights set forth in the [First] Amendment."[11]

This decision reaffirms the editorial discretion traditionally deferred to broadcasters. Specifically, it also holds that these rights extend to public broadcasters. A decision by a public broadcaster to withdraw a previously scheduled program is as much a right of the public broadcaster as of a commercial broadcaster. That the public broadcaster might receive government monies to support operations does not affect this right.

Please remember that the only kind of limitation on programming decisions comes with respect to programs addressing important, controversial questions in your communities. This is the Fairness Doctrine requirement discussed in last month's article. However, the Commission generally defers to the discretion of its licensees even in matters involving the Fairness Doctrine. If you have any questions about this whole matter of editorial discretion, we suggest that you consult communications counsel. **BM/E**

[7] *Id.*, 282.
[8] *Columbia Broadcasting System v. Democratic National Committee*, 412 U.S. 94, 93 S.Ct. 2080, 36 L.Ed.2d 772 (1973).
[9] *FCC. v. Midwest Video Corp.*, 440 U.S. 689, 705, 99 S.Ct. 1435, 1444, 59 L.Ed.2d 692 (1979).
[10] *Muir*, supra., 50 RR2d at 283.
[11] *Id.*, 282.

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

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

When I first described to Electro-Voice engineers what I knew the Sentry 100 had to be, I felt like a "kid in a candy store." I told them that size was critical. Because broadcast environment working space 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*. But the mounting hardware had to be optional so that broadcasters who didn't want it wouldn't have to pay for it.

The Sentry 100 also had to be both efficient and accurate. It had to be able to 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.

The Sentry 100 also 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.

Plus it had to have a 3-dB-down point of 45 Hz, and response that extended to 18,000 Hz with no more than a 3-dB variation.

Since it's just not practical for the engineer to always 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.

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. 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.

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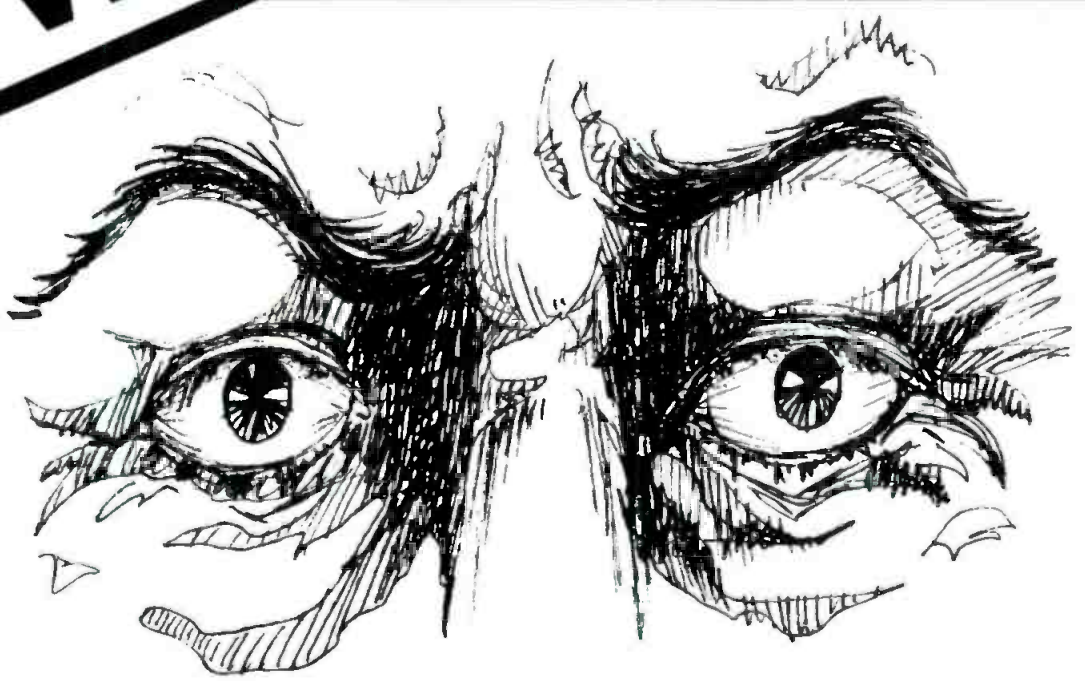

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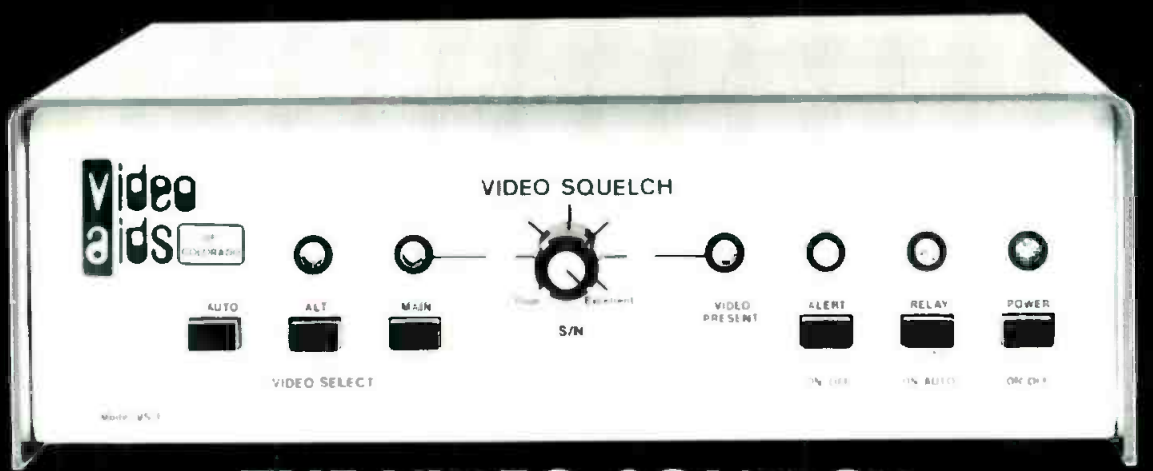

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GREAT IDEA CONTEST

Here's a chance to share your own personal solutions to some of broadcasting's most vexing engineering needs: end-of-tape sensing . . . cart deck synchronization . . . on/off-air indication on the mixing board . . . distributing timing pulses . . . etc.

Each month we will present a specific engineering problem and invite you to submit ideas on how to solve it. Send in descriptions and diagrams of equipment you have already built, or ideas on how you think the problem ought to be solved. *BM/E's* editors will read the entries and select the best for publication — giving readers an opportunity to vote for the idea they consider best.

To attract the most original solutions possible, we will pay $10 for each entry we print. In addition, the winner of each month's competition — the one voted for most often on our Reader Service Card — will receive an engineering slide rule calculator as a prize.

So put on your thinking cap and sumbit an answer to either of the problems outlined below. Solutions to Problem 2 must be received by January 15, 1982, and will be printed in the March 1982, issue. Solutions to Problem 3 must be received by February 15, 1982, and will be printed in the April, 1982, issue.

Problem 2:

AUTOMATIC RECORDING

Facilities equipped with satellite receiving loops often have incoming feeds on an irregular basis. To avoid having an operator standing by 24 hours a day, is there a device or circuit that will automatically switch on a recorder and at the same time alert a technician that a recording is being made?

Solutions to Problem 2 must be received by January 15, 1982 and will be printed in the March, 1982, issue.

Problem 3:

ELAPSED TIME INDICATOR

Tape recorders and cassette decks (both audio and video) often lack elapsed time or remaining time indicators. What is your design for a device that will provide this information, have instant manual reset, be readable from a distance, and start automatically when the recorder is turned on?

Solutions to Problem 3 must be received by February 15, 1982 and will be printed in the April, 1982, issue.

CONTEST RULES

1. **How to Enter:** Submit your ideas on how to solve the problems, together with any schematic diagrams, photographs, or other supporting material. Entries should be roughly 500 words long. Mail the entries to *BM/E's* Great Ideas Contest, 295 Madison Avenue, New York, NY 10017. Use the official entry form or a separate piece of paper with your name, station or facility, address, and telephone number.
2. **Voting and Prizes:** *BM/E's* editors will read all entries and select some for publication; the decision of the editors is final. Those selected for publication will receive a $10 honorarium. Each month, readers will have an opportunity to vote for the solution they consider the best by using the Reader Service Card. *BM/E* will announce the solution receiving the most votes and will award the winner of each month's competition an engineering slide rule calculator.
3. **Eligibility:** All station and production facility personnel are eligible to enter solutions based on equipment already built or on ideas of how the problem should be solved. Consultants are welcome to submit ideas if they indicate at which facility the idea is in use. Manufacturers of equipment are not eligible to enter. Those submitting solutions are urged to think through their ideas carefully to be certain ideas conform to FCC specs and are in line with manufacturers' warranty guidelines.

Mail Official Entry Form to:

BM/E's Great Ideas Contest
295 Madison Avenue, New York, NY 10017

Solution to Problem # _____

Your Name: _____

Title: _____

Station or Facility: _____

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Telephone: (____) _____

I assert that, to the best of my knowledge, the idea submitted is original with this station or facility, and I hereby give *BM/E* permission to publish the material.

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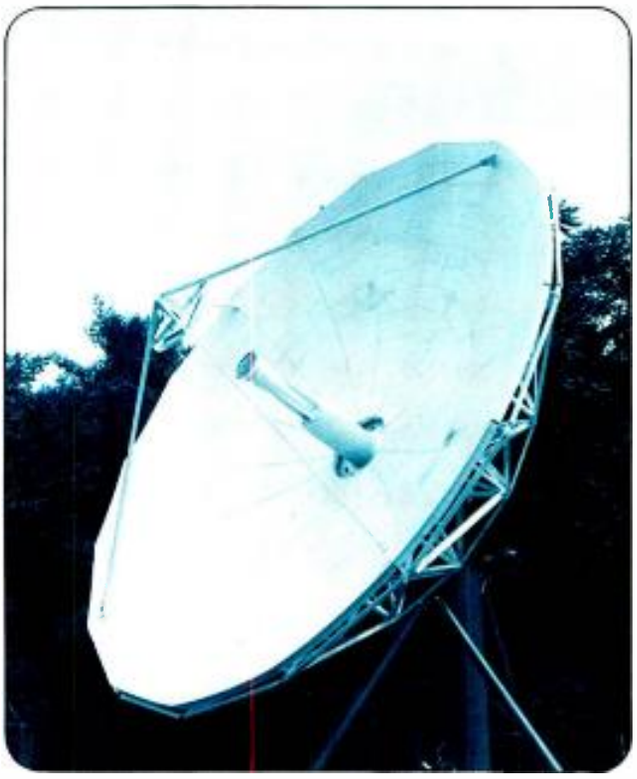

9.0 meter

The Harris SSL* family offers a variety of satellite earth stations *specifically designed for broadcasters.* Whatever your system requirement—large or small, downlink or uplink—Harris has the complete package for you, including total planning, rapid reposition antennas, video receivers, exciter-high power amplifiers, microwave links, remote control and complete installation. All backed by Harris 24-hour-a-day service—the most responsive in the broadcast industry.

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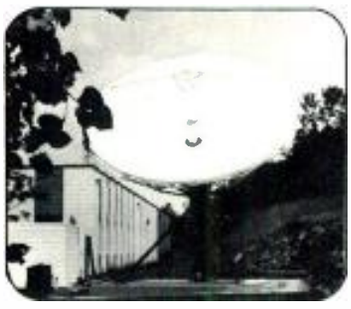

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BROADCAST EQUIPMENT

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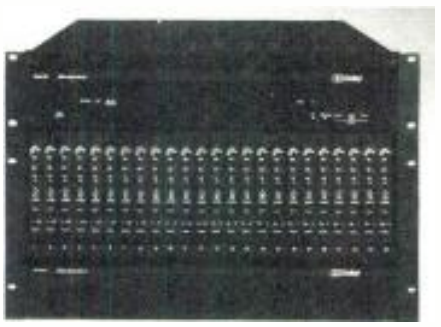

a separate regulated power supply with electronically controlled ouput protection and twin low-noise fans, plus an LED display for each track for accurate calibration. Additional LEDs indicate the presence of signals and clipping and assist alignment with high-level reference tapes. The unit can easily be recalibrated for playback and punch-in of non-standard-level tapes. The user can choose between relay-controlled "hard" bypass or electronic buffered bypass modes. Other features include balanced and floating input stages; low distortion I and O amps; and remote ground-sensing output configuration to minimize hum pickup when driving single-ended loads. DOLBY LABORATORIES.

Ampex Unveils Broadcast ATR 251

Ampex's ATR-800, introduced at AES, is a broadcast audio recorder featuring cue amplifier, hand-on-reel and tape dump modes for manual editing, variable shuttle control, electronic tape timer, single point search-to-cue, and pick-up record capability, which allows editing or dubbing of new material without creating errors at either end of the new insert. The recorder can accommodate a fourth

head for playback of two different tape formats with no head assembly change. A closed loop dc servoed transport maintains constant tape tension in all operating modes. Variable speed operation permits recording and playback up to -10 percent of nominal speed. For operator convenience, the inter-

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Broadcast Equipment

changeable control panels may be mounted on either the left of right side of the recorder, allowing ease of use for right- or left-handers. An interface for professional noise reduction systems is optional, and the recorder may be rack-mounted. Basic two-channel version, $5450. AMPEX CORP.

Color Encoder from Lenco
252

The PCE-462 professional color encoder, introduced at SMPTE, produces an NTSC/EIA color signal from three- or four-channel video source (fourth or luminance channel

is optional). It requires RGB, sync, subcarrier, and blanking signal inputs. A full or split field color bar generator simplifies setup and maintains levels. Input video clamping eliminates low frequency noise and color errors; all inputs are 75 ohm impedance with loop-through bridging greater than 20K ohms. Controls are on the front panel. LENCO, INC.

Ikegami Telecine Camera
253

TKC-990 is a photoconductive color telecine camera for on-air or film-to-tape transfer, featuring fully automated setup, provision for projector characteristics and camera-to-camera equalization, automatic or preset correction for film deficiencies, and centralized remote control for multiple camera installations. For on-line use, film characteristics can be uncorrected, manually corrected, or automatically corrected. For off-line applications, detailed operator scene-by-scene corrections can be established and stored for retrieval during subsequent film playback and transfer to tape. Setup, operation, and maintenance controls, as well as color corrections and corrections for projector characteristics, are microcomputer-controlled and digitally stored. The three-Saticon or vidicon camera has center resolution of 700 lines, with a prism beamsplitter. IKEGAMI ELECTRONICS (USA) INC.

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Updated Chyron IV Graphics System
254

A new edition of the Chyron IV graphics system, to be introduced at NAB '82, provides many new features. These include 512 color

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Broadcast Equipment

dbx Noise Reduction System
255

Model 180 is a new dbx Type I noise reduction system that provides two channels of encode electonics and two of decode electronics. It is intended for use with professional two-track

tape machines and is designed for installation between the console or mic mixer and the line level inputs to the tape machine. It is compact and lightweight and may be taken easily on remote jobs. The separate encode and decode electronics permit decoded monitoring off tape of the signal being tested. Other features include active balanced high-level inputs; +24 dBm output drive capability with provision for output balancing transformers; more than 40 dB additional dynamic range; and true RMS level detection. DBX, INC.

Portable Audio Mixer from Film-Tech
256

The Compact 4-1 EFP is a portable four-channel audio mixer designer for use with lightweight EFP video recorders. Channel four is switchable to a balanced line input. The mixer may

be powered by internal batteries, ac mains, or external dc source between 17 and 35 V. Features include four transformer-balanced mic inputs with 20 dB attenuator and phase reversal; 48 V or 12 V phantom and 12 V A-B mic powering on each mic input; two frequency bass cut filters on each mic input; pre-main gain LED overload indicator; main output transformer balanced with switchable 50 dB attenuator, allowing direct connection to portable VTRs; PPM as standard (VU meter optional); headphone output; and low voltage indicators for mixer and mic powering. The mixer measures approximately 10¼ by 7.8 by 1.9 inches and weighs 6.6 pounds with batteries. FILM-TECH ELECTRONICS, LTD.

Zoom Lenses from Fujinon
257

Two new zoom lenses, introduced at SMPTE, are the A17×8.5 for ⅔-inch cameras and the P28×15ESM for studio cameras. The ⅔-inch lens, ranging from a wide 8.5 mm to 144.5 mm, has a built-in 2× extender. Maximum aperture of f/1.5 stays flat out to 80 mm; minimum object distance is 2.3 feet. Other features in-

clude servo or manual zoom and focus with servo iris and total weight of 23.8 pounds. The studio lens, with 1.7× extender, has a maximum aperture of f/2.2, flat to 150 mm; MOD

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Hughes Helicopters
Ahead of TIME Technology

Circle 192 on Reader Service Card

of 2.95 feet; and overall range of 15 to 420 mm (without extender). A three-lamp diascope for automatic setup is available optionally. FUJINON OPTICAL INC.

Panasonic Color Monitors
258

Two 13-inch color monitors feature the Quintrix II in-line picture tube. The CT-132OV receiver/monitor au-

tomatically adjusts color quality to preselected levels with its ColorPilot feature. It offers single-axis VHF/UHF electronic tuning, Panalock automatic fine tuning, and is equipped with eight-pin VTR connectors, BNC-type video and RCA-type audio connectors, TV, VTR, line input, select switch, monitor, and TV out capability. Model CT-132OM is the corresponding video monitor. CT-132OV, $595; CT-132OM, $495. PANASONIC VIDEO SYSTEMS DIVISION.

Antennas from Micro Communications
259

Small enough to be portable, Series 93000 pyramidal horn and reflector microwave antennas are for mobile as well as fixed point-to-point applications. They are lightweight, rugged, and of modular design, with interchangeable 2 GHz, 7 GHz, ad 13 GHz feeds; surface tolerance permits gains over 40 dB up to 13 GHz. Left, right circular or linear polarization may be obtained by digit manipulation. Assembly and disassembly are quick, with no tools required; all hardware is self-contained. Reflectors are available in two- or four-foot diameters. MICRO COMMUNICATIONS, INC.

For more information circle bold face numbers on reader service card.

A Message of Major Importance for Broadcast Management

Vital Industries has instituted a cost-saving manufacturer-financing program - applicable to any Vital equipment purchase.

In accordance with our longterm commitment to more responsive television industry service, equipment purchases are being directly financed by Vital Industries itself **at 10% interest.**

Recognizing the barriers raised by prohibitively high interest rates, this financing program is offered well below prime — to permit prompt acquisition, without delay, of the advanced programming and operational systems so essential to productivity and profitability.

This bottom-line economy adds to the special advantage Vital offers TV management: **a complete line of switching, video effects and station automation equipment, available from one single source** — 25 sophisticated system options, totally line compatible. Including production and post-production mixers and switchers, plus our exclusive digital video manipulation system, the versatile Squeezoom®. All are state-of-the-art products of Vital's innovative technology; and all are now available with Vital 10% financing.

This low-interest opportunity is made possible by Vital Industries' unique financial strengths, solidly established by nearly two decade's stable performance and continuing growth. Now the largest U.S. independently-owned manufacturer of TV switching, effects and distribution systems, Vital can draw on corporate resources available from few other suppliers.

For full program details, contact our Finance Department:

(800) 874-7875 Toll Free

VITAL

VITAL INDUSTRIES, INC.

3700 N.E. 53rd Street
Gainesville, Florida 32601, USA

Circle 195 on Reader Service Card

Broadcast Equipment

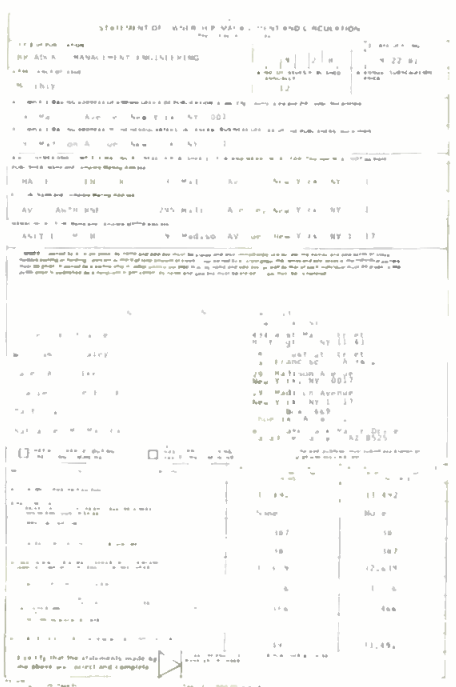
Color Bar Identifier from QSI
260

The CB-7005 color bar identifier has a memory load for up to 80 IDs, providing instant recall. Programmable from the front panel, it combines a

color bar generator with an eight-character alphanumeric display and audio signal source. The rack-mounted unit incorporates a standard 525/60 NTSC color sync generator, EIA-RS-189 split field color bar generator, and eight-digit ASCII character generator. $2395. QSI SYSTEMS, INC.

Ratings Analysis from Media Service Concepts
261

Recall is a radio ratings analysis software package for Apple II or similar microcomputers for rapid organization and interpretation of Arbitron data. It can analyze up to four radio stations or four ratings books simultaneously, displaying full color graphics and providing extensive printouts. Areas analyzed include audience flow dynamics, daypart recycling, and market positioning. $750. MEDIA SERVICE CONCEPTS



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Does the Revox PR99 remind you of something?

It should.

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No gadgets, no frills. Merely a solid machine equipped with everything a professianal needs to get the job done efficiently –and with high quality results.

What's more, the PR99 now comes in three versions: all-steel console, transport case with snap-off cover, and rack mount. All three may be ordered with the new monitor panel: speaker, amp, volume control, and track selector.

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In shart, the PR99 is so versatile, sa dependable, and so downright sensible that you could almost call it a "volkscorder."

Except, well...the shape isn't quite right.

STUDER REVOX

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Circle 200 on Reader Service Card

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