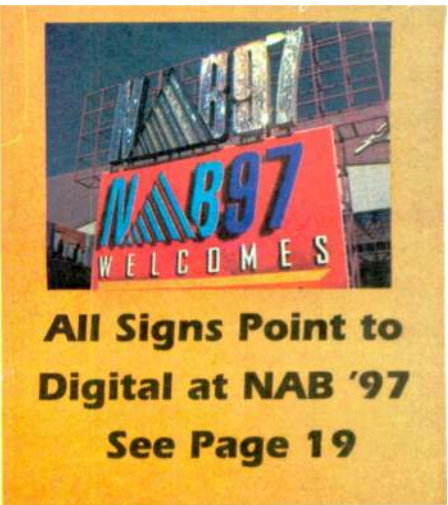


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Radio World®



Vol 21, No 9

Radio's Best Read Newspaper

April 30, 1997

McVeigh Trial 'Huge' for Radio Networks

by Sharon Rae

DENVER Two years and 600 miles from the country's worst terrorist attack, the trial of Oklahoma City bombing suspect Timothy McVeigh got under way earlier this month. The April 19, 1995 explosion at the Murrah Federal Building left 168 people dead and 500 injured. The federal trial is expected to last about four months.

News agencies from around the globe descended on Denver, with America's major radio news networks providing complete coverage of the landmark trial.

"This is clearly a huge story," said Chris Berry, general manager of operations for ABC Radio Networks. "There was a tremendous amount of interest on the part of our listeners when the bombing occurred. So therefore we are devoting a lot of resources to bringing our

listeners the latest information as it happens."

ABC's correspondent team includes general assignment reporter Tim Scheld, Denver stringer Steve Walsh and reporter Jim Ryan, along with the local ABC affiliate.

"KOA(AM) will be helping us out a great deal," said Berry. "As the trial progresses, we will be constantly evaluating our position there and whether or not we should have additional bodies."

"I don't know if we will cover the trial the same way as we did on day one as we will on day 100," said Peter Salinger, ABC's director of news coverage. "I can almost guarantee you that when it comes down to a verdict, we will be there with a full staff ... As is the case with most trials, everybody's always interested in the verdict."

In addition to ABC's regular newscasts,

continuing special updates will air as conditions warrant.

"If there's a day with compelling testimony, we very well may do status reports ... all day throughout the trial," said Salinger. "If there's an interesting development, if McVeigh is on the stand or if someone else is on the stand and something interesting comes down, we can do a status report within a moment's notice."

ABC is utilizing the latest technology in feeding reports to affiliates.

"We have two ISDN paths," said Salinger. "ABC News has rented out a suite in an office building around the corner from the courthouse where World News Tonight, Good Morning America, Nightline, Primetime, radio ... all the broadcasts from ABC News will be."

"In addition to that," said Berry, "As the verdict comes closer and we're continuing to evaluate what we do, we may actually pick up one of the lessons that we learned out of the second O.J. trial, which is to utilize other paths out, too."

"Obviously high-quality audio is what



Clark Curtis (l) and Steve Futterman (r) cover the Timothy McVeigh trial for Westwood One.

we are looking for, so sometimes we use satellite channels, which might typically be used by television." Berry said ABC is also continuing to experiment with POTS codecs for use over regular phone lines, including the Comrex Hotline, the A.E.T.A. Scoop Reporter and the MUSI-CAM USA FieldFone.

AP goes live

Ed Tobias, AP Radio Networks' assistant managing editor for news, said correspondents Tony Winton and Bob Moon were on the scene in Denver to provide

See OKLAHOMA, page 12 ▶

Fans Still Take to the 'Cool' Country Road

by Lynn Meadows

NASHVILLE, Tenn. At first, "Country Wasn't Cool." Then it became "hot" and "young." Now, the radio format appears to be lukewarm as the trade press investigates whether it is in decline or on the rise.

Depending on the study, country radio is either waxing or waning. Time spent listening (TSL) is increasing or decreasing. Cume is going up, going down or holding steady.

country. News/talk came in second with 1,253 stations — barely half the number of country stations. The religious format was third, with 1,252 stations.


See COUNTRY, page 8 ▶



Garth Brooks takes a break with WNUC DJ Sharon Nicholas.


One fact is indisputable: the country music format is still the most popular on the entire continent. At the end of 1996, of the 12,315 stations in the United States, Canada and Mexico counted by Arbitron, 2,396 were formatted with

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Industry Flocks to NAB '97

by Matt Spangler

LAS VEGAS Even the most radio-focused attendee at NAB '97 would have to admit: the big story this year was digital television.

But as their TV brethren were dazzling each other with their plans for the rollout of DTV, radio broadcasters in this sunny, windy city had more immediate concerns — how to make money, buy equipment and keep their jobs in a highly volatile industry. The news for radio people was dominated by stories of emerging super-groups, satellite radio, digital consoles, the Internet, and the growing role of the U.S. Justice Department as an antitrust traffic cop.

It was another record-setting year for NAB show planners, with attendance topping the 100,000 mark for the first time, and up 8.6 percent from 92,000 last year.

'Historic moment'

Federal Communications Commission Chairman Reed E. Hundt certainly

See NAB, page 19 ▶

NEWSWATCH

The (DARS) Winners Are ...

WASHINGTON Satellite CD Radio and American Mobile Radio Corp. are the proud new owners of 12.5 MHz of spectrum each, to be used for the delivery of nationwide satellite digital audio radio service, or DARS.

The FCC's April 1 auction of the S-band spectrum, located at 2320 - 2345 MHz, ended with Satellite CD Radio pledging \$83 million and AMRC giving \$90 million for their respective slices of spectrum. Digital Satellite Broadcasting Co. and Primosphere also competed for the spectrum space. The winners submitted a \$3 million down payment in March.

FCC Commissioner Rachelle Chong lauded the results. "I am delighted that we have at last cleared the way for CD-quality digital audio radio signals to be delivered from the sky," she said. But radio broadcasters expressed concern with the prospect of competing with a new digital audio medium.

The service is not expected to be available for three years.

Louisiana Tower Crash Kills One

MONROE, La. A tower housing one FM and two TV antennas crashed last month, killing one person and critically injuring another.

At 2 p.m. on March 20, three men from Tower Network Services were performing routine maintenance work on the tower, which serves KNOE-FM, KNOE-TV and KLMT-TV. Without warning the tower collapsed within itself, killing Thomas Waffle, 34, who was working inside, and wounding a second person. The third man was "miraculously thrown free of the tower," according to General Manager Bob Groothand. He was treated at a local hospital and released.

The station was back on the air three hours after the accident. The station was broadcasting from its STL tower by the end of March, delivering about 47 percent of its total audience.

At press time the station did not know why the 1,989-foot tower crashed.

Clinton Asks Hundt To Look at Liquor

WASHINGTON President Clinton has asked FCC Chairman Reed E. Hundt to investigate the effects of liquor advertising on children.

Clinton also asked Hundt last month to recommend actions that the commission can take in response to the decision by the Distilled Spirits Council of the United

See NEWSWATCH, page 3 ▶

Index

FEATURES

| | |
|--|----|
| Classic FM: Classic but not Rock by Lee Harris | 22 |
| Mexican Radio Shows New Face by Sam Quinones | 22 |
| They Had to Keep Their Mics Cool by Ronald Peshia | 27 |
| On Remotes, Look Up and Live by Andrew Funk | 29 |
| Hey, This Place Is a Real Mess! by Jim Somich | 31 |
| Before EBS, There Was Conelrad by Ronald Peshia | 33 |
| Earth & Sky: A World of Radio by Sharon Rae | 35 |
| What Is Public Radio, Anyway? by S.D. Yana Davis | 37 |
| WDZ: Pioneer Focused on Localism by Barry Mishkind | 38 |
| NACB Kick-starts Radio Careers by John Montone | 39 |
| The New FM Brought Early Battles by Al Germond | 41 |
| Time Capsule Reveals a Legacy by Sharon Rae | 42 |
| Did Your RF Freeze This Winter? by Ronald Peshia | 47 |

RUNNING RADIO

| | |
|--|----|
| Up Early With John Donald Imus by Bob Rusk | 48 |
| Don't Mess With Transmitters by Ed Montgomery | 48 |
| Knock Down Those Defenses by Sue Jones | 51 |
| This Dummy Puts on Airs by Dee McVicker | 53 |
| FM-Talk, FM-News: Why Not? by Mark Lapidus | 58 |
| Liddy-Palooza Rocks D.C. by Alan Haber | 59 |
| Hotline Melds Radio, Good Deeds by John Montone | 60 |
| Host of the Year: Michael Jackson by Bob Rusk | 62 |
| Theater of the Mind and the Air by Claudia J. Tucker | 64 |

STUDIO SESSIONS

| | |
|--|----|
| Tube and FET Mics from Soundelux by Ty Ford | 65 |
| Simple Circuit Adds Tally Lights to Board by Mark Parthe | 66 |
| NPR Puts Tech Journal On Web by Rich Rarey | 68 |
| SONET Offers Much Promise by Mel Lambert | 69 |
| Revved Up About the REV500 by Tom Vernon | 74 |

BUYER'S GUIDE

| | |
|---|----|
| Moseley Links College Station by Tom Nelson | 75 |
| Rebuilding with Nautel Up North by Chuck Lakaytis | 75 |
| QEI Provides Solution for Osborn by John Soller | 77 |
| SMARTI: Is It Live or Is It Remote? by Duncan Black | 77 |
| Kintronic Eliminates Guesswork by W.C. Alexander | 78 |
| LPB Transmitter to the Rescue by Bill Geyer | 80 |
| New Approach to Tower Relamping by Troy Conner | 80 |

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NEWS ANALYSIS

Westwood/CBS: One-Stop Shopping

by Lynn Meadows

NEW YORK The news is big, yet anticlimactic. CBS Radio and the board of directors of Westwood One Inc. have announced that Westwood One will represent and manage the assets of the CBS Radio Networks.

Charles Osgood, meet your step brothers, Don & Mike.

This consolidation should also be very beneficial to advertisers, providing greater efficiency and ease of buying radio on a national level.

— Mel Karmazin

It is all the same anyway in this incestuous big business called radio. Mel Karmazin, chairman and CEO of CBS Radio, is also the president and CEO of Westwood One. When Karmazin sold his radio group, Infinity Broadcasting, to Westinghouse/CBS last year, CBS acquired an equity interest in Westwood One.

Under the new arrangement, CBS Radio will continue to produce and control the programming it provides to Westwood One, Karmazin stated in a press release. Westwood will manage the sales, marketing and promotion, affiliate relations, research and administration for the CBS Radio Networks programming.

"At the same time," said Karmazin, "the CBS Radio Networks' lineup will now be presented as a major element in this expanded, strengthened programming portfolio of Westwood One."

As if Westwood One needed an expanded portfolio. The company, whose programs and formats are broadcast on more than 6,000 radio stations around the world, would seem to have maxed out as it is. This is the network with Casey Kasem, The Greaseman, Don Imus, Larry King and Tom Leykis in its stable, to name just a few.

A sampling of Westwood programming includes CNN Radio News, NBC Radio Network News, Mutual News, The Source, CNBC Business Radio and Westwood One News. And those are only the news networks. Westwood added CBS News to its roster with the new agreement.

Westwood One also offers nine 24-hour formats, as well as features like Money Memo with Bruce Williams, The Week In Review and Sports Scoreboard. Shadow Broadcast Services, provider of Shadow Traffic, Shadow Weather and Shadow Sports, also falls under the Westwood One umbrella.

CBS Radio Networks provides news, information, sports, talk and entertainment programming to more than 1,200 affiliates. CBS programming includes Major League Baseball (including the World Series), NFL Football (including the Super Bowl) NCAA Basketball (including the Final Four) and the 1998 Olympic Winter Games.

Advertisers delight?

"This consolidation should also be very beneficial to advertisers, providing greater efficiency and ease of buying radio on a national level," said Karmazin. Like a Wal-Mart for advertisers, the new programming giant provides one-stop shopping for all of an advertiser's needs. Additional revenues generated from CBS programming will now be put toward Westwood One's cash flow.

One senior marketing executive at another syndicator was not concerned about the new agreement, saying that it

only strengthened radio's position to advertisers, and would compel syndicators to constantly improve their programming.

Management shuffle

The change includes a reorganization of Westwood One's management structure.

Mike D'Ambrose, president of Westwood One's Shadow Broadcast Services Division, will become senior vice president of Westwood One Inc. Karmazin, D'Ambrose and CFO Farid Suleman will be responsible for the day-to-day operations of Westwood One.

Both Greg Batusic, president of the Entertainment Division, and Bob Kipperman, president of CBS Radio Networks, will continue on in their current capacities.

Cult Touches Michigan Radio Reverend

by Sharon Rae

ADRIAN, Mich. The Rev. Rick Strawcutter, the Michigan pastor whose "peanut-powered" unlicensed radio station made waves with the FCC, found himself last month involved in another, much bigger news story, one that almost literally dropped into his lap.

Strawcutter said he received two videotapes and some documents from the Heaven's Gate cult, days before the group committed mass suicide in March in Rancho Santa Fe, Calif.

The unexpected delivery was profitable. Strawcutter sold rights to ABC for \$50,000.

Strawcutter, featured in the Jan. 8 issue of *RW*, operates a 95 W unlicensed radio station called "Radio Free Lenawee" out of the offices of the Church of the Lord Jesus Christ in Adrian. It broadcasts with what some call an anti-government agenda.

"Someone here at the radio station said that he signed for the package as it was Fed Exed in," said Strawcutter. "The package was put on a shelf. It wasn't opened until a few days later. Someone told me while I was on the radio, 'Hey Pastor, these are these people who died,' and at first it didn't really sink in. Why we would be in possession of this?"

See CULT, page 11 ▶

NEWSWATCH

▶ NEWSWATCH, continued from page 2

States to end its 50-year self-imposed ban on broadcast advertising. The FCC will collect data on the link between liquor advertising and children's consumption of alcohol. Hundt responded by promising to ask for public comment.

In a radio address last November, Clinton stated his opposition to the DISCUS decision to lift the ban, but at the same time commended the major networks for refusing to air the ads.

National Association of Broadcasters President Edward O. Fritts cited this in expressing his opposition to FCC intervention, saying it would "represent a solution to a problem that does not exist." Fritts also said a number of members of Congress have questioned the FCC's authority in this matter.

Greater Media Station Settles Over Stern

LOS ANGELES KLSX(FM) has settled with the FCC over a five-year-old indecency charge.

In 1992 the FCC issued a notice of apparent liability to the Greater Media

station, citing it for a series of broadcasts of "The Howard Stern Show" that allegedly violated the commission's indecency rules. The notice stated that if proven liable, the station would be fined.

Greater Media Vice President and General Counsel Barbara Burns said the company responded to the notice after one 30-day extension, then did not hear back from the FCC until recently. She said this is symptomatic of a larger problem with the FCC adjudication process. "These things can go on forever, because there's no timetable for how long the FCC has to take to resolve these matters," Burns said.

The company settled with the FCC by agreeing to give a \$105,000 "contribution" to the U.S. Treasury, and to educate station personnel on the commission's indecency standards. Burns said the company has no problem with this latter compact. "We make efforts to make sure that all of our staff people know what they can and cannot do, so we do our best to make them aware of what the commission's rules are."

The settlement also gives the company amnesty from other potential complaints within a specified time period.

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New FCC Appointees, Fun Times in Vegas

WASHINGTON No sooner had the plane landed from Las Vegas than news from inside the beltway began to overshadow the massive event that was NAB'97.

So first, the Washington news. Senate Majority Leader Trent Lott, R-Miss., recommended two Washington insiders to fill the two Republican seats on the five-seat Federal Communications Commission. Please note that one of those seats is already occupied by Commissioner Rachelle B. Chong.

Harold Furchtgott-Roth, chief economist for the House Committee on Commerce was recommended in January to fill the open seat. Sen. Lott also put forward the name of Michael Powell, chief of staff for the U.S. Department of Justice Antitrust Division — to fill the seat now held by Commissioner Chong.

Sen. John McCain, R-Ariz., stated, in a release from Sen. Trott's office: "I am pleased that the recommendations for the Federal Communications Commission will be forwarded to the White House. This package was worked out with the Majority leader and reflects our concern that the best individuals serve at the FCC."

Commissioner Chong's reaction was gracious and typical of the quiet-yet-effective manner that has characterized her term in office.

"Yesterday, I received word that the Senate Majority Leader has recommended to the White House another fine candidate for the Federal Communications Commission seat that I now occupy. My term expires on June 30, 1997.

"It is an honor and a privilege to serve as a commissioner during this time of great change in the communications industry. I have brought the West Coast perspective of an Asian American and the experience of a practicing communications lawyer to FCC decision-making. I am proud of what I have been able to accomplish in the last three years.

"I am committed to completing the important work that I have started in implementing the Telecommunications Act of 1996. I hope to finish this work, and to this end, I will remain in my post until such time as my



Commissioner Chong



Pictured clockwise from above, the Stratosphere, the entrance to the MGM Grand and the newest Vegas hotel, New York, New York.

PAGE FOUR
 By Lucia Cobo

successor takes office."
 I, for one, am sorry to see her go.

★★★

Vegas fun

For those of you who did not make it to this year's NAB extravaganza, otherwise known as NAB'97, look for the next issue of RW to catch you up on all the latest in product and technology news, as well as complete coverage of important sessions and events.

This time out, I thought I'd fill you in on some of the city events you missed: The long line of taxis outside the Las Vegas Convention Center, as well as the Sands and other key hotels, was tougher to take than usual. Las Vegas was cool and breezy this year, with sweaters and jackets required on all but the last day.

Yours truly was truly dumb enough to let herself get talked into riding the "Big Shot" ride at the top of the Stratosphere. How is 0 to 60 mph in 3-point-something-obscene seconds to the top before you get dropped like Wiley Coyote off the top of the building sound to you?

★★★

The MGM Grand is truly a grand place with the traditional Vegas-style buffets, casinos and entertainment.

★★★

New York, New York is amazing — even the West Coast version. The creators of this desert mirage certainly knew what they were doing. Although the Coney Island-style roller coaster wasn't running yet, the rest of the place was fun.



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The sound of capacitors

Dear RW,

I was embarrassed to see the article "Hear the Sound of Capacitors" (Feb. 19) in a professional publication like yours. As an electrical engineer, I see this as another example of Junk Science that is promoted by somebody who either does not know what he is talking about, or is just dishonest. They can always be discredited with double-blind tests. Please let these people write their articles for "Stereophile."

Jon Grosjean
Hancock, N.H.

Dear RW,

In response to J. Somich's article on hearing the sound of capacitors, his advice is good and I agree with most of

his findings, but with regards to DC amplifiers only.

Electrolytic capacitors behave quite well in polar circuits. That is, circuits in which a single power supply is used and the amplifier is biased to one-half that power supply voltage. In these true AC amplifiers, the electrolytic capacitor will always see a stabilizing polar bias and audio will pass cleanly through it. Film capacitors probably benefit from a stabilizing bias potential too.

The distortion Mr. Somich refers to is caused by the asymmetrical audio signal envelope trying to "form" an unbiased electrolytic capacitor. This activity caused the Equivalent Series Resistance of the capacitor to vary and also results in a DC voltage offset that affects every direct coupled stage that follows. In fact, this is exactly what happens with burn-in CDs that use asymmetrical noise waveforms. Once each capacitor is charged, it will behave quite well for a while, perhaps a week, before the process needs to be repeated.

Today's electrolytic capacitors perform quite well to about 20 kHz, but using film bypass capacitors is still a good idea to correct for the flattening of the ESR curve.

I would not recommend removing interstate capacitors — in effect changing an AC amplifier into a DC one. In addition to DC offsets, there could be turn-on instabilities or temperature instabilities that won't show up until later. If you've got the bug, go ahead and replace the electrolytic with propylene films or use propylene bypasses when the electrolytic values get too large. You will hear an improvement.

DC amplifiers are best used for servo amps and medical applications as they were originally intended, not for audio. I think this is one reason tube products are making a comeback. All of my solid-state designs use polar circuits in class A configurations and the sound is very smooth and transparent.

This was a very good article. Sound quality is important. Listening is a learned skill and the more people exposed to this sort of information, the better.

Kevin A. Barrett, President
K-A-B Electro-Acoustics
Plainfield, N.J.

Jim Somich replies: *The letters from Mr. Grosjean and Mr. Barrett are the best possible example of the chasm that exists between the objectivist and subjectivist camps of audio engineering. Mr. Grosjean cannot admit that a phenomenon might exist that disproves "textbook" theory. He does not listen, he measures.*

Mr. Barrett knows what his ears tell him: *Capacitors affect sound. He doesn't need textbook jargon to affirm this. Listening makes it obvious!*

I would like to add another thought to Mr. Barrett's letter: *Almost all of the circuits used in present-day audio are DC amplifiers. Designers block DC offsets by the use of capacitors. It is true that caps in true AC amplifiers act differently. But you will run into very few true AC amplifiers*

Dig a Little Deeper

In the radio business, we are accustomed to dealing with big numbers. Groups own hundreds of stations. Buyers pay millions of dollars for properties. The advertising marketplace is measured in billions of dollars.

Sometimes we forget that a little bit of money can make a huge difference in someone's life.

At its breakfast during NAB '97, the Broadcasters' Foundation accepted a check for \$17,500 from NAB President Eddie Fritts. That check represents the proceeds from the group's first benefit golf tournament, held at the Las Vegas Hilton Country Club on the Sunday of show week. Just prior to NAB '97, the foundation raised more than \$130,000 at its Annual Golden Mic Award dinner.

Where does this money go?

The Broadcasters' Foundation maintains a benevolence fund to provide financial assistance to people who have made broadcasting their career. According to President Gordon Hastings, people in need generally fall into three categories: those who have run out of resources in advanced age; those who are ill; and those who have suffered an accident. One beneficiary is a man in his 30s with multiple sclerosis. Another is a woman in her 40s who was severely disabled by an auto accident.

Sometimes the assistance takes the form of a one-time emergency grant, to help someone through a tough time. Often the assistance is monthly. Right now the fund provides such help to about a dozen individuals and families, whose names and faces we'll never know. These people come from the talent side of the business, from sales, from management.

Kudos are due to those organizations that supported the foundation's efforts this year: to the NAB; to the National Association of Media Brokers, which sponsored the breakfast; and to the Union Bank of California and Communications Equity Associates, which sponsored the golf tournament.

We also commend the Broadcasters' Foundation itself for its excellent work. Founded in 1942 as the Twenty Year Club, it has experienced a revitalization in the 1990s. Attendance at the NAB breakfast was more than double last year's, and included industry leaders Fritts, RAB President Gary Fries and FCC Commissioner Jim Quello. Fritts commended the foundation staff for "breathing new life into the organization."

One measure of that new life is the industry's awareness of the benevolence fund. You can help, too. Call (203) 862-8577 to learn more. —RW

in practice. There are several reasons for this but space does not permit further discussion here.

I am pleased that this column sparked spirited debate. The professional audio world has been earnestly discussing objective vs. subjective measurements for years.

In answer to Mr. Grosjean's reliance on double-blind tests: They don't work! There are a multitude of reasons, covered quite extensively in the literature. (Stereophile, The Absolute Sound, FI etc.) Trust your ears!

Ghoulardi remembered

Dear RW,

The late Ernie Anderson (RW, March 5) may have been nationally known for his tag line on "The Love Boat" and other voice-over work, but to anyone living in Cleveland during the early 1960s, he was known as Ghoulardi, the weirdest movie host that has ever been on TV, period.

Ghoulardi held court on a live set at WJW-TV filled with junk and "artwork" sent in by his fans. He wore a strange hat and glasses, and had a "beat" persona vernacular. He would splice car crashes and volcano eruptions into the low-budget movies he hosted.

Ghoulardi would take gifts from his fans, such as a painstakingly assembled model car or a frog, and explode them with cherry bombs live on the set. I wanted to be just like him when I grew up.

Ghoulardi once called Cleveland TV news legend Dorothy Fuldheim a "Knif" (one of his buzzwords) live on the air. This was a put-down. Rumor had it Ms. Fuldheim disliked him as well, but could not legally prove "knif" was "fink" spelled backwards, or was otherwise slanderous.

Other movie hosts like Big Chuck and Hoolihan and the Ghoulardi wannabe "The Ghoul" have come and gone in Cleveland, but none were truly "weird" like Ghoulardi. I don't know if any film or early video exists of his show, but I'll bet there would be a cult market for it. I will always remember Ernie Anderson as Ghoulardi. Big Knif from the East Side of Cleveland.

Kurt Tuckerman
WMMC(FM)
Marshall, Ill.

Wrong station

Dear RW,

A correction to your story about the Radio Pioneers (RW, April 2):

Jerry Lee, owner of WBEB(FM) Philadelphia, helped make *that* station (originally WDVR-FM) the station with the largest FM audience in the country ... *not* WLIF-FM Baltimore.

Couldn't let that one go by, since I was the program director there from 1981-87, when it was WEAZ-FM, Easy 101.

Lee Martin
Radio Netherlands
Livingston, N.J.

CORRECTIONS

The phone number in "Soundcard Maker Presents XTrack" in the April 2 issue of RW was incorrect. Contact Neil Glassman at (703) 875-9100 for information on the XTrack workstation from Digigram.

Also, the photos of the Auditorics and Harris consoles on pages 28 and 30 were reversed. RW regrets the error.

Radio World

Vol. 21, No. 9

April 30, 1997

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Radio World (ISSN 0274-8541) is published bi-weekly by IMAS Publishing (USA), Inc., P.O. Box 1214, Falls Church, VA 22041. Phone: (703) 998-7600, Fax: (703) 998-2966. Periodicals postage rates are paid at Falls Church VA 22046 and additional mailing offices. POSTMASTER: Send address changes to Radio World, P.O. Box 1214, Falls Church VA 22041. REPRINTS: Reprints of all articles in this issue are available. Call or write Giselle Hirtenfeld, P.O. Box 1214, Falls Church, VA 22041; (703) 998-7600, Fax: (703) 998-2966. Copyright 1997 by IMAS Publishing (USA), Inc. All rights reserved.

—PRINTED IN THE USA—

Next Issue of Radio World
May 14, 1997

GUEST COMMENTARY

CEMA: Don't Shoot the Messenger

by Gary Shapiro

When something so slanderous is written about my association, as in your editorial "He Said, She Said" in *RW*'s March 5 issue, I must respond.

You said, "... EIA has less than fair



Gary Shapiro

motives in conducting its version of 'fair and impartial testing ...' It is galling that so much time and effort now appears wasted by broadcasters in coordinated testing efforts with EIA as it is now obvious the IBOC proponents never stood a chance."

I say, CEMA has behaved according to American National Standards Institute (ANSI) standards during the entire process. In 1991, the NAB wanted to claim Eureka as the winning technology. I testified before Congress, asking them to wait until the industry had tested all possible technologies and then choose which technology was best for the American consumer.

In 1991, CEMA was prepared to do the testing alone — to fund the entire costs. Only after we had announced our

plans did the NAB want to join our testing. CEMA welcomed the NAB's participation and worked six years with the NAB to develop the tests and carry out the testing. The open democratic process was one of the main factors in slowing down the testing. What we could have done easily within two years, took six, because every stage of the testing, every development of a report, had to go through numerous committee meetings where anyone and everyone could (and did) voice their opinion.

No favoritism

You said, "... CEMA never had any intention of finding any system other than its member-endorsed and funded Eureka-147 DAB as the choice for a standard for DAB for the United States."

I say, the only CEMA member that has openly endorsed and -funded Eureka-147 is Thomson Consumer Electronics. Has the *RW* staff forgotten that AT&T (now named Lucent Technologies) is also a CEMA member?! Both companies have been CEMA members since well before the DAB testing process began in 1991. In fact, representatives from both companies currently sit on CEMA's Board of Directors.

CEMA represents 368 member companies. No one company holds any more power over another within CEMA. Each member is allowed only one vote.

Not once, in any formal meeting or even in individual discussions with any of my staff, has any representative of Thomson or AT&T/Lucent Technologies suggested that we favor, endorse or do anything other than treat their systems fairly. Indeed, it's fair to say that for both companies their senior-level association representatives *never* even mentioned the digital radio issue.

You said, "The EIA cannot force a European choice down the throats of U.S. broadcasters merely because it wants its members to be able to sell new receivers."

I say, U.S. manufacturers would love

to find an IBOC solution or any solution that does not disrupt the broadcasting status quo.

This would be the *easiest* solution. The easiest solution will most likely be the one that will bring DAR to commercial operation the fastest, i.e., U.S. manufacturers would be able to sell digital radios to consumers in the near future.

However, an IBOC technology that works within the existing broadcasting status quo is *not* possible at this time. USADR's and AT&T's IBOC systems do not work without disrupting traditional FM and AM broadcasting.

Broadcasters are uniquely aware of this fact. Please remember that it was up to the NAB to find a suitable host station to field test IBOC in San Francisco. NAB, with all its power, could not find *one* broadcaster to volunteer its station for the tests. It appears that San Francisco broadcasters did not want the IBOC technology

messing up their analog transmissions.

The failure of the IBOC system is in their designs. The testing program brought this to the light of day — without the hyperbole of vested interests — for the benefit of all.

Would it have been better for broadcasters to go ahead and implement IBOC DAR, only to find later that reception of their bread-and-butter analog signal was degraded? Clearly not. The test results revealed this before it could occur.

The purpose of the testing program was to reveal the performance potential of all the systems. Not to artificially glorify one system over others, but to establish their true capabilities — warts and all.

The fact that IBOC did not work was due to its faulty design structure, not anything CEMA did in its testing. Don't blame the messenger for the bad news and accuse him of less than pure motives.

■ ■ ■

Gary Shapiro is president of the Consumer Electronics Manufacturers Association, a sector of the Electronic Industries Association.

HSSC Lab Tests Are Complete; Field Next

by Bob Rusk

WASHINGTON The three proponents of a voluntary high-speed FM subcarrier (HSSC) standard have evaluated laboratory data test results, bringing the lengthy process closer to completion.

HSSC proponents are anxious to see a standard established because it would allow them to offer consumers a host of new fee-based services, such as news, sports scores and commuter traffic information.

Radio stations are following this closely because these systems represent a potential new revenue stream from the increased use of their subcarriers.

The National Radio Systems Committee, jointly sponsored by the

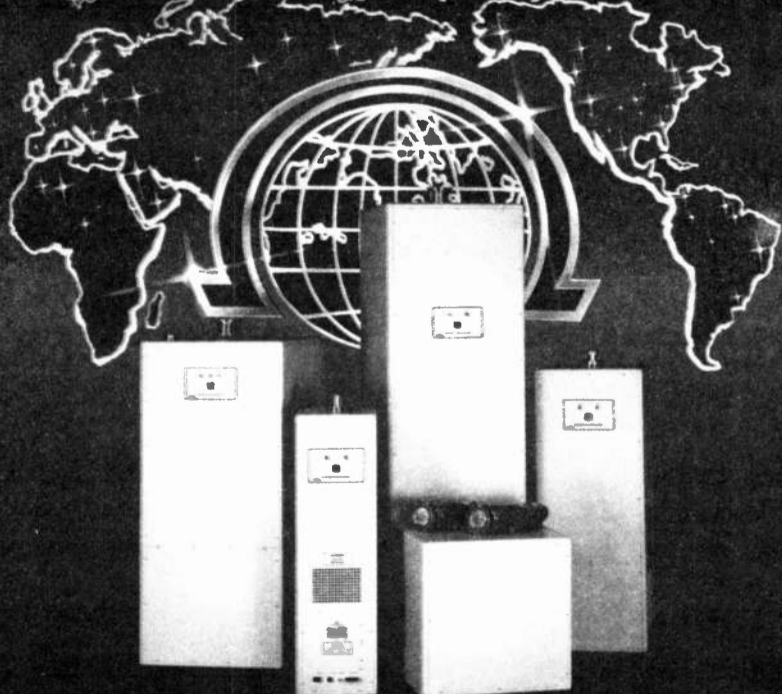
Questions were raised about certain tests and some measurements had to be re-evaluated.

National Association of Broadcasters and Consumer Electronics Manufacturers Association, conducted the tests.

See HSSC, page 13 ▶

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Jacor Buys Three Stations:

Jacor Communications is buying three radio stations in the Santa Barbara, Calif. area. The company has agreed to buy KTYD(FM), KQSB(AM) and KSBL(FM). The sale by the Seattle-based Criterion Media Group must pass Federal Communications Commission approval. A Jacor announcement stated that the company now owns, operates, represents or provides programming for 129 radio stations in 27 broadcast markets, including pending acquisitions.

Redwood Broadcasting

Acquisition: Redwood Broadcasting Inc. has entered into an agreement to acquire 100 percent of Siskiyou Radio Partners Inc. The company owns stations in KYSC-FM in Yreka, Calif. and has an LMA/option to acquire KMJC-FM in Mt. Shasta, Calif.

Redwood Broadcasting Inc. owns or operates nine radio stations in small- to mid-sized markets located in northern California. The company's operations are headquartered in Redding.

BIA Restructuring: Due to its rapid growth, BIA Companies is redesigning its company structure, service and product offerings.

Its financial consulting arm, BIA Consulting Inc., has formed three subsidiaries: BIA Media Inc., BIA Telecom Inc. and BIA International Inc. BIA Media Inc. will concentrate on serving the radio, television, cable television and newspaper industries through service offerings that include appraisals, business and strategic planning and litigation support.

BIA Telecom Inc. applies its offerings to the PCS, paging, cellular and other wireless and wired telecommunications industries.

BIA International Inc. fits planning and financial expertise to requirements of individual markets.

NetRadio Network Signs Acquisition Agreement With Navarre:

NetRadio Network (www.netradio.net), a 24-hour-a-day, Internet-only personal radio network, has been fully acquired by Navarre Corp., a national distributor of music, computer software and interactive CD-ROM products. Navarre had acquired 50 percent ownership of NetRadio in May 1996.

Concurrent with Navarre's acquisition, cable television shopping programmer ValueVision has acquired a 15-percent interest in NetRadio, which will increase the website's visibility among cable subscribers.

Additionally, ValueVision will be granted exclusive rights for most merchandise categories to be made available on NetRadio's programming.

Hill Tackles Foreign Ownership

by Lynn Meadows

WASHINGTON A debate over foreign ownership is beginning to brew on Capitol Hill in the wake of a recent U.S. commitment to the World Trade Organization. Broadcast ownership rules could be affected.

In the interest of opening foreign markets to competition from U.S. telecommunications companies, the United States has promised to open its own telecommunications marketplace to more foreign competition.

Countries from around the world submit their "commitments on trade" to the WTO. The organization received 55 offers covering 69 governments. The

commitments will be annexed to a one-page protocol to the General Agreement on Trade in Services.

For its part, the United States agreed, among other things, to open markets for essentially all basic telecom services (facilities-based and resale) for all market segments (local, long distance and international), including unrestricted access to common carrier radio licenses for operators that are indirectly foreign-owned.

Congressional response

At the center of the congressional debate is the interpretation of Section 310 of the Communications Act of 1934.

As it reads now, according to a spokesman for Rep. Edward Markey,

D-Mass., Section 310 does not make a distinction between common carrier and broadcast licenses. If common carrier licenses are opened up to foreign ownership, it follows that broadcast licenses might be susceptible as well.

In a House hearing on the WTO Telecom Agreement, Markey said it is "imperative" that foreign high-tech markets be opened up for U.S. competition. The Federal Communications Commission would consummate the WTO agreement.

A spokesman for the FCC said the WTO agreement has "absolutely nothing" to do with broadcasting. He said nothing in the agreement compels the

See OWNERSHIP, page 16 ▶

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Country Still Cool

► COUNTRY, continued from page 1

Beyond those statistics are the studies and the conjecture. One study, presented at the Country Radio Seminar in March by researchers Matt Hudson and Joel Reish of The Eagle Group, revealed that TSL for country is up, while cume appears to have stabilized. The two researchers, who have since left The Eagle Group, were updating a trend report they presented at the 1996 CRS.

Reish stressed that the Eagle Group study is based on "self-perceived" responses, not diaries. In 1997, 36 percent of the respondents said they listened to country one to three hours daily; in 1996, 29 percent said they listened one to three hours. Last year, 25 percent said they listened more than three hours, as opposed to 29 percent this year.

Women only

But TSL for country stations has decreased since 1993 for all demographics, according to L.J. Smith, programming manager for BP Consulting, a division of Broadcast Programming. The only exception, said Smith, was a slight increase in TSL between 1995 and 1996 for Women 18+.

Smith also cited an Interep study laden with good news for country's programming directors, indicating cume for country has increased slightly since 1993.

That study, the "1997 Qualitative Profile of the Country Radio Format Audience," indicates that country listener numbers are rising. Using eight years of Simmons Market Research, Interep found that the Country Radio Format has been steadily trending upwards.

Mary Ann Slepavic, research manager for Interep, said she too had heard the rumors that "country is dead," and decided to look back to find the truth.

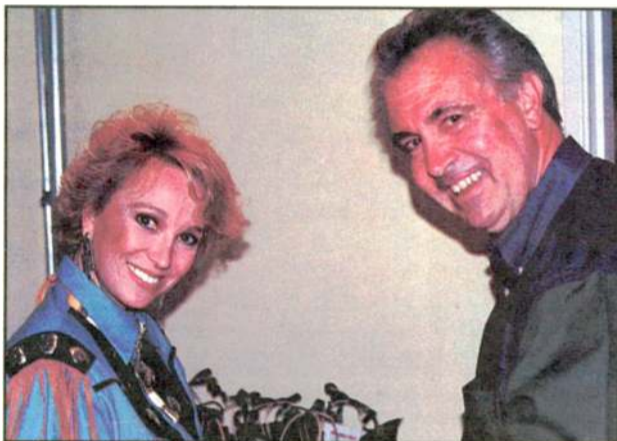
In 1988, according to the study, the country format had a cume of 25.16 million for Adults 18+. By fall 1996, the study indicates that number had exceeded

40.66 million, and was at its highest point ever.

The Interep study seems to contradict reports that the format peaked in 1993. The cume for that year was 34.45 million. Interep gives no data on TSL figures for the country format; Simmons does not report average quarter-hour listening.

"I find it depends on what kind of listener you are talking about," said Mike Meehan, program director of Young Country WCMS-AM-FM in Norfolk, Va. WCMS(AM), which went full-time in 1954, is the longest-running country music station in the country.

Listeners who have listened for five or more years, said Meehan, still spend the same amount of time listening. Among secondary and tertiary listeners, he said, TSL is down. He credits the competitive rock and pop arena for that decline. Meehan's figures from 1992, a peak year for the country music industry, indicate



WNUC President and General Manager John Casciani With country star Tanya Tucker

that cume is higher now than it was then, and TSL is down very slightly.

The format is still strong, said Meehan. He said television courts country artists during sweeps weeks because of their audience appeal. The fuss about country, said Meehan, simply is not

year-round, as it was for awhile.

John Casciani, general manager of WNUC(FM) in Buffalo, N.Y., noted that CBS Corp. recently agreed to spend \$1.55 billion in common stock for The Nashville Network and Country Music Television. Such a sale never would have

Country radio is based on the relationship between fans and artists.

happened if the media giant did not believe in country music.

A love affair

Smith gave two reasons for the drop in TSL, however slight. First, the market is flooded with new country music stars, making it difficult for fans to get to know them. Second, other music genres, like pop music, have improved.

More so than any other format, country radio is based on the relationship between fans and artists. Consider the annual love-fest, Fan Fair, held at the Tennessee State Fair Grounds in Nashville.

Country stars come out *en masse* to sign autographs and hug thousands of adoring fans. (Apocryphal stories abound, like the one about country phenomenon Garth Brooks signing autographs for 23 hours without taking a bathroom break.)

If singer familiarity is key for country listeners, Smith said, part of the TSL problem lies in the Nashville recording industry. Country music is coming so fast from Nashville, he said, and adding so many new stars that there is no familiarity

in the format anymore.

Familiarity was key in the days of the "Class of '89," when singers like Garth Brooks, Reba McEntire, George Strait and Alan Jackson boomed with hit after hit.

Nashville has been trying to reproduce that success since 1993, said Smith. The center of the country world now has 30 record labels, each offering five new acts a year, he said, and that is too many for the public to consume.

"It would be like going to a grocery store and seeing 140 brands of toothpaste," said Smith.

Dan Pearman, program director at KYNG(FM), Dallas, responded that there were 64 teams in the NCAA tournament this year, and only one champion. "Does that mean there were too many teams?" he asked.

Pearman does hear one complaint: that program directors have made the country format song-driven. But that's what listeners want, he said.

Record companies could concentrate on fewer artists and make sure that those artists have as many good songs as possible — like 8 hits out of 10 cuts on an album, Pearman said.

Meehan sounded pleased with the number of new artists. "There might be more successful artists" today, he said. Ten years ago, country programmers knew they had 5 to 10 artists they had to put on the air, no matter what those acts released. Now, he said, country music has more — and better — talent.

"It's been a while since we've had a Garth Brooks or Billy Ray Cyrus," admitted Casciani. But with new stars like Deana Carter and LeAnn Rimes, he said, country looks better than ever.

Pop, pop, pop music

Slepavic of Interep had another theory about the slightly slipping TSLs. She said the decline makes sense in light of the great number of formats and crossover country hits today.

With the "aging of America," she said, country music fans might be turning on news/talk for an hour or two, or occasionally listening to an adult contemporary station.

Slepavic posited that TSL may be down over all formats, thanks to the number of choices. In many cases, listeners can hear their favorite performers on more than one format, as the old lines between formats blur.

Pop music has improved since 1993, said Smith. Prior to that, pop's sound had gotten too hard. Now, Smith said, artists like Hootie and the Blowfish, Alanis Morissette and Jewel have made pop more palatable to listeners who had crossed from pop to country.

This is evident in record sales. In the first two months of 1997, country record sales fell 9 percent compared to the first two months of 1996, according to Smith. Pop record sales were up 11 percent.

The 1995 Consumer Profile from the Recording Industry Association of America indicates that country record sales peaked in 1992, nabbing 17.4 percent of market sales. The genre's music sales slipped to 16.7 percent in 1995 and 14.7 percent in 1996.

But both Casciani and Meehan are upbeat about the format and its potential. Smith pointed out that country had sunk very low in the early 1980s. After its meteoric rise in the late '80s and early '90s, said Smith, "We are still higher than we've ever been."

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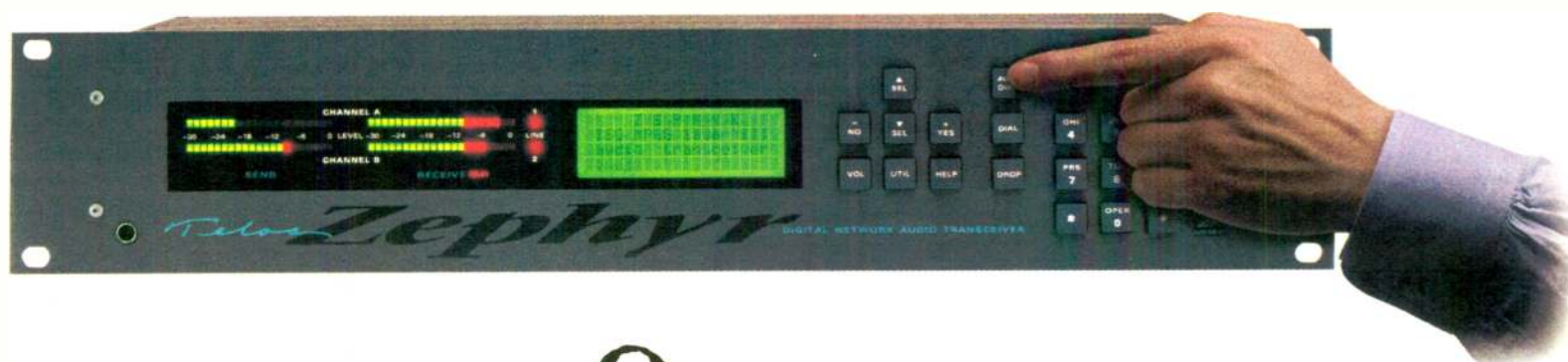
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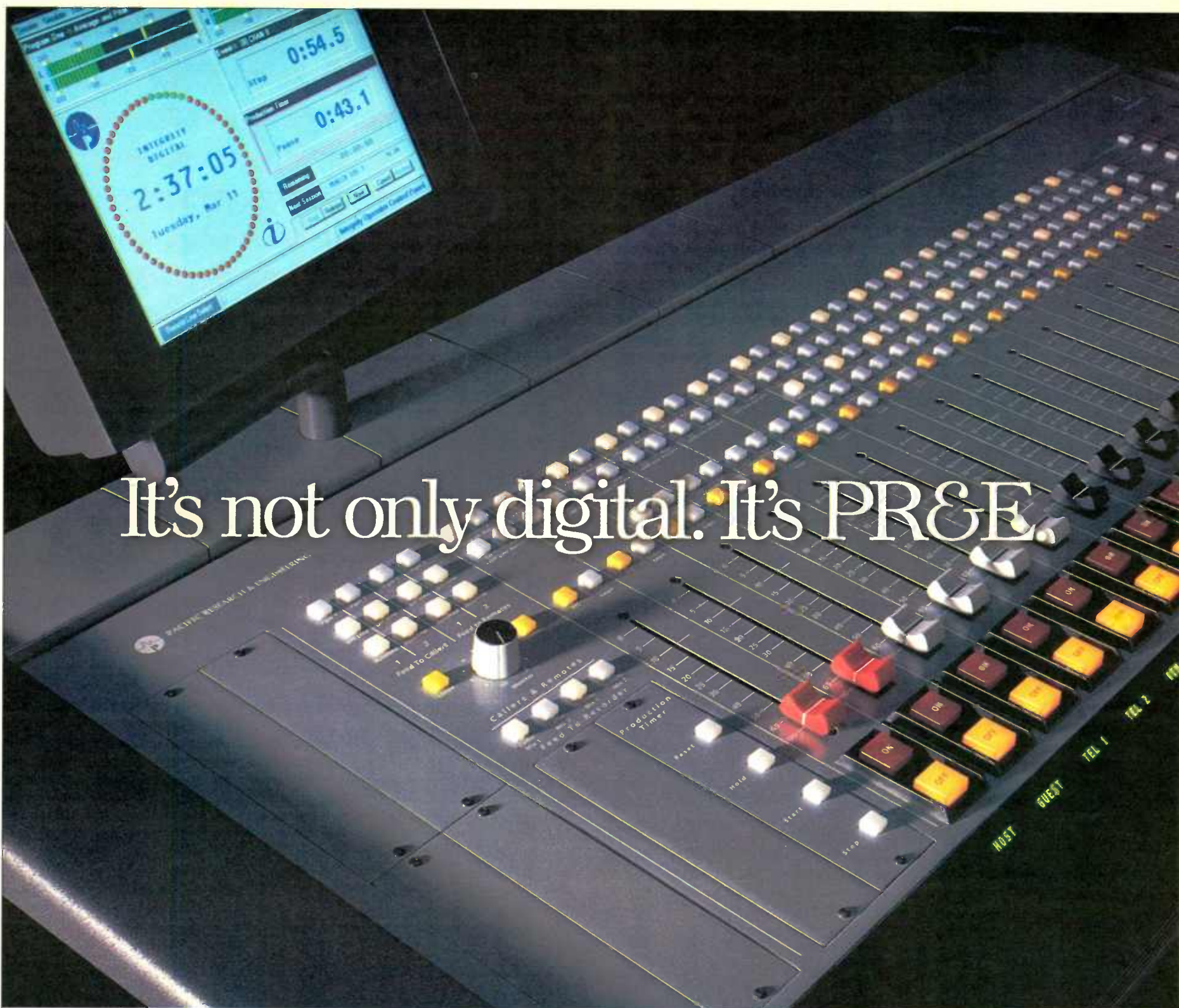


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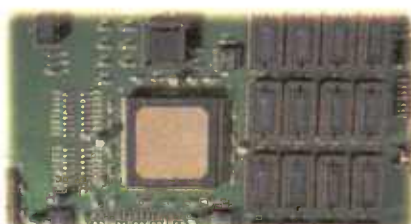
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World Radio History

Pirate Gets Heaven's Gate Tape

► CULT, continued from page 3

Strawcutter said he looked at the videotapes for only a minute or two before turning the material over to his attorney.

"One of the tapes was some testimonials and the other tape seemed to be a leader-type giving some sort of instructions," he said. "The tapes had kind of a cultish, weird look about them."

NBC filed a lawsuit against Strawcutter and one of his attorneys for allegedly backing out of an agreement to sell the tapes for \$45,000.

Strawcutter also said several documents were enclosed. One simply stated, "By the time you read this we will be gone — several dozen of us."

Strawcutter said one letter seemed to quote scripture.

"... (The scripture) seemed to be misquoted and twisted somewhat. I thought, if this is the basis of these people's beliefs, then it looks like to me that these people could have been really misled by some authority figure."

Members of the Heaven's Gate cult apparently believed they were to rendezvous with a UFO trailing behind the comet Hale-Bopp. The group's World Wide Web site stated, "Hale-Bopp's approach is the 'marker' we've been waiting for. We are happily prepared to leave this world."

Making the most of it

Strawcutter said he had no idea why he received the tapes.

"Maybe they just felt like they trusted us," he said. "Maybe because of our positions on freedom and liberty and the people's right to know things, if there really is a reason. I don't think we'll ever know."

"I gave the material to my attorney and gave him the ability to dispose of them any way he saw fit, because I thought this might become some part of some official investigation, and I have no faith or confidence in official investigators. I have no interest in their contact to me about these tapes."

Strawcutter did, however, apparently have an interest in contacts from major television networks. NBC filed a lawsuit against Strawcutter and one of his attorneys, Patrick Edwards of the Detroit law firm Constitutional Litigation Associates, for allegedly backing out of an agreement to sell the tapes for \$45,000.

Strawcutter sold national rights to the

tapes to ABC for \$50,000.

Attorney Kevin Ernst, also of Constitutional Litigation Associates, said it was a misunderstanding.

"Moments after Edwards signed the contract with ABC and faxed it over, he gets a phone call from Tom Brokaw asking if he was sending the tapes over," said Ernst. "Edwards just assumed he was with the ABC people and said 'Yes.' He didn't make the connection. He didn't know Brokaw was with NBC and not ABC."

John Ronayne, of the Detroit law firm Kasiborski, Ronayne and Flaska, represented NBC. He said the network decided to drop the lawsuit.

"NBC had decided it had enough video for the story," said Ronayne. "There was no point in continuing the suit."

Ernst said he plans to file an abuse of process lawsuit against NBC.

Strawcutter's radio station first made news when he turned away FCC representatives who wanted to inspect the unlicensed facility. The FCC was investigating the case.

In his interview with RW earlier this year, Strawcutter maintained that he was operating a "constitutional and lawful" station and was not a radio pirate. But last month, as the cult story was breaking, Strawcutter said, "How can you go to bed one night, and you're just a local preacher at a little pirate radio station, and the next day 'Good Morning America,' and Ted Koppel, and all these guys want you?"

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LAS VEGAS The Advertising Council gave WKHX-FM, Marietta, Ga., a Silver Bell Award at NAB '97, in recognition of the station's record of public service and contributions.

WKHX ran 600 Ad Council PSAs in 1996, up from 269 in 1995, an increase of 123 percent. General Manager Victor Sansone accepted the award on behalf of the station.

"These awards demonstrate not only that the broadcast industry is supportive of the Ad Council," said Ad Council President Ruth Wooden, "but that they are committed to bringing important information to American audiences."

The broadcast industry has been criticized recently by Federal Communications Commission Reed E. Hundt for expending more time on "self-promotion" at the expense of PSAs.

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Networks Cover McVeigh Trial

► OKLAHOMA, continued from page 1
coverage to the network's 700 affiliates.

"Tony is our primary trial reporter and Bob is there in order to provide a live presence in morning drive on our AP All-News Radio Network, and we are also making him available on a test basis to a certain small number of our member radio stations for use by them," said Tobias.

"We are providing both live appearances in our newscasts and via tape on the cut feed to stations. Our AP All-News Radio affiliates are also receiving regular live inserts into the product throughout the day, starting with East Coast morning drive and continuing through the conclusion of each trial day."

AP is also using ISDN lines set up in the filing center next to the courthouse. In addition, the network is utilizing a Switched 56 setup in its Denver AP Bureau.

"That's where we are doing our morning drive reports, since the courthouse in Denver and the filing center are not open at 2:30 or 3:30 in the morning, their time," said Tobias. "So we had to split locations. In addition, we have a circuit running from the bullpen area outside where any news conferences are held, back into the press center so we are able to put up any news conferences live on our hotline network."

ISDN

Westwood One sent reporters Clark Curtis and Steve Futterman to cover the proceedings.

"Our transmission includes ISDN from the main media center," said Bart Tessler, vice president of news. "We have a setup in the bullpen area where the news conferences take place, and from there we're feeding on the Comrex Hotline unit. We also have facilities and workspace at NBC News Channel, which is in the main NBC TV complex where we work and have a relationship due to our connection with NBC Radio."

"We really are finding that ISDN is the way to go for our remote venues such as this," said Dick Owen, Westwood One's director of special events. "The cost is effective, the quality is great and the capabilities are robust. As far as the technical standpoint, we're using ISDN capabilities. Our reporters will be using a single bearer channel on an ISDN circuit to broadcast the actuality and the commentary back to Arlington, (Va.), and it also has a return circuit to them for inclusion into live broadcasts, so they can hear cues and leads."

"We do hourly newscasts and short-form news summaries several times every hour," said Tessler. "We are also doing special reports for important testimony and the verdict."

CNN Radio Network assigned seasoned afternoon drive anchor Cami McCormick to jury selection and beginning testimony. Stan Clark will be on hand as the trial wraps up.

"After that, we are relying on CNN-TV to fill in the gaps for us," said Operations Manager Richard Benson. "Tony Clark is covering. They'll have the capability to feed to us often via the telephone."

During jury selection, CBS Radio

Networks aired morning drive updates at 31 minutes past every hour. A full staff converged on Denver and Oklahoma City for the proceedings.

CBS News correspondents Barry Bagnato, Scott Pelly and Kristin Jeanette-Meyers are in Denver, along with reporters Dave Fehling and Lee Frank, said Sina DeVito, manager of communications. Consultants Andrew Cohen and John Walsh and producer Carol Gillesberg are also there. In Oklahoma City, correspondents Dan Raviv and Diana Olick are on hand, where survivors and family members are following the proceedings by means of audio and video feed.

CBS is utilizing ISDN as well to get its reports out.

Tom Gauger, district general manager in charge of operations for the UPI Radio Network, said the trial has generated a great deal of interest for his affiliates.

"Particularly in the Midwest," he said. "That's where we have most of our clients. Most UPI Radio Network clients tend to be in small- to medium-sized markets ..."

UPI is using a POTS line from its press position. "We may put in a full-time ISDN line as the trial continues," Gauger said.

Good shoes

There are a few obstacles facing all broadcast agencies covering the trial.

"The judge would not allow any of the broadcast networks to listen to the courtroom audio in the same room in which we were broadcasting," said AP's Tobias. "We are forced to listen to the testimony in one room and then go into another room, which is actually on another floor of the building, to report it back to the stations. Security is also extremely heavy between the filing loca-

tion and the outside news conference location."

"I think the biggest challenges were forming and working with the media consortium in Denver ... a city where neither we nor other networks are generally heavily staffed," said Westwood's Tessler.

Tasks included logistics for the audio feeds, the coverage press room, and an agreement on who could file what, and when.

"The distance that is created between

the listening area and the filing center is creating some real challenges for the deadlines associated with radio," said ABC's Berry. "The fact that a reporter is having to listen to the testimony in one room, then actually going to a different floor to file creates some problems. You either need the additional resources of another person who might be able to listen to that, or some pretty good track shoes."

■ ■ ■

Sharon Rae is a radio news director in Lansing, Mich., and principal of Rover News Services, as well as a regular contributor to RW. Reach her via e-mail at scohon@aol.com

NAB and NRB Talk Music Licenses

by Matt Spangler

WASHINGTON Two industry associations are in the midst of negotiations with music licensing organizations ASCAP and BMI about the fees that broadcasters pay for the right to use recorded material.

The National Religious Broadcasters Music Licensing Committee was awaiting a decision from the Rate Court in New York regarding its negotiations with ASCAP. The National Association of Broadcasters Music Licensing Committee recently renegotiated its contract with ASCAP and is currently working with BMI.

The majority of commercial broadcast stations are represented by NABRMLC in these negotiations, while NRBMLC represents primarily

Christian broadcasters.

Until a few years ago, broadcasters paid blanket fees, usually a portion of an entity's gross income, to ASCAP and BMI for the right to use licensed material. Then NABRMLC established a new license, the per-program agreement, whereby stations pay for use of ASCAP music for a certain percentage of their yearly weighted music hours.

Contracts are traditionally for a five-year period. NABRMLC negotiated a contract with ASCAP from 1996-2001. The blanket rate for this new contract is the same for the previous five-year period, 1.615 percent. A new feature of this contract is that stations reporting gross revenue of \$150,000 or less will pay rates ranging from \$450-\$1,880.

See ASCAP, page 13 ►

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► ASCAP, continued from page 12

The licenses negotiated with BMI by the Radio Music Licensing committee of the NAB expired Dec. 31, 1996. Broadcasters can authorize the NABRMLC to represent them, or sign a license extension form, either of which binds them to the negotiated agreement with BMI. A third option is to negotiate their own agreement.

NABRMLC Chairman Randy Bongarten said the objectives of the committee are to minimize what the industry pays to music licensing organizations, distribute payment of fees fairly within the industry and develop financial reserves sufficient to wage the necessary legal battles.

A key issue in the negotiations has been what Bongarten called the delinking of how much broadcasters pay as part of per-program agreements from revenue growth. Specifically, NABRMLC has proposed a revenue distribution-based fee instead of a time-based one. This is designed to benefit stations that, for example, earn most of their revenue from morning talk shows, then program music the rest of the day.

The committee is still seeking members; interested persons can contact Bongarten at (212) 247-8717 for information. In particular it seeks people with strong technology backgrounds who would be able to assist in exploring "pay-per-play" options.

Questions concerning representation should be directed to Dave Fuellhart at (410) 866-5594.

The Rate Court

Likewise, the NRBMLC's agreement with BMI expired Dec. 31. NRB members have options similar to those facing NAB members, except those who have

never signed a BMI agreement. These stations must continue to pay BMI under the terms of the open-ended interim agreement negotiated with BMI. Questions concerning NRBMLC representation should be directed to Russell Houth at (805) 987-0400.

At the NRB show in Anaheim, Calif., in January, NRBMLC Chairman Ed Atsinger updated committee members on the status of its negotiations for a new agreement with ASCAP. These negotiations culminated in the Rate Court trial, noteworthy as the first time that a group representing radio broadcasters went all the way to trial in an attempt to obtain fair music licenses. The NRBMLC is waiting on a decision from the trial judge, expected this summer.

The committee is attempting to negotiate an agreement with ASCAP under which broadcasters would pay for use of licensed material on a per-program basis, instead of the current blanket fee. They argue that Christian broadcasters use far less of this material than do "secular" broadcasters.

Atsinger said there were a number of means by which the NRBMLC and ASCAP could reach an agreement. A court decision is one possibility. Another would be an act of Congress, which has over the past few years introduced various bills that would force BMI and ASCAP to adjust their fee schedules to reflect usage. Thus far Congress has been unable to pass any legislation because of the volume of intellectual property legislation it faces.

Meanwhile, Atsinger predicted that the marketplace may dictate changes anyway. In an industry in which half of all the revenue will soon be concentrated in the hands of 20 or so groups, he said, there will be fewer decisionmakers around to negotiate licensing agreements.

Lab Next for HSSC

► HSSC, continued from page 6

Questions were raised about certain tests, however, and some measurements had to be re-evaluated, according to David Layer, senior engineer in the NAB's Science and Technology Department.

"Because some retesting needed to be done, the subcommittee did not formally accept the data report," Layer said. "We won't accept the report until we feel it has been completed."

For example, test D-1, with variable injection and no audio, was done again. Layer stressed, though, that the retests were "minor things."

Proponents' review

At press time, the supplemental data were in the hands of the proponents — Digital DJ, Mitre and Seiko Telecommunications. The NRSC, said Layer, will review the report, with an eye on accepting it, by June.

Jim Marshall, previously an associate department head with Mitre, said, "The tests fall into two categories. Do any of these systems interfere with either the host analog or any of the other subcarriers? And two, how well do the systems themselves perform?"

Marshall, now vice president of engineering with Radio Dynamics Corp. and a consultant to Mitre, said, "It's my opinion that all (three) of the systems did fairly well in terms of not interfering with any of the other signals that are on the carrier, including analog. I don't think any of the systems were perfect, but by and large, they did pretty well."

"On the other hand, in terms of robustness and reliable message transmission, the Mitre stick system was far and away the best performer — particularly under multipath conditions."

Joel Schwartz, vice president of sales and marketing for Digital DJ, said, "We were very satisfied with the outcome of the tests. It confirmed that there is no interference with the main channel signal and that we do not interfere with RDS. Those are the two most important issues."

All three proponents have signed on to participate in the next phase of field testing to take place in Cleveland, using Kent State University station WKSU-FM and Nationwide Communications station WGAR-FM.

On the other hand, in terms of robustness and reliable message transmission, the Mitre Stick system was far and away the best performer.

— Jim Marshall
Consultant to Mitre

"We're using two stations because we want to experiment with different formats," said Layer. "That can have an impact on compatibility. We want to make sure (this) is compatible with all different types of signals."

The same vehicle that was used for digital audio broadcasting (DAB) field tests — a Winnebago van — will be used in Cleveland.

It is equipped with racks of equipment, AC power generators and a special antenna platform. The tests — which will last from 4 to 12 weeks — were scheduled to get under way in April or May. Following these tests, the final phase of the program will begin: a 67 kHz-compatible lab test for the Mitre and Seiko systems.

"The systems were (already) tested for compatibility with 92 kHz analog subcarriers," Layer said.

"The center frequencies for the high-speed systems are down around 67 kHz. By design, they would not be compatible with 67 kHz subcarriers; they occupy the same space in the spectrum.

"In the case of Mitre and Seiko, they can be moved to where 92 kHz subcarriers usually are. In that case, they should work with the 67 kHz subcarrier."

Digital DJ's Schwartz said, "We're centered at 76 kHz. We use the bulk of the spectrum, because to work in a mobile environment, there must be a robust signal."

Gary Gaskill, director of systems architecture at Seiko, said, "In one-half of the bandwidth, we can send out 38 kb — so we get twice the amount of data. That's not something that shows up in the tests."

While the companies debate the merits of the spectrum, Layer is hopeful that all tests will be completed by the end of this year.

Then the NRSC will make its recommendation concerning a possible HSSC standard.

"That report will be presented to the full NRSC," said Layer. "By letter ballot, the full NRSC will either accept or reject the standard that's recommended."

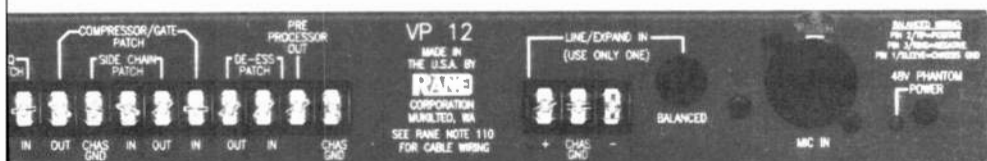
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CBS' Barbara Cochran Named President of RTNDA

by Matt Spangler

WASHINGTON Former CBS News Executive Producer for Politics Barbara Cochran is the new president of the Radio-Television News Director Association. David Bartlett resigned in December over differences with the RTNDA board.

Cochran had run the CBS News Washington bureau since 1989. She joined NBC news as political editor in 1983, and was named executive editor of "Meet the Press" in 1984. Prior to that she was head of news for National Public Radio, where she helped establish "Morning Edition."

Speaking with **RW**, she seemed ready to

deal with the regulatory and technological challenges that face broadcasters today.



Barbara Cochran

"Electronic media is at a real crossroads, both because of rising public mistrust and because of more and more attempts at government limitations or interference with the First Amendment rights of our business," she said. "I think it's very important to maintain and build on RTNDA's position as an industry leader and speak out on behalf of electronic journalists."

"I also think that with the growth in new media — the technological explosion — that individuals working in our business need a reliable source of information."

RTNDA Chairman Mike Cavender, of WTSP(TV) in St. Petersburg, Fla., said the association was seeking a candidate with a wide range of experience like Cochran. "I think that's particularly important in this era of new media, when we're expanding our horizons in terms of the different type of media that we serve, and Barbara is uniquely qualified to do that because of her experience in all of the major media," he said.

Cavender said Cochran's longtime experience in Washington will be of great benefit to the association. "She knows the regulators, she knows the people on the Hill; she will be in a great position to make known our case and argue our issues before those who are concerned with it."

Cochran characterized her relations with Capitol Hill lawmakers as "friendly and fair."

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- C) 5 KIDS—'NUFF SAID!

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- C) ALL OF US THINK HE WAS RAISED BY WOLVES

TODD (SALES) IS GETTING READY TO LEAVE BECAUSE:

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NFCB: Roots, Communities In Focus

by S. D. Yana Davis

LINCOLN, Neb. Without question, community broadcasters face their own set of special challenges. Those were apparent at the Annual Community Radio Conference of the National Federation of Community Broadcasters. More than 200 representatives of community non-profit radio stations gathered to focus on "our roots, our communities and our future."

The event drew attendees from community-licensed stations as large as Boston's WGBH(FM) and host Lincoln's KZUM(FM). According to Dick Noble, CEO and general manager of KZUM, the small Midwestern city was "more reflective" of community radio stations' locations.

Opening events included affiliate meetings, live uplinks of national community radio programs such as "Native America Calling" and "Linea Abierta," and an intertribal powwow of Native American community radio broadcasters.

The NFCB mantra

The 230 stations represented by NFCB represent a subset within the larger universe of public non-profit stations: Community stations typically offer many more hours of locally produced programming, and usually carry fewer hours of National Public Radio programming than do other public stations.

"The focus was to begin a strategic planning process," said Carol Pierson, NFCB's federation services director. She characterized the process as a "future search, honoring the past, understanding the present and planning for the future."

Like most other non-profit stations, community stations have a tradition that emphasizes a blend of programming for audiences and a mission to serve the community with unique and diverse programming, according to Pierson.

In his keynote remarks, Bill Siemering, a founder of National Public Radio, recalled the history of community stations, but emphasized planning for the future.

"Our core values," Siemering said, "include responding to the audiences we serve, being inclusive, capitalizing on the strengths of radio as a medium." What

See COMMUNITY, page 17 ▶

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World Radio History

Ownership on Congress' Plate

► OWNERSHIP, continued from page 7
FCC to allow foreign investment in broadcasting.

However, as it stands now, he said, Section 310 does give the FCC authority to allow more than 25-percent indirect foreign ownership in a broadcast station if it chooses, but he added that it was highly unlikely that the FCC would do so.

Although FCC Chairman Reed E. Hundt is not expected to allow 100-percent foreign ownership of broadcast licenses, Markey suggested that the FCC might act differently in the future.

Markey's bill

"I am particularly concerned about the (Clinton) administration's current interpretation of the FCC's authority because it implicates foreign ownership of U.S. television and radio stations," Markey said at the hearing. "Section 310(b) treats foreign ownership issues for both broadcasting and common carrier licenses the same way.

"Congress certainly did not envision that the Communications Act could be read in a way that would wind up allowing 100-percent foreign ownership of U.S. television and radio stations.

"Yet if a future FCC interprets the statute for broadcast licenses the way it is doing now for common carriers to address this current trade deal, this could happen."

To prevent such a situation, Markey

planned to introduce a bill to "clarify" the Communications Act of 1934 regarding foreign ownership. The intent of the bill, said his spokesman, is to treat broadcast licenses differently from common carrier licenses.

The bill would not permit any alien or foreign corporation to own broadcast, common carrier or aeronautical fixed

Rep. Markey suggested that a future FCC might allow full foreign ownership.

radio station licenses. Corporations in which more than one-fifth of the capital stock is owned or voted for by a foreign government or foreign corporation would also be prohibited from owning these licenses.

Further, if passed, Markey's bill would not allow the FCC to grant broadcast licenses to any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is "owned of record or voted by" a foreign entity. In other words, Markey's bill would block 100-

percent indirect foreign ownership.

Foreign ownership of broadcast stations has been hotly debated on the Hill before. During the birth and development of the Telecommunications Act of 1996, Republicans like Rep. Michael Oxley of Ohio wanted to lift the restriction in the 1934 act that prohibits foreign nationals from owning more than a 25-percent interest in a given broadcast facility.

One Senate draft of the bill included a "reciprocity clause," whereby broadcast ownership opportunities would be given to citizens of countries that provided "equivalent market opportunities for common carriers to citizens of the United States."

At the time, administration officials testified against the foreign ownership proposal, citing concerns about national security.

Last month, Oxley penned a stand-alone foreign ownership bill and introduced it in the House. Republican Sens. John McCain of Arizona and Conrad Burns of Montana introduced it in the upper chamber.

McCain, chairman of the Committee on Commerce, Science and Transportation, said the bill was intended "to clarify the authority of the FCC to authorize foreign investment in United States broadcast and common carrier licenses."

Like Markey's proposal, the trio's bill prohibits any alien or foreign corporation from directly holding a U.S. broadcast

license. But the bill preserves the wording found in the Communications Act of 1934 with regard to foreign ownership of broadcast stations.

The door is opened, however, for indirect foreign ownership of broadcast stations.

"No broadcast radio station license shall be granted to ... any corporation directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens ... if the commission finds that the public interest will be served by the refusal or revocation of such license," the proposal states.

Read differently, the Oxley version would allow a corporation that was directly controlled by a foreign entity to own a U.S. broadcast license, if the FCC believed that was in the public interest.

"The wording of the statute is subject to interpretation," said an Oxley spokesman. He stressed that the new bill is not intended to change the current law for broadcast licenses.

In an interview with **RW** (April 2), Burns, chairman of the Subcommittee on Communications, appeared to favor providing foreigners the opportunity to own U.S. broadcast properties.

"Before our people in the U.S. can invest in broadcast properties offshore," he said, "I think we're going to have to allow some foreign ownership in the U.S. It's not just a one-way street."

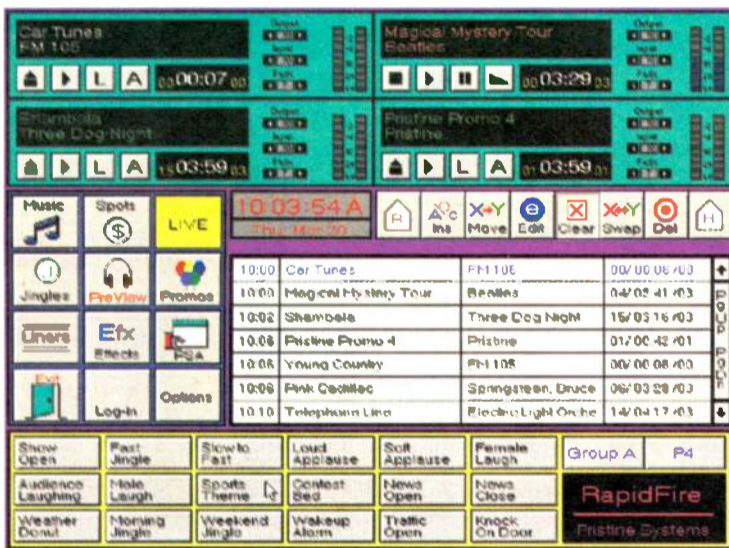
Burns did admit that he expected "quite a debate" when the time comes to discuss foreign ownership. That time may be at hand.

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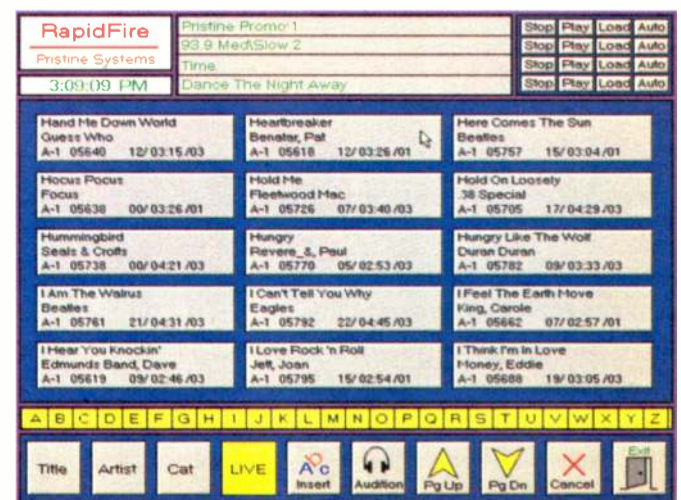
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Quick Pick Screen

Future Bright for Community Radio

► COMMUNITY, continued from page 14
 listeners hear when they tune in a community radio station is likely to be noticeably different from what they hear on other public stations, and dramatically different from commercial stations.

"There was definitely a debate (at the conference) about what it means to serve an audience," said Norman Stockwell, operations coordinator at WORT(FM), Madison, Wis.

A session led by Bill Thomas of Nebraska Public Radio explored ways to resolve the traditional conflict of programming to gain wider audiences vs. programs that serve the "unique mission" of non-profit radio.

Stockwell's station, operating in the shadow of non-profit giant Wisconsin Public Radio, offers a "program salad" — an eclectic variety of music and public affairs. "We have classical, folk, jazz and rock music, as well as issues programming for women, some Spanish-language programming."



Keynote Speaker Cantor Michael Weisser and NFCB President and CEO Lynn Chadwick

WORT also carries BBC newscasts, Pacifica Network news and some specials from Public Radio International. Stockwell thinks the localism of community stations puts them in a strong position, especially with "the large media mergers, and fewer and fewer stations with local control." He said he feels the emphasis on local programming, combined with strong volunteer and outreach efforts, will continue to ensure the viability of stations.

Funding

NFCB's member stations, unlike institutionally licensed public stations, are typically owned and operated by community-based non-profit corporations or foundations. Lacking the institutional money that university licensees, for instance, receive, the community stations must raise all of their operating revenues.

"Funding is a major issue (for community stations)," said Pierson. Several sessions focused on underwriting and capital campaigns.

Not surprisingly, other sessions covered audience research for large and rural markets. Community stations, like other non-profits, have long since realized the direct relationship between audience and station revenues.

Stockwell thinks Corporation for Public Broadcasting officials ought to be more aggressive in their efforts before Congress. "They really need to take a more aggressive stance. Community stations are a vital part of democracy. The effort for CPB should be not just to maintain funding but to present levels but increase it."

"We need to depend more on ourselves

and less on CPB," said Noble, general manager of KZUM, offering a view shared by many conferees. Noble insisted that building on localism is a strength for community stations and can generate increased revenue. "Our program guide pulls in about \$2,000 a month in ad revenues," he said.

Noble said outreach efforts strengthen listenership and open "opportunities for new funding from underwriting (business sponsorship)" as well. He characterized these relationships as "enlightened self-interest" for KZUM and other community stations, in which fulfilling mission, building audience and fund raising go hand in hand.

Although many community stations are not full-fledged members of NPR, the major non-profit radio network, Pierson said the managers of those that are have definite opinions about its future.

Market-exclusive programming is one particularly hot topic. Among NPR's members, there is a growing sentiment that stations be allowed to reserve their markets exclusively, which would mean smaller, community stations might not be able to broadcast NPR programs if their signals overlap those of a larger station with full membership.

"Generally, our members would be opposed (to market exclusivity)," said Pierson. Full NPR membership, she said,


is dependent not only on a station's ability to pay the full fees and program costs NPR assesses but meet the requirement of five full-time staff members.

Many community stations have only one or two paid staff members. Other tasks are done by volunteers.

These stations nonetheless qualify for "auxiliary" NPR membership, and thus can broadcast NPR programming. A market-exclusive arrangement would bump entirely many community stations that now carry some NPR programs.



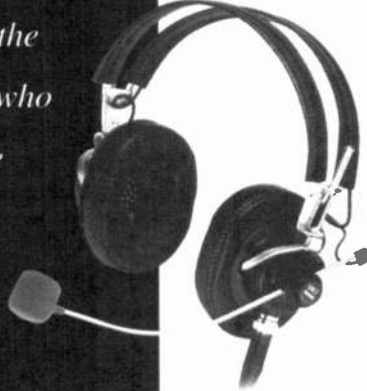
S.D. Yana Davis is development director of WUOT(FM) at the University of Tennessee in Knoxville, Tenn. He has been a classical music producer, media consultant, account executive and DJ. Reach him via e-mail at yana@novell.ur.utk.edu.




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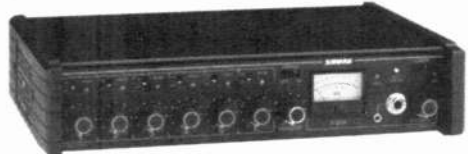
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Much Ado About Public Satellite

by D. C. Culbertson

WASHINGTON Outside of original material, the primary source of programming on public radio stations is by way of the Public Radio Satellite System. Established in 1979 with funds provided from the Corporation for Public Broadcasting, the system currently transmits more than 25,000 hours of widely varied programming per year to more than 400 stations, and is in operation 24 hours a day, seven days a week. But at least one prominent community broadcaster isn't happy with it.

In order to receive programs over the system, a station must operate a terminal capable of receiving the proper satellite system and pay an annual distribution-interconnection fee. Sources wishing to transmit programs, which can include the stations themselves, organizations or independent producers, must register and request channel space and time through NPR Distribution and pay a fee based on the program's length, mode (mono or stereo) and time of transmission.

The system is managed by National Public Radio's Distribution Division and based at NPR headquarters in Washington. It is governed by NPR's Board of Directors, particularly its Division/Interconnection Committee, which proposes rates and policy to the board as well as overseeing its operation. This committee meets four times a year

and is made up of members of the NPR board as well as four non-board members. They are nominated by the board and voted in by all the interconnected stations.

That creates a problem, according to Lynn Chadwick, president and chief executive officer of the National Federation of Community Broadcasters. She served on the committee for three years. Because NPR's board has the power to approve or disapprove any committee policies, she feels the committee is more of "a loop within a loop" and little more than "window dressing."

Because the committee is so closely connected with NPR, she said, a real danger of conflict of interest arises. For example, she said, satellite-distributed programs are priced in a way favorable to NPR and PRI member stations, potentially hurting the 20 percent of stations that are not. Another possible conflict: the satellite's main uplink is at NPR.

A heretic?

Current board members on the committee, elected last November, include Anthony Dean of WCBU(FM) in Bradley, Ill., Catherine Fraser, general manager of KDAQ(FM) in Shreveport, La., Don Mullally of WILL-FM in Urbana, Ill., James Paluzzi of KBSU(AM) in Boise, Idaho, and chair Dennis Hamilton of KNOW-FM in St. Paul, Minn.

Non-board members include Kimberly Haas, executive producer of the indepen-

dent show "Echoes," Susan Braine of Koahnic Broadcasting in Anchorage, Alaska, Larry Josephson of the Radio Foundation in New York and Bruce Theriault of Public Radio International.

According to Chadwick, no one at NPR is willing to discuss possible changes in the governing of the system, saying any talk of this kind is regarded as "heresy." She said that, when her term on the D/I Committee was up some years ago (she was appointed to fill a vacancy), she was not nominated for a regular position. She thinks she knows why: At a private meeting with NPR management, she openly proposed that the system become independent, a suggestion she says was considered "disloyal."

To her knowledge, no one else has said anything about this publicly, because the majority of satellite system users either are satisfied with PRSS or using other systems they find adequate for their needs.

Chadwick said that most of the stations that have complained about PRSS, which include many NCFB member stations, were not provided with downlinks and thus had to raise the money for them. This was often prohibitively expensive, because E-band receivers of the type PRSS uses can run \$40,000 to \$50,000. Many of the stations not provided with downlinks are already operating on limited budgets. As a result, according to Chadwick, they often turn to systems such as a KU band set up by Pacifica, which generally costs



between \$4,000 and \$5,000. However, the types of programming available on such systems generally are more limited.

Declaration of independence

Pete Lowenstein, vice president for distribution at NPR, disagreed with Chadwick's comments. He said PRSS is already "pretty much independent" from NPR, maintained and governed separately. He said, "It's considered a common asset for all parts of the system without any special benefit to NPR."

Lowenstein also cited several actions at the D/I Committee meeting last fall, aimed at eliminating or reducing costs for various services. These include continuing free channel and uplinking services for AIROS (American Indian

See NPR, page 20 ▶



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KTAR-AM

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NAB '97: Radio, Digital TV, PCs

► NAB, continued from page 1

recognized the importance of the moment, calling it "historic." He was speaking of the advent of DTV, but with large-scale consolidation and the entry into a digital age, radio is undergoing a renaissance itself.

Hundt reiterated his support for giving free airtime to politicians during elections as an instrument of campaign finance reform. In the realm of content, he once again accused broadcasters of not devoting enough time to public service announcements, and also called upon the industry to develop a code for the airing of liquor advertising.

NAB President Edward O. Fritts said Hundt's call for a code was "a solution in search of a problem," a solution that accomplishes nothing.

Like Hundt, keynote speaker Michael Jordan, chairman and CEO of Westinghouse Electric Corp., expressed concern that broadcasters may be moving away from their public interest roles, placing this in the context of post-Telecom Act consolidation. He suggested that broadcasters reaffirm their commitment to public interest issues. "Whenever there is a dramatic change," he said, "there is naturally contention and debate over issues and events. Let us be sure that no one interprets that healthy debate to be a retreat from our public service role."

Assistant Attorney General Joel I. Klein was also on hand to brief attendees on the substance of his dialogues with NAB over the past few months on the Justice Department competition analyses of radio mergers and acquisitions. The DOJ's position that radio should be defined as a market separate from other media has been unpopular with broadcasters. Klein said that if one group owns 100 percent of the stations within a given market, there would certainly be a competitive impact.

Speech, speech!

CNN personality Larry King addressed the Broadcast Education Association, amusing the crowd with tales of his slow start in radio. Call-in show host and former presidential candidate Alan Keyes spoke at a National Religious Broadcasters breakfast. Legendary adman Dick Orkin — known for his popular 1960s radio serials, such as "Chickenman," "The Tooth Fairy" and "The Marked Minuteman" — explained his theory of "relationship advertising" at the Radio Luncheon.

Orkin competed against long-time WGN(AM) morning man Wally Phillips, who was inducted into the Broadcasting Hall of Fame at the luncheon. "Wally, how in the world did you do it all those years?" Orkin quipped. "I mean, without even once discussing underwear or private parts."

The Crystal Radio Awards, which honor stations for community service, were also given out at the luncheon. The winners were KBHP(FM), Bemidji, Minn.; KKBT(FM), Los Angeles; KMAS(AM), Shelton, Wash.; KMBZ(AM), Kansas City, Mo.; KWOA(AM), Worthington, Minn.; WJLS-FM, Beckley, W. Va.; WKLX(FM), Rochester, N.Y.; WLTE(FM), Minneapolis; WMMX(FM), Dayton, Ohio; and WSM(AM), Nashville, Tenn.

Engineering consultant George Jacobs, instrumental in the launching of Voice of America and the modernization of Radio Free Europe and Radio Free Liberty, was honored with the Radio Engineering Achievement Award.

The Internet Age

Radio managers who use the Internet watched with wonder and some trepidation as computers and television continued to merge. Progressive Networks and Major League Baseball tested the first live video broadcast of big-league ball over the Internet during the show. As video on the Web improves, radio webcasters must decide how to position themselves against potential new content providers with deep pockets and plenty of video hardware already available to them.

NAB Research and Information Group Vice President Rick Ducey, speaking at the Broadcast Engineering Conference, predicted a "third age" of consumer media products — an "Internet Age," to follow the ages of newspaper and broadcast. "However," he said in his keynote remarks, "... we can manage our media assets and distribution platforms to also diversify very successfully into Internet-Age economies."

One step in the progression of that age occurred at the show: **RW** learned that Telos Systems has signed a contract with St. Louis syndicator Olympia Online to

sign approximately 100 stations for webcasting with the Telos Audioactive system. Telos and its fellow exhibitors at Internet@NAB.97 saw lots of foot traffic this year.

Let's get digital

Radio's entry into the digital age was the hot issue for engineers at the show. The controversial results of the Consumer Electronics Group's field testing of digital audio broadcasting (DAB) systems in San Francisco were hashed out at the "Digital Sound Broadcasting" sessions. CEG was criticized by in-band, on-channel proponent USA Digital Radio for alleged bias in the testing procedures. USADR, which withdrew its system from the field tests but plans to begin testing of a system improved with the help of Westinghouse Wireless Solutions, was the only DAB proponent exhibiting at the show.

Even though 24 MHz of spectrum had just been auctioned off by the FCC for the development of a national satellite radio service, digital audio radio service did not seem to weigh heavily on the minds of attendees. Neither of the two auction winners, Satellite CD Radio and American Mobile Radio Corp., exhibited, and none of the sessions dealt explicitly with the new service. One broadcaster typified the attitude on the minds of many about the service, expressing doubt about the lack of localism in any satellite

radio service: "I ... don't think people are used to paying for their radio."

Exhibitors reported improved traffic this year at the Sands Expo Center, although some booth managers in the radio/audio hall said traffic seemed spottier than last year. Hot technologies shipping or promised for this year included digital consoles, codecs for traditional phone lines, new on-air processors and uncompressed studio-to-transmitter links.

EAS and BEA

Three months past the FCC-imposed deadline for installation of the Emergency Alert Systems (EAS), attendees at the Society of Broadcast Engineers board meeting said they think the systems are working well, though there a few bugs that still need to be worked out.

"The engineering community thinks it's a good system and is working hard to develop it and make it effective," said Leonard Charles, SBE board member and chairman of the organization's EAS committee.

Of course, no one climbs a tower or steps into a booth without getting a little schooling first. Attendance at the Broadcast Education Association's career fair was up 50 percent from last year, according to Dwight M. Ellis, vice president for the department of Human Resources Development of NAB. The fair stressed the ability to network, education and skills as the keys to success.

■ ■ ■
Managing Editor Paul J. McLane contributed to this story.

(Nearly) Done Deals at NAB '97

by Paul J. McLane
and Matt Spangler

LAS VEGAS Some of the most exciting developments on the manufacturing and supplier side were not visible on the showroom floor at NAB '97.

Harris Corp. signed a letter of intent to acquire Northeast Broadcast Lab Inc., a supplier of radio equipment and studio systems. NBL will become part of the Harris Broadcast Division studio operation in Richmond, Ind.

Harris will maintain a sales center at NBL's current facility in South Glen Falls, N.Y. The owner and founder of Northeast Broadcast, Bill Bingham, will head the expanded radio systems business of Harris, and will be based in New York.

The move brings together two names familiar to equipment buyers. NBL has a strong presence in the northeastern United States. Jim Woods, studio product line director for the Harris Broadcast Division, said the acquisition will help Harris expand its sales channels there and increase the company's ability to meet demand for radio turnkey systems.

He said the deal should be closed in a few weeks, but did not comment on specific plans for employees of Northeast Broadcast other than Bingham. No terms were disclosed.

Jacor on the move

Jacor came away from NAB '97 with a couple more networks under its belt.

The 100-plus station group (112 as of mid-March) announced the purchase of Premiere Radio Networks, producer of 52 syndicated programs and services on

more than 6,300 affiliates. The total consideration to be paid by Jacor, including warrants and stock options, was expected to be approximately \$185 million.

The company also revealed that it had bought National Satellite Networks, a VSAT satellite systems and services provider, specializing in customer support. Satellite services the company provides include spacetime, shared hub services, turnarounds, disaster recovery and portable uplinks.

Bill Sepmeier, vice president of satellite engineering at NSN, said, "Probably the primary reason Jacor decided to acquire NSN is because of their extremely rapid growth. They desperately needed an infrastructure, a backbone for communications within their own company ..."

Randy Michaels, CEO of Jacor, said the deals make Jacor "a fully integrated radio company." It is now the largest radio group in the United States (measured by number of stations) and recently purchased E.F.M. Media, home of Rush Limbaugh and Dr. Dean Edell.

B.E. obtains Dolby DSTL

Broadcast Electronics Inc. will acquire the digital STL product line of Dolby Laboratories. The DSTL line will be marketed by Marti, and sold through its distribution chain and the Broadcast Electronics RF Systems sales group.

The Dolby product line was one of the first digital STLs on the market. B.E. will retain the DSTL name for the products and will move the manufacturing operation to its Marti plant in Cleburne, Texas within a few months, according to

Marti President Jim Godfrey.

In its announcement the company stated, "The new DSTL addresses the needs of the rapidly consolidating radio industry, requiring two- and four-channel digital STL products to make more efficient and reliable use of the allocated spectrum."

B.E. President Jack Nevin said the acquisition gives Broadcast Electronics another offering for high-end customers.

"In the 1980s we went 'up-market' with the FX-50 exciters (and) the high-powered transmitter line," he said. "The Dolby digital STL gives us what I consider the best, high-end digital STL in the four-channel version today."

Terms of the Dolby deal were not disclosed.

McCurdy Radio sold

One of the latest players on the radio equipment side is a television company. TV automation company Drake Automation Ltd. announced at the show that it was purchasing automation and professional audio equipment manufacturer McCurdy Radio Industries. DAL Managing Director Barry Goldsmith said the move was designed to strengthen the company's hold on the North American market. He also said the consolidation will couple the technological and manufacturing strength of McCurdy, with the sales, marketing and application strengths of DAL.

There will be no major changes to McCurdy. "Basically the McCurdy operation," Goldsmith said, "which is very much focused on the manufacturing and technology side, will stay as is. That includes the audio products."

Long Road to KIEV Power Hike

by Sharon Rae

GLENDALE, Calif. Increasing power near a national border is not a simple process. The owners of KIEV(AM) should know; the station has increased power four times in its long history. The most recent is a casebook story of the complications of dealing with two governments.

The Federal Communications Commission has given a thumbs-up to an application by Los Angeles-area KIEV to increase its daytime operating power from 15 kW to 20 kW at 870 kHz.

Approval for the boost in juice didn't come about easily.

"Because we are close to a station (XEMO) in Tijuana, Mexico on frequencies, we had to prove to the Mexican government that there would be no interference in order to increase the power," said Fred Beaton, general manager of KIEV.

"The Mexican government had sort of a say in our grant because we had to submit it to them and have them review the information to conclude that we would not interfere with their border station ... There's a treaty between the U.S. and Mexico that we will protect each other's radio frequencies."

That treaty is called the "Agreement Between the Government of the United States of America and the Government of the United Mexican States Relating to the AM Broadcasting Service in the Medium Frequency Band."

It's a long name that proved to be an even longer process for the historic Southern California station.

"...(T)here are formal treaties in the U.S. and Canada and Mexico as to how they will handle situations that involve the other's concurrence and applications," said Beaton's attorney, John Crigler, of Haley, Bader and Potts in Arlington, Va. "They recognize that because they're bordering nations, allo-



KIEV is Los Angeles' 'Talk of the Town.'

cations in one country may affect allocations in another country."

Horse trading

Among the problems facing American broadcasters in this situation is the application process, Crigler said.

"One of the frustrations is that in the past, (each station's) situation often wasn't dealt with as an individual situation. They were thrown into a basket with a whole bunch of other applications and the two countries would sort of get

There's a treaty between the U.S. and Mexico that we will protect each other's radio frequencies.

— Fred Beaton
KIEV

together and 'horse trade.'"

Crigler said the system does seem to be improving, however.

"The main change ... which I think has been informally agreed to by the staffs of the respective communications agencies, is that they'll try to deal with applications

from either country as they come up," Crigler said.

"And that's been the model between the U.S. and Canada. But the KIEV application was caught up with many other applications in the old system.

"So even though the U.S. was ready to grant its application," he said, "we needed Mexican concurrence, and it was hard to get that."

While Beaton contended the Mexican government gave his station's application a fair and fast hearing, Crigler said it was

a bumpy road up to that point.

"It took some time," he said of the nearly 4-year window between the filing of the application and the grant.

"Again, because as far as Mexico was concerned, we were not just one application, but one of a lot of applications that they had to worry about. We couldn't get them to just focus on our application alone."

More night power

KIEV has a long history of being "The Talk of the Town" in the L.A. area.

This is the fourth time the family-owned and -operated KIEV has seen an increase in power since signing on the air in 1928. It began broadcasting with 250 W.

The FCC also gave KIEV approval to boost its nighttime power as well, from 1 kW to 3 kW.

"It's going to be very exciting to triple our power and really be a voice at night," said Beaton. "In 1984, we were the first station to be authorized to go on the air at night on the clear-channel frequency.

"I think it's going to be very good for the city of Los Angeles to be able to hear our station," said Beaton. "A lot of the stations are becoming Hispanic now in this area, and I think this will strengthen English-language talk radio."

Satellite Committee Controversy

► NPR, continued from page 18

Radio on Satellite) and the mostly Spanish-language satellite through September 1999, keeping the yearly D/I fee for 1997 at the

Participants also discussed the best way to deal with low-income stations that currently pay a reduced D/I fee based on a sliding scale.

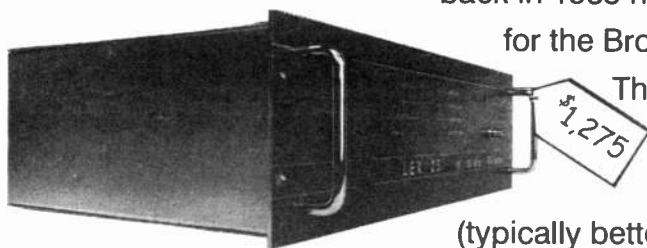
same rate as 1996 (\$6,000), setting a new, lower monthly rate and approving a new overnight rate for the satellite's Washington uplink to give local producers some financial relief.

Participants also discussed the best way to deal with the system's 93 contributing stations, low-income stations who currently pay a reduced D/I fee based on a sliding scale. Lowenstein does not agree that the system is skewed in favor of NPR member stations.

"The system operates for the benefit of all in public radio ... It's up to the users of the system how they prefer to operate." Even Chadwick admits that the system is "a lot more open than most distribution systems" because it can potentially be used by anyone.

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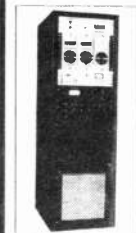
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Community Radio's Best Honored

LINCOLN, Neb. The Golden Reel Awards honor outstanding and creative uses of the medium, for community radio broadcasts and station-based and independent productions. The National Federation of Community Broadcasters held its 1997 award ceremony during the annual Community Radio Conference last month.

The winners, organized by award category are:

Special Local Entertainment/Music Program

Golden Reel: "The Big Payback," Producers Delphine Blue and Peter Bochan, WBAI(FM), New York

Silver Reel: "MAD FOR NEWYORK-TOWN: Dark Verse & Light," Producer Terry Quinn/Quinn Art Productions, WBAI, New York

Special Merit: "Música Cinematográfica Puertorriqueña," Producer Carlos R. Camuñas, WRTU(FM), Radio Universidad de Puerto Rico, San Juan, Puerto Rico

Special National Entertainment/Music Program

Golden Reel: "Billy Delle's 1996 Mardi Gras Special," Producers David Freedman, David Kunian and Roger Collins, WWOZ(FM), New Orleans

Special Merit: "Mi Padre y Yo," Producers Araceli Garcia and Samuel Orozco, Distributo Satélite Radio Bilingue, Fresno, Calif.

National Music/Entertainment Series

Silver Reel: "A Shortcut Thru 1995," Producer Peter Bochan, WBAI, New York

Silver Reel: "Sound & Spirit," Producer Stephen Snyder, WGBH(FM), Boston

Local Music/Entertainment Series

Golden Reel: "The Commentary of Ian Shoales," Producer/Writer Merle Kessler, Duck's Breath, Nevada City, Calif.

Silver Reel: "Folk Music and Beyond: Conversation with Bernice Johnson Reagon," Producer JoAnn Mar, KALW(FM), San Francisco

Special Merit: "Hans Otte Profile," Producer Mark Laiosa, WBAI, New York

Station Promotion

Golden Reel: KXCI Fundraisers, Producer Joseph Vincenza, KXCI(FM), Tucson, Ariz.

Silver Reel: "Test/Tired of Fund Drive?," Producers Rich Kirby and Tom Hansell, WMMT(FM), Whitesburg, Ky.

Silver Reel: "Listen Up," Producer Youth Radio, Berkeley, Calif.

Silver Reel: "The WGBH-FM Classical Music Contest," Producer Michelle Sweet, WGBH-FM, Boston

Special Merit: Iowa Week Promotions, Producer WOI-AM-FM Staff, WOI-AM-FM, Ames, Iowa

Radio Drama

Golden Reel: "Women and Cancer Radio Project: The Goose That Laid the Golden Egg," Producer Asata Iman, Kirsten Thomas, Chupoo Alafonte, Mary Salome, Cari Core and the Alumni of the KPFA Apprenticeship Program, KPFA(FM), Berkeley, Calif.

Silver Reel: "Frankenstein: Modern Prometheus," Producer Craig Wichman, Quicksilver Radio Theater, New York

Silver Reel: "Funny Staff," Producer Youth Radio, Berkeley, Calif.

Special Merit: "Duppy," Producer David D. Wright, WBAI, New York

Special Merit: "Cartas Cruzadas: Hostos y Betances," Producer Brunilda Garcia, WRTU, Radio Universidad de Puerto Rico, San Juan, Puerto Rico

Local News/Public Affairs Programming

Golden Reel: Community News Stories, Producer José Santiago, WBAI, New York

Silver Reel: "The Big Talk Collective," WMPG(FM), Portland, Maine

Special Merit: "Unocal and Burma," Producer Frank Stoltze, KPFC(FM), Los Angeles

National News and Public Affairs Programming

Golden Reel: "The Murders of Roxanne Ellis and Michelle Abdill," Producer Barbara Bernstein for Making Contact, Portland, Ore.

Silver Reel: "La Marcha: A Special on the Latino/a March for Human and Civil Rights," Producer Mario A. Murillo, Distributor Pacifica National Programming

Silver Reel: Youth Radio: Commentaries and Features on National Programs, Producer Youth Radio, Berkeley, Calif.

Special Merit: Black History Month USA, Producer Maria E. Martin, Latino USA, Austin, Texas

Local Special Event Coverage

Silver Reel: "Pit Bull Fighting," Producer Griselda Guitierrez, KCSN(FM), Northridge, Calif.

Silver Reel: "Gavel-to-Gavel Coverage of the 1996 Alaska Federation of Natives Convention," Producer Stephen C. Hamlin, KBRW(AM), Barrow, Alaska

Local Documentary

Golden Reel: "Rip, Rift and Panic," Producer Susan Stone, San Francisco

Golden Reel: "Voices from the Shelter," Producer Lori A. Townsend, WOJB(FM), Hayward, Wis.

Silver Reel: "James Carroll Booker III: The Life, Music and Mystique of the Bayou Maharajah," Producer David Kunian, WWOZ, New Orleans

National Documentary

Golden Reel: "Steel Drivin' Man," Producer Ginna Allison, Albany, Calif.

Golden Reel: "On The Tell It Mountain," Producer Maxine Kenny, WMMT(FM), Whitesburg, Ky.

Silver Reel: "Teenage Diaries," Producer Joe Richman, distributed by National Public Radio's All Things Considered

Silver Reel: "Drug Mules," Producer Leslie George, WBAI, New York

Special Merit: "The Cosmic Connection: Mexican-Americans and Mexico," Producer Maria E. Martin, Latino USA, Austin, Texas

Local Day Parts

Golden Reel: "Saturday Light Brigade" Producers Larry Berger and Bill Lucker, SLB Radio Productions, Pittsburgh

Silver Reel: "The Morning Show," KPFA, Berkeley, Calif.

Silver Reel: "Vintage Vinyl," Producer E. Richard Eason, WZRU(FM), Roanoke Rapids, N.C.

Special Merit: "We the People with Jerry Brown," Producers Tom Whelan and Jerry Brown, KPFA, Berkeley, Calif.

Special Merit: "Voces y Temas de Hoy (Voces de Poetas)," Producer Jesús Vera-Irizarry, WIPR-FM, San Juan, Puerto Rico.

CBS Names Nagler GM of Radio News

NEW YORK CBS News has appointed Harvey Nagler to the post of general manager, CBS News, Radio. Andrew Heyward, president of CBS News, and Scott Herman, senior vice president, news, CBS Radio Networks, made the announcement.

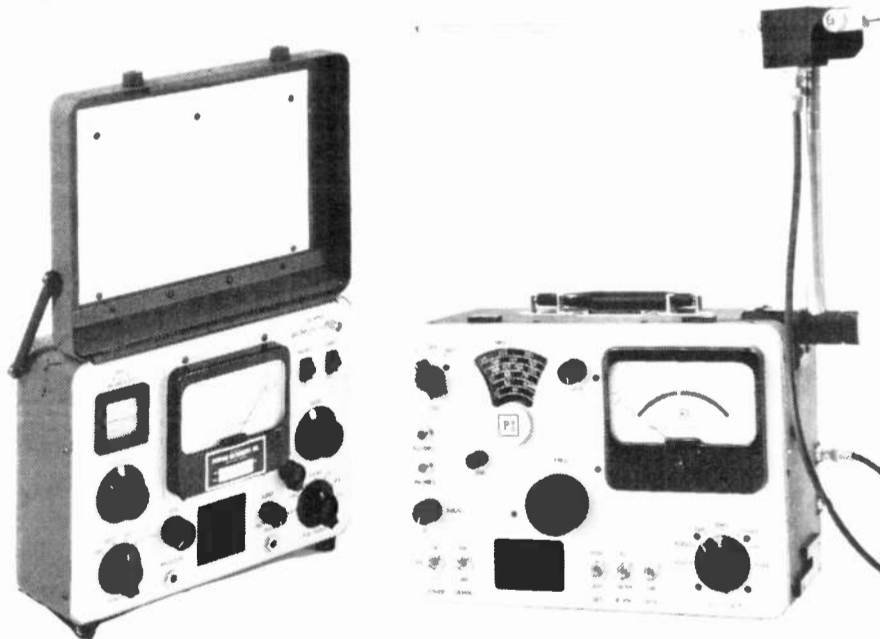
Nagler begins work May 1 and will be responsible for the day-to-day management of CBS News' radio operation.

"I'm very pleased to have Harvey join me and play a key role in continuing to build the best radio news operation anywhere," said Herman. "Harvey is a superb newsman whose intelligence, tenacity and vision — as well as his extensive station and network news experience — will allow us to offer the CBS stations and affiliates a service that is second-to-none."

Nagler comes to CBS News from WCBS(AM) New York, where he has been director, news and programming, since August of 1987. Before coming to WCBS, he was vice president, news and sports, United Stations and networks, and director of news operations, RKO Radio Networks.

— Matt Spangler

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Classic FM: Classic but not Rock

Lee Harris

When the jocks on SW Network's Classic FM service say they're playing your favorite hits from the '70s, they mean the 1770s.

While most of the announcers on the satellite service have backgrounds in classic rock, they've traded in their Hendrix for Haydn and their Bachman Turner Overdrive for plain old Bach. What they haven't surrendered are their FM rocker deliveries and their tight, computer-generated playlists of research-tested tracks. SW Networks is betting that this combination of classical hits and "non-snooty" announcers will be the next hot 25-54 format.

Dayparting

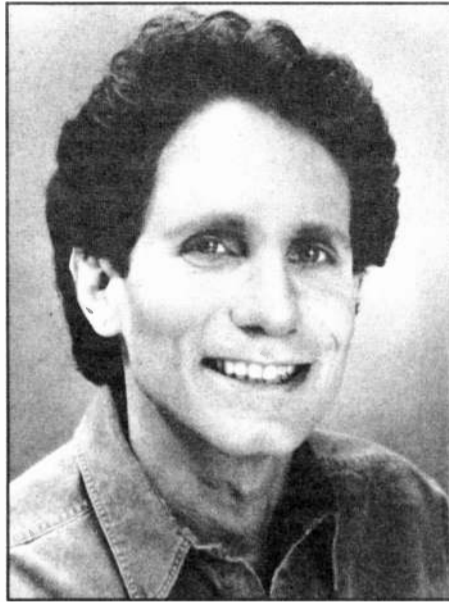
Classic FM is the creation of Tony Rudel, former vice president of programming for New York's WQXR-FM, the grand old lady of the classical format. While Rudel did what he could to make WQXR more accessible to the general public, he said the station wasn't really ready to change.

When SW kicked off Classic FM, there were no limitations, only a target: people who grew up listening to album rock and who might be ready for something a little more sophisticated. "We have truly found a format that blends AOR formats with classical music."

Rudel was quick to distinguish this approach from "Top 40 classical."

"My theory is you can play the hits in the high rotation, and fill out the rest of the dayparts with stuff that is equally beautiful but not as well-known."

Classic FM currently has about 6,000 selections on its playlist, ranging from the "William Tell Overture" to classically oriented film scores for recent movies



Classic Rock and Classic FM Jock
Dennis Elsas

such as "Robin Hood."

Rudel said dayparting is key to Classic FM's programming. "You can't play the entire Beethoven's Fifth in drivetime.

You can't go 35 minutes without a break, but at 1 in the afternoon, you can. We might play the first movement, the hit, at 7 in the morning, and then five days later you might hear the entire symphony in midday."

Rudel also tries to tie the music to the kinds of activities listeners are likely to be engaged in at certain times. "Take Saturday night, for example. Dinner parties are back in fashion, so a lot of the music we play between 6 and 9 p.m. was actually written for court dinners. There's a very elegant feel to it. The grid we use for Saturday morning, when soccer moms are running errands, has nothing in common with the grid for Sunday morn-



a Sony Corporation of America company

ing when listeners are reading the paper or relaxing with a late breakfast. We call it music that's perfect for every part of your day."

Inquiring minds might want to know how this sophisticated dayparting is achieved on a network serving stations in four time zones. Rudel said affiliates have an Arrakis system that takes the satellite signal live, then delays it the appropriate number of hours, feeding the delayed audio onto the local airwaves in

a continuous stream. "It even lets us give the right time. Our jocks can actually say it's 8:15, and it really is, in all time zones."

Given the strong feelings classical aficionados often have about their music, it's not surprising that some regard Rudel's approach as heresy.

"The traditional classical stations have taken every opportunity to take shots at us," he said. "My favorite complaint is when they say, 'All you're trying to do is make a mass market for this format.' Isn't that horrible! I'm trying to get more people to listen to classical music, and I'm Satan."

Rudel said what the critics are ignoring is that most of the classic composers would have heartily approved of Classic FM. "If you read their writings, you see they regarded themselves as entertainers. They all understood that, to survive, they needed to have an audience."

Of course, the audience for classical music has been dwindling for years, and so far, Classic FM has signed only about a dozen affiliates. But Rudel is convinced that the convulsive changes in the radio industry are about to break the field open for his format.

"Group owners who are buying four or five deep into a market don't know what to put on that fourth FM. Why fight a format battle? Why not go after an audience that's going to be lucrative? We get the same audience as NAC, but with a slightly higher income level. Somebody said to me, 'You've become the new beautiful music.' Well, if I had half the stations beautiful music used to have, I'd be a happy man."

Rudel pointed to his Tulsa affiliate, KCFM(FM), as a good example of what the format can do. Once a hurting classic rocker, the station more than doubled its ratings in less than a year, and the audience consists of all the right people. "They've got every BMW dealer in town on the air. The smooth jazz station in town is downscale. We're upscale, but not so upscale that we're inaccessible."

What's it like for a rock jock to spin the classics? Ken Dashow and Dennis Elsas both do air shifts at Classic Rock WNEW(FM) in New York, in addition to their shifts on Classic FM. Dashow always liked classical music, but admitted he didn't know much about it. He noted that many of his listeners were in the same situation.

"We're getting responses from people who never listened to classical before. They say, 'We were afraid to listen before, but you guys are like my friends.'" Dashow knows where they're coming from. "There's sort of a snob club to a lot of classical stations, the way they use little phrases like 'This piece, as you know, was written in 1782.' Well, I don't know. My approach is, here's one of the most beautiful pieces of music in the world, give it a listen."

Dashow agreed with Rudel that Classic FM is in many ways returning classical music to its rightful owners, not royalty or Viennese high society, but the regular Joes or Giovannis. "Mozart even went out and put on Cosi Fan Tutte in an alleyway because he was so annoyed that the common person couldn't afford to go to the opera."

Rudel said several new markets are ready to launch Classic FM in the next few months, but it remains to be seen how many station operators are ready to bet their fourth or fifth ranch on the real classics.

INTERNATIONAL UPDATE

Mexican Radio Shows New Face

Sam Quiñones

As July and the first direct election of a mayor of Mexico City draw closer, radio is ready to embrace its new role as a crucial weapon in the arsenals of political parties here.

Radio's new role was already evident this past fall. When the history of Mexican radio is written, the campaign preceding the November 1996 election in the state of Mexico will be remembered as pivotal.

Political competition

Responding to the increasing discrimination and alienation of Mexican voters, political parties turned to techniques such as door-to-door campaigning, coffee klatches with candidates and widespread negative advertising; in other words, real bare-knuckle political competition.

In the past, when results were rarely in doubt, Mexican campaigns were a boring craft, relying on wall paintings and perfunctory town plaza rallies. That has been changing, and in the state of Mexico, the 1996 political campaign saw a revolution, most noticeable on the radio.

In the days leading up to the election, it was difficult to listen to most AM stations in the region without hearing at least one campaign spot.

"I think this campaign is really a watershed in the use of radio," said José Luis Duran, the victorious National Action Party (PAN) candidate for the presidency of the municipality of Naucalpan. "This is the first cam-

paign in which radio has been used so massively."

The elections show how Mexican radio has matured. Five or 10 years ago, Mexicans listened for entertainment, usually music. But increasingly they view radio as a source of information and analysis. More stations are adding news and talk shows. Radio has

I think this campaign is really a watershed in the use of radio ... This is the first campaign in which radio has been used so massively.

— José Luis Duran

become an important forum for the airing of ideas.

Unsurprisingly, political parties now view radio as a more viable way of communicating.

"We are seeing that political parties understand that the battle from now on is going to be waged in the media," said Carlos Ramos, a talk-show host on Radio 13, an AM station that, like many with news/talk formats, benefited handsomely from the elections.

"Ten years ago, there were many

(government) restrictions. There were not as many news shows and they were shorter in length," said Ramos. "The parties' campaign budgets were used for rallies and other things."

Eduardo Mendoza, state campaign director for the PAN, said, "I think here we have changed political campaigns, made them more personal, and used electronic media more.

"The radio has never been used with such intensity and in such a different way," Mendoza said.

Seeing the effect the medium had during the November elections, the Radio Broadcasters Association of the Valley of Mexico (ARVM) decided to play its new role to the fullest during the upcoming Mexico City mayoral election. (In the past, the mayor was appointed by the president.)

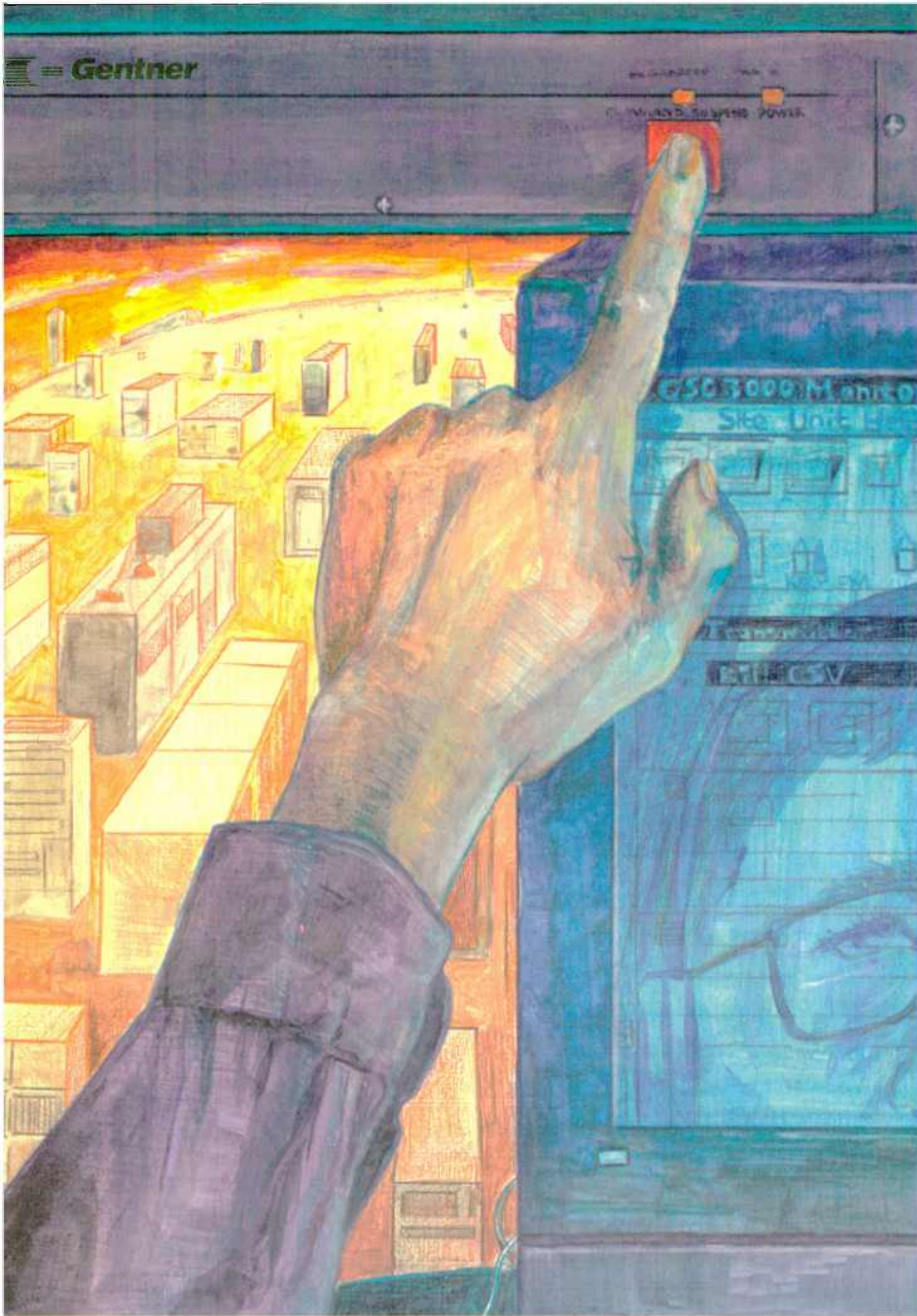
ARVM, which represents 52 of the 58 radio stations in the capital city and the suburbs that sprawl across the Valley of Mexico, recently announced it put up 1 million pesos, worth about \$131,000 in U.S. currency, to sponsor voter opinion polls, a debate among the major candidates for mayor to be aired nationwide, and exit polling on election day.

Major polling initiative

This is the first time any member of the electronic media in Mexico has gotten involved in political polling to this extent.

The battle for the mayor's seat promises to be ferocious, and radio

See MEXICO, page 26 ►



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Circle (14) On Reader Service Card

World Radio History

Mexican Radio

► MEXICO, continued from page 22
 advertising is expected to be a key weapon.

Meanwhile, Mexico will elect 500 members to the Chamber of Deputies, the lower house of Congress, and for the first time the results are truly in doubt. The ruling Institutional Revolutionary Party (PRI) could well lose the commanding majority it has held in the Congress for most of this century.

Vicente Licona, president of the polling firm Idemerc-Louis Harris, said each poll would be based on interviews with approximately 1,200 Mexico City residents. He promised the polls would be "100-percent impartial."

"We have a clear objective here, which is to validate the credibility of radio," Vargas said.

The lessons learned in November helped ARVM to plan this course of action for the July elections. The November elections also helped the political parties learn how to better use radio.

During the November elections, the PAN occasionally used newspapers to convey its message. But, Mendoza said, newspapers are a less effective option because of the large number of ads required and the relatively low readership levels in Mexico.

Because television was not affordable, the PAN turned to radio. The party filled



the airwaves with its slogan, "We Are Change."

"It is an easier way to enter the home," said Mendoza. "(With radio), people do not slam the door in your face and say they have had it with politicians."

No boycotts, cancellations

In the state of Mexico, opposition parties now seem more willing to use electronic media. Nowhere was that change more evident than with the center-left Revolutionary Democratic Party (PRD).

For most of its seven years as a party, the PRD has endured a campaign of government harassment, with the media leading the charge.

Throughout the administration of Carlos Salinas de Gortari, print and electronic media ignored the party or publicized the negative, reinforcing the idea that the PRD was a party of violent radicals.

In November of 1994, Miguel Granados Chapa was fired as a talk-show host at the AM station Radio Mil when he invited PRD leader Cuauhtemoc Cárdenas on his program.

PRD activists developed a healthy suspicion of the media. PRD campaigns tended to view the media as an enemy, not a tool.

That began to change when Ernesto Zedillo became president at the end of 1994 and called for a governmental "hands-off" policy for the media. Since then, PRD activists and the media have made an uneasy peace.

But in the state of Mexico, the PRD showed itself to be a modern political organization when, for the first time, it used radio to get its message across.

The PRD spent approximately one million pesos on the campaign, said Hiram Torres, PRD assistant director of communications.

And in an amazing turn-around, the party hired an ad agency to develop ideas on how to best target segments of the population.

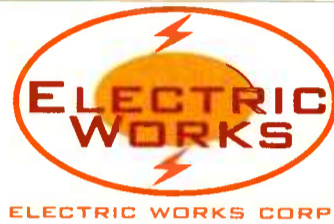
After some fine-tuning, the result was a series of spots aimed at groups the party believed to be part of its natural constituency.

Torres said, "I think the political-reform atmosphere also had its influence. The media could not be left behind. All this involves them. No longer is it acceptable to deny access to opposition parties as they did for many years. (Plus), it is hard for a station to resist when the advertising is paid for."

Sam Quiñones is a freelance writer based in Mexico City.

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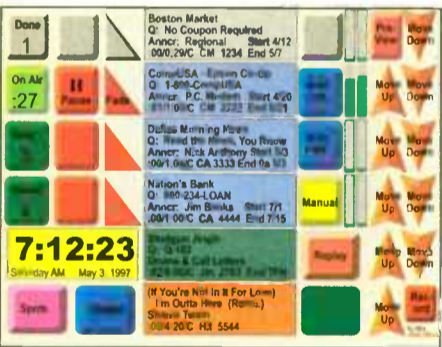
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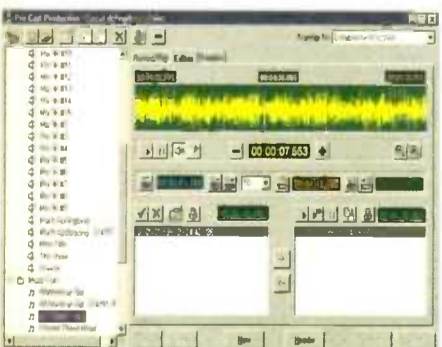
The Scott Spot Box hard drive digital has great audio quality like compact discs, but Spot Box looks and works like "carts"—at low "cart" machine prices.



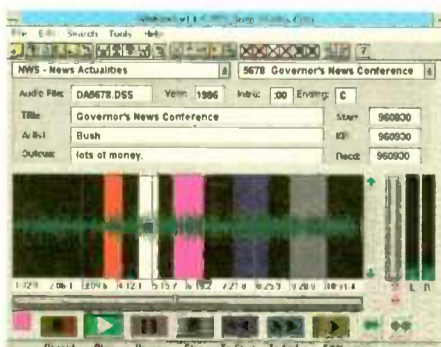
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ROOTS OF RADIO

They Had to Keep Their Mics Cool

Ronald Pesha

In the days before vacuum tubes were used to amplify audio, one of the few ways to modulate a carrier involved passing the RF through a carbon microphone. Just as modulated battery DC passing through a carbon mouthpiece will activate a cheap bullhorn, a radio frequency alternator's output passed through loose carbon granules will do the same only with a great deal of heat build-up. As a result, microphone heating was the talk of the era.

In those days both forced air and the use of liquid coolants received much attention. Reginald Fessenden hollowed a block of soapstone and inserted machined platinum electrodes, forming two separate chambers for a teaspoon of carbon granules. In this way he avoided the common problem of "packing," the phenomenon of granules sticking together under excessive current flow. Fessenden attributed this desirable effect to the expansion of heated carbon granules in one chamber pushing the granules in the other chamber and thus lowering their resistance, diverting current to the cooler side.

Early Cooling

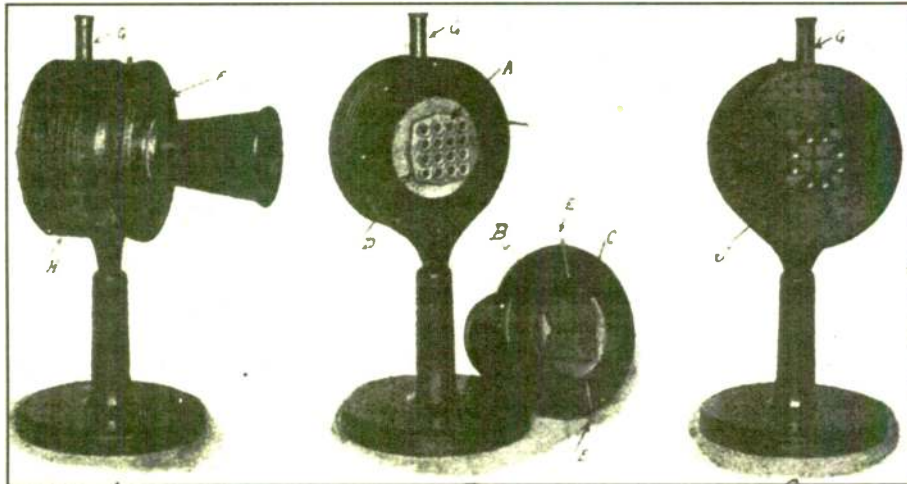
With the circulation through a water jacket cooling the microphone, Fessenden claimed that his microphone could carry 15 amps of RF continuously. This probably discouraged any disc jockey from close talking. However, Fessenden also tried cooling the then-common "telephone relay," actually an amplifier used on long-distance lines fabricated with a telephone dynamic earpiece coupled to a carbon mouthpiece. This removed the microphone from the immediate environs (and noise) of the high-speed alternator used for a generator of RF.

Fessenden used his water-cooled microphone for his famous radiotelephone transmission in December 1906, startling code-accustomed earphoned operators

with voice and violin. He claimed that his microphone could modulate 375 W of RF.

A man named Chambers in 1910 claimed to modulate 400 W with his liquid microphone, combining coolant and an electrolyte. Imagine a nozzle shooting

slippery floor, for the falling carbon is collected in a cup which "at regular intervals ... should be emptied back into the reservoir." It's not clear if the quantity will last through the live newscast until the next spot. The information comes



This Egner-Holmström high-current microphone appeared in 'Radio Telephony' by Alfred N. Goldsmith, published by Wireless Press in 1918.

a stream of conductive liquid against a metal diaphragm. As the diaphragm vibrates the length and cross-section area of the liquid changes, altering its instantaneous resistance. Here the disc jockey must step back to avoid hot water dripping on his shoes.

Spheres

An Italian, J.B. Marzi, combined the coolant and granules by using finely ground carbon as both. The powdered carbon flows like water, apparently just by gravity, from a funnel through a tube which terminates in a hollow half sphere. Inside this half sphere, plugging it, is a solid sphere mechanically linked to a diaphragm. This creates a leaky ball-and-socket joint filled by the powdered graphite. The graphite heats with the passage of heavy current, but it also falls, carrying the heat away. The disc jockey need not be concerned about a graphite-

from Radio Telephony by Alfred Goldsmith, published by The Wireless Press in 1918.

Microphone pioneers Egner and Holmstrom in Sweden used a less-colorful approach to microphone heating by modifying more or less conventional carbon mouthpieces.

In addition to heat-radiating fins on the rear, they circulated cooling oil or other non-conductive fluid across the back of the sensitive element. The lower pipe also functioned as the microphone stand. This simple system could handle only 12 to 18 W, but they connected up to 16 of these microphones in various series-parallel combinations to reach the 200-300 W level. Eight series-pairs in parallel could handle 20 W with a voltage drop of 10 to 15 V. But paralleling two sets of eight series-connected ran 5 amps with a drop of 40 to 60 V. Impedance matching!

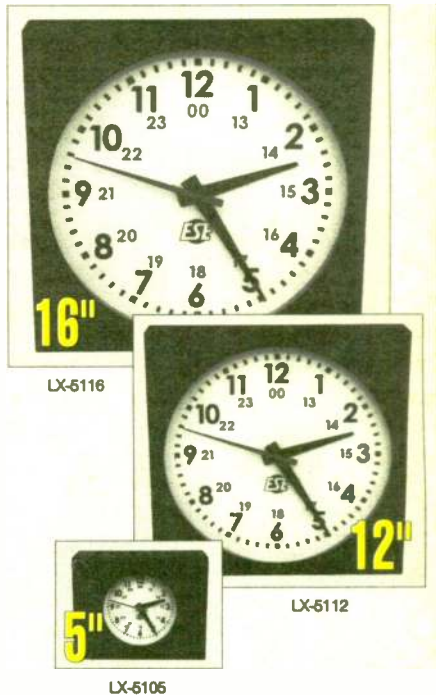
Air cooling appeared less common. The book describes a single example, a heavy-looking machine requiring two floor stands to support a horizontally-mounted fan blowing up. The microphone above is perforated metal, with the carbon granules held in place by non-flammable asbestos rather than the usual felt. The disc jockey need not worry about the microphone bursting into flame.

The photo in Figure 1 shows one of many types of microphone which used a coolant circulating heat from the active element to radiator fins.

The vertical tube "G" allowed easy addition of coolant, even while on the air. Cooling is still with us, but mostly for the final tubes and the air-conditioned studios. Heat sinks work great for transistors. Just be happy that you don't need to cool the microphones.

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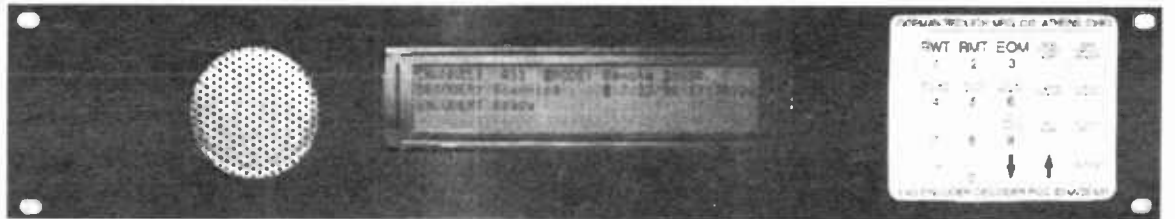
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On Remotes, Look Up and Live

Andrew Funk

Going out for a remote? Sounds exciting and fun, and it usually is. But if you raise an antenna mast, your remote could turn deadly.

As assistant news operations manager for WAGA-TV Atlanta, I am responsible for the operation of our fleet of seven live trucks, each with a 40-foot antenna mast. What I have learned to ensure the safety of our live television crews applies as well to radio remotes and radio electronic news gathering (RENG).

The operation of an extendible mast can present life-threatening hazards if all due precautions are not taken. These guidelines should help you avoid becoming an accident statistic.

Park smart

Contact between power lines and a vehicle mast or antenna can kill or injure the operator, the support personnel and bystanders as well. Overhead power lines are not insulated. Some have a weather covering and may appear insulated but are not.

Park in an appropriate location for safe mast operation. All overhead wires should be considered hazardous.

It is not safe to be parked:

- Where there are power lines overhead.
- On the curb adjacent to utility poles carrying power lines.
- Where power lines come within 15 feet of any portion of the mast and antenna in any direction.
- On uneven ground where the vehicle is not reasonably level.
- Where the mast will not be completely visible as it is extended.
- Where your vehicle is a traffic hazard.

Look up, look up

Always remember to look above your vehicle for power lines and other obstructions. Tree branches can hide power lines from view, so be on the lookout.

Many states have a High Voltage Safety Act or similar law. Your local electric power utility will be happy to provide you with information applicable to your area. Here in Georgia, the law covers any activity near high voltage lines. If you are anywhere near a power line, the law applies.

Under this law it is a criminal offense to do any work within 10 feet of a power line without first meeting stringent requirements. Also, you are liable if activities in violation of the law cause damage to utility facilities or result in injury or damage to property.

It may not be law where you live, but it is a very good idea anyway: Keep away from power lines. Period.

When raising the mast, everyone should be outside the vehicle. Observe the mast carefully until it reaches full extension. If you detect a risk of contact with power lines, immediately shout at the top of your lungs and run away from the vehicle.

The following safety information from the electric power industry concerns contact with power lines. If by some misfortune your mast does come in contact with a power line, these procedures can save your life.

Stay calm and stay away. If the vehicle you are operating contacts a power line,

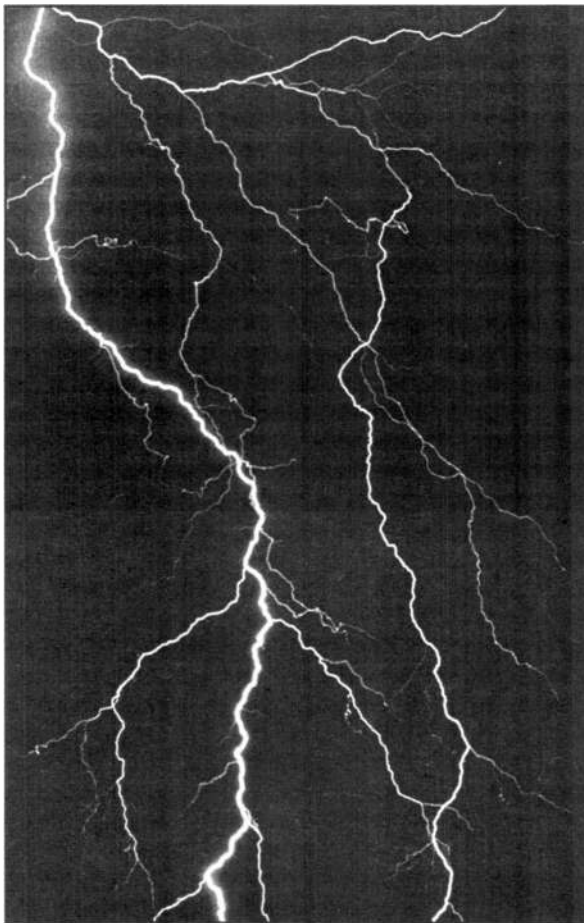
do not panic. Stay where you are unless you are in danger from fire or being struck by a loose power line. You are safe from electrical shock inside the vehicle as long as you do not become a pathway for current to flow to ground.

If you are in the vehicle, and the vehicle is operable, try to move it away from the power line. Warn others not to touch you or the vehicle.

If you must get off a vehicle while it is in contact with a power line, jump as far away as you can. Land with both feet together. No part of your body should touch the vehicle and the ground at the same time.

Once you are off the vehicle, realize that the ground may be energized. Hop away from the vehicle, keeping both feet together. This will prevent you from becoming a conductor between two areas of the ground that are charged differently.

An alternative method of traveling over energized ground, advocated by other power companies, is to shuffle your feet, keeping both feet on the ground at all times. Check with the power company in your



area and follow their guidelines.

Once you are clear, do not return to the vehicle until power company representatives see REMOTE, page 30 ▶

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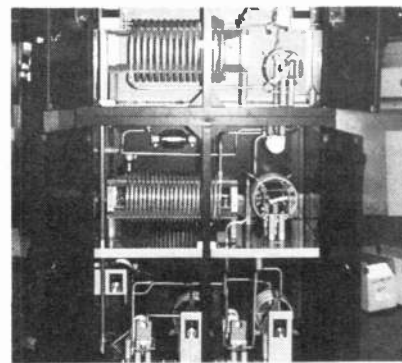


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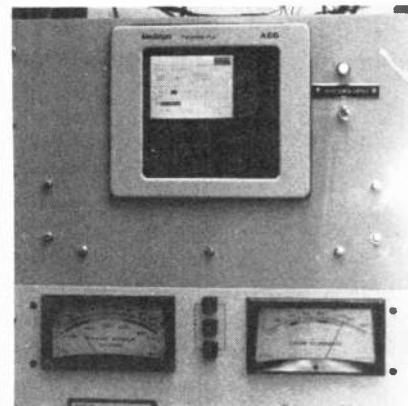
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Look up and Live

► REMOTES, continued from page 29
 sentatives tell you it is safe.

If you are nearby when a vehicle contacts a power line, stay away and warn others to stay away. The best thing you can do to help anyone in the vehicle is to make sure someone calls 911 immediately. Do not add to the problem by rushing over, because any rescue attempt may place you in danger, too. If you touch someone whose body is conducting current, your body will become another link in a deadly chain.

If someone comes in contact with a downed power line or is handling equipment that touches a power line, realize that any rescue attempt places you in

danger. The further you stay away from the equipment, and the person, the better your chances of not being injured yourself. If you must rescue a person in contact with a power line, never use your bare hands. Instead, use a dry, non-conductive object to move the person to safety. If you see a line down, stay away. Do not touch it or attempt to move it. Even if it is not throwing off sparks, it could be energized.

Do not assume the power company already knows about the downed line. Call 911 immediately. The sooner the power company knows about the problem, the quicker they can respond.

Thunderstorms present their own

unique set of problems and safety practices. The mast on an ENG unit is a lightning attractor. Lightning is every bit as hazardous as power lines.

Lightning strikes again

The National Lightning Safety Institute says: For every 5 seconds from a lightning strike's flash to the accompanying thunderclap, lightning is one mile away. Thus, if it takes 10 seconds between the flash and clap, the lightning is two miles away; a flash and clap combination of 15 seconds places lightning three miles away.

At a count of 15 (three miles), shut down immediately and seek shelter. Resume work when the thunderstorm passes and you can judge the storm to be three miles away in the opposite direction. Avoid solitary tall trees for shelter.



Seek a fully-enclosed, all-metal vehicle as a safe place. Remember, your remote vehicle with its mast is up is not a safe haven. If lightning strikes anywhere close to the vehicle, it is time for an immediate bail-out. Do not even stop to lower the mast. Everyone should get out of the vehicle and get as far away as fast as possible. If your hair stands on end or you feel tingling sensations, you are in lightning's electric field. Immediately remove all metal objects and crouch down with feet together and hands on knees.

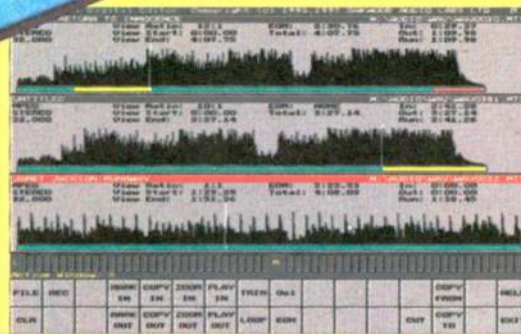
■■■

Andrew Funk is assistant news operations manager of WAGA-TV in Atlanta. Reach him via e-mail at afunk@wagatv.com

The views expressed are those of Andrew Funk and should not be considered an endorsement of procedures by Funk's employer.



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Don't Rely Only on Your Tires

You might be tempted to place some hope in a vehicle's tires insulating the vehicle in the event of contact with a power line or a lightning strike. After all, rubber is an insulator, right?

Not in this case. Tire rubber is carbon-based; it conducts electricity very well as part of the protective cage around occupants in the vehicle. The steel-belted construction of modern tires makes them even more conductive.

Actual protection comes not from tires isolating the vehicle from ground, but from the metal skin of the vehicle, which forms a conductive cage around the occupants. Current is going to travel to ground through the tires; your goal is to make sure it does not flow through you.

Lightning also conducts through tires, but you do not know when it is coming. This is why the "three-mile" rule is so important: Most lightning occurs on the leading edge of a storm, making a speedy evacuation critical. Leave the remote van immediately and follow the guidelines given in the article.

Do not depend on rubber tires. As long as occupants in the vehicle apply all proper precautions, the chance of injury will be minimized, and your chance of survival will be high.

— Andrew Funk and Alan R. Peterson.

Hey, This Place Is a Real Mess!

Spring is here and a young engineer's fancy turns to ... what else? Cleaning the transmitter site. Now I'm sure you can think of a dozen, or perhaps a hundred things you would rather be doing with your increasingly scarce spare time, but hear me out. A few hours spent at the site can pay big dividends in increased reliability and performance. Once a year is not too much to ask, is it?

If you live and work in the snowbelt, you probably pay scant attention to the site during the colder months. Outside work is not particularly appealing during the frigid months of January and February. Most anything can be ignored for a period of time without disastrous results, but regular inspections reduce the chance of catastrophic failures. Pick a nice Saturday and devote yourself to catching up with what you ignored all winter.

Start in the building

Now is the time to get rid of all the garbage that has accumulated since last fall. While you're at it, how about cleaning out all that old equipment you will never use again?

Wait. Don't throw it out. Some collector is dreaming of that old RCA 76B console to round out his collection. And likely he will pony up a check of an almost unreasonable amount. Make a list of what you have, and place it in the RW Broadcast Equipment Exchange classifieds. It's free, and you might make a buck or two for yourself or your boss.

Many transmitter sites are becoming depositories for all manner of trash not related to the task of converting audio to RF: old files, broken office furniture, promotional displays ... well, you get the idea. Some of it stays, but a lot can be discarded or relegated to an off-site storage locker.

Fire is always a concern at any remote site and every bit of trash you can remove brings you that much closer to a fireproof environment. Many local fire departments conduct periodic inspections of unattended transmitter sites. You can make your local fire chief ecstatic by cleaning up once and for all.

The transmitter site should not be the storage attic or basement for every department in the station. If you are stuck with a certain amount of trash, try to keep it organized. Fire is a real possibility at any time. Try to reduce the amount of fuel available to it.

Before you leave the building, check out your security and fire alarm systems. What fire alarm system, you say? Now is the time to propose one.

Check out the grounds

Now that your building is sparkling and clean, let's take a walk outside. Pick a good day, one on which you would enjoy a little walk around the property.

Make a general inspection of the grounds. If yours are fenced in, check the integrity of the fence.

Have the local juvenile delinquents cut a hole to gain access? Check the barbed wire for signs of tampering. If the fence is rusting, be ready to propose painting. You do have warning signs posted, don't you? 'Nuff said.

As you walk to each tower, check the general terrain. Is erosion exposing your cables or transmission lines? At the base of the tower, check for erosion also. In AM arrays, check for exposed ground

wires, or signs that your local copper thieves have been at work.

The base insulator, where used, should be free of weeds and other trash. Spark gaps should be checked. If you do not see signs of arcing across the johnny balls, they are probably too far apart. If your site is not fenced in, you should have a fence around each tower, and those fences should be maintained in good condition.

If your transmission lines run above ground, check them foot by foot for signs of damage from vandals or falling ice. All grounding lines should be intact and support posts in good repair.

Pay special attention to sampling lines for directional arrays. After several years

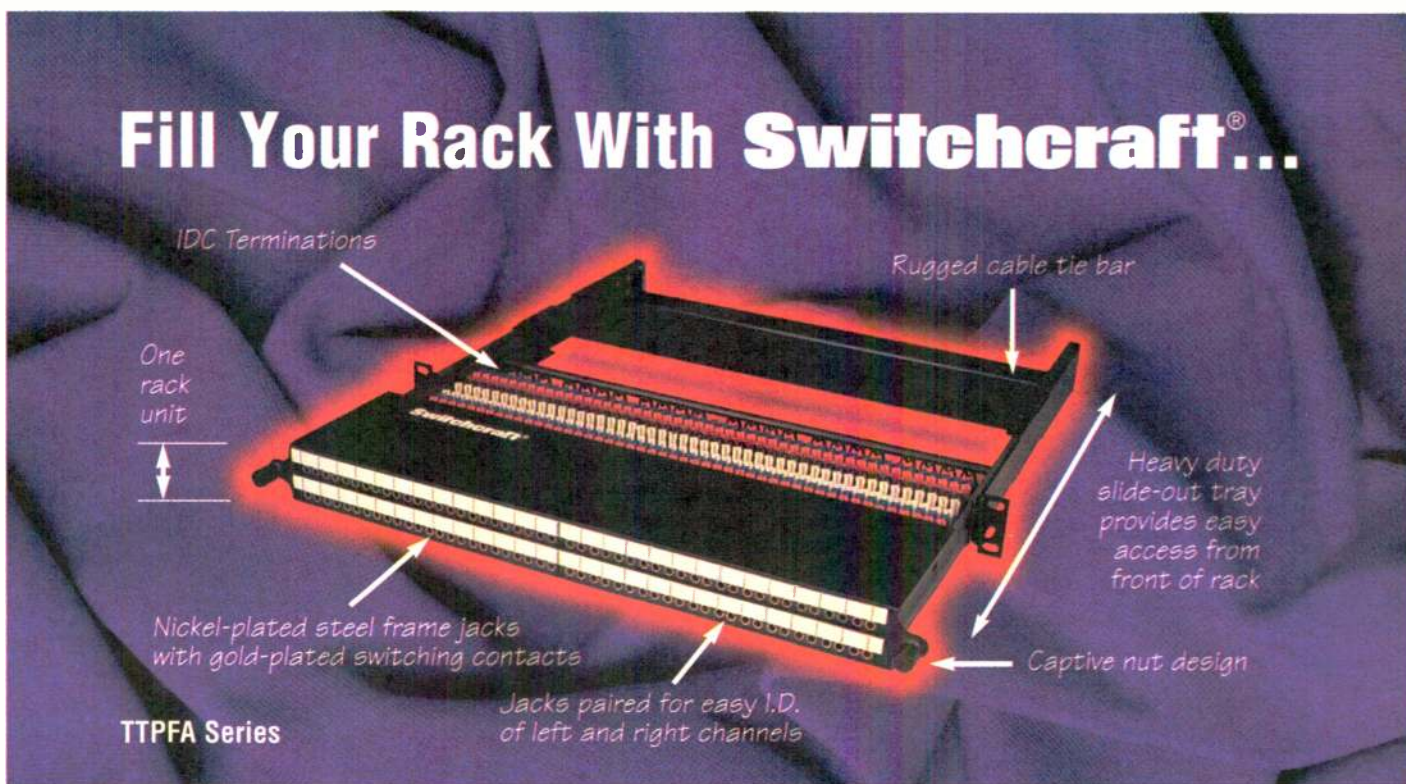
of exposure to the elements, these lines can begin to rot.

Check out your dog houses for signs of critters that have made them their winter home. Be prepared to clean out all manner of nests and hives. Pay close attention to the insulator where lines leave the building and inside coils. It's a lot easier to remove that hornet nest from under the eaves now, than to wait for a hot summer day when the nest is busier than Grand Central Station.

As Troy Conner wrote in his "Man of Steel" column last issue, now is the time to consider a professional tower inspection. Can't remember the last one? This is an excellent investment in the future of



your tower. Your rigger should climb each tower and systematically check
See MESS page 33 ▶



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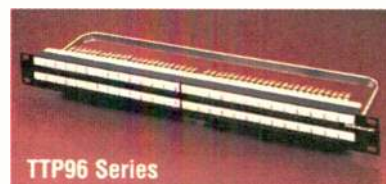
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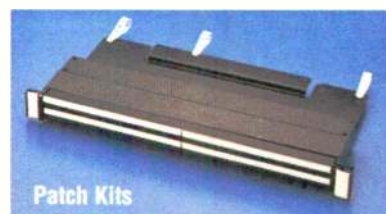
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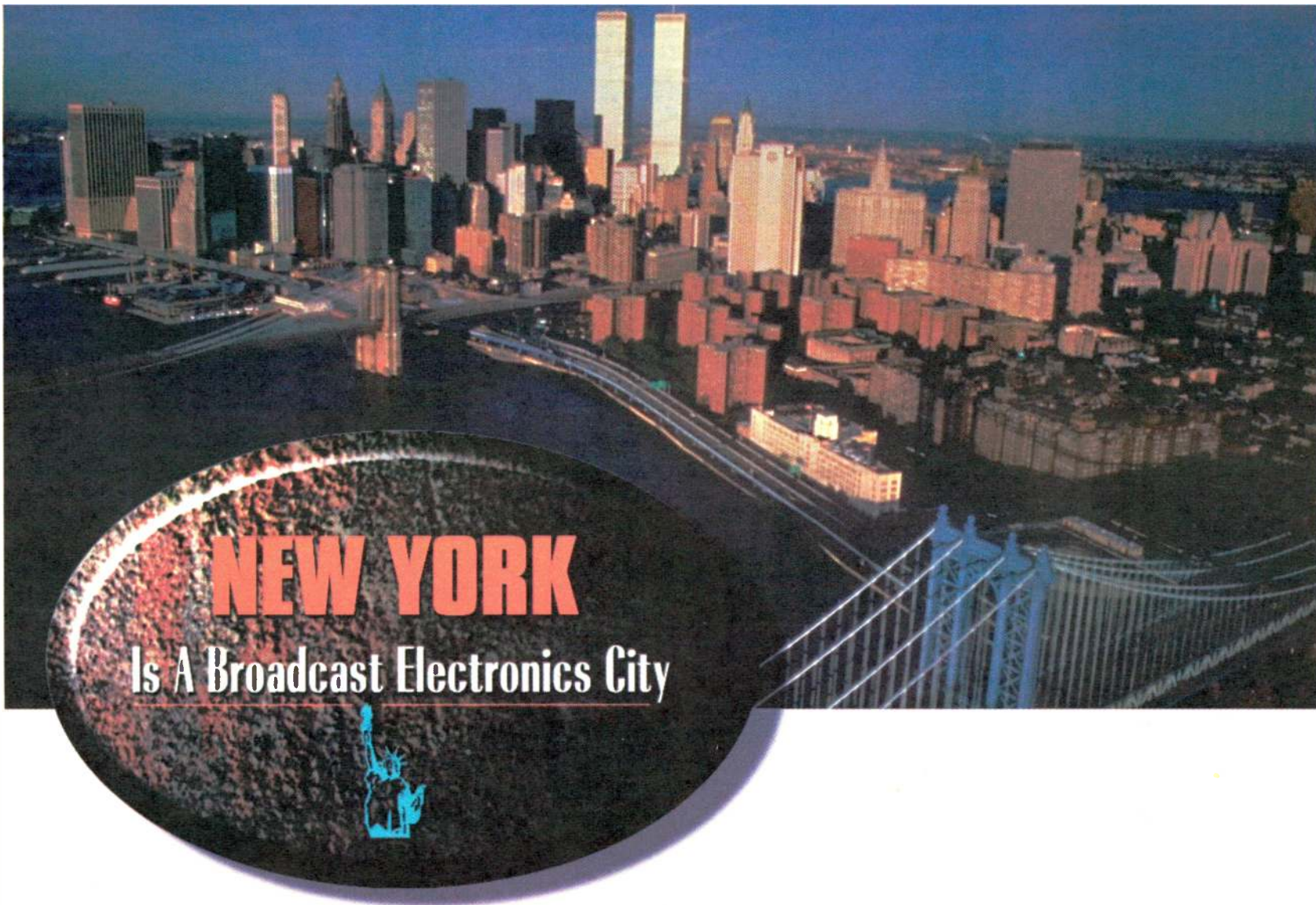
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ROOTS OF RADIO

Before EBS, There Was Conelrad

Ronald Pasha

This article originally appeared April 2. The second half of the article was inadvertently omitted. We reprint it here in full.

Do you still use an AM receiver labeled with odd little triangles like ▼, or the letters "CD" at 640 and 1240 kHz? There's an anachronistic reason for those symbols. It's called "Conelrad."

You may have run across references to Conelrad recently in RW's coverage of the new Emergency Alert System. Younger readers may never have heard of it.

Conelrad preceded not only the EAS, but also the just-defunct Emergency Broadcast System. It was intended to thwart enemy aircraft and missiles from using broadcast signals to locate domestic targets. The name is derived from *Control of Electromagnetic Radiation*.

The inverted triangle simulated the Civil Defense symbol, alerting listeners to tune to these frequencies for emergency information at the height of the Cold War. In tests as well as actual emergencies, primary Conelrad stations transmitted a 1 kHz tone preceded by two short carrier interrupts to alert all other radio and television stations.

The primitive monitor receivers then

No More Messes Here!

► MESS, continued from page 31 them for structural integrity. Broken line hangers should be replaced and unused line and antennas removed.

Rust should be removed and the towers painted if badly faded. Your towers should be checked for plumb and twist. Guy tensions should be measured and adjusted if necessary. Tower lighting can be checked at the same time. If you haven't relamped in 12 months, now is the time. If you use mechanical lighting flashers, check them out and lubricate if sluggish. And don't forget your photocell. Clean the face and check for proper operation.

Check out your guy anchors. Inspect each one individually for cracking or soil erosion. Be sure guy line clamps are secure. Any locking cables in your turnbuckles should be checked also.

The area around each anchor should be kept free of weeds and debris just like the tower base. You can contribute to your tower's life by performing your own regular visual inspection.

If you are reasonably observant, you will find a half-dozen things that require immediate attention and another dozen that belong in a medium-priority list. Checklists are a good idea, but who has the time? Just keep your eyes open and carry a notepad.

Convert your notes into an annual site inspection report for the files. A copy to the general manager will go a long way toward justifying expenditures at the "invisible" part of your station. Pictures help unless you can get him to visit the site with you.

Oh, well, I can dream, can't I?



Reach Jim Somich at (216) 546-0967, or send e-mail to jsomich@ameritech.net

in use remained muted until detection of that loss of carrier followed by the tone. Manufacturers offered AM receivers triggered by a combination of carrier drop and tone, but many small stations depended on home-rigged radios sensitive only to carrier loss.

Only two frequencies

During an alert, primary and secondary AM EBS stations remained on the air, on 640 kHz or 1240 kHz, while other stations signed off. Any primary and secondary station not on one of those frequencies shifted to the nearest. (What did a station on 940 do?) I was working at a

1 kW station with a "Conelrad-ready" Gates transmitter. Push a button to switch

That word list arrived monthly, in a 9 x 12-inch brown envelope marked 'CLASSIFIED.'

in a second oscillator and second final tuning circuit. We switched from 690 to

640 kHz. Worked great, except that the station had made no provision for retuning the antenna. With an unmatched load, those 833 tube plates glowed very hot! I don't know what our actual radiated power was, but it was certainly far below our normal 1 kW.

EAS is relatively intrusive. Conelrad involved a national half-hour test about three decades ago. All broadcast stations were to participate. Primary and secondary stations were to remain on the air on 640 and 1240 kHz; others were to sign off for 30 minutes. In the then-remote wilderness of northern Arizona, lacking a receivable source of the special programming, we just made the preliminary explanatory announcement, switched to 640 kHz, and sat silent for half an hour while the 833s heated the transmitter shack.

See CONELRAD, page 34 ►

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Photo by Alan R. Peterson

Cold War Radio

► CONELRAD, continued from page 33

Remember the Conelrad telephone? It was a special instrument without a dial, often colored an appropriate red. It sat at the "transmitter control point," i.e. the control board. When it rang, you listened. The military personnel at the other end announced a monotone test, expecting the challenge word to be followed by a response from the operator on duty, the DJ. Each day had its own word, similar to the system under EBS. You pulled out the classified document, looked up the word for the day, and read it back. Hang up. It's over.

An Arkansas secondary EBS station at which I worked had no special telephone,

perhaps because the military base was local and the personnel there called on the station's regular telephone. One call arrived while I was doing a telephone call-in talk show, and the whole sequence went out on the air!

That word list arrived monthly, not semi-annually, in a 9 x 12-inch brown envelope marked "CLASSIFIED." It was not sealed; the clasp was merely turned down, presumably to take advantage of lower postal rates for unsealed envelopes. One month the envelope failed to arrive. I was uneasy, fearing the telephone test would come and we would not be able to

The military base might suspect that the station had been infiltrated by spies.

supply the expected response. If that happened, the military base might suspect that the station had been infiltrated by spies. So I called, reached the appropriate office, identified myself as the chief engineer, and explained our plight. He said, "Come on over."

Pesha undercover

No one expected me when I arrived. I explained the situation once again, and the secretary on duty handed me the classified list, which I sat down and copied by hand. No one asked for identification. Presumably I looked more like a radio station employee than a spy.

Conelrad functioned partially as a "cluster" system. Conelrad stations, those that stayed on the air during an emergency, were grouped in a cluster. They were all connected to NORAD, North American Air Defense Command, via two lines, one for common audio and the other for transmitter on-off control. The audio line fed emergency information to all stations in a cluster, but only one would be on the air at any given time.

Each station's transmitter was switched on and off randomly, but because each was at 640 or 1240 kHz, listeners would hear uninterrupted messages. The idea? To confuse incoming missiles. Remember, these were the days before global positioning systems.

In the early 1960s I worked for a station in the central valley of California. This station, designated to operate on 1240 kHz during a civil emergency, had the NORAD audio line but not the control line.

In other words, any nuclear missile homing on 1240 kHz would fly directly to us. Could it be that someone designated our rural station as a decoy to draw missiles away from San Francisco and Los Angeles?

That job certainly exonerated me from any suspicion as a spy. A spy would surely have seen to it that a station operated on 640 kHz in downtown Los Angeles.

■ ■ ■

Ronald Pesha is Associate Professor of Broadcasting at Adirondack Community College, Queensbury, New York. Reach him at (518) 743-2200 ext. 567, by fax at (518) 745-1433 or by e-mail at peshar@acc.sunyacc.edu

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Earth & Sky: A World of Radio

Sharon Rae

The sky's the limit on an internationally distributed radio series about earth science and astronomy.

"Earth & Sky" is a 90-second program that runs daily over 850 commercial and public radio stations throughout the world. Deborah Byrd created the program and is one of the show's producers, along with Joel Block.

"We talk about volcanoes and ocean currents and tornadoes and hurricanes ... all kinds of topics that happen around us," she said. "We focus pretty purely on nature, and answer questions from listeners. Radio is a wonderful medium for telling people about science. In science, as in radio, people are called upon to use their imaginations. 'Earth & Sky' tries to convey that we are all inhabitants of a wondrous whole."

Joel Block, host and producer of "Earth & Sky," runs the show from The Production Block studios in Austin, Texas. Block, a veteran radio personality,



got his start at WOR(AM) in New York, later moving to KRMH(FM) in Austin. His father, Martin Block of WNEW(AM), created the "Make Believe Ballroom," the most popular radio show in New York during the 1940s and 1950s.

"Deborah and I are really comfortable with each other and with our presentation of science on the radio," Block said. "We know our audience, and our audience knows us. We especially enjoy the questions from our listeners, and answering them on the air."

Universal topics, global reach

The focus of "Earth & Sky" makes it attractive to many formats. Affiliate stations include news/talk, country, oldies, adult contemporary, rock, jazz and classical operations.

According to Mike Rhodes, station relations contact for "Earth & Sky," the show is enjoying great international success as well.

"The program is broadcast in English in most parts of the world," said Rhodes. "In Europe they use mostly cable, and in other parts of the world it runs on satellite networks, such as the World Radio Network. We also have ongoing discussions with various networks to provide local translation, and that's something we're developing around the world."

The show also airs on the BEAT Network (Broadcast East Asian



Territories) out of Hong Kong, Radio for Peace International, Armed Forces Radio, Canadian Broadcast News, Sky Radio/Australia, International Community Radio Taipei and Voice of America.

'I think listeners have a sense of ownership because we answer their questions on the air.'

— Deborah Byrd

"People just love it," said Byrd. "I think listeners have a sense of ownership because we answer their questions on the air. I think one of the reasons so many

stations have opted to carry it is that people want to know about the world ... and don't want to take the time out to tune in to an hour-long science show."

Rhodes used the show uses more than 300 scientists around the world as sources of material for scripts.

Earth & Sky

"It's entertaining and very well-researched," he said. "Everyone has questions about the world around them. Some are sophisticated ... some are pretty commonplace-type questions. That's why we think our show is very popular. It has a wide appeal over all ages, male and female audiences, all walks of life. Another wonderful thing for stations is, the show is free — and that has a lot to do with our success."

Rhodes pointed to listener input as another essential part of the show. "We can be contacted in many ways ... we have a listener line ... a very active website, and a mailing address. All three approaches bring us lots of contact with listeners and scientists from around the world."

Floyd Pientka, program director at WMUK(FM), Western Michigan University's public radio station in Kalamazoo, said, "It's very professionally done. We run it twice a day ... in early morning, then again in afternoon drive just before 5 p.m."

Pientka said despite the difficult and complex nature of the scientific topics covered on the show, it's appropriate for the medium.

"It's well-done for radio — well-written, well-recorded and well-produced. They don't try to do too much ... it's a nice economical production, and it gets what needs to be done in 90 seconds and keeps it interesting. We get calls from people who say they really enjoy 'Earth & Sky.'"

"Earth & Sky" is funded by a grant from the National Science Foundation and the National Oceanic and Atmospheric Administration.

66 Years Ago

Reprinted from Radio World
December 26, 1931.

Editor's note: The RW of old, printed for a time in the 1920s and 1930s, and today's RW are unrelated except in name.

2,500 IN TEST, 10 ARE CHOSEN AS ANNOUNCER

More than twenty-five hundred men aspiring to become radio announcers talked before microphones in auditions at the National Broadcasting Company studios during the last two years, but only ten were hired.

With few exceptions, all the applicants stammered or "whistled" on encountering the first sentence in the test script prepared by Patrick J. Kelly, supervisor of announcers, who tried each of the twenty-five hundred voices. The sentence was: "The seething sea ceaseth and thus the seething sea sufficeth us."

Foreign Names Cause Trouble

Most of the candidates foreign names of foreign composers. Usually five groups—French, Spanish, German, Italian, and Russian—were written into the script. Because so few persons can meet the requirements, the N. B. C. is giving auditions only to those who can speak one or more foreign languages and who have a broad musical education.

The ten announcers who passed the examination during the last two years are: John Holbrook, recent winner of the 1931 diction medal; Edward K. Jewett, Ray Winters, Howard Petrie, Bennett Grauer, William Warner Lundell, Ezra McIntosh, Allan Kent, Daniel Russell and Charles O'Connor. Russell, one of the latest additions to the staff, speaks five foreign languages.

New Sentence Used

"There is only one change in the form of our examination for the future," Kelly said. "We are no longer using the initial test sentence. It won't do an applicant any good to rehearse it in advance."

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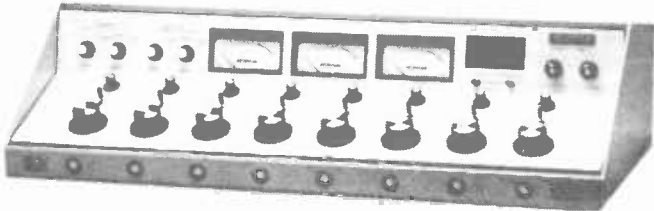
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What Is Public Radio, Anyway?

S.D. Yana Davis

The author is development director of WUOT(FM) at the University of Tennessee in Knoxville, Tenn. He has been a classical music producer, media consultant, account executive and DJ. With this column, he begins to write for RW about public radio issues.

There is some confusion in the industry and the general public, so this first column is devoted to an introduction to non-commercial radio, specifically "secular" or non-religious licensees, and the principal issues in fundraising and programming facing those stations.

The public radio system

The United States has more than 600 non-commercial radio stations. Some are licensed to religious organizations. However, the majority, around 350, are secular non-commercial stations that define themselves as "public" or "community" radio.

Stations are licensed to a variety of local entities, including universities, colleges, local governments and community-based non-profit corporations or foundations. As local government funding for public stations has declined, many stations have "gone independent," forming community foundations or non-profit companies. This has freed these stations from bureaucratic restrictions, but at the same time ended guaranteed sources of local funding. WBEZ(FM) in Chicago is perhaps the classic example.

Most stations are stand-alone, with their own staffs of programmers, fundraisers and technicians, but some regional networks exist. Among these is Minnesota Public Radio, one of the earliest definers of what public radio should be.

MPR, headed by long-time president Bill Kling, not only generates many nationally syndicated programs, but is exceptionally successful at fundraising, generating as much as \$6 million annually in listener contributions, just one of its many sources of revenue.

The vast majority of public stations are members of National Public Radio (NPR), a member station-owned company that provides news, cultural and entertainment programming. Most of that programming — including flagship news magazine pro-

grams "All Things Considered" and "Morning Edition" — emanates from NPR's own producers. Some, such as "Car Talk" and "Fresh Air," are produced by others and distributed by NPR.

The second major player in programming is Public Radio International, headquartered in St. Paul, Minn. PRI is a consortium of several large public radio stations, including Minnesota Public Radio and KUSC(FM), Los Angeles, among others, which produces and sells programs to public stations.

PRI's best-known offerings are "A Prairie Home Companion," "Whad'Ya

1970. "All Things Considered," the afternoon/early evening news magazine, was the first program developed by NPR, and it remains the most-listened-to program on public stations nationwide, followed closely by "Morning Edition."

Among weekly programs, "Car Talk," with the zany Magliozzi brothers, and Garrison Keillor's "A Prairie Home Companion" have audiences in the millions.

The audience, fund-raising and programming analysis of public radio's audience came late to the public radio system, but it came with a vengeance, starting 10 years ago with the landmark "Audience 88" national survey.

A similar study, to be called "Audience 98," is in the works. These studies have been led by audience stats guru David Giovannoni, and are credited with changing programming paradigms dramatically throughout the system.

Stations began to track exercise numbers and demographics as a direct result of the decline in funds from government sources. Prior to the mid-1980s, federal, state and local government funding made it possible for most public stations to operate without serious community fundraising efforts. Since then, all these categories of funding taken together have decreased, while program and operating costs have increased.

Consequently, most stations have not only increased the number of days of on-air fundraising (we call them "membership drives") but have also aggressively sought more business sponsorships, also known as "underwriting."

Compromises

In order to do both, stations have paid much more attention, probably as much as our commercial colleagues, to who listens and why. But this ignited a debate: how to balance programming to gain wider audience and still fulfill the unique mission of public radio to present important programming not commercially viable.

Generally, stations devote most of their time to programs that do both. It is no surprise, then, that programs such as NPR's "Morning Edition" and "All Things Considered" are so widely carried.

Many stations, such as KWMU(FM) in St. Louis, which programmed NPR format to "tent-pole" a classical music for-

Prior to the mid-1980's, federal, state and local government funding made it possible for most public stations to operate without serious community fund-raising efforts.

Know?" and "St. Paul Sunday Morning."

Other program suppliers include commercial classical FMs WFMT Chicago and WCLV/Seaway Productions in Cleveland. Many public stations are the only ones in their markets to broadcast classical music, making WFMT, with its Chicago Symphony and Beethoven Satellite Network, an attractive source of programming. The same holds true for WCLV/Seaway, although Seaway offers non-classical programming such as "Celtic Connections," a competitor for NPR's "The Thistle & Shamrock."

Another player is the Pacifica Foundation, a non-profit entity that owns and operates several stations directly and offers programming to all public stations.

But the "brand" name by which most listeners identify public radio is "NPR," and with good reason. NPR started offer-

and gone with a straight format of news, talk and information.

Stations using this format make use of "Morning Edition," usually repeated in part or whole, midday staples such as "Talk of the Nation," "Fresh Air" to fill to "All Things Considered" in the afternoon, and newer offerings such as Derek McGinty and Diane Rhiem.

Other news and information programming, including The World and Monitor Radio news programs from PRI, are also used by many stations.

Public radio has established a high profile for itself among baby-boomer, college-educated business and professional people — consumers with the most disposable income, likely to be in decision-making positions in commerce, education and government. To a large extent, the public radio news/information core audience is shared with commercial classic rock stations. After all, boomers grew up in the '60s and '70s.

Tracking the figures

According to the Corporation for Public Broadcasting, the latest available data show underwriting income for 352 reporting stations increased from \$29.6 million in fiscal 1994 to \$33 million in fiscal 1995. The statistics were compiled by The Development Exchange, a non-profit organization that provides fundraising and marketing services to many public radio stations.

As this demographic has flocked to public radio, marketers looking for a high profile within the group have increased expenditures on underwriting. On most public stations, one finds local banks, stock brokers, luxury automobile dealers, law firms and travel agencies. Many ad agencies that once thought underwriting was only for insurance now recommend public radio to clients.

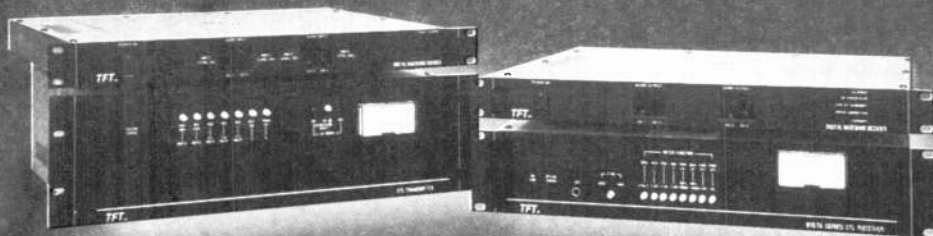
On the membership side, revenue from individual listener contributions has increased dramatically as well.

Membership acquisition and retention has become increasingly sophisticated. From the annual on-air fund drives in the '70s and early '80s, the strategies now include two or more drives lasting a week or more, and direct-mail programs designed to renew existing or lapsed members and acquire new members.

Anecdotally, membership income dwarfs corporate income at most stations. But there exist no compiled statistics for membership income for all public radio stations, although the CORPORATION for

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World Radio History

PIONEER PROFILE

WDZ: Pioneer Focused on Localism

Barry Mishkind

Essentially because they were there first, many famous pioneer radio stations were able to secure good dial locations and power allocations. Today they often operate with as much as 50 kW and cover large areas with many cities. However, in the early 1920s, the motivation to start up a station centered much more on the local communities. For some pioneer stations, this focus has never changed.

In 1921, James Bush had been operating a grain brokerage company in the mid-west city of Tuscola, Ill., for about 16

years. He was doing well, but an interest for telegraphy he had acquired some 25 years earlier, in his youth, was to bring the new technology of radio to central Illinois.

Bush had three major grain elevators as clients, and spent a great deal of time on the telephone, updating them with the current market prices. Eventually he realized that if he could broadcast to them all at the same time, it would make the grain elevator operators happier and his brokerage business more efficient. He also began to see ways to build other businesses.

Moving first into combining his current business with radio, he purchased a \$5 broadcasting set from Sears Roebuck, and then had employee Clyde Wiley, a former Signal Corps radio operator, build a 10 W transmitter. Using the Special Land Station call of 9JR, Bush began broadcasting the latest grain quotations to the grain elevators in March 1921 — the first station to do this.

New sensation

This created a sensation in the grain trade, as farmers and grain elevators were now much better informed, and could react quicker to price changes. There were few radio receivers available at the time, and Bush sensed a second opportunity. He opened the Bush radio business, selling Westinghouse, and later RCA, radios to the grain elevators and farmers. During the 1920s, Tuscola became famous as the shipping point for what became a million-dollar-a-year business — rather impressive for its time.

All this money permitted Bush to plow a good deal of his profits back into his station, now licensed as WDZ(AM), to develop a strong relationship with the community. Granted license number 606 by the Department of Commerce on

April 5, 1922 WDZ was the 151st commercial station licensed by DOC, and is today the third oldest station in Illinois.

For seven years, Bush supported WDZ solely by his own businesses, not accepting outside advertising until 1929. Nevertheless, he wasn't cheap about it. WDZ developed a reputation for high-quality programming. Although Tuscola had only about 2,500 citizens, the staff rivaled that of many stations in larger cities. In fact, in 1940, when a sports-casting job opened, some 243 persons applied and auditioned for the job.

One of the most popular programs in the 1930s was "Aunt Ruthie's Birthday Party." Hostess Ruth Moore pulled in more than 1 million letters in seven years, quite an achievement on a station that ran only 250 W, and daytime-only at that!

Another famous WDZ star was hillbilly singer Smiley Burnette, who would go on to wider fame on the TV show "Petticoat Junction." WDZ had literally scores of performers who entertained listeners with everything from hillbilly music to harmonicas. There was even a "Singing News" show, with a performer literally singing the news and local events.

All of this combined to create a station that was such an integral part of the community that, for years, Tuscola would stage an annual Radio Day picnic so local folk could meet and express their appreciation to the performers.

WDZ made great efforts to be "out in the community." From the early days, the station did a number of remote broadcasts. It had special cars and a remote truck to relay live broadcasts from all over the listening area. A popular recurring remote occurred on Sunday nights, when the station broadcast "Sunday

Dinner" from listeners' homes.

In the 1930s and into the '40s, for example, WDZ had a program called "The Man on the Train." According to WDZ Program and Farm Director Jim Flemming, the station would broadcast from a moving train, interviewing passengers as they went. Remotes were also originated from the WDZ airplane and hovercraft.

Trying formats

The station was moved to Decatur in December 1949, in order to benefit from the population and economic base of the larger city. The power was raised to 1 kW, and programs were originated in studios in both cities for a time, but eventually the Tuscola studio fell into disuse and was closed.

Even at those power levels, though, WDZ couldn't easily compete with the major-market stations and television, so station management scrambled to ensure WDZ programming stayed important to listeners. Different formats were tried, including news/talk in the mid-1960s, and an automated rock format in 1974 that led owner Steve Bellinger to start the "Systemation" automation company at WDZ.

Finally, in 1988, WDZ was able to add nighttime operation at 250 W.

Regardless of the basic format, farm news has always been important. Flemming noted that Decatur is the agribusiness capital of the world. So WDZ has always emphasized news of import to farmers. Hourly grain quotes and longer-form programs in the morning and at noon continue to be popular features.

According to Flemming, "WDZ actually has more hours of agricultural programming now than ever before."

Today, WDZ runs CNN Headline News, along with a regular schedule of farm shows and reports throughout the day. It continues to provide a welcome, community-oriented local service to the Central Illinois farmland.

■■■

Call Barry Mishkind at (520) 296-3797. He invites e-mail to barry@broadcast.net. You can find his home page at <http://www.broadcast.net/~barry/>

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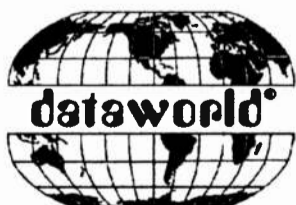
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The Psychic Radio Network is a joint venture of Burns Media Strategies and Douglas Broadcasting Inc. Affiliates are cleared through ABI Media. John Nolan is the executive producer of the program; Theresa Tharp is program director.

"A recent NBC story estimated that \$300 million is spent annually on telephone psychic readings," Burns said. "We are going to make radio stations partners in this venture."

For information contact Paul Woodhull at ABI Media, (202) 544-4457; or circle Reader Service 131.

NACB Kick-starts Radio Careers

John Montone

Kelley Cunningham is bullish on radio. The executive director of the National Association of College Broadcasters predicts, "Radio is about to enter its second Golden Age."

Cunningham's rosy prognostication was made during the course of a wide-ranging discussion of how NACB helps its member stations survive the era of budget cuts and growing competition from "new media" centers campus, while also assisting undergrads prepare for a possible career in broadcasting.

NACB, which will celebrate its tenth anniversary in 1998, was founded by students at Brown University with the help of The CBS Foundation, Sony and Time Warner. Mike Russo, the organization's media resources representative, said one of its missions is to "help students make the transition from the academic to the professional world." To that end, NACB publishes available internships and job openings in its quarterly magazine "College Broadcaster," and works to maintain its contacts within the broadcast industry.

Finding sponsors

But the next Rush Limbaughs or Howard Sterns may never have the opportunity to hone their skills if their college radio stations are off the air. That prospect worries Cunningham, who admitted, "A lot of the stations that were with us when we were founded no longer exist." So keeping college stations on the air is of paramount interest to NACB.

"We try to re-educate faculty advisors to help them lobby for the validity of their operations," said Cunningham. In other words, in the battle for scarce dollars, college broadcasters must be able to justify their existence to the administration.

It certainly helps if a college station can raise some of its operating budget internally. Again, NACB is ready to help by bringing underwriting dollars to the stations. Working with the Interop Radio Store, it seeks out corporations looking to reach college-age listeners with sponsorships. Cunningham said a recent successful campaign was run by Duracell to promote its Power Check Battery. Fox ran a holiday promo for special episodes of Melrose Place and 90210.

Earning money is one way a college station can survive. Saving money is another. NACB operates the Student Electronic Media Equipment Pool, accepting donations of outdated or underutilized equipment from professional broadcast outlets, and passing it on to member stations that can use it. What may be considered "trailing edge" technology by the pros is often "leading edge" stuff to college broadcasters. Whether it's a console, a computer or a piece of furniture, there is a college station that can use it. And the donation is tax-deductible, because the National Association of College Broadcasters is a 501(c) 3 non-profit corporation.

NACB member stations are entitled to legal assistance if they seek to upgrade power or change dial positions. Young managers can also look for general help to the association's handbook, covering all areas of broadcast operations.

Cunningham and Russo talk with pride

of a southern New Jersey radio station that they helped to get off the ground. WBZC(FM), 88.9 MHz, is on the campus of Burlington County College in Pemberton. NACB named the station's operations manager, Drew Jacobs, as its Faculty Advisor of the Year in 1996. Cunningham said, "WBZC is interacting very well with the community and raising money for local charities."

Drew Jacobs recalls when he was first putting together a strategy to get the station on the air in the fall of 1993. "One of the first things I did," he said, "is join the NACB." Jacobs said he obtained access "to talk to people from other stations," who were going through or had gone

through the same process.

Once the station was on the air in 1995, Jacobs said, NACB helped it raise money through underwriting ads featuring Butterfingers candy bars and Sam Goody's stores.

He also has first-hand experience with a student who benefited from his membership in the organization. While attending a NACB convention, the student made contact with a professional who later helped land him a job with Sony.

Cunningham is planning the next convention, to be held in Providence, R.I. in November. She has extended an invitation to Walter Cronkite to be the keynote speaker, an honor the former anchorman

accepted at the group's first convention in 1988. NACB also arranged for a booth at the National Association of Broadcasters convention this month. Cunningham said, "We are to college broadcasters what the NAB is to professionals."

She is confident radio is on the verge of big things again. "There are gaps only radio can fill," she said. In the days of syndication and simulcasting, Cunningham keeps telling students broadcasters, "There are more opportunities than you think."

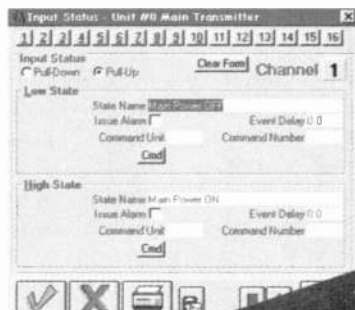
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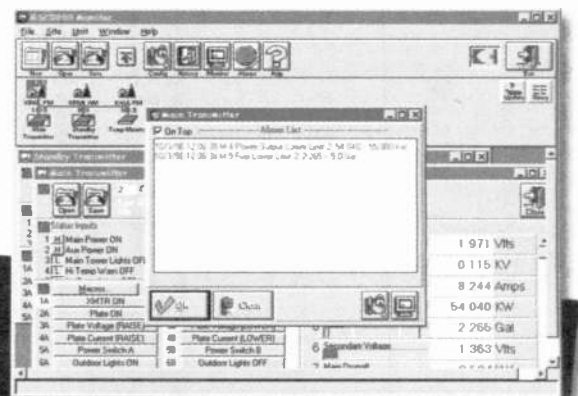
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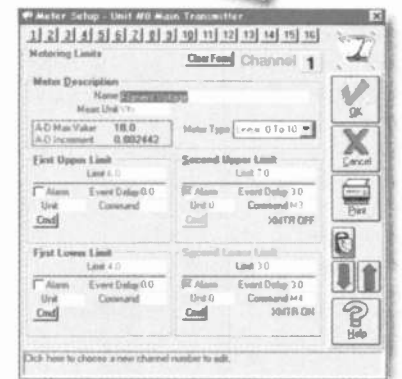


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World Radio History

GUEST COMMENTARY

The New FM Brought Early Battles

Al Germond

Regarding your Feb. 5 article "Lessons from the History of FM," here is a clarification of the genesis of FM allocations.

Once frequency modulation was perfected in his Columbia University laboratories, E.H. Armstrong — a major RCA stockholder — invited longtime friend and RCA chairman David Sarnoff to a demonstration. Sarnoff had long pressed Armstrong to find a solution to static, the bane of AM transmission.

Sarnoff offered use of RCA's W2XBS television transmitter and antenna atop the Empire State Building for further experiments. W2XBS was temporarily available while RCA continued to perfect electronic television at its Camden labs. In 1935, Sarnoff evicted Armstrong from W2XBS, forcing him to find facilities elsewhere. In November of that year, Armstrong demonstrated FM to the IRE via W2AG, Yonkers, New York.

W2XMN

But Armstrong wanted his own developmental facility. In 1935 he sought an FM construction permit, which was denied by

FM needed more room, and Armstrong and others pressed for a larger spectrum allotment.

FCC Assistant Chief Engineer Andrew Ring. The following year, FCC hearings resulted in a TV allotment plan and three small FM reservations totaling 12 channels. One allotment was around 40 MHz.

Armstrong pressed for his CP and was granted 42.8 MHz and the historic W2XMN call letters at Alpine, N.J. The famous triple-arm tower rose above the Palisades in late 1937; the first broadcasts started a year later. But other stations were coming on, including W2XOR, Carteret, N.J.; W1XPW, Hartford, Conn.; W2XOR, Long Island City, N.Y.; W1XOJ Mt. Asnebumskit, Mass; W2XOY, Schenectady, N.Y., and Armstrong and others pressed for a larger spectrum allotment.

FM needs had always clashed with television spectrum requirements. When FCC FM hearings opened March 18, 1940, television was poised to start commercial operation. But TV standards were still fluid, with RCA holding to the RMA 441-line standard, while rivals Philco and DuMont pressed for alternate schemes.

RCA Chief Counsel Wozencraft testified on March 27, 1940 that his company favored the "green light" for commercial FM but not at the expense of TV's channel 1 — 44-50 MHz — where its own W2XBS (later WNBT and now WNBC-TV) was then operating. At the same time, NBC put its own New York FM station, W2XWG (later WNBC(FM) and now WQHT), on the air, though carefully constructed around RCA's own FM

patents to avoid paying Armstrong royalties. The principal supplier of FM transmitters and modulators had been Radio Engineering Labs of Long Island City.

Evicting Channel 1

With commercial TV operation assured, RCA stupidly started promoting New York-area set sales, angering FCC Chairman James Lawrence Fly. Commercial authorization was terminated by the FCC, which went on to evict TV from Channel 1, handing 40-50 MHz to FM as part of the enlarged 40-channel 42-50 MHz allotment. Commercial FM started in May 1940, while TV was forced

to convene meetings of the National Television Systems Committee; full commercial TV didn't start until July 1, 1941, using the present 525-line system.

In 1943 the FCC established the Radio Technical Planning Board to study and recommend post-war allocations and standards. In 1945 the FCC reallocated FM to the present 100-channel, 88-108 MHz allotment and established the first Table of Allotments. The commission ironically abandoned the city-by-city table in August, 1958. However, growing interest in FM forced the FCC in July 1961 to reconsider allocations. Release of a proposed table in December 1962 led to

release of the final table in July 1963 with defined standards and spacing limits.

Incidentally, Armstrong operated a dual-frequency station from Alpine, eventually settling at 93.1 MHz. His suicide Jan. 31, 1954 was also the death knell to the facility; his executor closed the station March 6 of that year. A Paterson, N.J. AM station, WPAT, went on the air at 93.1 MHz in March 1957; the station changed hands last year for some \$90 million!

■■■

Al Germond is chief executive of KPLA(FM), KFRU(AM), KBXR(FM) and KOOL(FM) in Columbia, Mo. He drew information for this article from Fortune, Oct. 1939; Rupert Maclaurin's "Invention and Innovation in the Radio Industry," 1949; various issues of Electronics magazine, from 1938 to 1941; and other sources.

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Time Capsule Reveals a Legacy

Sharon Rae

Nearly 70 years after the construction of an addition to a radio factory in Philadelphia, historians gathered to uncover a piece of history. The Atwater Kent Manufacturing Company had long ceased producing radios, and the old building was doomed for demolition. Some local historians celebrated the demise with a ceremony to open a time capsule buried decades before.

In 1928, A. Atwater Kent, whom the city's mayor called a man of vision and leadership, began construction of a 16-and-a-half acre addition to his radio plant in the Germantown section of Philadelphia, directly across the street from his main manufacturing facility. Dedication of the annex came the following year, with the placement of a time capsule in the building's cornerstone. Dignitaries on hand for the ceremonies included U.S. Senator Clarence C. Dill of Washington, better known as "the father of radio legislation."

"The Dill Bill later became the Dill-White Radio Act of 1927, establishing the FCC," said Bill Overbeck, the president of the Delaware Valley

Historic Radio Club. "Dill cited the United States as the only country where radio programs were free to the public." Other nations, Dill said, taxed their radio listeners.

Dill's words that spring day in 1929 reflected the nation's pride and leadership: "Congress is beginning to wake up ... beginning to study radio," he said. "The United States has 6 percent of the world's population ... and owns 70 per-



Grandson Peter Kent and GSA Asset Manager Adel Wahba pose with the cornerstone.

cent of the world's radio sets ... and 78 percent of the world's broadcasting stations."

As recounted by Overbeck, Kent then



Photos by Jeffrey Dilkes

The 'New' Atwater Kent Model 55 radio sits surrounded by period newspapers.

spoke about the present and future of radio, "presented to you in the form of this big, new factory. Great as the radio industry has been in the past, I feel ... more confident than ever today that the greatest development still lies in the future," he said. "In order to succeed in the radio business, you must keep doing something new because radio itself produces a new problem almost every day.

You can't go stale in the radio business without going bankrupt, because the other fellow will pass you."

The end of Atwater Kent

According to an article by Ludwell Sibley in the newsletter of the Delaware Valley Historic Radio Club, Kent told his son in 1937 they were closing the factory based on a marketing analysis. From 1941 to 1949, the building housed the Army Signal Corps. It was then transferred to the new General Services Administration.

The GSA completed the conversion of the building from manufacturing space to offices and records storage. The first tenant under the GSA was the Veterans Administration, later joined by the National Archives and the U.S. Treasury.

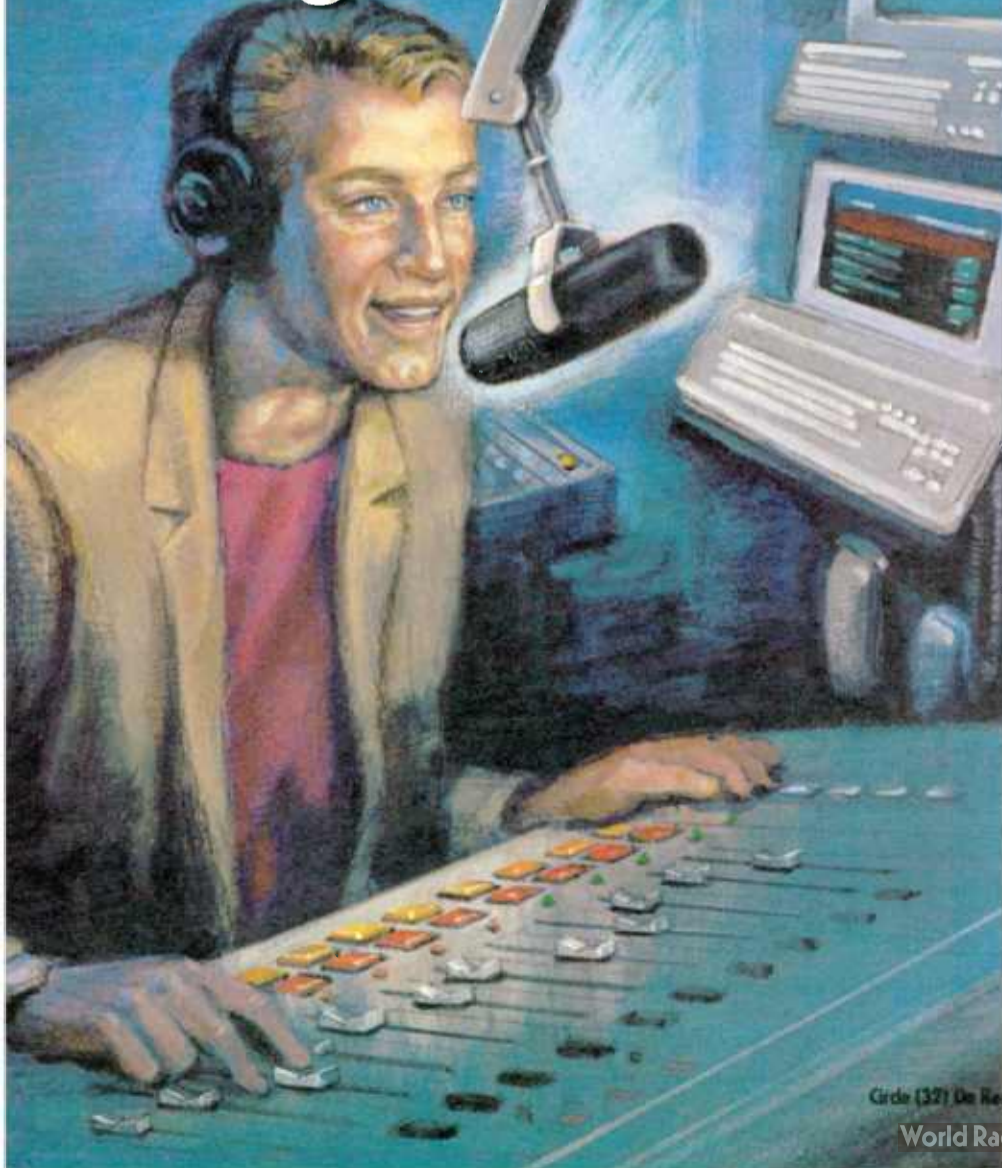
The structure's rich history came to an abrupt end in 1996 when federal officials issued a press release announcing that it was no longer useable due to levels of lead-based paint and other dangers. The building would be demolished.

"The GSA scheduled a beautiful function," said Overbeck. "Once I received word of the GSA's intentions to hold a function unveiling the time capsule, I petitioned the GSA to invite officials from the New Jersey Antique Radio Club and the Mid Atlantic Radio Club," along with other Atwater Kent collectors.

Peter Kent, a grandson of A. Arthur, was on hand for the festivities, at which Overbeck presented a commemorative to

See TIME, page 43 ▶

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► TIME, continued from page 42

Atwater Kent III, another grandson. About 15 Kent family members were present.

Peter Kent provided 16 mm, black-and-white film of the insertion of the time capsule in 1929 when the building was dedicated. That film was transferred to videotape for the ceremony.

"It was really exciting and well done," said Peter Kent of the festivities. "I felt such a sense of pride ... being there with everybody and seeing how interested people were in seeing antique radio stuff." He commended the GSA for the pains it took to hold the event.

"I think it's really wonderful that (A. Atwater Kent) provided us with a radio-related event so far down the road," said Overbeck. "It showed the man's spirit in all. He was a very interesting man."

Atwater Kent historian Ralph Williams said the closing of the factory was a sign of the times.

"The business of building radios and

world," and the biggest industry in Philadelphia at that time, he said.

Calling it "one magnificent day," Williams recounted the events of the time capsule unveiling.

"It was really beautiful," he said. "And terribly exciting, even though I knew what was inside the time capsule. A piece of history! My main excitement came as we got the sealed copper box out of the cornerstone ... I could tell from the weight of it that everything was there."

Williams and a museum curator carried out the grand opening with the help of a soldering iron.

Prying the lid off the copper box, Williams pulled out five Philadelphia daily newspapers with headlines of the Lindbergh baby kidnapping. Also in the capsule: Atwater Kent's index cards of the notes from his speech 68 years before.

In the bottom of the box was a brand-new Atwater Kent Model 55 radio, fresh off the line.

"It was a seven-tube radio ... in great condition ... some of the tubes were

It was taken right off the production line and put into the capsule.

— Ralph Williams

Cunningham, some were RCA," said Williams. The Model 55 was a TRF (tuned radio frequency) metal-cabinet radio with a separate speaker. "It was taken right off the production line and put into the capsule," and the instructions

were still with it, he said.

"I saw a test tag hanging on the cord of the radio," said Williams, who then turned the set over, and discovered that Kent's son, Atwater II, had performed the tests.

"I felt 'Atty' was right there with us when we opened that case," said Williams, who knew the son.

"When he came out of that box in the form of the test tag it was like ... he was putting his arms around me and saying 'Ralph, we've done it. We've done it.'"

Items from the Atwater Kent time capsule are scheduled to be archived inside the new GSA building.

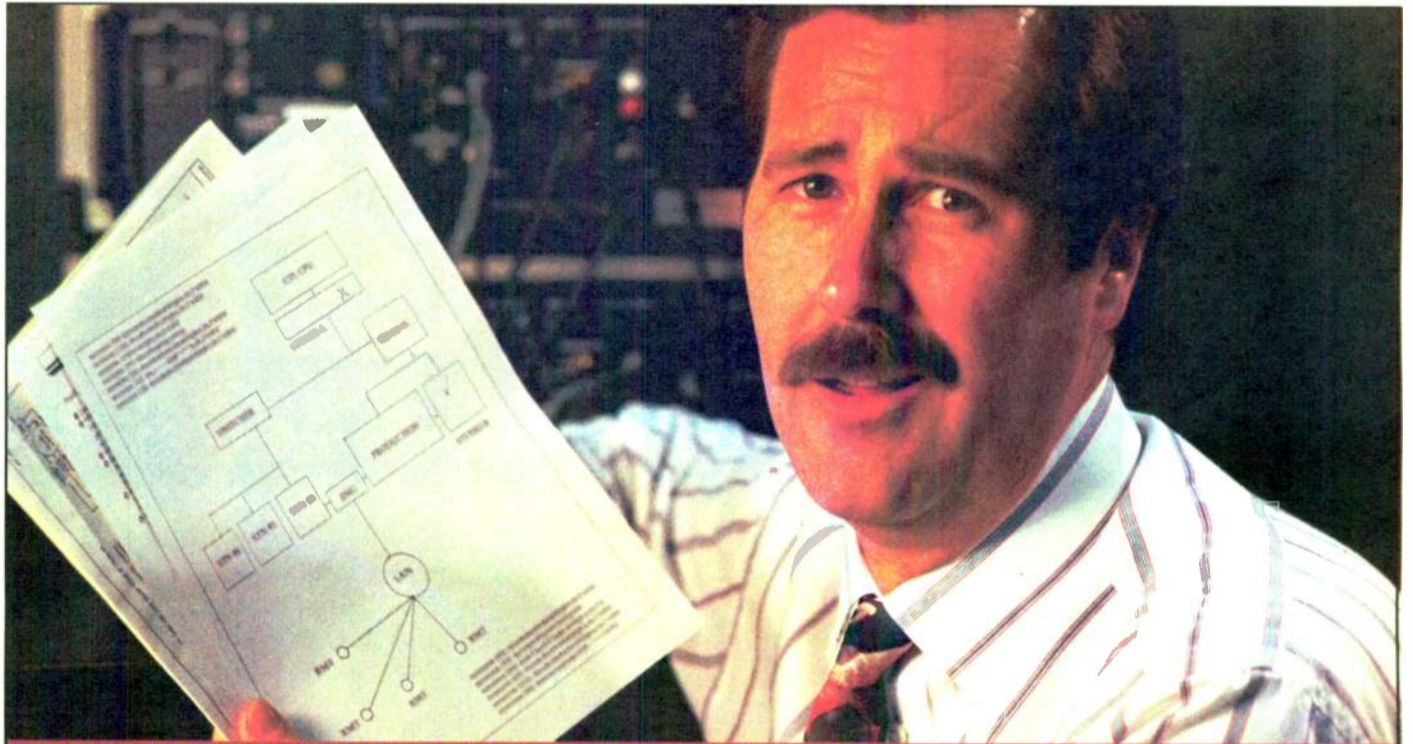
■ ■ ■

Sharon Rae is a radio news director in Lansing, Mich., and principal of Rover News Services, as well as a regular contributor to RW. Reach her via e-mail at scohon@aol.com



Bill Overbeck of the Delaware Valley Historic Radio Club inspects the innovative articulating skylight system in the original Atwater Kent manufacturing plant. This main facility will be preserved.

selling radios changed quite substantially during the 1930's," in part due to the Depression, in part due to the nature of radios, said Williams. "Mr. Kent himself decided he had enough of being in the radio business ... having been in it since about 1921 ... and quite successfully. Kent was the biggest manufacturer in the world about the time that radio was made, and his plants together were the biggest radio manufacturing place in the



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A Closer Look At Public Radio

► PUBLIC, continued from page 37

Public Broadcasting keeps records on all income of all CPB-qualified stations.

There are some data, however, from which to draw conclusions. In a survey published in May of 1996, The Development Exchange reported 72 of its 104 member stations indicated membership typically brings in three times as much as underwriting.

Digital radio and the prospect of restructuring NPR into some other model are other hot topics we'll discuss in the future. On tap this year are several interesting meetings, including the mammoth Public Radio Conference, the Public Radio Development Conference and the "NPR Road Shows" now underway around the country.

■ ■ ■

Reach Yana Davis via e-mail at yana@novell.ur.utk.edu.

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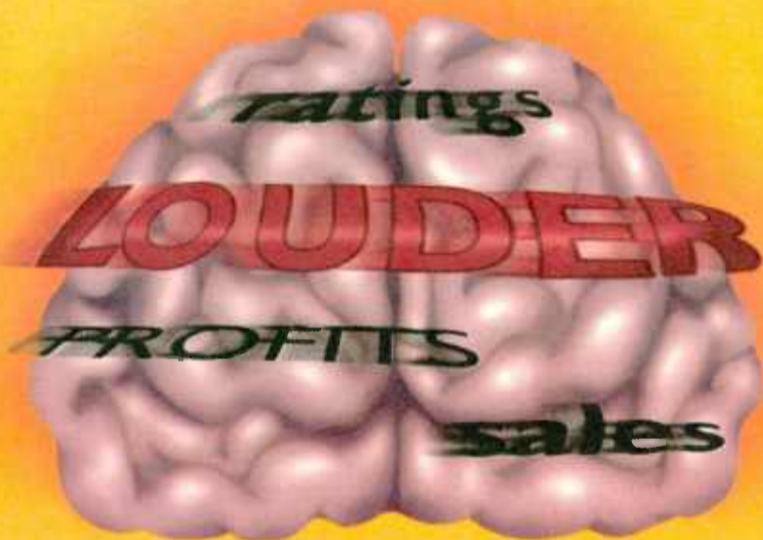
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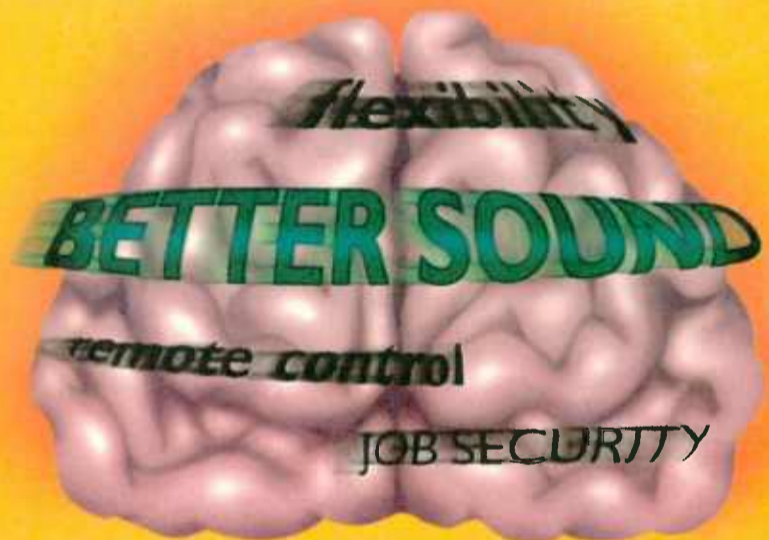
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World Radio History

HUMOR

Did Your RF Freeze This Past Winter?

Ronald Pesha

Broadcast personnel always feel great relief with the end of cold weather. Winter brings hardship and difficulty for radio stations.

For example, if the antenna becomes too cold, RF may freeze to the structure rather than radiate. Personnel at one mountain transmitter site had to build a bonfire at the antenna base to melt the accumulated RF and return it to the air.

However, winter may ease some problems.

A Colorado station I once worked at lost an obstruction light bulb at the second level of the tower in the middle of winter. One night my station received an unusually heavy snowfall, so the next morning I simply snowshoed to the tower, leaned over and replaced the bulb.

We need a greaseman

Now that warmer weather has returned, switch to a lighter grade of grease in the control room chair. Without grease all control room chairs squeak, especially when the microphone is on. Switching chairs is no help. A chair that has never squeaked in its life will start squeaking upon positioning it near a microphone. You need the grease. (Microphone boom grease substitutes nicely if you lack chair grease.)

Grease of suitable viscosity nicely dampens the movements in RF ammeters. This eases the reading of base current during modulation at AM stations. Sufficiently heavy grease will maintain readable current flow even after shutting down the transmitter.

Old-timers will remember the transmitters of high-voltage vacuum tube days. In addition to full-length rear doors, some of these broadcast transmitters provided a front-panel access door to the final tubes. Opened, this door provided a convenient place to keep pizza warm once defeating the pesky safety interlock.

But times change for the better, with evolving technology bringing solid-state components, computers and even DAT (digital audio tape). In 1997 some managers have already configured full DIS (digital integrated systems). There are a number of state-of-the-art stations with DIS and DAT.

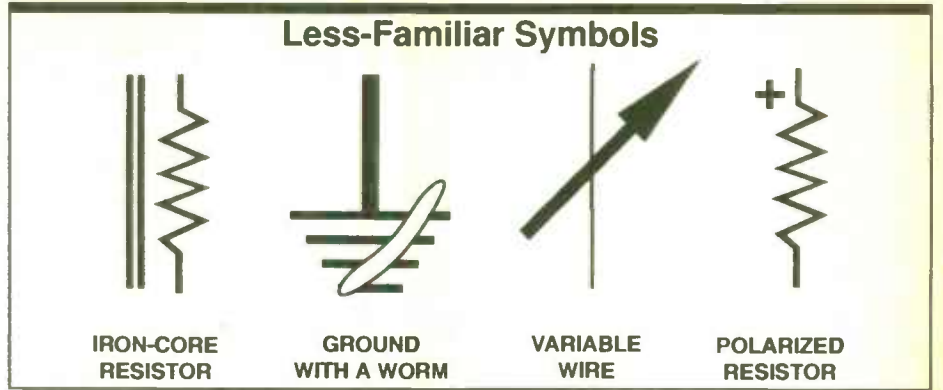
Some socially conscious managers find ways to contribute to their communities' economy and well-being. One employer went a step further with his effort to hire the most neglected population of all — the Incompetent. Imagine the warm glow of pride among the staff when they see that sign on the door proclaiming, "We Hire the Incompetent."

Other employers retain authoritarian approaches in dealing with staff. Manufacturers of broadcast gear do offer equipment appropriate for such a management style. For example, warning lights are available with a choice of legends, including "On The Air," "Quiet" and "You Will Be Silent."

Environmentally conscious employers seek ways to reduce impact on the earth. We waste much paper by using only one side, yet two-sided logs are inconvenient. Though still expensive, 1997 technology offers one-sided paper. When you turn it over, there's nothing there. As a secondary

advantage, carelessly discarded one-sided paper has a 50-50 chance of landing face down. At least then it's invisible, thus alleviating studio clutter.

The computer has reduced paper accumulation. Direct screen readouts and the use of e-mail definitely save trees. Now Write Only Memory (WOM) joins Read Only Memory (ROM). WOMs accept large quantities of data, but can never be accessed. The Write Only Memory is valuable for all that information that is collected but filed away and never read. WOMs



remain in current short supply because of vast demand by the government.

Finally, manufacturers are marketing resistors with all-gray color codes for color-blind technicians. Remember, too, there are short yardsticks that store away conveniently in drawers, along with sun

dials using luminous numerals so they can be read at night.

■■■■
Ronald Pesha is associate professor of broadcasting at Adirondack Community College, Queensbury, N.Y. He wanted this article to run April 1, but we fooled him.

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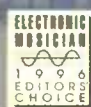
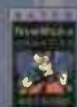
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Running Radio



Is this
your next
morning
man? See
page 53.

Radio World

Resource for Business, Programming & Sales

April 30, 1997

Up Early With John Donald Imus

Bob Rusk

At 2 a.m. Monday, most Portlanders are usually sleeping comfortably under their electric blankets.

But when radio personality Don Imus came to town, a few hundred stayed up all night to party.

Imus, who periodically takes his nationally syndicated show on the road, was in Portland, Ore., to broadcast from the Crystal Ballroom of the elegant Benson Hotel. It was an "Early Bird Breakfast With Don Imus," for which local Imus affiliate KOTK(AM) had spent several months planning.

As the crowd made its way into the ballroom, KOTK General Manager Steve Keeney took tickets, which had been given away in a station contest, and greeted his listeners with a smile.

As airtime neared, KOTK Chief Engineer Lee McCormick was busy making last-minute adjustments for the remote. ISDN lines were in place to send the signal back to flagship station WFAN(AM) in New York. Other engineers were preparing for the simulcast on MSNBC. A satellite truck was parked in front of the Benson.

As more of the Imus faithful arrived, it became apparent that this event would be standing room only. No one seemed to mind. Thankfully, KOTK had put in a big order for hot coffee and muffins.

Looking like he had just gotten up on the wrong side of the bed, Imus slowly made his way down the aisle of the brightly lit ballroom at 2:24 a.m. The crowd broke out in thunderous applause and he took his place on stage.

One person in the audience said in a confused tone, "Does he always look like that?"

'Be quiet'

Indeed, Imus' fame rests with his voice rather than his countenance.

He took off his trademark cowboy hat and dark glasses. Another audience member quietly wondered if Imus was a man of few words off the air.

Sitting between his newsman, Charles McCord, and producer Bernard McGuirk, Imus said nothing as he began to read the morning paper. Supporting funnymen Rob Bartlett and Larry Kenney were presumably digesting the comics section.

Although the "Imus in the Morning" program, syndicated by Westwood One,

begins at 5:30 a.m. EST, the first half-hour was prerecorded and heard only on WFAN. Five minutes before going live, Imus and company were still perusing the paper — choosing which of the day's political tidbits to satirize.

When the live broadcast finally began at 3 a.m. (6 a.m. back east), Imus, famous for his caustic quips, was surprisingly charming.

"Thank you very much for showing up here," he said to the crowd, which was eager to see and hear the I-Man in action. "It's unbelievable. That's number one. And number two, please be quiet." This was greeted with laughs and a round of applause.

"It is not necessary to applaud for yourselves," he deadpanned, which brought another round of loud laughter. "Just have a good time. Whatever you wanna do, it

doesn't make any difference. We have no rules. We don't care."

engineer McCormick and assistant J.D. Fort.

Among the equipment used was a Mackie 1402-VLZ mixer, set up for the six microphones used by Imus and Company. Six wooden mic control boxes were built specifically for the broadcast.

"Each box had a Pacific Recorders on/off switch for the microphones. There was also an indicator showing if the mic was on or off," McCormick said after the broadcast. "We built cables to run from the on/off switch back to another box we built containing quieting devices.

"This was inserted into the line on the back of the Mackie mixer for switching. Consequently, there was no noise when the mics were switched on and off."

The six mic positions were also equipped with Pacific Recorders headphone plugs and gain controls. The microphones and backhaul transmission from WFAN were fed into an Allen & Heath mixer, with the mix-minus furnished by WFAN.

"The Allen & Heath handled the mix-minus plus the microphones to give the full program," McCormick said. "This went to the PA system (at the Benson Hotel), where four small speakers were driven by Yamaha amplifiers. It also fed a Crown headphone amplifier as well as MSNBC."

MSNBC got the mix-minus and microphone mix separately. "We could do that because there

were so many sub-mixes," said McCormick. "We had to go with a bigger board so we could give them a separate mix, while giving our headphones and PA system a controlled mix. We were using five different sub-mixers on that board."



Photos by Bob Rusk

For McCormick, who has been at KOTK (under different ownership and call letters) for 18 years, engineering the Imus broadcast proved to be a challenge.

"It's really difficult when you have that many people, that many microphones, and that many headphones in one room," McCormick said. "It was nice having the live audience, but we

were obliged to present a good quality sound production for the radio audience."

Bob Rusk is a broadcast and entertainment journalist, and a frequent contributor to RW.



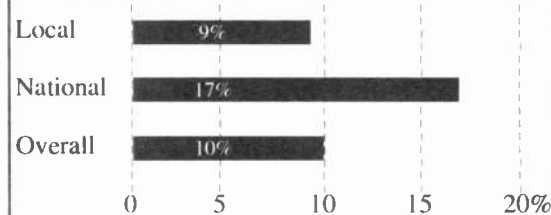
Charles McCord, Don Imus and producer Bernard McGuirk prepare.

doesn't make any difference. We have no rules. We don't care."

The I-Mics

The Portland remote went off without a hitch, thanks in large part to KOTK

RADIO REVENUE : Year to date



More Sales Records Set

Advertiser spending in radio continues to grow, according to RAB figures.

Thanks to its 54th consecutive month of revenue gains, radio posted an increase in overall revenue of 10 percent during the first two months of 1997, over the same period a year earlier.

For February alone (not shown), combined revenue was up 12 percent. Local registered a 29 percent gain; national spot revenue was up 28 percent. These figures are based on the Radio Advertising Bureau Radio Revenue Index.

Don't Mess With Transmitters

Ed Montgomery

This is the eighth installment in a multipart series intended "to make the new generation of FM broadcast station managers aware of the equipment for which they are responsible and to help them periodically review how the equipment is operating." The previous part appeared April 2.

The transmitter site is one of the most important components of the broadcast facility, yet too often it receives the least attention. The result often is unwanted down-time because of neglect.

A transmitter is a high-voltage, high-current, heat-generating behemoth

compared to the electronics in any other part of the station. This is not something to try to repair or adjust without a solid knowledge of electricity and radio-frequency electronics.

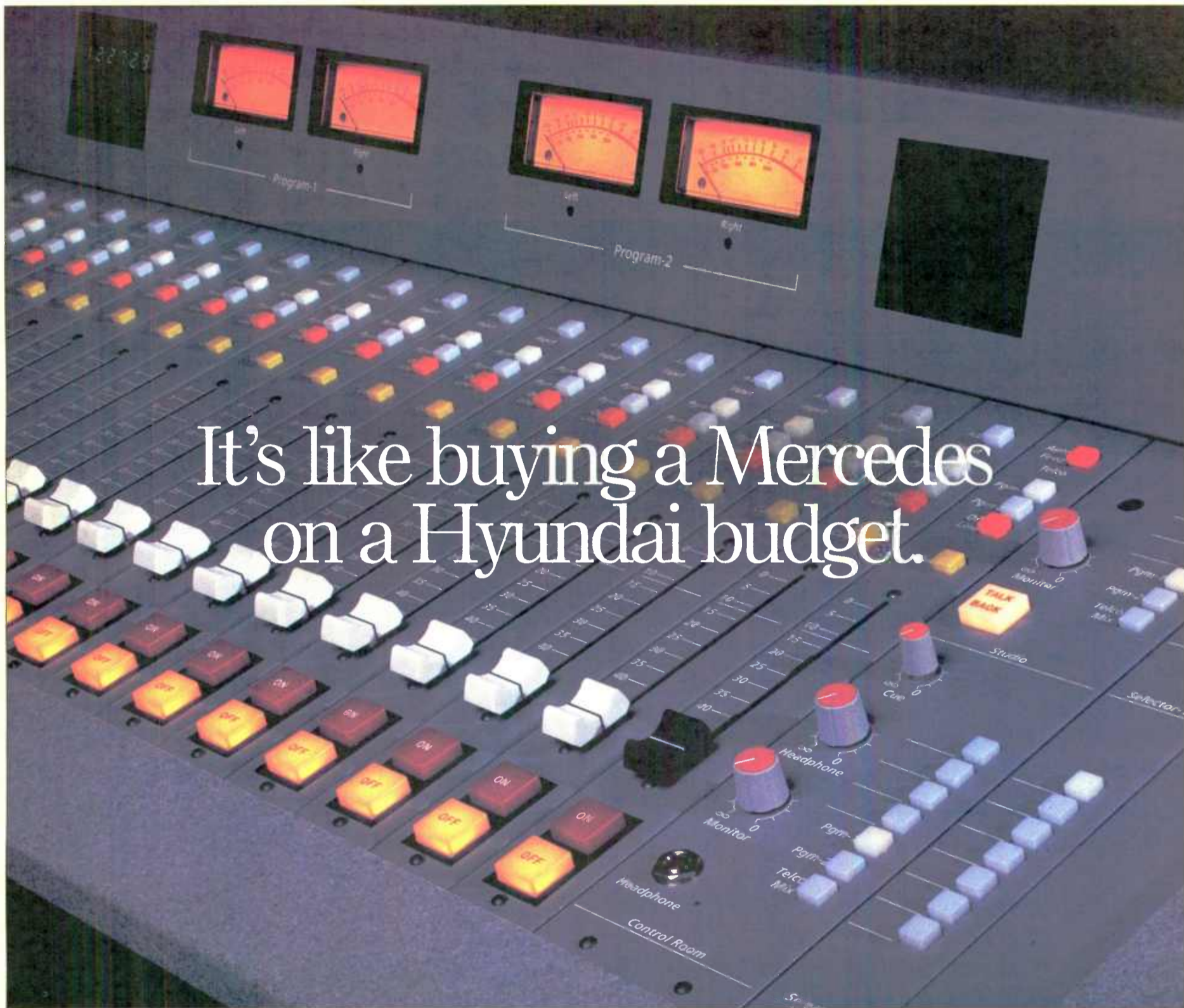
Consider how the human body reacts to electricity. Electricity flowing through muscle will paralyze it. Enough current will overcome an individual's ability to let go. This can result in severe burns and, if the current flows through the heart, it can paralyze it, causing death. Only 0.5 Amperes need to flow through a body to cause death. Depending on where the electric current flows, and the health of the individual, some can take more current than others.

Electricity is dangerous. Take it seriously. The average home outlets have a

minimum of 15 Amperes available through them, but the electrical outlets from breaker panels at a transmitter site have far more current. If you are unfamiliar with the equipment, do not try to repair or adjust it. Electricity is invisible. It cannot be seen at the fuse contacts of a transmitter or on screw terminals. Neon lamps designed to locate energized electric lines are helpful, but if you are not familiar with what you are doing, don't even use them. It is not worth anyone's life to try to get back on the air.

As previously noted, transmitters generate significant amounts of heat. They come with fans to blow the heat away from tubes and transistors, but where does it go from there? If the

See TRANSMITTERS, page 55 ▶



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Knock Down Those Defenses

If someone says he wants to talk with you about your weaknesses, what is your normal response? If someone says he wants to talk about your strengths, how do you respond? It is human nature to respond favorably to a discussion about strengths.

Our defenses go up when our weaknesses are discussed.

Consider a bully picking a fight. A mere negative comment about the opponent's weakness will suffice to bring the matter to physical blows. The comment may or may not be true. If the comment is made in front of others, especially the opponent's peer group, the effect is magnified.

Transfer this analogy to your station's daily operations. When you focus on a weakness in a person or the staff, you can have a demoralizing impact on performance.

Focus on strengths

True communication is shared meaning and shared understanding. Real communication occurs when both parties have understood what the other has said. People have a hard time being open to a message when their defenses are up. Rather than focus on the message, the listener's mind is busy preparing defenses.

Obviously that approach does not promote optimum performance. Consider another way to improve your communication abilities by concentrating on strengths instead.

Take a look at your minimal-performance staff member. Identify what he or she does well. Once you have defined those qualities, think of how you can motivate that person to use his or her talent in helping you meet the station's goals. The same concept holds for the staff. If you can look at the strengths of the group, instead of its problems, you are on your way to channeling a positive energy in an effort to meet your objectives.

Talk with your staff about their strengths. Once a comfort level is achieved, you will dissolve the defenses and can exchange intentions, goals and expectations.

You also then define weak areas in a

positive mindset: "How can we correct the weaknesses and move toward eliminating them?"

When you, the manager, demonstrate a genuine desire to know what a team member is saying or feeling, you become somewhat vulnerable. You may discover

information that does not support your views and actions. This is the point where true growth begins for you and your staff. Your understanding will expand. A great deal of courage and strength

may be necessary to change your perspective and to make changes in the way the station is managed. But the process helps create an atmosphere of openness in which you and your staff can develop ideas and implement them.

All humans need to feel that they are significant. Once your staff members know they are valued and have some significance in the group's success, they can direct their energies to finding new opportunities and let the creative ideas flow. People in a defensive mode, by comparison, focus their time and energies on covering their tails.

When you talk with a staff member about their thoughts or ideas, avoid judg-

ing them or their thoughts. Resist the temptation to label or categorize others. This type of rigid tendency is counter-productive. Instead, take an evaluation approach. Judgment usually involves looking for other people's weakness. Evaluation, on the other hand, is a

search for and assessment of the value of their ideas.

When you have gained an increased sensitivity to someone's thoughts, you broaden your scope. You may now consider several answers to a problem, whereas earlier you only considered two.

Take notice

One of the most effective ways to destroy effective communication is to ignore or fail to recognize your staff's thoughts and ideas.

Understanding this concept is not enough. You must act on it. When someone contributes a usable idea, say so. Implement the idea, if possible, and publicly praise the person or the group. Positive reinforcement will encourage more ideas and greater per-

formance. Let your staff know you have high expectations.

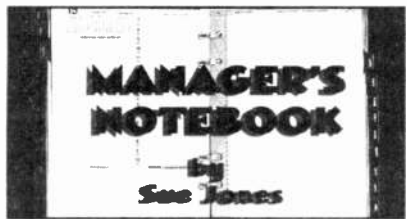
True leaders know you can turn people off by expecting their second best, or worst. Equally true, people will rise to the expectation level. Make sure your expectations are high enough for them to stretch and grow. You are encouraging the staff to use its strengths and unique gifts to reach the station's goals.

Your communication strength will depend upon your integrity.

If your listening is only window-dressing, if you listening in only window-dressing, you will have wasted your time and that of the staff, while achieving nothing. Without integrity there is no credibility. Without credibility, communication cannot happen.

■ ■ ■

Sue Jones is a principal in a communications management firm in the Washington area. Contact her at (703) 503-4999.



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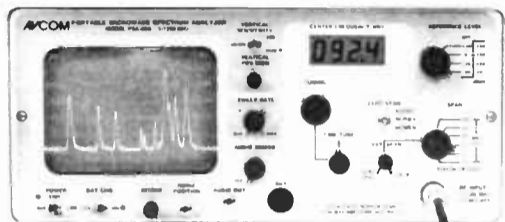
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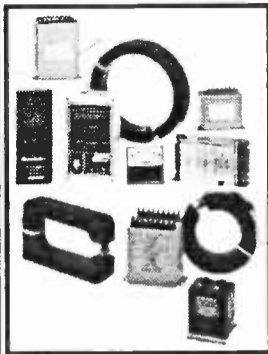


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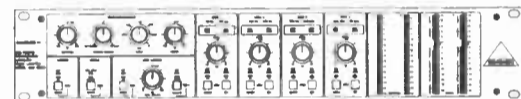
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OFFBEAT RADIO

This Dummy Puts on Airs

Dee McVicker

Alas, there's proof positive that any dummy can make it in radio. Well, not just any dummy, but the wooden kind that sits on your knee.

Any notion that a ventriloquist cannot fare well in radio is dispelled by the Arbitron numbers for Franklin County, Mass.

Soon after WPVQ (FM) in Deerfield went on the air in 1994 with an eclectic ventriloquist morning show, the contemporary country station grabbed the top morning spot and didn't let go.

WPVQ has consistently rated number one in the Franklin County Fall '94 to Fall '96 books, 12+ average quarter hour share, 6 a.m. to midnight.

Listen up

"People who haven't listened usually shake their heads to people who say, 'Hey, you have to listen to this, it's really crazy.' What? A ventriloquist doing a morning show?" mimed Gary Brodeur, the human half of Brodeur

and Daniels in the Morning, who, even without his wooden sidekick, plays Gracie Allen to his George Burns.

On the air, the banter is similar between him and Rusty Daniels, his toule-haired, wide-eyed companion of 28

The important question, however, is: How do listeners know if he's moving his lips?

years. Brodeur delivers the straight, and Daniels the punch line. Their "knucklehead in the news" segments in the morning are pithy, one-two exchanges of what's recent in the news that day. They last 60 seconds, at the most, and Daniels' voice is used sparingly to avoid character burn-out.

"He's very well-placed within an hour segment, in that he's quick in and out, because he does have a unique voice. It could become irritating if he were doing the weather all the time, or doing lead-ins to songs. We were very conscious of that," said Brodeur, who is now pursuing nationwide syndication.

The important question, however, is: How do listeners know if he's moving his lips?

"That's what everyone wants to know," said Brodeur, who actually does move his lips to get across radio. What about the dummy? Is it in the studio with him?

No, although when Brodeur is out promoting the station at events, he's up to his old Broadway tricks, and Rusty is right there with him, flapping his mouth and rolling his saucer eyes.

In the studio, Brodeur relies on Rusty's unique voice to bring a lot of

those characteristics through to listeners, many of whom have mistaken Rusty for a live morning jock.

"We've even had quite a few country music artists on the morning show that play along with it," said Brodeur.

A matter of timing

Often, Brodeur and Daniels will be joined by other "psychiatrist," including Brodeur's friend, the owner of Roadkill Cafe, and crotchety old Gramps Griswold, who is the oldest WPVQ listener and lives next door. The morning shows are scripted, but are done live on the air.

Admittedly, the idea of a ventriloquist on radio sounded absurd even to Brodeur.

For one, there was the question of timing, as the radio medium demands small bursts of humor compared to the even tempo of on-stage performing. Moreover, he said, "You don't have the feedback from the audience laughing. That was a little strange in the beginning."

As a standup comic who cut his teeth on nightclubs, conventions, Christmas parties and county fairs, Brodeur took a while to adjust to the audio-only format, even though he had some experience with radio and television.

In 1986, he produced, wrote and starred in a television pilot entitled "Gary and Rusty's Traveling Machine," a 30-minute children's special.

Later he produced and hosted a 60-minute television documentary about Rufus and Margo Rose, the puppeteer team behind "The Howdy Doody Show."

He has had an interest in show business since the age of eight, when he began playing around with puppetry to entertain his classmates.

At 14, Brodeur met Jimmy Nelson and sidekicks Danny O'Day and Farfel, and he began to get serious about ventriloquism. Later, after much practice and spending \$250 for his first custom-made Rusty Daniels doll, he began appearing in high school openings, amusement parks, gas station openings, anywhere they'd take him.

In his career as an entertainer he has



had a few brushes with radio, once as the writer and producer of a comedy show and again as a host for several specials on music artists.

Not until 1994 did he enter a radio studio with Rusty Daniels in tow, and only then at the insistence of WPVQ owner Bob Shotwell, who spotted the team at a syndicated children's show and thought they would make a great addition to his new FM station.

Actually, "It was a cheap way of getting out of paying for another guy," chided Brodeur. Or was it Rusty?



Dee McVicker is a regular contributor to Radio World. Reach her at (602) 545-7363 or roots@primenet.com

Top 50 Markets Dominate Spending

More than \$14.1 billion changed hands in 1996 for the purchase of 1,582 radio stations in the 263 rated markets, according to BIA's State of the Radio Industry study.

The report, issued by BIA Research Inc., found that \$12.4 billion of this astounding figure — or 88 percent — was spent to acquire stations in the top 50 markets alone. Additionally, more than 90 percent of the \$12.4 billion was spent for the formation of a duopoly situation or greater.

For this study, BIA defines a duopoly as two or more stations of the same service (AM or FM) owned by the same owner in a market.

A total of 623 radio stations in the top 50 markets were sold in 1996, followed by 343 in markets 51-100 for \$919 million.

In markets 101-150, \$446 million was spent to purchase 235 stations. And in markets 151-200, a total of \$197 million changed hands to buy 182 stations.

BIA President Tom Buono anticipates a quieter marketplace this year.

"The transaction marketplace was tremendous in 1996, due primarily to in-market consolidation," said Buono. "We expect the pace to ease somewhat in 1997, but anticipate additional mega-mergers as the national consolidation continues."

— Alan R. Peterson



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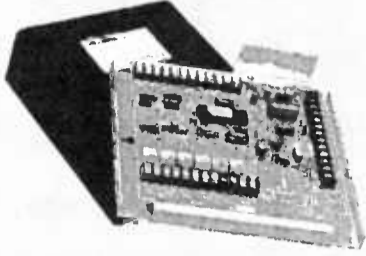
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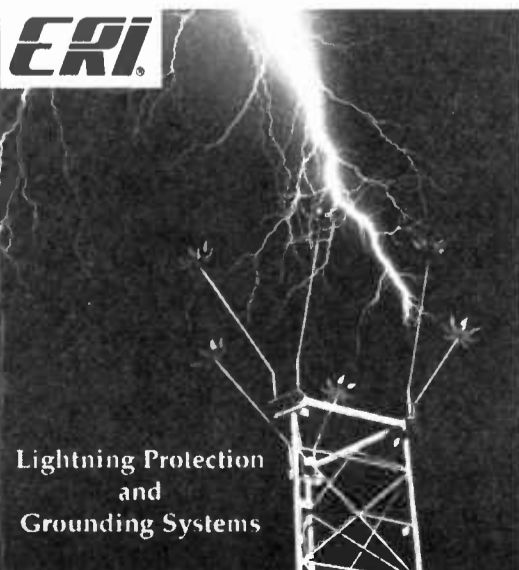
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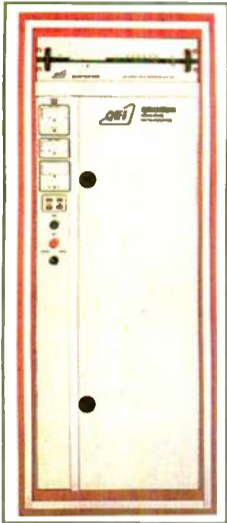
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Keeping a Transmitter Happy

► TRANSMITTERS, continued from page 48
transmitter is in a small room or building, it will not take long to raise the temperature of the room to a high level.

The heat must be removed from the area. This usually requires an effective exhaust fan and sufficient intake air to provide cooling. Air-conditioning is used in warmer climates. The air conditioner and exhaust fan should be working properly. The filter of the air conditioner should be inspected and periodically cleaned. The transmitter needs to be cleaned at least once per quarter. Dirt can produce downtime and unnecessary repairs. A transmitter site should be kept



Transmitters like this QEI model are sophisticated devices. Don't try to adjust or repair them without proper training.

as clean as possible. Dirt and excessive heat are a transmitter's biggest enemies. Transmitter buildings themselves must be secure, not only from unauthorized individuals, but from pests. As a transmitter building ages, cracks and holes may develop. Mice, snakes, birds and other creatures take up residence. The building is dry and warm and attracts them.

Think of a mouse, building a home in the bottom of a transmitter, bringing in

dried grass, paper, nuts and anything else that may be combustible. In addition, Mr. and Mrs. Mouse may someday walk across a point of high voltage and ground which, at the least, could put the transmitter off-the-air and possibly cause an arc and start a fire.

A bird's nest will do the same thing; and I don't know of too many people who would like to go to a transmitter site and be greeted by a snake lying coiled on the floor. Snakes also like to crawl into warm areas around power transformers where they can cause an electrical short circuit, putting the station off the air. In addition, cockroaches, ants, wasps and a seemingly endless parade of bugs would like to call the transmitter site home.

The area should be sealed off against these pests. Allow only filtered air into the building. Have the building inspected for cracks and holes periodically. Screens and grills should be inspected to make sure they contain no breaks that would allow unwanted pests in the building or room. Consider hiring an exterminator to visit the site periodically, to assist in ridding it of these unwanted vermin. The transmitter is not a place to be forgotten. It should be visited periodically, at least once a week, just to see how everything is running.

Adjustments

Transmitters require a knowledge of resonance in order to adjust them. The output power of a transmitter resides at one frequency, which is the assigned carrier frequency or channel. Most transmitters, especially high-power models, use "tuned stages" that maximize power

amplified through them by resonating the signal at this one frequency. Low-power stages are sometimes untuned or broad-banded. In fact, some newer, solid-state

Adjusting the transmitter is not a procedure for a novice.

transmitters designed up to 5 kW are completely broadbanded, where no stages are tuned to resonance.

The controls on a transmitter are termed "tuning" and "loading." It takes

some skill to tune the transmitter properly so it is operating at optimum efficiency while loading or transferring power to the antenna. Adjusting the transmitter is not a procedure for a novice. Transmitters operating inefficiently will reduce the life of the tubes or transistors and deliver reduced power to the antenna.

The transmitter should operate according to the manufacturer's rated specifications. Again, relegate the adjustment of the transmitter to an individual familiar with its operation. Today's shortcut may result in hundreds or thousands of dollars spent unnecessarily for new tubes or solid-state modules.

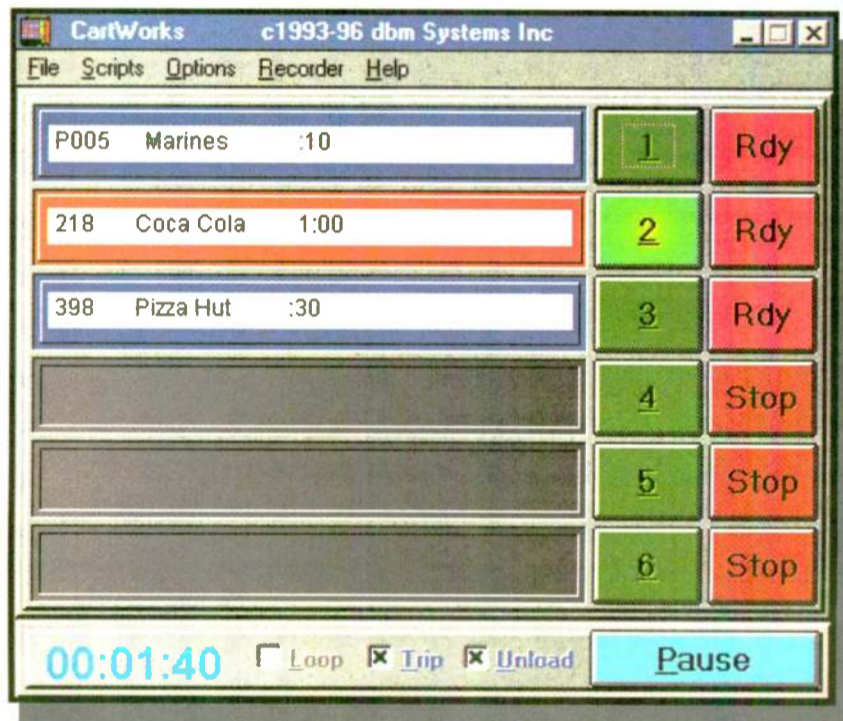
Observe the transmitter. Compare

meter readings with those listed on the manufacturer's checkout sheet of typical readings. Call for assistance if you think it is needed. Transmitters come with meters that indicate how the device is operating. Plate or Collector voltage and current indicate the final amplifier operate. These voltages remain relatively constant and are logged on the operating log. They should give the same readings on the remote control at the studio.

■ ■ ■

Ed Montgomery is lab director at Thomas Jefferson High School for Science and Technology in Alexandria, Va., and a part-time radio engineer. He also taught college-level broadcast engineering technology and has written educational columns for RW. Contact him via e-mail at emontgom@lan.tjhsst.edu

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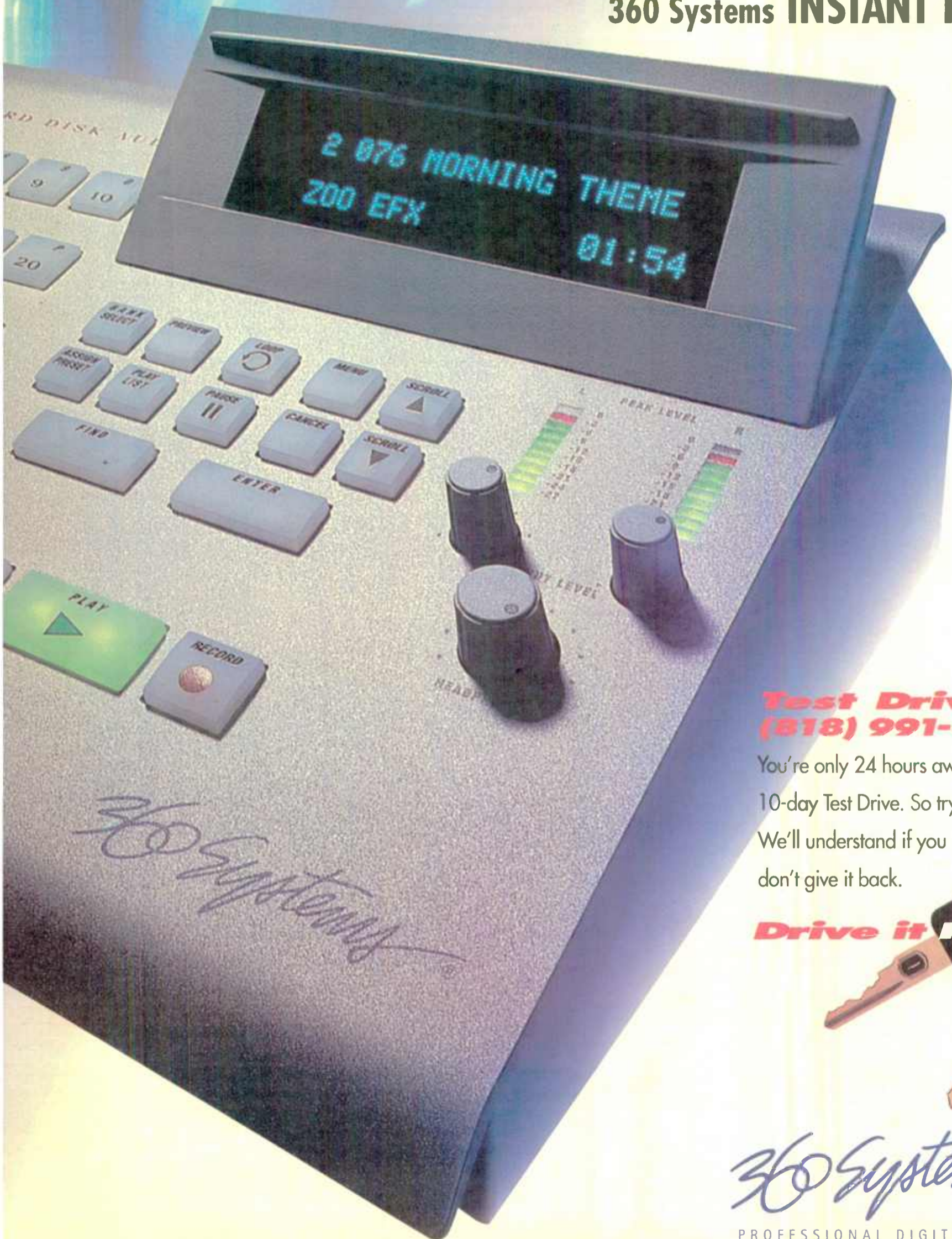
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PROMO POWER

FM-Talk, FM-News: Why Not?

Mark Lapidus

In a recent article I examined the signs that can lead to a format change. Typically, when stations do change formats, they opt for another music category without even examining two formats that are keeping the AM dial alive. I'm not saying that a different music format isn't the answer; it very well could be. But, stop to consider this

It's inevitable

I live in a city where FM talk is thriving on one commercial station, and FM news on a public station has slowly but

surely taken a bite out of the traditional AM news outlet. I believe I'm witnessing the inevitable: the realization that there's a substantial audience wanting talk and news on a clear, powerful frequency.

How long will it take before FM talk and FM news are in every market in America? Not long, I hope. It's only on FM, the band that is listened to by the vast majority of Americans, that these formats will have the most impact. Talk and news on FM will increase and time spent listening in every market, thereby contributing to the growth of our industry.

If you own or work at a talk or news

AM radio station, you are probably steaming mad at me for making these statements. I don't blame you for being angry, but your anger just proves my point. You know how exciting your formats are, and how well they'd do against you on a better and clearer signal. (How dare I insult AM radio in this way!)

The real reason why companies aren't rushing to do this is that they have a lot of money invested in AM radio.

This actually has nothing to do with my personal feelings about AM broadcasting. I actually enjoy the compressed sound of my youth and have worked at several AM properties.

This pertains to the reality of listening patterns. Sadly, once an AM station dies, it's almost impossible to bring it back to life. Why? The younger, more active end of listeners don't scan the AM dial the

way they do the FM. I have many friends in their 30s and 40s who never even turn the AM band on. (Next time you're in the car with a pal, check their presets on AM. Many won't have a single one!)

Most markets have two or three major AM stations; the rest of these AM stations, many of whom were kings in the 1960s, have no ratings and little audience now. However, this is not to say they can't make money. Niche formats and small staffs make many of them profitable, and there are many full-service AMs that are still loved and used in their communities. I acknowledge, admire and support their efforts.

In several areas of the country, terrain or isolation make AM the band of choice. If you own or work at one of these stations, good for you! I am certainly not wishing anyone in AM bad fortune. My point is simply that as more entertainment options emerge, it's important that we increase overall radio usage. We are in the entertainment and information business. If we don't provide it easily, people will find it on television, on the Web or in newspapers.

But will it work?

So why aren't the big companies putting talk and news on FM? Just a few years ago, the general manager of one of the country's largest AM news stations told me that news on FM couldn't possibly work. He said that when people turn


See PROMO, page 59 ▶

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Liddy-Palooza Rocks D.C.

Alan Haber

The Renaissance Mayflower Hotel's Colonial Room shook as though King Kong had wrapped his arms around it and was rocking it back and forth with primal abandon.

Such is the price of success. One-hundred fifty screaming fans and another 100 clients and staff can't be wrong. Here in the nation's capital, five years' worth of emotion was being celebrated on the air as radio talker G. Gordon Liddy played to a packed house, broadcasting live on

his fifth anniversary on the air.

Five years ... about as long, Liddy told caller Senate Majority Leader Trent Lott, R-Miss., "as I was in prison, sir."

How many ex-guests of the U.S. prison system have gone on to leave their prison stay in the dust, as Liddy has done? The host of "Radio Free D.C." hit the airwaves officially on Feb. 3, 1992 after testing the airwaves with a trial weekend's worth of broadcasts, and has never looked back.

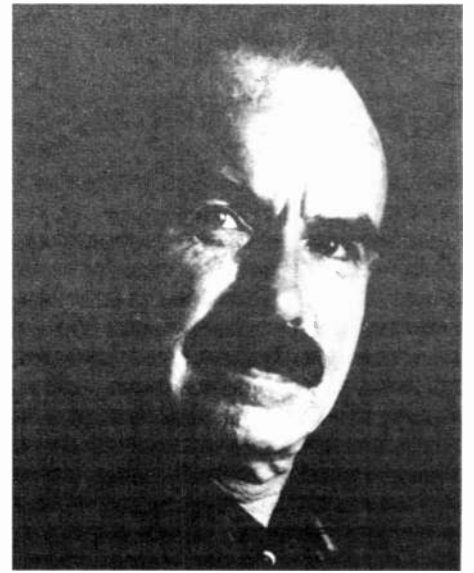
About 275 stations, including CBS Radio's WJFK-FM in Fairfax, Va., carry "The G. Gordon Liddy Show," syndicated by Westwood One. WJFK Vice President and General Manager Ken

Stevens couldn't be happier to have Liddy in his stable.

Stevens said he knew, right from the start, that Liddy would be a success. The number of affiliates, he predicted, will "double ... within two years." What Liddy is doing, he said, "is the future of national radio. I think that ... quality is going to start winning out over quantity, and the shows like Gordon's are going to rise to the top and they will be what people want over the next couple of years."

Westwood One Entertainment Division President Greg Batusic is also happy to have Liddy on his team. Liddy, he said, "attracts a loyal audience and

See LIDDY, page 61 ▶



G. Gordon Liddy

News and Talk on FM

▶ PROMO, continued from page 58

to FM they want music. They come to AM for news. Case closed!

Howard Stern and many others have proved this view myopic. The real reason companies aren't rushing to do this is that they have a lot of money invested in AM radio. Why kill your news AM station by changing one of its FM sister stations to that format? It just doesn't mesh in the big business picture.

In markets where owners are searching for formats that can generate success, I say, take a good look at these two format gems. With talk you can develop local personalities that can set your community on fire. I listened to New Jersey 101.5, WKXW Trenton, while heading into New York recently and was struck by just how much the callers loved or hated the host. Aside from the major syndicated morning shows, how often are local music stations able to elicit such an emotional response?

Don't want to try talk in a smaller market because you think your remotes won't fly? Baloney! Your talk show hosts are a lot more likely to draw a crowd to the local bike shop than is a typical midday DJ. With news you can become the most important source for instant information in your market. Plus, the sponsorship opportunities for segments and special features are limited only by your imagination.

Yes, it can take a considerable investment to run either format. However, these formats can also generate much more cash because of greater spotloads and a foreground audience that pays attention to commercials. There are also plenty of ways to save money using syndicated products. A few FM pioneers are using talk syndication. Check out WTLK (106.5 FM), Jacksonville, Fla., on the web at <http://www.audionet.com>.

What's the future for AM radio? Naturally, part of the answer is continued innovation, extremely niche-oriented formats, and full-service community stations. I'm not saying that this will save AM investors from the inevitable. Sooner or later, those who didn't grow up using AM will totally replace those who did. Unless digital sound comes to breathe life back into the band, AM will go the way of shortwave — a mere curiosity for most people in North America.

■■■

Mark Lapidus is president of Lapidus Media. For marketing and programming consultation, call him at (703) 383-1805, or e-mail him at lapidus@erols.com

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Hotline Melds Radio, Good Deeds

John Montone

Shirley Rooker, president of Call For Action, remembers the case well.

A woman's kitchen had suffered major water damage. The management at her condominium claimed it was her responsibility to fix it, but her insurance company said it was a structural problem that should be repaired by the condo association. The woman was caught in the middle, and wanted only to be able to use her kitchen.

Finally, the woman made a phone call to a consumer hotline at her local radio station, WTOP(AM) in Washington. She reached a volunteer from Call For

Action, who called a local building inspector. The building inspector made an on-scene determination that the problem was indeed structural. The condo's insurance company paid up. The woman had her kitchen back, and WTOP had a satisfied listener.

Radio success stories

Rooker can brag of thousands of such success stories. Call For Action helps people, and that reflects well on the radio stations that offer it.

Steve Swenson, vice president and general manager of WTOP and a member of the board of directors of Call For Action, is animated when he talks about the service.

"For an all-news station, it's a way for us to reach out and touch our audience. It's a service we can provide to them."

Call For Action was founded in 1963 by Ellen Sulzberger Straus, whose family owned WMCA(AM) in New York. Her goal: to put the power of the media to work to mediate people's problems. Call For Action was a wedding between volunteerism and radio that usually dealt with landlord-tenant disputes.

Today it handles "everything from bad cars to hot water, people hounded by debt collection agencies and those defrauded by telemarketing schemes," Rooker said. Call for Action has 26 radio and TV affiliates.

During the federal budget stalemate, when much of the U.S. government came to a halt, Swenson said Call For Action volunteers helped government employees in the WTOP listening area find out about their health and unemployment benefits.

Market exclusive

Rooker seeks market-exclusive broadcast partnerships with radio stations. A \$10,000 start-up fee covers the cost of recruiting volunteers to work the phone bank and set up the office, usually at the radio station. An annual affiliation fee, determined by market size, runs from \$500 to \$4,000.

The payoff: satisfied listeners whom the station can use in on-air promos for Call For Action.

Michael Daley is one such listener. An employee of Bell Atlantic and a Washington resident, Daley negotiated a membership deal with a local health club. The agreement consisted of paying \$1,800 up front and \$5 a year to renew his membership. "The health club refused to honor the deal," he said. "They claimed they were entitled to a cost-of-living increase every year."

Daley said the battle raged for months; his attorney failed to resolve it. He contacted Call For Action. Within weeks, the health club saw things his way. "If anyone comes to me with a problem," said Daley, "I would recommend Call For Action."

Call For Action helps people. That reflects well on radio stations that offer it.

Radio stations also benefit by having Call For Action volunteers working the phones. Their news departments are often the recipients of "tips" from the volunteers. Rooker said, "We hear from consumers every day. We know who's doing what to whom."

Just how much a station benefits from its affiliation with Call For Action depends on how it uses the service. WTOP uses Rooker as its consumer reporter. Stations can also generate income by selling commercial sponsorships to Call For Action features. Rooker said Call For Action has a tax hotline staffed by local accountants — a perfect program for an accounting firm to sponsor.

"Stations just need a little imagination to make us a star in their community," she said.

One thing Call For Action is not is anti-business. In fact, its services are available to small businesses as well as individuals. Call For Action volunteers do not automatically assume the customer is always right. Volunteers are trained to get both sides of the story before attempting to resolve it.

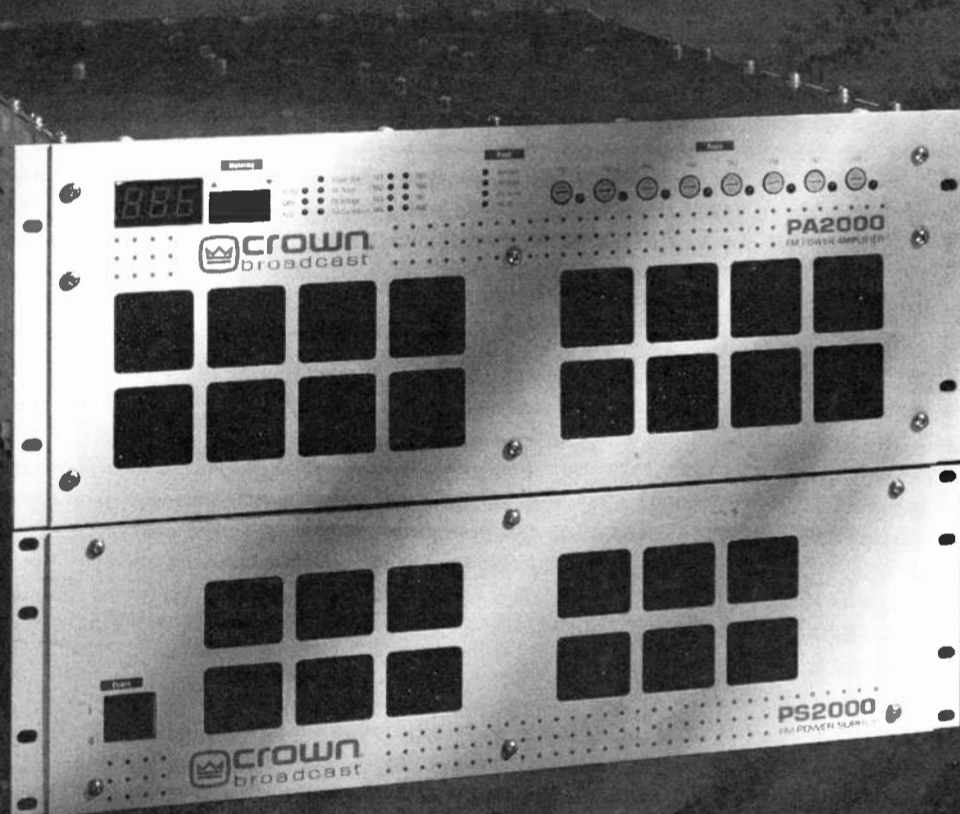
They do resolve it, according to Rooker. She said the WABC(AM) Call For Action hotline in New York has recouped over \$1 million for its listeners. Rooker, herself a volunteer, speaks like a true believer.

"Anything I say comes from my heart," she said, "not my pocketbook."

■ ■ ■

John Montone is a radio reporter for 1010 WINS(AM), New York. Send him e-mail at jfmontone@worldnet.att.net

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G-Man's Fifth Anniversary

► LIDDY, continued from page 59
steadily captivates new listeners book after book. The G. Gordon Liddy Show is one of the finest examples of successful personality radio."

Meanwhile, in downtown D.C., the listeners assembled in the mosh pit at Liddy-Palooza were hungry for their hero. The 20-and-older-something men and women, in business suits, blue jeans, sweaters, and glasses (and contact lenses), reacted with hurricane force at the announcement of each caller dialing in to wish the G-Man a happy fifth anniversary. They calmed down only during breaks for what Liddy continues to call "crass commercial messages."

Wishing him well

Countdown king Casey Kasem was the first well-wisher by telephone. Rocker Ted Nugent called to salute Liddy "for five wonderful years from the land of the free and the home of the brave, and the National Rifle Association mothers and fathers and sons and daughters across America." John Walsh, host of FOX Television's popular "America's Most Wanted," called to wish the G-Man well.

The always affable ex-New York mayor Ed Koch, a radio talker in his own

Liddy may well be his fans' talk show host for life.

right on New York AM station WABC, called in to say he is "probably the most successful loser in politics we've had in a long time. People threw me out, and I told them at the time that I'll get a better job, and they won't get a better mayor." Liddy said he has a great feeling for New York, where he was born and educated.

Washington Mayor Marion Barry made a grand entrance in person rather

than on the telephone. The man some call "Mayor for Life" said he's proud to be chief. "But not for life, just for a little while longer," he said.

Liddy may well be his fans' talk show



Washington Mayor Marion Barry visits G. Gordon Liddy.

host for life. He is settling nicely into his on-air berth. Yet, he said, he still has a pretty limited knowledge of all things radio. Not, however, that anyone in attendance at "Liddy-Palooza" would be aware. The Liddy fans that were sitting in on the fifth anniversary bash seemed cognizant of only one thing: They were in the presence of the G-Man himself.

A police officer from Flint, Mich. drove for 10 hours with his wife, seven months pregnant, to see Liddy do his thing. "I think that I have a strong feeling for this country," he said.

The police officer's wife wanted to know if Liddy had any suggestions for a name for her baby.

"Well," said Liddy, "what I would suggest is that, if you can come up with a feminine name that is the same name as someone — some woman — (on) both

sides of the family, that's a good idea ...

"If nothing else works, compromise on Lydia."

Is the country better off having a guy like Liddy on the air? "With the liberal mainstream media that we have," the police officer said, "I think that someone like (Liddy) getting more and more popular, it plants that seed in a lot of people's

who flew in from Nashville, Tenn. to see Liddy and was visiting Washington for the first time, skipping her first question and opted to ask the G-Man for directions to the Watergate Hotel. "Never heard of it," Liddy shot back, to the delight of the crowd.

Dwight Price, from Oxon Hill, Md., came to see the man he considers to be "a great person." If he could ask Liddy any question at all, he said it would be, "Would he adopt me?" Far from the mosh pit three days later, safe within the confines of WJFK, Liddy reacted by laughing and saying "You tell me I've got more children than I need right now ... I appreciate the honor."

Here in Radio Free D.C., it seemed as though the "Liddy-Palooza" could go on forever as the parade of famous callers continued. Arguably, none made more of an impact on the fans or Liddy than talker Larry King, who called in to wish the G-Man "5 to 10 to 15 more years."

"Mr. Liddy!" said King. "Mr. King," shot back Liddy. King said Liddy does a great job and he's happy for his success. Liddy said he watched King's show concerning heart disease and said it was very informative. The next day, he said he went to see a cardiologist.

"How did you do?" asked King, no stranger to cardiology. "I did pretty well," said Liddy. "They're going to try to avoid having me have a pacemaker by changing my medicine."

"Gordon," said King, "I never knew you had a heart."

Not only a heart, but about 275 stations. And counting.

A 'great person'

Not all the fans in attendance had such an agenda. Civil engineer Kendria Petty,



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Michael Jackson talks to political figures ...

PERSONALITY PROFILE

Host of the Year: Michael Jackson

Bob Rusk

Liberal talk show host Michael Jackson, who is celebrating 30 years on the air at KABC(AM), is the Talk Show Host of the Year. The award is given by the National Association of Radio Talk Show Hosts.

The organization acknowledged that Jackson will receive the award at a time when talk radio is "dominated by strong conservative personalities."

Jackson is being honored for his "distinguished contributions to the broadcast community and personal enlightenment of the public on international, national and local issues."

"I'm somewhat flabbergasted," Jackson said. "The vast majority of those who are hosting programs are philosophically so very different from me. (The award) shows, I assume, that I have changed to keep up with the times, not ideologically, but stylistically."

Jackson said his show is faster-paced, and he is more open with listeners than in years past. "I express my own views far more," he added in his trademark British accent.

Early days

The accent is real. Born in England, Jackson moved with his family to South Africa when he was 11. Five years later, he was bitten by the radio bug when he won a contest to find the "golden voice." The prize: a job with Springbok, the South African Broadcasting Corporation's first commercial station, which programmed in English and Afrikaans.

"I said I had a bachelor's degree and was 22," he said. "Actually, I had just finished high school. It was a wonderful education, because they were 30 years behind the United States."

"We were announcers who did everything — from learning how to place microphones for symphony orchestras and writing scripts for jazz shows, to directing live dramas and being sent out to cover sporting events."

These were the days before tape, when programs were recorded on 16-inch disks. "If you made a mistake, you had to pay for the disk," he said. "When you're earning \$39 a week, you don't make too many mistakes."

Jackson used Springbok as a springboard to the BBC in England. But his ultimate goal was to make it to the States.

"The BBC was Mecca in the English-speaking world," he said. "The standards were the highest; it was pretty intimidating. I was what was called an 'envision announcer,'" working on both radio and television.

"In those days, when you heard the announcer, you saw the person as well. We had no TelePrompTers, so you had to learn the entire evening's program in order to announce it."

"That taught me a great deal, but I never had the feeling that I was going to make it big there. Part of that was because I never wanted to be in England or with the BBC permanently. I always wanted to come to the West Coast, U.S.A."

California or bust

But when Jackson arrived in America, his first stop was on the East Coast, at WHYN(AM) in Springfield, Mass. Then he headed west to KYA(AM) San Francisco — where the debonair-sounding Jackson was a rock-and-roll jock for six months in 1961.

Even he admits he sounded out of place announcing the hot hits. "I was so

See JACKSON, page 63 ►

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World Radio History

► JACKSON, continued from page 62
bloody awful that I was good," he said. "I became the gimmick."

Jackson moved across the bay to KEWB(AM), where he worked with two other up-and-coming DJs: Casey Kasem and Gary Owens.

Owens, who later gained fame as the announcer on TV's "Laugh-In," said Jackson came on board as the all-night man.

"I think somebody locked the door to the record library and he was forced to take calls from listeners," Owens joked. "He would make wonderful acerbic comments about things. That gave him the avenue to start his patter. He is one of the great radio wordsmiths of our time."

Jackson said that in the year he was at KEWB, he played just two records: Brenda Lee's "I'm Sorry" and Elvis Presley's "Blue Suede Shoes."

After playing the latter song, Jackson said to the audience, "Isn't it wonderful to live in a democracy where a simple soul like Elvis can earn as much money as the entire faculty of the University of California put together?"

"That brought in complaints and threats from listeners, so I put them on the air," he said.

After spinning "I'm Sorry," Jackson said, "I apologized for her singing with her nasal passages blocked, but she sounded better that way."

That brought in more complaints from listeners, whom Jackson promptly put on the air. "That's how my talk radio career

I'm somewhat flabbergasted.

— Michael Jackson

was born," he said. "For the remainder of the year, I talked for six hours a night, six days a week."

Program directors in Los Angeles began hearing about Jackson, and he headed south — first with KHJ(AM), then KNX(AM). Jackson was fired from the latter station. He thinks it was probably because he wouldn't stop talking about the Watts riots, part of the tremendous civil unrest in 1965.

"That's the only disagreement I had with the station," said Jackson. "The station never gave a reason" for firing him; but he thinks management felt that talking about the riots was not good radio and that listeners were not interested in the subject.

"Can you imagine that?" Jackson said. "The station didn't like race, religion or politics. So I said, 'Let's talk sex,' and was told to forget it."

The end came, Jackson said, when he came off the air one day and was greeted with a sign that stated, "Michael Jackson Is Not Permitted Back In This Building Again."

"When I was fired from KNX, nobody would touch me," said Jackson. "I couldn't get a job. I was on the verge of giving up radio. My wife (the daughter of the late movie star, Alan Ladd) said to me, 'Before you decide to change careers, phone the one station you'd most like to be with. Find out why radio has passed you by.'"

"I wanted to think about that, so I got in the car and went for a drive. I saw a phone booth, stopped and called the general manager at KABC. He immediately asked me where I had been. I was hired

that day, after being unemployed for eight months."

Jackson now believes his career stalled because his agent "never called anyone."

Rewarded at last

Receiving the Talk Show Host of the Year award takes some of the sting out of those memories. "It's as nice a reward as you can get," Jackson said happily. He'll receive the honor on June 21 at NARTSH's annual convention in Los Angeles.

As he begins his fourth decade behind the microphone at KABC, Jackson is looking forward to many more years on the air. He has no plans to retire.

"This is the most exciting period of my life professionally," he said. "When I joined the staff, I was the youngest. I still think I am."



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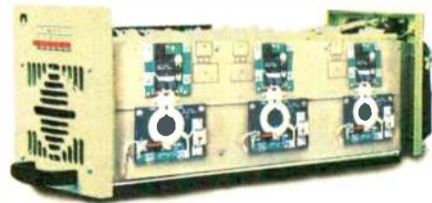
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Theater of the Mind and the Air

Claudia J. Tucker

The long-standing and close relationship between traditional theater and radio is perhaps best illustrated in the art of audio theater — productions that combine voice, sound effects and music to create visual imagery in a listener's mind. Audio theater techniques let producers integrate scripts, actors and effects into products that catch, and hold, their audience.

Hands-on learning

The 17th Annual Midwest Radio Theatre Workshop, to be held this year May 26-31 in Columbia, Mo., offers an opportunity to participate in a live radio drama production with professional guidance at each step. MRTW also spon-



'Dr. Science' Dan Coffey will host the live event.

sors a national radio script contest. Entries are evaluated on dialogue and a demonstrated understanding of how sound can color and amplify emotional content and set a scene.

"Our workshops give producers experience in a variety of live and pre-recorded audio production techniques," said the workshop's executive director, Sue Zizza. "Participants should be able to apply radio theater techniques to news, documentary and commercial applications at their home stations."

The workshop concludes with full-length productions of the winning scripts. The productions are presented before a live audience and broadcast by one of the workshop sponsors, KOPN(FM) in Columbia. The oldest community-licensed radio station in the public radio system, KOPN provides National Public Radio and Public Radio International programming to mid-Missouri. The station will also uplink MRTW '97 for broadcast on public radio stations shortly after the live event.

"It's a terrific forum to experience some unique aspects of audio production which also have real-world application," said Steve Spencer, general manager of KOPN. "In this age of arts funding cuts, the continued support of the National Endowment of the Arts and the Missouri Arts Council testifies to its high-quality and value."

Participants learn to use digital sampling, perform on-location production, use digital workstations in live radio drama, and create sound effects. Other topics include advanced sound design for radio drama; marketing radio drama; writing comedy; acting and voice development; working with children in radio drama; directing and casting; and fund raising.

Equipment suppliers are helping with the workshop.

Broadcast Electronics is sending applications engineer Kenneth Norton with a PC-based SADiE Digital Audio Editor. SADiE will be used to pre-produce elements of the live performance, which include sound effects and ambiance tracks.

For playback, Broadcast Electronics is supplying an AudioVAULT 100 Digital Audio Storage and Retrieval system, which will be used during the live performance. All prerecorded audio will origi-



Noted audio theater director David Ossman rehearses with Lindsey Fussell in an earlier workshop.



photos by Jim Curley

Jane Pipik of WGBH (center) prepares for live broadcast with Rima Schneider and Renee Pringle of NPR.

nate from the AudioVAULT. Norton will teach editing and playback operation with the hard disk-based audio systems.

Sonic Solutions is providing a SonicStudio 4.12 PCI system, which will show workshop participants a variety of long-form production techniques. Ben Taylor, production director of KBAQ(FM) in Phoenix, Ariz., will work

with director Meridith Ludwig on a location improv project, which will combine Sound Ideas' SFX library, field recording and original sketch material into final performance elements. Sonic components such as NoNOISE, Time Twist, and other digital sound processing elements will be highlighted throughout this dedicated project.

Theater on line

This is the second year the program will go global with a live feed to the Internet provided by ThoughtPort Authority Inc. Leo Wetherill, creative director of ThoughtPort, will coordinate the effort.

"Last time, we put up five CU-SeeMe Reflector servers and streamed the air feed to the Reflectors through an Apple Macintosh," said Wetherill.

"Individuals with the CU-SeeMe client application could connect via the Internet to one of our Reflectors and listen to the broadcast. The technology behind streaming audio over the Internet has advanced since 18 months ago, and we're still evaluating systems to determine which provides the best quality and reliability. Listeners need to download, install and run the Cu-SeeMe client application, and then connect to a reflector serving the MRTW feed."

The credentials of the workshop organizers are impeccable. The executive director, Sue Zizza, is a SFX foley artist and director. In 1996 Zizza started SueMedia, a SonicSolutions production facility for radio drama, recording and post-production. SueMedia is the home of "Radio Works," a series featuring the work of independent audio theater

producers. Most recently Zizza received the 1996 NFCB Golden Reel Award for "The Cost of a Life," which also won second place from the National Broadcast Society for professional radio drama.

The producers are Bill Oakley and Sarah Montague. Oakley is a co-founder of the Heart of the Ozarks Theater

Company, which produces radio drama and stage productions. Montague is an independent producer and director at Exit 3 Production and New Radio & Performing Arts Inc. and a winner of a 1996 NFCB Golden Reel Award in radio drama.

The directors are two-time Grammy winner Charles Potter, producer of adaptations of Louis L'Amour books and Colin Powell's audio book; Vanessa Whitburn, head of radio drama for the BBC at Pebble Mill studios in Birmingham, England; Brian Price, a contributor to the "Prairie Home Companion"; and Meridith Ludwig, whose credits include several recently released series.

Our workshops give producers experience in a variety of live and pre-recorded audio production techniques.

— Sue Zizza

Midwest Radio Theatre

Workshop

Jane Pipik, the workshop's technical advisor and post engineer for many years, is an award-winning recording and production engineer. Pipik is the primary engineer in the digital production suite at WGBH(FM) Boston. Master mix engineer is Renee Pringle, an audio engineer and producer/director at National Public Radio for 16 years. Hosting the live show and teaching comedy and improv is Dan Coffey, well known to public radio listeners as "Dr. Science." Coffey created the Iowa Radio Project, a nationally distributed radio drama series.

Workshop funding is provided by KOPN, New Wave Corp., the National Endowment for the Arts, the Missouri Arts Council, NPR and WGBH.

■ ■ ■

For more information about radio theater, the workshop or the script competition, visit the MRTW web page at www.mrtw.org/mrtw or call Sue Zizza at (516) 483-8321.

Ten Tips From a Radio Drama Pro

RW asked Sue Zizza, executive director of the Midwest Radio Theatre Workshop, for some tips on producing good radio drama. Here are her suggestions:

1. Good sound is visual. Audio scripts should create vivid mental images. When reading a script, you should be able to "hear" it while you're reading it.

2. Gimmicks don't cut it. If a lot of sound processing is needed to make a script work, take a hard look at it. A lousy script won't get any better because you process the heck out of it.

3. Select radio actors carefully. Some of your actors should have more than one voice in their repertoire. It also helps when actors are interested in the technical end. They can pitch in, and they usually relate better to the medium.

4. Be supportive. Producers ensure that all the elements come together. A positive, encouraging attitude helps.

5. Trust the actors. Directors need some faith in the actors'

ability to bring the characters to life.

6. Practice. A lot. Anywhere. You don't always need to be in the studio to work with actors.

7. Keep it simple. Consider producing your first few projects in mono. Save yourself the headaches stereo can cause when you're just starting out.

8. Make post production easier. Slate takes on both the tape and script.

9. Keep audio theater fun. After your first production, throw a cast or listening party. Hand out compliments along with the criticism.

10. Everyone's contribution counts. Make sure everyone feels good about their part in the project. It's not just good actors who make audio theater work.

— Claudia J. Tucker

Studio Sessions

The Scoop on
SONET
See page 69

Radio World

Resource for Radio Production and Recording

April 30, 1997

PRODUCER'S FILE

Tube and FET Mics from Soundelux Excel

Ty Ford

Sometime around the year 2010, I think we will all look back at the late '90s and say, "Tubes! They were noisy and fragile. What were we thinking?" While there is more than a measure of truth to the statement, there are as always exceptions to the rule.

I've had a tube mic here for several months that appears to be an exception. It's the Soundelux U95 (\$2,900), distributed by Group One Ltd.

Fat city

The U95 is a nine-pattern, condenser tube mic with external pattern/power supply and suspension mount. The kit comes in two lacquered boxes; mic in one, power supply in the other. The U95 has no bells or whistles, rolloffs or pads.

Several weeks later the U195 (\$1,299) arrived, also in lacquered box with suspension mount. It is a cardioid-only FET condenser mic with a transformer output. The U195 FET has a pad, low-frequency rolloff and a unique low frequency "fat" position that increases the frequencies below 1 kHz and adds lots of warmth.

In one comparison using API mic preamps, the U195 was a bit thin against a U87 until the "fat" mode was engaged. Then it was difficult to tell the two bottoms apart. The U195 develops its peak above that of the U87, which tends to favor the midrange.

The output of the U195 FET is 5 dB lower than that of a Gefell UM70, at least 10-12 dB lower in output than the U87 and its U95 sibling, which makes it a likely choice for high SPL applications.

Both the U95 tube and U195 FET are crafted by David Bock of Soundelux in Los Angeles, who has been repairing Neumanns and AKGs for 15 years.

"I was chief maintenance engineer at

The Hit Factory," explained Bock. "Two years ago, the vintage mic market was horrible. Vintage mics seemed temperamental. I had a need for a mic that picked up certain aspects of sound. I wanted to get away from the grainy boxiness and harsh high end."

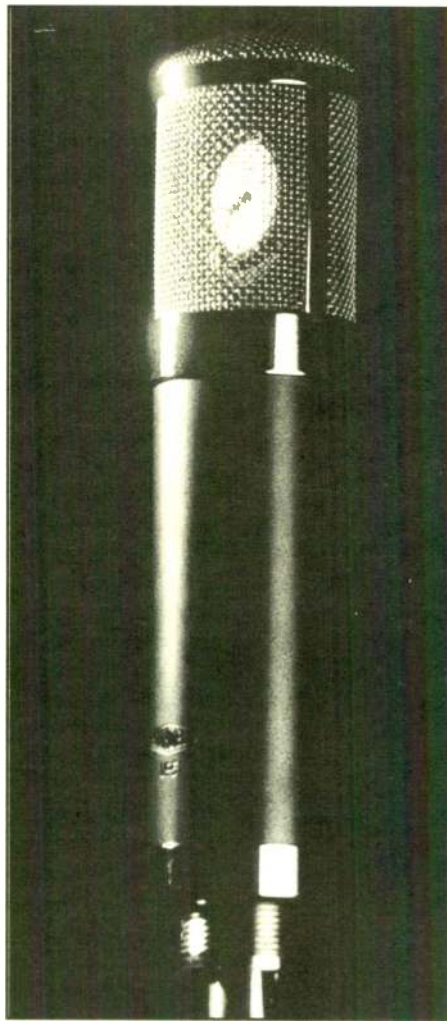
After a few weeks of listening to the high-frequency response of the U95 and U195, I got a sense that the diaphragms were stretched more tightly than the Neumanns and Gefells. Bock confirmed it. According to him, the capsules are the same, other than the fact that the U95 has two diaphragms and the U195 has one.

The membranes are six-micron Mylar on which 100-percent gold is vacuum-deposited. I mentioned that there seemed to be a lot of negative chatter in the market about capsules made in China, and asked where the capsules were made. Bock declined to say. However, he did say that he hand-assembles the mics himself. Post-production quality control includes a frequency sweep, level and noise check. And against my prediction that we will look back on the tube revival and shake our heads, Bock countered, "If a tube is working properly, there's no low- or high-frequency cutoff. They're fantastic, they'll pass DC."

This is a test

Another part of Bock's recipe for a successful tube mic is an extremely critical evaluation of the 6072 tubes themselves.

Tubes must pass four tests before they end up in a U95: a distortion test at normal levels, a maximum SPL rating with less than 0.5 percent distortion, a microphonics check and a frequency correlative noise check. Bock takes similar care in the making the U195 FET. The phantom power resistors are matched to within 1 ohm to prevent DC from magnetizing the transformer and adding distortion.



Soundelux U95 Mic

The U195 FET also has a non-capacitive pad, which reduces colorations. It also has a Fat/Normal switch. In the Fat position, Bock has designed a LF boost at the internal amplifier.

"It's different than adding EQ later," said Bock, "because that changes the dynamics of everything down the chain. You bring up all kinds of LF noise. The

dynamic response and transients are negatively affected."

In the studio

A broken ceramic pattern switch in the first U95 resulted in a quick overnight swap. The U95 had noticeably less proximity effect than my UM70 Gefell. This would indicate it might do well in a broadcast environment, where close-working the mic is the rule. Through a Millennia Media HV-3C, the U95 had a brisk top end and a not-so-pronounced bottom.

Through a Mackie 1604, there was almost a metallic steely quality to the top end. My GML preamp produced a warmer bottom and with no metallic by-products: clear, strong, open and quiet. By comparison, the UM70 sounded closed down on the top end, but more persistent in the midrange and upper bass.

Compared to a vintage Neumann purple U47 FET, the U95 was quieter and more sensitive by 3-5 dB. Because the conventional wisdom holds that FETs are always quieter than tubes, this discovery begs several questions: Would the U95 be even quieter if it had an FET rather than a tube? Did Bock get the output up over the noise simply by raising the charge on the capsule or by other means? He wouldn't say.

The U47 FET favored the upper bass and mids, while the U95 was decidedly brighter. The U47 FET had a peak at 3 kHz, while the U95 peaked at the top end across a span of 10 to 12 kHz. In the cardioid position, both the U47 FET and the U95 held their high-frequency response out to 80 degrees off-axis before rolling off.

A later comparison confirmed that the U95 (and U195) had a much smaller sweet spot than that of the U47 FET or U87, primarily due to the loss of high bass or low

See SOUNDELUX, page 72 ▶

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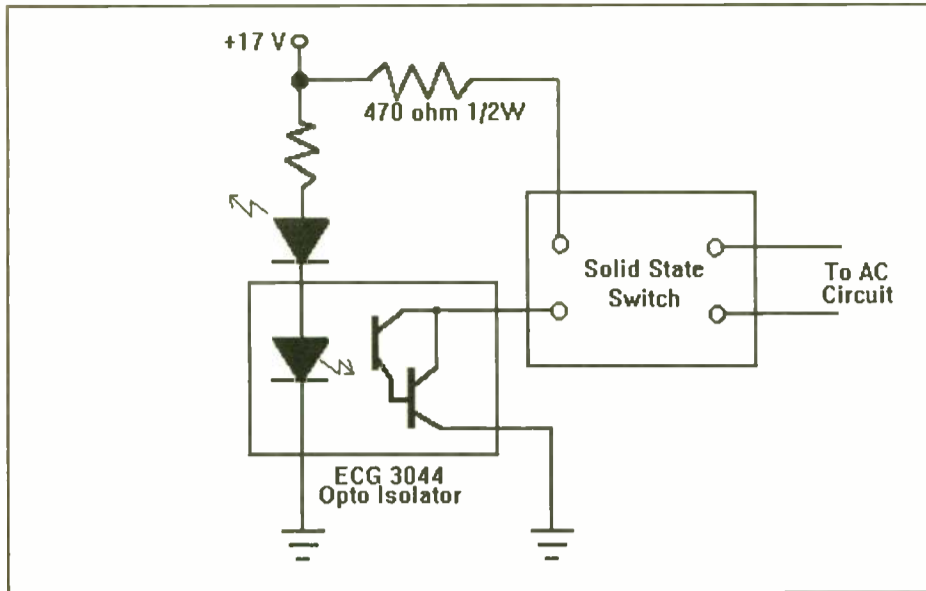
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Simple Circuit Adds Tally Lights to Boards

For Audio Boards Lacking Tally Function, A Quick Fix Can Be Found With an Optocoupler Hook-up

Mark Parthe

As many of us have seen, manufacturers of production audio boards will put every bell and whistle into a product, yet leave out the much-needed tally function.

Both engineer Dave Nuechterlein at WFLT(AM) and I have Delta brand production consoles at our facilities in Flint, Mich., and have experienced the

same lack of tally.

The staff would walk into the production rooms while the jocks were cutting tracks with mics wide open. Needless to say, this got them quite angry.

What was needed was an easy way to tally the mic channels whenever they were turned on.

Optical check

The Delta boards use an LED under the switch to indicate an On condition. Dave came up with the idea of using an optocoupler in series with the LED to fire a relay, which in turn would run an On Air light, a speaker mute or anything else that needed to be switched.

I needed to have a simple and noise-free method of performing this switching, so I incorporated a solid-state (relay) switch to turn on a 120 V "On Air" lamp.

Note how the LED inside the optocoupler comes on when the LED on the board is also lit. The optical sensor closes the circuit and triggers the solid-state switch. This fires the tally light.

We both agreed that an opto component was the best way to keep things isolated and help prevent noise from being introduced into the board.

I have found the ECG3044 works best

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The staff would walk into the production rooms while the jocks were cutting tracks with mics wide open.

for this application. The +17 V bus from the Delta board runs the solid-state switch and the 470 ohm resistor in my circuit limits current in case a short in the wiring should occur.

If you try this circuit and your board has an incandescent lamp under the mic key, put the opto in parallel with the bulb and definitely use the current-limiting resistor.

Happy faces

There are certainly a bundle of uses for this circuit, and I am certain we are not the first engineers to think of it. For those of us who did and are using it, there are a lot of happy people at our stations right now.

If your production console lacks a tally function but has keys that light up when actuated, you can use this circuit and get results.

■ ■ ■

Hosfelt Electronics (800) 524-6464 or Mouser Electronics (800) 346-6873 carry a good selection of solid state relays and opto electronics.

Mark Parthe is an engineer with WCRZ(FM) Flint. He can be reached at (517) 686-9222.

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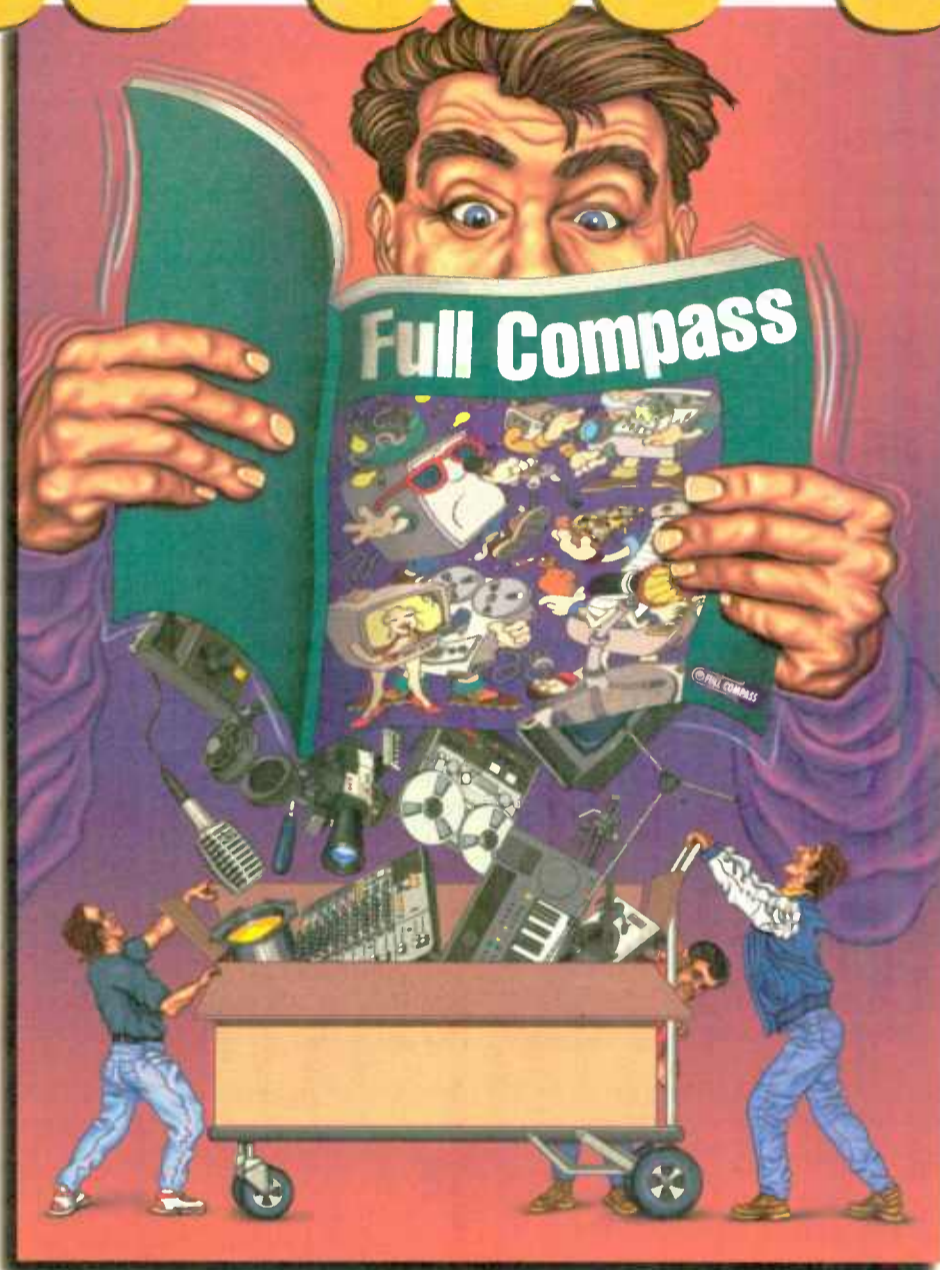
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NPR Puts Tech Journal on Web

Rich Rarey

Around last spring, a great idea was dropped into our lap, and we were given instructions to "make it happen."

Engineering Update was a small, two-color publication mailed to 500 National Public Radio member stations. It seems the postage had become too costly. NPR Vice President Don Lockett said, "We want to continue the publication as a service to the NPR stations, so you are to recreate it into an on-line Web publication."

"Ah," we said, "That way, all NPR member station engineers can read it when convenient. No paper to waste, no mailing ... it's an instant, full-color publication; no, it's more like a journal. And we'll call it EUonline."

This is a brief recounting of how we — editorial "we" — came from not being able to spell H-T-M-L to actually publishing a World Wide Web page.

Resistance is futile

I had resisted all things Internet until the spring of 1996, believing that the whole Web thing was a passing fad and no gain could come from it until a latter-day David Sarnoff e-mailed a modern "black box" memo to the world.

Nonetheless, the assignment was clear. But before we could even start a browser, the purpose of the new EUonline had to be thoroughly thrashed out.

The first line became the summation of all that followed: "To provide timely, useful information, updated quarterly, to public radio engineers that is not readily available elsewhere." But quarterly? How does one publish an electronic, dynamic Web page four times a year?

To intentionally hold back Web-ready information for the sake of print deadlines seemed ridiculous, so "quarterly" became "regularly."

We were then ready to focus on specific categories that would be handled



PUBLIC DOMAIN

within specific pages.

One strength of the old Engineering Update was its implied mission to instruct. It answered typical, nagging technical questions such as, "What is azimuth, and what does out-of-azimuth audio sound like?", "How do I connect my balanced mic to an unbalanced input," and my favorite, "Why can't I have wind noise in my story? It was windy when I was out there! Isn't that part of the story?" These should be grouped into a single page. This page became Continuing Education.

NPR engineer Flawn Williams, fresh from his stint at the Chicago Bureau, undertook an effort to collect the questions into a "FAQ" (an area for Frequently Asked Questions). We realized immediately that since the Internet has its roots in academia, it could be used as an excellent multimedia teaching tool. Rather than spending paragraphs describing what out-of-azimuth audio sounded like, one could make an audio file in various popular formats so readers could hear for themselves at their convenience.

Schematics of equipment hook-ups were easy to do, too. No fussy print conventions such as paper sizes to contend with. Make the schematic large enough to see, and let the browser guide the reader through the drawing.

Interesting white-papers were converted to Web pages, allowing the readership a scan through the CD-Recordable process, or a quick read about FM polarization.

The beauty here is building an archive of material, so that no one need save back issues "just in case." As technology improves and bandwidth widens, appropriate video instruction can also be offered.

Today's feature

We wanted to have a features page, where we could place long-form exposition about a particular topic.

NPR Engineer Caryl Wheeler wrote about her experiences creating "Ghetto 101," and its sequel, "Remorse: The Fourteen Stories of Eric Morse." All tape for both stories was gathered by two Chicago teenagers, equipped with a Marantz PMD221 cassette recorder. The content was stellar, Wheeler wrote. The need for audio fixing was imperative. Through her narrative, we see a real-world comparison between the analog and digital domains.

A Trading Post seemed like a good idea too, as there is always equipment to be bought, sold and bartered. Frequent promotion and reminders that the page is available are crucial to drawing attention to it. The subject is larger than just the public radio community, so we made this page freely available to any one who cares to browse it.

We created an archive of selected content from the old Engineering Update. The largest obstacle to filling it with useful content is the time it takes to convert electronic or paper documents to hypertext markup language (HTML). As we learned quickly, a page simply scanned in will not attract or hold the attention of modern readers. The page really must be formatted in a magazine style for easy reading, and while not technically diffi-

cult, it takes not a small amount of time to prepare.

NPR stations are keenly interested in regulatory matters and NPR has a mission to represent its members' best interests. Originally a catch-all location, OmniDirectional became the page to obtain updated FCC information and guides to EAS, RFR, DTV and other relevant topics. Using RealAudio technology, the readership can browse through a one-hour, closed-circuit call-in about EAS, flipping through the audio as easily as browsing a CD.

Other pages contain links to other broadcast sites, commentary and opinion, and the important sponsors' page, without whose help EUonline could not be self-sustaining.

To glue the disparate pages together, graphic artist Mary Ahern created stunning mastheads and attractive background textures. Interestingly, the concept for the OmniDirectional page was just a lone guyed antenna, but Mary took the antenna and created a fantasy of cumulous clouds and sunlight that makes one stop and stare at the photorealism.

Once the staff had decided the concepts and page subjects, the actual HTML coding was easy.

Developing content is far more difficult, we found, than developing a nifty scrolling JAVA applet or ActiveX ticker. During the initial months of development, we found we were accessing the site from home more than 4,000 times in three months, just to add a touch-up here, a better-written line of text there and so on.

Yet creating a publication from scratch is so very rewarding, and reminds one why some go to the trouble of publishing small-town newspapers.

About five individuals at NPR stations have told us they do not have Internet access, and of those five, two do not have e-mail. We're exploring ways to get EUonline to those stations that have no Internet connection.

Until next month I remain,
Your obd'n't eng'r.

Parts of EUonline are freely accessible to all. EUonline can be found at www.npr.org/euonline/

Rich Rarey is technical director for NPR's Talk of the Nation. Reach him at rrarey@npr.org



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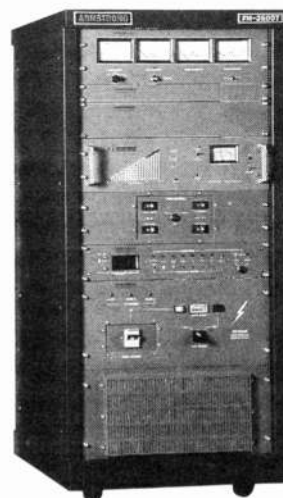
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DIGITAL DOMAIN

SONET Offers Much Promise

Mel Lambert

My last RW column item (April 2, page 54) was on the IEEE 1394, or "FireWire" standard. This technology provides theoretical data transfer rates of 100, 200 or 400 Mbps, the equivalent of several hundred 16-bit stereo audio channels.

This time around, I would like to extend the technology envelope and consider an even more powerful communications protocol, one that is being touted as offering significant advantages for a number of high-capacity applications.

SONET (Synchronous Optical Network) is a high-speed, fiber-optic topology that saw faultless service during the 1996 Summer Olympics in Atlanta.

There, during network coverage, it provided real-time data transfer of audio and video material between various sporting venues and NBC production studios in New York.

Defining the technology

So what is SONET?

Developed for the American National Standards Institute (ANSI), the data-transfer format also has been incorporated into the Synchronous Digital Hierarchy recommendations of CCITT/ITU, which sets standards for the international telecommunications industries. See the sidebar accompanying this story.

SONET is designed to provide equipment compatibility, synchronous networking ... plus upward compatibility with network services.

The SONET standard defines optical carrier levels and their electrically equivalent synchronous transport signals. According to its proponents, SONET is designed to provide equipment compatibility, synchronous networking, efficient add/drop multiplexing (ADM) plus upward compatibility with new network services including Asynchronous Transfer Mode (ATM).

Essentially, all signal inputs — audio, video, data and control information — are eventually converted to a base format of a synchronous transport signal running at 51.84 Mbps or higher. Lower speed inputs, including familiar DS-1 signals, are first bit- or byte-multiplexed into virtual tributaries.

Multiple synchronous transport signals are then multiplexed together in either a single- or two-stage process to form an electrical STS-*n* signal. For example, an STS-12 rate would be equivalent to 622.08 Mbps, because it is 12 times the synchronous transport rate of 51.84.

Video comparisons

This discussion will get somewhat television-intensive for a few moments. But shortly, you will see the advantages SONET offers the radio professional.

SONET can be configured to provide

sufficient bandwidth to carry information from one broadband ISDN switch or terminal to another using conventional ATM technologies.

By way of example, a 155 Mbps rate could be used to transport an H4 digital broadband channel carrying a broadcast-quality TV signal.

The SONET frame format is divided into two main areas: transport overhead and the synchronous payload envelope — the latter consisting of path overhead and the revenue-producing payload. The payload capacity is equivalent to 28 DS-1 channels or one DS-3 pipeline. A frame comprises a matrix of nine rows of 90

bytes, with an entire frame being transmitted in 125 mS. Substantial overhead information allows simpler multiplexing and expanded utility functions.

Benefits claimed for SONET include more powerful networking capabilities than existing asynchronous systems, plus the ability to be used for multipoint or hub configurations.

In addition, traffic from different locations can be combined or consolidated onto a single fiber.

Also, because of its direct support of ATM protocols, SONET is said to offer enhanced flexibility for high-speed packet-switched services. LAN transport

and HDTV, for example. An ATM-based network also is bandwidth-transparent, enabling a dynamically variable mixture of services to be handled at different bandwidths. It also can accommodate traffic of variable speeds.

The radio connection

You may now see the advantages SONET offers radio broadcasters: a number of network management utilities enable a variety of housekeeping functions to be controlled from a central location via the overhead structure.

Examples include communications between intelligent controllers and individual network nodes, as well as inter-node communications, the ability to remotely enable and disable circuits, carry and remove traffic between remote

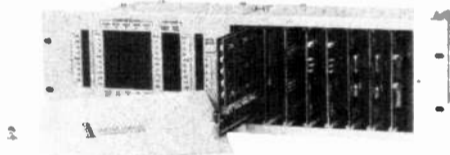
See SONET, page 71 ▶

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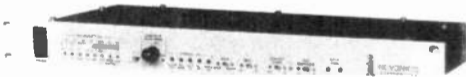


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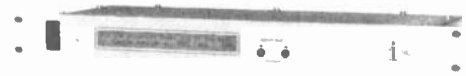


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The Consolidation Moving Blues

Station Consolidation Means a Big Moving Project Is Coming. Read How One Production Director Survived a Last-minute Move at Holiday Time.

Randy Trelstad

Any true radio veteran will tell you that there are certain prerequisites to joining the elite corps of seasoned pros. For starters, you need to have been fired at least three times.

And it helps if you have moved from station-to-station, market-to-market, up and down the dial a minimum of 21 times in 10 years.

To be somebody in this business, you have to pay your dues. But face it: getting fired and moving into another new apartment is not all that challenging if you set your mind to it.

With all the grief to pay for a career, it can now be debated that one is not a true radio pro until one has moved an entire radio station. Or two, or three or four...

What's the buzz

We had been hearing rumor and speculation of moving to a new location across town for months, even years.

So, like the townspeople who lived in the village of the boy who cried "wolf," we learned not get our hopes up. Eventually, we gave up on the idea altogether.

Then the day came. An all-staff meeting was called the last week in October, 1996. The first of its kind since we were told bellbottoms were no longer allowed as part of our dress code.

"Our lease runs out December first and we're out of here," announced our general manager. Yeah yeah, sure sure...

"Really. It's a done deal. The workers are working, the moving van is all warmed up and we're vacating this building in less than 5 weeks."

A sense of uncertainty began to flow throughout the conference room, then a glimmer of optimism. Could it be? I personally found the prospect to be quite intriguing; A new production office with just a little more room would be nice.

The manager continued, "...and our new site is a little more than twice the square footage of this place."

My old office was a feeble 8-by-10, with six four-drawer file cabinets, a desk, the "client approval" audio and telephone equipment, shelving, cabinets, a copy machine and not one single window. On the generous side, there were about 18 square feet of open floor space.

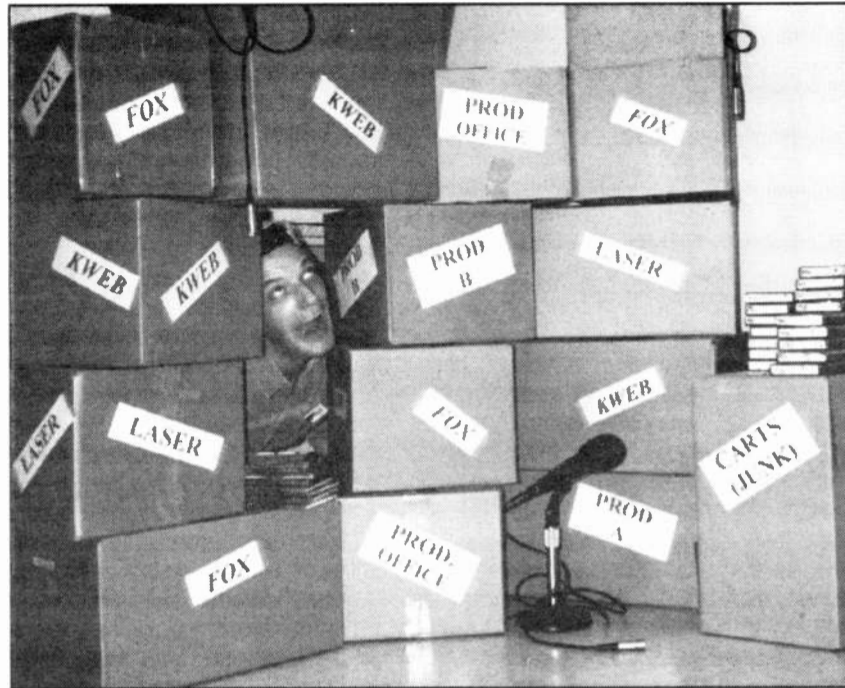
On the frequent occasion of at least four people in the room at the same time — one digging through the files, one approving a spot over the phone, one making copies and myself trying to write a :30 spot — I often silently prayed for a window to jump out of.

Now, with an office that would be huge by comparison, four or more people can easily fit. But right now that is part of the problem. Mine is the only room in the place without doors and most everyone mistakes my office for the hallway, a phone booth or the office supply room.

Randy's big adventure

Once convinced that we were indeed moving, we all realized we were in for a big job and a lot of extra hours. Most of us, that is.

While the majority of the sales staff was already deciding how to decorate their new offices, we on the program-



Randy Trelstad on moving day: He's in there somewhere.

ming side wondered how we would ever get everything done in such a modest time frame.

"Many changes are going to take place in a very short period of time," our general manager announced with glee. Well, no kidding pal; you're telling a guy who has moved 21 times in 10 years.

"Not only are we going to move all of our radio stations by the end of November," he continued, "we're upgrading our equipment, and doing away with carts."

Mixed feelings now. The prospect of

Would there be functioning production studios at both sites during the transition?

an upgrade was exciting. But oh, how I'd miss those carts. Those lovable, troublesome carts.

The boss continued. "We will have new digital equipment, we're going online with the Internet and we'll be getting a lot fewer reel dubs in the future thanks to our new Digital Courier audio distribution network service."

About time. Upgrading like this in 1997 is a lot like finally splurging on one of those newfangled microwave oven things.

Hands flew into the air like scud missiles. The conference room was filled with ifs, ands and buts. Then suddenly came the question that stunned the room. "Does anyone here know how to work this stuff?"

Dead silence. Then my buddy Fitz from the KMFX(FM) Fox Country Morning Show spoke up. "We had something like it

in Green Bay, but I dunno."

Uneasiness cloaked the room and I — as production director — started to squirm. Not because I was balancing on the rim of a plastic garbage can (we ran out of chairs), but because I suddenly realized just how long the To-Do list was going to be. Five short weeks until our

the studios a shambles and considered low priority, it was going to be rip-n-read spots for at least a month or two.

Unfortunately, each of our two new studios were built from the single old one. Worse, they were designed and put together exclusively from an engineer's point of view as standby on-air studios first and production rooms second.

Spots by tire-net

It was encouraging to learn that the moving of the first station — Fox Country — came off without much of a hitch. Right on schedule, at least for the time being. Ironically, days seemed to turn into weeks as I continued to shuttle spots back and forth from old site to new and new to old.

Talent from Laser and K-Web would slap their stuff onto reels. I would haul them across 3.15 miles and through 14 stoplights every couple of hours. Four miles per gallon. Dub 'em down. Nineteen-hour days. Back again, vice versa.

We were well into November, with less than a month to finish the job. The usual daily bedlam turned to uncontrolled chaos as we tried to ease into transitions. Potential new tenants were looking over the building, and the increased number of orders to cover the Christmas sales began ramping up.

To top it all off, it was snowing. We experienced only a few minor snags by this time until our first major obstacle: the late delivery of the coaxial cable needed to put Laser in place.

Another two weeks passed with the Laser jocks still working out of our future production studios when the cable finally arrived. The days were numbered and we still had not touched KWEB nor KNFX.

The new relay tower was up, but satellite dishes still had to be installed and aimed. Thanksgiving came and went. Patience ran thin and people began clamoring for the want ads.

KWEB finally made it with only days to spare. KNFX-970 was even closer to the wire. Literally hours. But all things considered, we made it and with surprisingly few discrepancies.

Bug alert

That is not to say we don't have bugs to work out. There are plenty in every area; growing pains with new equipment and learning how to how to make a run to the bathroom without locking ourselves out.

But now we have a much better idea of where to tread and each day is another bug squished.

Owners and general managers, please take this advice to heart. If you are planning or even remotely considering moving your radio station; please, for the sake of your people, make it at least a 6-month project, as opposed to our 5-week rush job. Sure, we made it, and we all learned a lot from the experience. But it came with a price.

Oh, you may take comfort knowing that we do plan to re-install the cart trip-decks in our production studios to replace our lost play/record work sources.

Ahhh... those lovable, troublesome carts.

■ ■ ■

Randy Trelstad is production director at KRCH/KMFX/KWEB/KNFX and runs his own radio production company in Rochester, Minn. Contact him at (507) 288-3888.

SONET Eases Network Incompatibility

► SONET, continued from page 69

servers, studios, remote-broadcast locations and more.

The SONET overhead structure is organized into three layers that provide information for alarm surveillance and

SONET can handle the increasing demand for T1 and T3 (DS-3) fiber services via ISDN and broadband ISDN.

performance monitoring. To ensure reliable, trouble-free transmissions, several bytes are allocated for Bit Interleave Parity-8 error monitoring.

In terms of monitoring services for broadcasters, SONET can handle the increasing demand for T1 and T3 (DS-3) fiber services via ISDN and broadband ISDN.

Many signals

Integrated services networks can be used to carry a variety of signals, including voice, data and perhaps video onto a single backbone.

Users of such technology are looking for variable bandwidth, high bandwidth, user control, measurement of traffic performance and rapid service provisioning. With transport networks evolving towards a multipoint architecture, SONET is said to enable new configurations to support this evolution via add/drop multiplex and hub configurations.

Interestingly, SONET can be set up to provide cross-network compatibility

between European and North American transmission hierarchies.

TDM

In the United States, time division multiplexing (TDM) combines 24, 64-kbps channels (DS-0s) into a single 1.54-Mbps DS-1 signal.

European TDM, also used in other parts of the world, multiplexes 32, 64-kbps channels (E-0s) into one 2.048 Mbps E-1 signal.

To accommodate 1.5 Mbps and 2 Mbps non-synchronous hierarchies in a single standard, SONET offers a transmission rate of 51.84 Mbps and 155.5 Mbps, or triple the base rate of 51.84.

Multiplexing is accomplished by combining/interleaving multiple lower-order signals into higher-speed circuits.

One of the best sources I have found for technical information about SONET is the Northern Telecom Web Site <http://www.nortel.com> from which I accessed information for this column.

All in all, SONET is destined to remain a firm fixture in the event horizon of today's broadcaster.

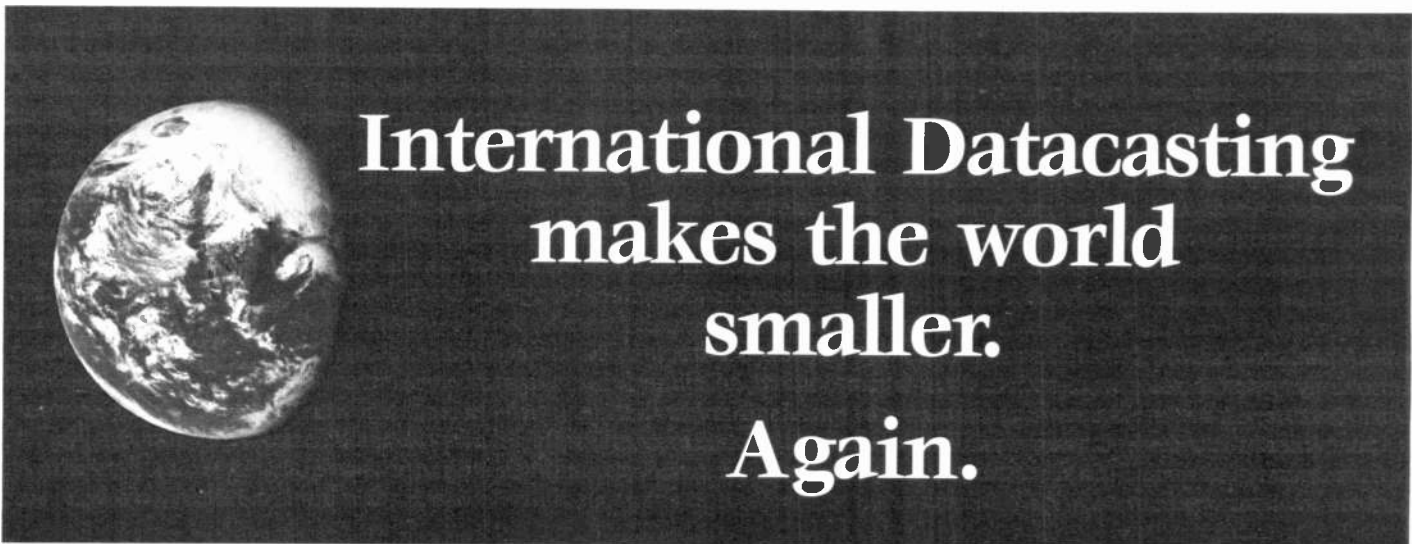


Mel Lambert is principal of Media&Marketing in Los Angeles. He can be reached via mediapr@earthlink.net or (818) 753-9510.

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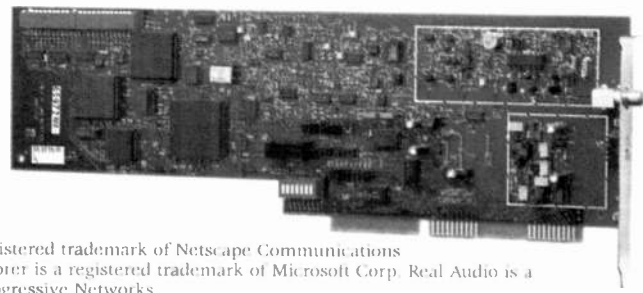
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With International Datacasting's EchoNet software, broadcasters can take advantage of their existing distribution systems to facilitate the delivery of many common Internet services. Users can take advantage of conventional Internet tools such as Netscape's Navigator, Microsoft's Internet Explorer and Real Audio's players to access web pages, E-Mail, newsgroups and multiple streams of RealAudio. These are constantly updated and pushed from the servers to the users' PC's.



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SONET Technical Highlights

A new standard for fiber-optic transport formulated by the Exchange Carriers Standards Association (ECSA) for the American National Standards Institute (ANSI), the Synchronous Optical Network — or SONET — also has been incorporated into the recommendations of the Consultative Committee on International Telegraph and Telephone (CCITT) (now referred to as the International Telecommunications Union or ITU). Design objectives include:

- Compatibility of equipment by all vendors who manufacture to the standard often referred to as mid-span meet.
- Synchronous networking.
- Enhanced OAM&P (operations, administration, maintenance and provisioning).
- More efficient add/drop multiplexing (ADM).
- Standards-based survivable rings.
- Transport of new services, such as Asynchronous Transfer Mode (ATM).

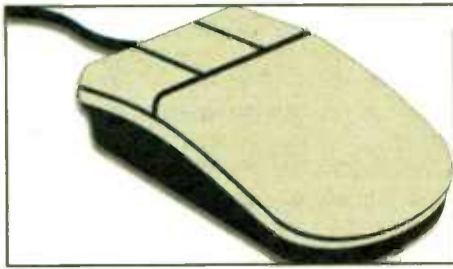
Mouse or Mix: Which Is Better?

Alan R. Peterson

Mousing, mixing ... which one is best for the radio production job at hand?

Just as there are old-timers who still prefer rotary pots over linear faders, there are growing camps who will not give up the feel of faders under their fingers while the rest of the world gravitates to mousing. The whole situation of Mixers vs. Mousers takes on the flavor of a hill-billy family feud.

Mixers can make simultaneous multiple decisions on a board by ear and feel. They claim the fine art of tweakery can only be achieved by paying your dues at the console. One has even claimed



"digits" belong only at the ends of your hands. Mixing with faders provides an intimacy; the sensation of actually being able to "touch" a project.

Mousers, on the other hand, claim unprecedented finesse in performing a project mix on a DAW. They can do an 8

dB boost at 1036.4 Hz, perform exact 3.21-second crossfades, commit only the best mix decisions to computer memory, then sit back and let the electronics do the dirty work.

Which do you prefer for your studio and why? Let us know here at *Studio Sessions* by e-mail at 74103.2435@compuserve.com (put "Mouse vs. Mix" in the subject window), by leaving a one-minute message at (703) 998-7600 ext. 135, or by dropping a line to: Studio Sessions Editor, Radio World, P.O. Box 1214, Falls Church, Va., 22041.

Let's hear from both camps on this one. We will publish the best responses in a future issue of RW.

Soundelux Tube Mics Impress

► SOUNDELUX, continued from page 65

mids as they were worked more than an inch-and-a-half off-axis. Mic-nuzzling jocks will find the spot and stay there.

When compared with an AKG C414EB, both Soundelux mics displayed their HF peaks below that of the 414. On male voice, the Soundelux mics gave the impression of being much more sensitive to high frequencies.

A close listen revealed that, although their HF sensitivity was at a lower frequency, they were wider than that of the 414.

So, you heard more HF info, but what you heard actually was on the lower end of the high frequencies. On male voice, the brightness of both the U95 and U195 eliminated the need for top-end EQ, and I could work both mics within 2 inches without proximity-overloading the bottom. Both are reasonably resistant to popping. Working tightly, but across the mics, required no pop filter.

Louis Mills at Flight 3 Studios in Baltimore reported similar success with males and females, but noted that the lower output of the U195 FET required maximum gain from his API mic preamps for soft, breathy, female voices.

I liked the U95 enough to record a flight of radio spots with it. Radio stations in the Los Angeles, San Jose, San Diego, Boston, Washington, Baltimore and Pittsburgh markets can get a first-hand demo of the U95 by pulling the Mattress Discounters "Lowest Prices of the Season Sale" dubs for the schedule that ran March 20-22, 1997.

We recorded flat with 2-4 dB of gain reduction at 4:1 compression. During the mix we hit the voice track again at 4:1 and added 2 dB of 15 kHz with the help of an A.P.I. 550 parametric equalizer.

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- ✓ Nice response



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- ✓ Slightly pricey
- ✓ U195 has lower output

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In conclusion

Both the U95 and U195 are handsome and well-built. They have the look, feel and heft of professional microphones. Both are candidates if you are looking for a mic that favors upper midrange or the low end of the high frequencies.

If you have been using a "standard EQ starting position" that lifts somewhere in the 10 to 14 kHz range, these mics might do the job without EQ. Give 'em a listen and decide for yourself.

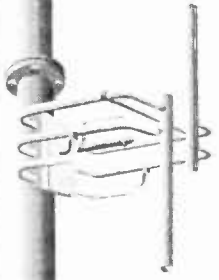
■■■

Ty Ford voices and produces audio tracks for a wide variety of commercial purposes. He can be reached at (410) 889-6201. Download his demo at ftp.jagunet.com/pub/users/tford.

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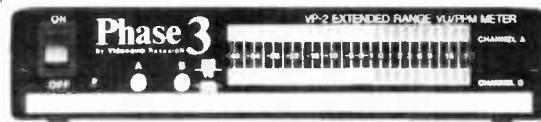
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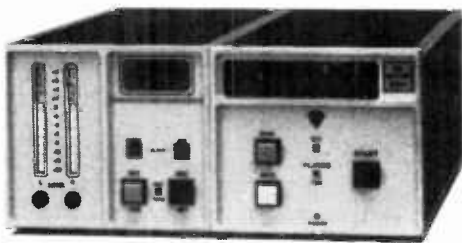
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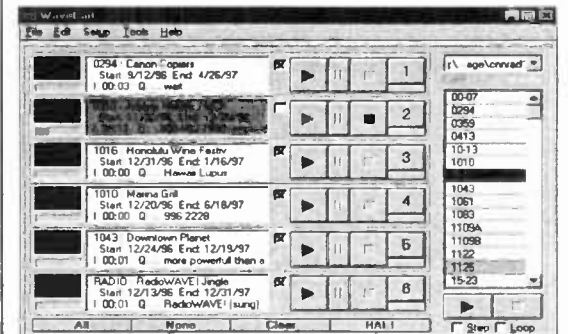


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Getting Revved Up About the Rev 500

Tom Vernon

Not so long ago, Yamaha's Pro R3 Digital Reverberator passed through the studios of the World Cafe. While we liked the unit, it seemed a bit too elaborate for our rather basic needs.

The learning curve was such that we stuck to the basics, never having the time nor need to delve into the more advanced features.

Last week, we completed our evaluation of the simpler Yamaha REV500 Digital Reverberator. As Goldilocks said after trying the three mattresses, "This one's just right."

Techy talk

The REV500 features 20-bit A/D and D/A converters and a 44.1 kHz sampling rate. Response is flat from 20 Hz to 20 kHz, distortion at 1 kHz is less than 0.03 percent. Dynamic range is specified at 96 dB.

Mechanically, the REV500 is a 1RU device in a sleek black case. Around back, balanced stereo inputs and outputs are via XLR and quarter-inch phone jacks. Levels are switch-selectable between -10 and +4 dB. DIN connectors



provide MIDI In and Out access.

There is also a quarter-inch jack that may be connected to an optional foot switch. This switch may be used either to mute the REV500's effect output, or to advance the current program selection.

The front panel contains the input level control and LED meter, as well as the keys to select the program type. An LCD panel displays information about the currently selected program or other reverb functions.

A bank of four Parameter Edit controls let you edit the basic parameters of the selected program. The remaining buttons facilitate storing programs, access utility functions, audition effects and control the output level.

Setting the program

The REV500 has four Program types: Hall, Room, Plate and Special. Each Program type contains 25 programs, giv-

ing you a total of 100. If you don't like any of these, there is room to store 25 programs of your own design.

Under the cover, the quality of construction for the REV500 is quite good. Liberal use of socketed ICs and board connectors should make servicing or board-swapping a hassle-free process.

The 20-page owner's manual walks you through installation, using preset programs, creating your own programs, using utility functions such as MIDI and any error messages you may encounter from the REV500 display panel.

The manual includes screenshots of the LCD display and block diagrams to show the internal functions of the Reverberator. Reading it should enable anyone from novice to expert to make a smooth launch.

On a disappointing note, no service manual is provided with the unit.

Tailoring the sound

The layout of controls is very user-friendly. For most operations, all the info you need is right there on the LCD display. This was actually an improvement

over the ProR3, where you sometimes had to toggle through several screens to reach what you wanted.

Probably the coolest thing about the REV500 is the Audition function. Pressing one key causes the REV500's internal tone generator to play a sound, enabling you to hear how a selected program will affect the sound. You have two options here: a snare drum or a rim shot. You may also choose whether pressing the Audition key will play the sound once or repeatedly.

This feature is a blessing when working with live bands. Rather than tormenting the drummer for repeated sound checks until you get things right, just press the Audition key and let the REV500 do all the work.

Ironically, this, one of the nicest features of the reverb, is not included on big brother ProR3.

Another thing that we liked is the

preset layout. It is nice to be able to select between types of effects, and much easier to remember four sets of 25 effects, rather than 100 in a row as in the ProR3. On the minus side, the convenience of the direct-dial pad in the ProR3 was missed when using the REV500.

Most of the effects sound very electronic and would be perfect for cutting spots and dance music production. Two

exceptions are "Garage" and "Heavy Bottom."

World Cafe producers Chris Williams and Joe Taylor tried out the REV500 with several bands, and found all the good stuff about it. For that, as always, they have my thanks.

■ ■ ■

For information on the REV500, contact Yamaha at (714) 522-9011, or circle Reader Service 146.

Tom Vernon divides his time between consulting and completion of a Ph.D. You can e-mail Tom at TLVernon@aol.com or call him at (717) 367-5595.

PRODUCT GUIDE

Companies with new product announcements for Studio Sessions Product Guide should send them to Radio World, c/o Studio Sessions Editor, P.O. Box 1214, Falls Church, Va. 22041

dbx Mic Processor

The 286 Microphone Processor is part of the dbx Project 1 line. It features a studio-quality mic preamplifier followed by an innovative new compressor design, a de-esser to reduce sibilance and an expander/gate to cut noise between phrases. Controls for high- and low-frequency detail and an intuitive LED metering system round out the front-panel features of the 286.



The 1 RU design also features phantom power and balanced mic- and line-level inputs. An external AC power supply is included.

For information, contact dbx Professional Products at (801) 568-7577 or circle Reader Service 106.

Sony MiniDisc Cart Machine

The MDS-B5 is the latest MiniDisc product from Sony.

The MD recorder/player is based on standards set by the Sony MDS-B3. It now includes multi-access "hot start" capability, high-speed duplication, connections for remote operation and a PC-style keyboard.

Digital and analog I/O and

varispeed control are also included in the MDS-B5. The unit is ideal as a cart replacement system and has a suggested price of \$3,295.

For information, contact Sony Electronics at (800) 635-7669 or circle Reader Service 77.

Folio Powerpad

The Folio Powerpad is a powered mixer based around the successful design of the Spirit by Soundcraft "Folio" miniature mixer.

Inside the mixer is a 2x30 W RMS stereo amplifier with overload and thermal protection. The mixer includes



four XLR mic and four quarter-inch line inputs along with two stereo inputs.

Two-band EQ is included on each mono input, while the stereo channels include RIAA-equalized preamps for connecting turntables.

The Powerpad is useful as a small PA mixer/amplifier and is ideal for mixing and monitoring in a two-track studio.

For information, contact Spirit by Soundcraft at (916) 888-0488 or circle Reader Service 133.

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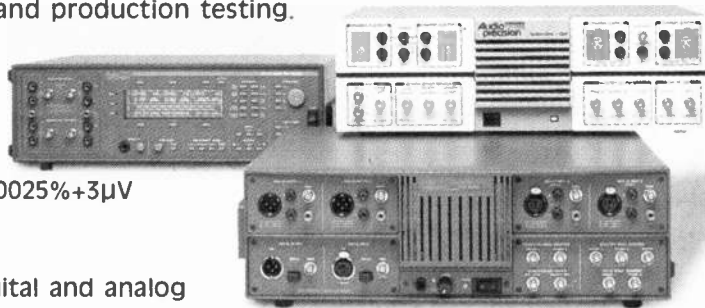
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Buyer's Guide

Radio World

AM Transmission, STL, RPU

April 30, 1997

USER REPORT

Moseley Links College Station

by Tom Nelson
Chief Engineer
WCAL(FM)

MINNEAPOLIS In 1991, we commissioned a new transmitter site 20 miles from our main studio in Rosemount, a suburb of St. Paul. When we "cut over," we started to get interference on our STL path. We found our 20-mile path with a receive dish at 300 feet was more vulnerable to the STLs south of the Twin Cities market.

After talking to Dave Chancey at Moseley and describing our problem, we ordered the Moseley DSP-6000 system. The system has worked great for us for years, but we had to train our announcers to get used to the APT-X algorithm delay.

This past summer, Craig Dunton of the St. Olaf College Telecommunications Department and I teamed up to install a 1-DS3, 6 GHz Harris/Farion microwave link from our studios at the college to our studio in downtown Minneapolis — via a midpoint drop/insert at our Rosemount tower site.

Along with a local calling number for our Twin Cities listeners, we also have the capacity to do what we have been trying to do for years: gain a bi-directional audio link between our Minneapolis and Northfield studios and have a linear audio path to our transmitter in Rosemount.

Applicable system

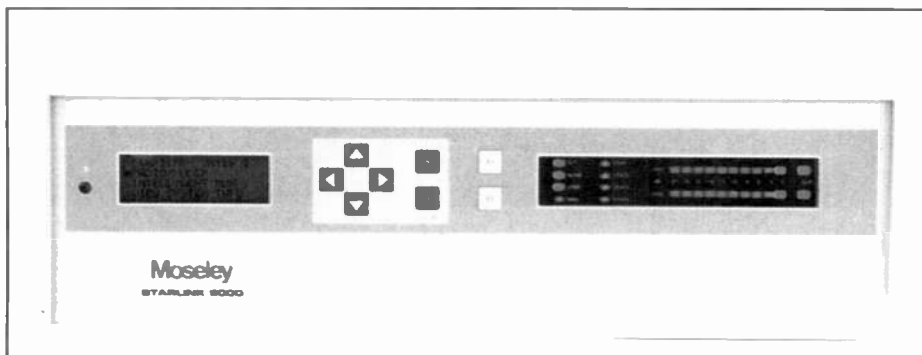
At last year's NAB, I talked again with Dave Chancey about what I wanted to accomplish using a T1. I told him that I wanted to eliminate the data reduction now used in our DSP-6000 system. He told me about Moseley's new Starlink system. He thought it would work well for my application.

The Starlink package has several different configurations, including one for direct connection to a telco T1. We ordered two complete systems; one was configured for full bi-directional 15 kHz stereo audio. Each unit has both left and right XLRs, along with AES/EBU connections.

Depending on what your conduit stream is, you can select compression or linear. Because bandwidth was not going to be a concern for us, we went with the linear configuration to eliminate delay. Now an announcer in our studio in Northfield can interview someone in Minneapolis with full duplex audio, without using a phone patch.

The second system will be used as our main STL, and we will maintain our 950 STL, using the Moseley DSP 6000 as our redundant link if our T1 system goes down.

The acid test for the new Starlink system was a remote broadcast from Orchestra Hall in Minneapolis. In the past,



The Starlink from Moseley

we would install two 15 kHz broadcast loops (from US West) from Orchestra Hall, six blocks to our Minneapolis Studio. We would then send the audio down our existing 950 MHz to Northfield.

As we all know, fewer and fewer phone companies even know what a broadcast loop is anymore, so I desperately wanted to try a different medium to get audio back to the studio.

Our US West agent priced a T1 and a broadcast loop. The T1 was slightly cheaper, and we could get it for a month and do some testing.

Speedy delivery

I called Chancey and explained what I wanted to do. He was able to speed up delivery of my Starlink bi-directional system so we could install one unit at

Orchestra Hall, jump off telco at our Minneapolis studio, then beam down to Northfield on our DS3 microwave system to the Starlink unit at the studio.

The site in downtown Minneapolis was a poor location for good off-air reception. The Starlink solved this problem, too. We used the backhaul portion to send off-air along with IFB from the studio in Northfield.

With the Adtran CSU/DSUs used between the Starlink and Telco, we could have sent dial tone from the St. Olaf PBX system to the remote site or added cards to the Starlink to gain RS-232 data connection.

The system took about 30 minutes to set up, and that was mostly configuring the CSU/DSU for our T1 format. We then took 15 minutes to set our gains.

Now that we have our Starlink system, I will never order a broadcast loop again for high-quality linear audio feeds. The T1 pipe can handle all our audio along with all the ancillary voice and data needs.

For more information from Moseley Associates, contact the company in California at (805) 968-9621; fax: (805) 685-9638; or circle Reader Service 105.

USER REPORT

Rebuilding with Nautel Up North

by Chuck Lakaytis
Chief Engineer
KBRW-FM

BARROW, Alaska It was a chief engineer's worst nightmare come true.

I was a thousand miles from Barrow, Alaska installing a remote studio when our general manager called and said that the AM transmitter site had burned down. Investigators eventually traced the probable origin of the fire to an unused outlet box in the AC distribution system.

It was the middle of October with the Arctic winter coming. We could expect darkness and temperatures with windchills approaching 75 degrees below zero. It was hardly a good time of year for a complete site rebuild.

KBRW-FM is the northernmost broadcast station on the North American continent. We knew we were facing a big job.

Of all the decisions that had to be made, the choice of a new transmitter was simple. Our Nautel 10 kW AM transmitter had given excellent service for five years. It needed only one air filter cleaning. The boxes containing spare parts and a power module had never been opened.

John Schneider of RF Specialties of Washington in Seattle told us that Nautel began production of a new 12 kW AM transmitter, the XL12. A quick call to Nautel and we were in luck. Nautel had an XL12 in final test. The customer was

willing to wait for another one.

Within a week, the transmitter was on a truck bound for Seattle. Then it was shipped airfreight to Barrow. The compact dimensions of the transmitter simplified shipment. I know from 20 years' experience just how large a traditional AM transmitter can be. The dimensions of the XL12 would also allow it to be placed in the small temporary building on site.

Getting the transmitter from the airport to the site and then into the building was the most difficult part of the installation. Sometimes it seems I have spent most of my life contorted into strange positions trying to get to a terminal strip. Not so with the Nautel XL12.

Open the front door and all connection points are on a panel at eye level. For the utmost in reliability, we use dual remote control systems at our site. One path is via STL and TSL. The other is through an Optiphone telephone link. Therefore, there are many connections and a lot of a cable. The XL12 has plenty of room for all of it.

Thirty-four days after the fire, General Manager Don Rinker threw the circuit breaker on and we began testing. Among the reasons we chose the XL12 are the dual exciters. In case of failure, the transmitter will automatically switch to the spare. Both exciters tested well.

Our service area is more than 89,000 square miles. To cover this area we need to get as much power as possible into

the sidebands. We use heavy audio processing and achieve a high level of average modulation.

We conducted an informal listening test by calling some of our listeners near Prudoe Bay, 200 miles from the AM site. They reported improved reception.

As of yet, I have been unable to conduct field strength measurements. Who wants to stand on the tundra with temperatures well below zero and the wind screaming in your face? Field strength measurement is definitely a summer-time project north of the Arctic Circle.

Thirty-seven days after the fire I noted in the transmitter log, "service restored and all systems normal." But, as with all new models of electronic equipment, there were a few teething problems.

The B+ voltage protection circuits showed a high voltage and shut the transmitter down. The voltage was okay; the problem was in the protection circuit. A coil in a relay failed and put us off the air. It was replaced with a coil from a locally procured relay.

This happened within the first few weeks of operation. Since then the XL12 has purred away happily 24 hours a day. It sounds great and is easy on the power bill. We expect that we will get the same sort of reliability with the XL12 that we did with our former Nautel.


For more information from Nautel Maine, contact the company at (207) 947-8200; fax: (207) 947-3693; or circle Reader Service 132.

QEI
Quick-Link II

See Page 77

Products & Services Showcase

For more information on the products shown below, circle the appropriate Reader Service No.(s) on the enclosed Subscription/Reader Service card or contact the advertiser directly.



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READER SERVICE NO. 141

QEI Provides Solution for Osborn

by John Soller
Director of Engineering
Osborn Communications

WHEELING, W. Va. Osborn Communications owns and operates several radio stations in Wheeling, including legendary WWVA(AM) and its sister station WOVK(FM). Osborn also has an entertainment division known as Jamboree USA, which draws top country bands and comedy acts to its 2,500 seat theater in downtown Wheeling.

As an extension of Jamboree USA, Osborn hosts Jamboree in the Hills (JITH), a four-day outdoor country music festival staged every July on 220 acres in eastern Ohio.

This event draws approximately 90,000 people — rain or shine — and is the biggest and best-run festival of its kind. Past performers have included Brooks and Dunn, Hank Williams, Jr., Joe Diffie and Mary-Chapin Carpenter.

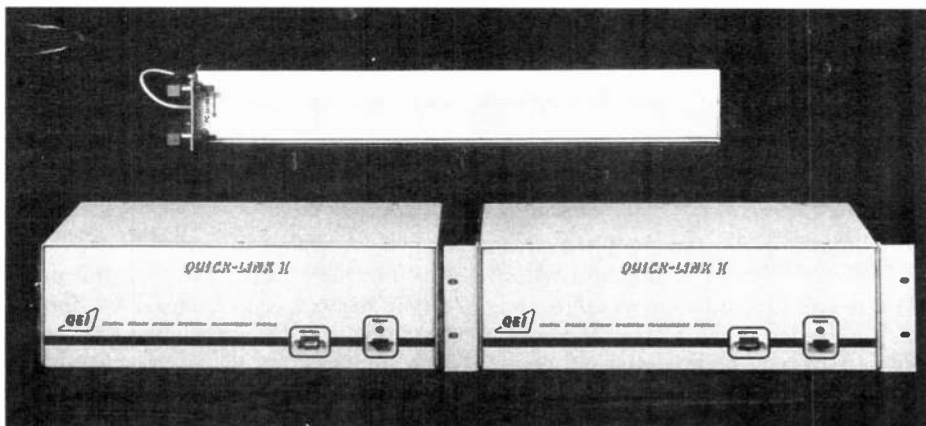
WWVA and WOVK broadcast most of the performances live. Delivering high-quality stereo audio to the studios from this site has always been a problem. With no ISDN service available, we have relied on traditional RPUs in the past. But with a stereo dual-hop RPU requiring four frequencies, and subsequent increased interference, we were forced to look for an alternative.

I found the solution at last year's NAB in Las Vegas. QEI, famous for the CatLink, displayed the new Quick-Link II.

Quick-Link II is a wireless spread-spectrum digital audio transmission system that operates in the 2.4 GHz band. Because of its 100 mW transmitter RF output, its operation falls under Part 15 of the FCC rules. It does not need a license.

The QLII uses spread-spectrum code division multiple access (CDMA) RF

transmission technology along with linear (uncompressed) digital signal processing to deliver 15 kHz stereo audio. The path length of the QLII is up to 30 miles using appropriate external high-gain antennas and low-loss cabling.



QEI's Quick-Link II

The QLII transmitter and receiver units are identical in size and operation. Each unit can become a transmit or receive unit depending on how it is programmed. The ability to turn a TSL into an STL is a matter of programming, which can be changed in the field with a PC and optional QLII software.

System setup is straightforward. The QLII requires line-of-sight from the transmitter to the receiver. Some pre-engineering of the path should be done to calculate the fade margin and the Fresnel Zone clearance of the system. If you have ever engineered an STL or other microwave system, you should have no trouble with the QLII setup.

There are several options for cabling and antennas. Each QLII ships with rubber ducky antennas for short paths and local testing.

For the JITH setup, we used various types of higher-gain antennas and low-loss cabling.

QEI will supply information on the losses of a particular cabling so that path calculations can be made. QEI also has a pamphlet that will help pre-engineer the path. It covers system considerations such as antenna and transmission line

selection to complete system gains and losses.

Because of hilly terrain, we were forced to go with a dual-hop for the JITH broadcasts. The first path from JITH to the repeat site was about 15 miles, while the second hop to the studios was only two miles, although we could have used dual QLII systems and looped the audio to make a repeater at the hop site.

The repeater is simple, with just an RF in/out and power. We had some difficulty setting up the long path because the repeater does not have a signal strength indicator.

The QLII, including the QLII repeater, has an LED display to show when the path is valid, making antenna orientation on the long path tricky. The second path was a breeze because we were able to align the path visually and use lower-gain antennas.

Because there is no crosstalk between

audio channels in the system, the QLII can be used as a link with two discrete audio channels.

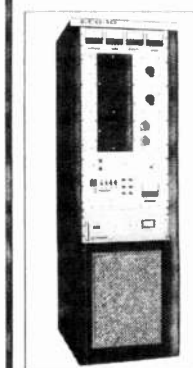
We intend to use a QLII throughout the year backhauling RPU audio from the repeater site to our downtown studios, thus freeing two existing RPU channels that were used for the backhaul.

The beauty of this system is its ability to switch between STL and TSL functions with a few simple programming changes. Depending on the application, and with proper care, the QLII can be used as an RPU.

If you have the need for a reliable, interference-free TSL, STL or RPU, take a look at the QuickLink II.

For more information from QEI, contact Jeff Detweiler in New Jersey at (800) 334-9154; fax: (609) 829-1751; or circle Reader Service 73.

Problem:



I need a new FM transmitter but prices are so high I may have to settle for a used one.

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Circle (65) On Reader Service Card

USER REPORT

SMARTI: Is It Live or Is It Remote?

by Duncan Black
Chief Engineer
KGSR(FM)/KROX(FM)

AUSTIN, Texas It has been a privilege to beta-test the new SMARTI remote pick-up system from Marti Electronics. We had been looking for a remote unit that was both inexpensive to operate and easy to use.

Our first test of the unit came during spring break in South Padre Island, Texas. Our preliminary setup showed the only phone connection available to us was an old outside installation, exposed to ocean salt for years. I was extremely apprehensive about using severely oxidized — literally green — connectors with the new Marti Electronics SMARTI, which is a codec designed for POTS phone lines.

The phone company initially assured us that a new line would be installed for our use, but when we arrived this had not materialized. With much trepidation we were forced to plug into this less-than-desirable connection. To our amazement, the unit

connected with Austin on the first try. The receive unit confirmed a 24 KB connection.

We ran audio from the station back to the beach for them to play over the PA pool side. Nobody could believe it was coming from Austin until the jock did his first break. The remotes at



The SMARTI Remote Pick-Up System

South Padre Island lasted two days with the units connected for five hours at a time, all without a single glitch in either direction.

The quality of the audio was so high,

in fact, that we were actually accused of not really being on location but just saying we were while we actually "broadcast from a studio somewhere." What a great credibility problem to have.

Around town, we tried the unit in several situations, one of which was the Austin Music Awards. The units never failed to connect at a phenomenally good 33.6 KB on the first try.

The issue of training is always a concern when adopting a new product. With the SMARTI, however, time spent training non-technical types in the use of the unit was about 5 minutes. The unit comes fully equipped with a built-in phone and four-channel mixer. Because jocks already know how to set up levels with microphones, the learning curve with the unit is shortened considerably. I was never paged for additional information, which is a chief engineer's dream.

For more information from Marti, contact the company in Texas at (817) 645-9163; fax: (817) 641-3869; or circle Reader Service 123.

USER REPORT

Kintronic Eliminates Guesswork

by W.C. Alexander

DALLAS KBRT(AM), our Los Angeles-area station, has its transmitter site located on Santa Catalina Island, 26 miles off the California coast. It was built in 1953, at a time when broadcasting was undergoing rapid growth. New stations were cropping up everywhere, ushering in radio's golden years.

Test equipment was limited in those days. The operating impedance bridge had yet to make its debut onto the engineering front, and much of the design and tune-up work in those days was guesswork. The KBRT three-tower directional array was no exception.

Tank-type

The phasing and coupling system consisted of a tank-type power divider using jeep coils. Adjustment range was very limited. Transmission lines were 1-5/8-inch flanged copper "water pipe" of indeterminate impedance. Transmission line input and output current meters had been installed in the phasor and antenna tuning units (ATUs) to permit balancing of the line currents, but standing waves were still present on the lines. Because these lines were in such bad shape, we replaced them with modern air-dielectric semi-flexible lines.

With a new solid-state transmitter ready to be installed, the 87-ohm common point impedance needed to be reset to 50 ohms. I set to work designing a new phasor using modern design methods. Care was taken to keep the component count to a minimum, using lagging networks wherever possible.

Beating all bids, Kintronic Laboratories had done a professional job putting the package together. The order was placed, and within a couple of months, the phasor/ATU package was sitting on the dock at the Catalina barge terminal.

As with all such projects, staying on the air during the renovation was a prime objective. This was not easy with KBRT because no provision for non-directional operation had been made in the old ATUs.

We got around this by temporarily setting one up to match that tower to a 50-ohm transmission line. The output of the transmitter was fed directly into that tower's transmission line, and the transmitter was operated at reduced power. We were then able to remove the old phasor cabinet and two of the ATUs.

The new phasor was then set into place and two of the transmission lines connected. Two of the new ATU chassis were set in place in the tuning houses and connected. Non-directional operation was switched to one of the other towers using one of the new ATUs while the remaining ATU was replaced and that tower's transmission line was connected to the phasor.

When that was done, non-directional operation was continued while all control wiring was connected between the phasor and its control unit. Kintronic made this easy with excellent documentation. The layout was so well done that even without a schematic, we could have made all the right connections successfully.

Permanently etched aluminum labels were affixed at strategic points all over the control chassis and phasor, displaying the name of the adjacent component, relay or terminal strip. This extra touch makes locating connections and components easy, and

there is no way these labels will fade over the years, as painted-on labels often do.

RF connections in the phasor and ATUs were set up to my specifications and located exactly where I wanted them so that the transmission lines would match up without having to extend or shorten them.

Access doors were provided for complete access to all components without the need to remove any other components.

With the phasor and ATUs completely installed, the moment of truth had arrived. The system was reconfigured for directional operation and a little power was fed in. After a few hours of adjustment, the antenna monitor was indicating the proper parameters.

One tower at a time, the operating impedance bridge was inserted at the driving point of each tower and after the insertion effect of the bridge was tuned out, the driving point impedance was measured.

New ATU network values which would match the 50-ohm transmission line to the measured driving point impedances were computed and set.

The system was fired back up and the

phasor readjusted for proper operating parameters on the antenna monitor. SWRs were measured at 1.05:1 or less on each line, and base currents were read to be right on the money. Monitor points were read and noted to be normal and well within limits.

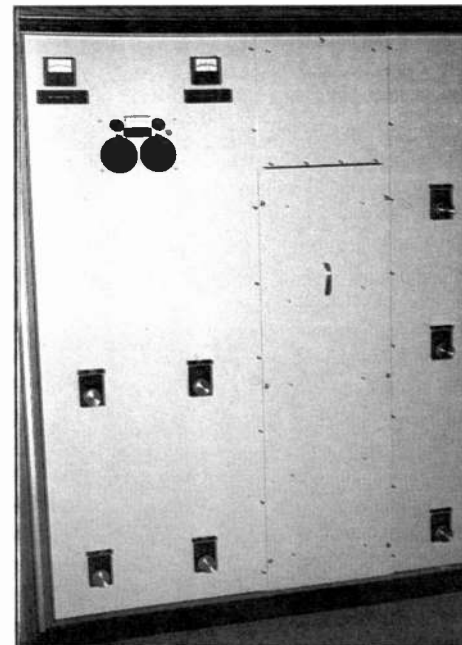
Great sound

With the new, solid-state transmitter feeding the new system, the sound of the station was much improved. Bandwidth was much better than it had ever been, and the efficiency of the operation was greatly improved.

While we did not run a partial proof on the array (that is expensive when most of the measurements must be made over water), my guess is that we achieved an increase in the RMS of the system due to reduced losses.

Kintronic Laboratories could not have made the project much easier. Kintronic kept its ship date commitment, and the finished product was exactly as I wanted it.

There have been many projects since the KBRT antenna project, and each time I have turned to Kintronic Laboratories



The Kintronic Laboratories Phasor

for phasing and coupling equipment. As we launch new projects, you can bet that I will be calling Kintronic for all my future AM antenna system needs as well.

For more information from Kintronic Laboratories, contact the company in Tennessee at (423) 878-3141; fax: (423) 878-4224; or circle Reader Service 74.

MARKETPLACE

Recently Introduced Products for the Radio Broadcast Professional.

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Marketplace, Radio World, Managing Editor, P.O. Box 1214, Falls Church, VA 22041.

Thomson Klystron

A new cost-effective solution for amplifiers in a digital mode is now available.

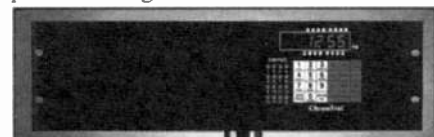
The TH 2440 klystron from Thomson Tubes Electroniques is designed for digital radio applications. Delivering an average power of at least 1 kW, it operates in the 1,440-1,510 GHz band.

Implementation is simple due to its compact size, forced air system and standard power supply. The TH 2440 performance has been well-tested in terms of power (up to 1.4 kW), linearity and efficiency in digital L-band modulation applications. The TH 2440 supports the design of new, extremely compact amplifiers, well-adapted to terrestrial broadcasting.

For more information from Thomson Tubes Electroniques, contact the company in France at +33 (1) 30-70-36-45; fax +33 (1) 30-70-36-50; or circle Reader Service 101.

ChonTrol Timer

The ChonTrol Corp. XT timer is accurate to the second and can be programmed a full year in advance to completely automate Federal Communication Commission-mandated antenna pattern changes.



Features include two to 16 relays, daily or weekly scheduling, automatic adjustments for leap year and DST and support for external and serial communications.

For more information from ChonTrol Corp., contact the company in California at (619) 566-5656 or (800) 854-1999; fax: (619) 566-0140; or circle Reader Service 75.

Orban Audicy Digital Workstation

This second-generation digital audio workstation from Orban is tailor-made for radio and audio-for-video production.

Audicy features include editing



functions that are performed in RAM for quick response, automatic shadowing to hard disk or removable Jaz drive, simultaneous mixing and processing of 10 audio channels plus submix and stereo input with PCM linear recording of up to 24 tracks.

Digital AES/EBU inputs and outputs are available and Audicy networks with popular on-air audio delivery systems.

For more information from Orban, contact the company in California at (510) 351-3500; fax: (510) 351-0500; or circle Reader Service 98.

NetWell Acoustic Fabric Panels

These hardboard fiberglass sound panels are wrapped in more than 30 different colors to suit almost any interior decor. Available in either a one-inch or two-inch thickness, the panels can be cut to size to meet the customer's specifications.

NRC values of 1.05, with an exceptional low frequency absorption rate of nearly 46 percent at 125 Hz, make these ideal for noise problems. Panels are available in sizes ranging from one-foot by four-foot up to four-foot by 10-foot.

For more information, contact NetWell Noise Control in Minnesota at (612) 939-9845; fax: (612) 939-9836; or circle Reader Service 122.

Telex Wireless Microphone

Telex Communications Inc. offers the compact and ruggedly built ENG-500/UT-500 UHF broadcast wireless microphone system.

The ENG-500 receiver is packaged in an all-metal case and features six hours of continuous operation on one 9V battery.

A locking external input power jack allowing 9 to 18 V DC operation is available as well. The ENG-500 is a true diversity receiver featuring Posi-Phase auto diversity with diversity status indicators. A 3.5 mm headphone output jack with level control is provided for signal monitoring, while the multifunction, side mounted meter indicates battery level, RF and audio metering.

For more information from Telex Communications, contact the company in Minnesota at (612) 884-4051; fax: (612) 884-0043; or circle Reader Service 99.

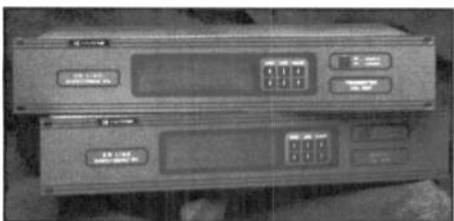
HARRIS

QUINCY, Ill. CD Link from Harris Broadcast Division uses patented technology to deliver uncompressed audio over a standard 300 kHz RF channel. The CD Link was introduced earlier this month at NAB 1997.

A key benefit of CD Link is that it makes it practical for radio broadcasters to eliminate all components that use "lossy compression" from their digital air chains.

Harris said this technique uses psychoacoustic digital compression algorithms that commonly eliminate 75 percent of a signal's audio content.

CD Link provides a typical signal-to-noise ratio of 93 dB and frequency response of ± 0.1 dB. A spectrum-efficient RF design allows CD Link to transport one AES stereo signal and two data chan-



nels simultaneously. An analog stereo composite output as well as one 12 kHz or two 6 kHz auxiliary audio channels are available as options.

The CD Link is designed to fit in the place of existing STLs. The transmitter and receiver are each housed in a single, 3.5-inch rack-mountable chassis that contains all digital and RF circuits. The unit is designed for ease of installation with an AES3 XLR or optical input connector, type N RF output connector and a universal AC power supply.

For more information from Harris Broadcast Division, contact Daryl Buechting at (217) 221-7405; fax: (217) 221-0581; or circle Reader Service 97.

WARNER ELECTRIC

BRISTOL, Conn. Warner Electric's new WHR series Stabiline voltage regulator is a single phase, rapidly responding 3.6 kVA narrow range electromechanical for 120 V, 50/60 Hz, single phase duty. It uses a solid-state control module and a variable transformer-driven power module to eliminate brownout, blackout and over- and under-voltage fluctuations.



Less than 8-3/4 inches, it is suited for broadcast and radar apparatus. The self-contained voltage regulator can be used in standalone or 19-inch rack mount installations. It has 99-percent typical efficiency and can be used with any type of load, even those with high inrush current, high crest factor or unusual load power factor. Other features include low impedance and high overload capacity.

For more information from Warner Electric, contact the company in Connecticut at (860) 585-4500; fax: (860) 582-3784; or circle Reader Service 193.

BELAR

DEVON, Pa. The new AM Wizard from Belar Electronics Laboratory Inc. is a digital AM modulation monitor suitable for standard broadcast monitoring and is ideal for shortwave monitoring and controlled carrier or modulation-dependent carrier level operation (MDCL).

The Wizard is a microprocessor-controlled AM modulation monitor/analyzer that precisely measures positive and negative peak modulation, peaks per minute, average peak density and more.

The Wizard displays current carrier level and the carrier reference level used to normalize the reading of modulation level.

Algorithms to capture the correct reference levels are configured in software. This allows custom setups for specific MDCL operations.

Features include user-defined parameters and settings for maximum flexibility. Two Up/Down menu keys are used to cycle the 16-digit alphanumeric display to the desired menu; the two Up/Down parameter keys are then used to select the desired setting.

The configuration can be saved to a non-volatile memory in the unit in the event of a power loss.

The Wizard also features a unique Normal Modulation indicator to warn the user that the modulation is too high or too low. It ensures that the modulation is within the limits specified.

An Audio loop-through permits "touching up" the modulation remotely through an RS-232/RS-422 port.

The Wizard software permits remote operation through the RS-232/422 port with a modem and an IBM-compatible PC. The computer is also used for real-time graphing of modulation levels and logging.

For more information from Belar, contact the company in Pennsylvania at (215) 687-5550; or circle Reader Service 121.

SVETLANA

PORTOLA VALLEY, Calif. A new 4CX20,000B power tetrode for AM radio is now available from Svetlana Electron Devices. It is a plug-compatible replacement for the 4CX20,000B manufactured in the United States.

The 4CX20,000B power tetrode is used in pairs as class B modulators and

as the class C high level modulated RF power amplifier stage in many AM broadcast transmitters.

The new Svetlana 4CX20,000B features a modern mesh filament, a design that ensures mechanical rigidity and long-lasting concentricity.

A warranty is provided for 12,000 hours and three years.

The Svetlana 4CX20,000B is manufactured in the Svetlana Electron Devices complex in St. Petersburg, Russia.

For more information from Svetlana Electron Devices, contact the company in California at (415) 233-0429; fax: (415) 233-0439; or circle Reader Service 145.

EIMAC

SAN CARLOS, Calif. The Eimac Division of Communications and Power Industries Inc. (CPI) new 4CM300,000GA shortwave AM transmitter tube incorporates pyrolytic graphite grids and is designed as a socket compatible replacement for the Thomson TH-537. This is Eimac's first design aimed at existing sockets already in the field. No changes to the existing equipment or socket is necessary. In addition, Eimac offers full support for this product, including repair and complete replacement socket if necessary.

The Eimac Division of Communications and Power Industries Inc. manufactures a complete line of power vacuum electron devices for radio and television transmitters.

For more information from Eimac, contact the company in California at (415) 592-1221; or circle Reader Service 169.

Five Years for Morning Duo

The morning show "Bob & Sheri," offered nationally since July 1996, recently celebrated its fifth anniversary.

"Five years? Wow, it feels a lot longer. I mean, a lot longer," quipped co-host Sherri Lynch.



Nine stations, including affiliates in Bangor, Maine, Ft. Myers, Fla., and Hudson, N.Y., air "Bob & Sheri." In the Charlotte, N.C., the show ranks first among Women 25 - 54.

"(Bob and Sheri) reliably give us good conversation and laughs, great ratings and they put fannies in our clients' stores," said Rich Jackson, vice president and general manager of WWSN in Charlotte.

For information contact Tony Garcia at Jefferson-Pilot, (704) 374-3689; or circle Reader Service 64.

If you're still operating with an old tube transmitter, you're missing out on an opportunity to cut your energy consumption by over 50%.

You work hard to keep costs down, yet you could be giving your local electric company up to 50% more than you need to each and every month. And what about the high cost of tube replacements and repairs necessary to keep your tube-type transmitter alive?

It's time to replace your tired, cranky, unreliable tube transmitter and enjoy the high efficiency and dependability of an OMNITRONIX Digital Solid State AM Transmitter. We have a proven 10-year track record of unsurpassed

performance, even in the world's most rugged environments.

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USER REPORT

LPB Transmitter to the Rescue

by Bill Geyer
Chief Engineer
Kindred Communications

HUNTINGTON, W. Va. During recent flooding, WCMI 1340 kHz, a Kindred property, experienced severe damage to its main and auxiliary transmitters.

The tower sits within 100 feet of the Ohio river while the transmitter building is 500 feet further from the banks. Since we purchased the station two years ago, flooding had not been a problem. The river had extended from its banks, but not enough to cause any damage to the tower or the building.

This time was very different. By the time we realized it was going to reach the building, the city police had shut down access to the site and began the evacuation process for all the homes in the area.

Cleaning agents

Our Harris MW-1 and Gates BC1-G both had nearly four feet of flood water rolling through them along with all the manuals, spare parts and audio processing gear. I'm not sure, but I don't think flood water should be used as a cleaning fluid for any electronic equipment.

I live on a farm, so I had the chance to use our new front-end loader to remove the MW-1 transmitter from the building.

The transmitter had so much mud and garbage in it, the only logical choice was to just turn the water hose loose on it. The pitch of the transmitter was set to allow the water

to drain out and not sit in the transmitter.

The water was just the trick. The mud gave little fight and was soon gone. The high-voltage transformer and power controller were removed and taken to the local motor shop.

After a couple of days I called the guys at the motor shop and they informed me that the transformer passed all its tests and the power controller seemed to be just fine. This was welcome news for Bean Counter Bob, because we had already hit four grand, not counting labor.

After the damage was assessed, we quickly found it was going to take awhile for parts to arrive. A call to LPB was in order.

I had installed one of the company's 30 W transmitters nearly 10 years ago at a station that needed a transmitter for pre-sunrise, post-sunset operation. The LPB was a great back-up transmitter; it always worked.

I spoke with the folks at LPB, explained our situation and was told we could have a 30 W transmitter by the end of the week. I called the GM. This was a no-brainer, I said. He agreed and the order was placed on Monday. Saturday morning, the box arrived and off we went to the transmitter site.

No water allowed!

The folks at LPB thought of everything, right down to the mounting hardware for the transmitter box. This thing is so small we mounted it on a ceiling joist

high enough that the water can't reach it (I hope!). I made a quick visual check of the ATU and found no problems. Then we made a quick connection to the antenna with the coax cable supplied with the transmitter. The audio was connected, the power cord plugged in and the box was turned on. "We are on the air, boys!" I screamed. "Let's go listen to it."

We drove around with our mouths wide open. Coverage is great. In some places you would think we were at full power. We were able to cover the city of licenses and had a listenable signal in neighboring ones as well. This allowed Bean Counter Bob to keep counting. As for the MW-1, it will get back on the air. But until then, the LPB keeps on going.

For more information from LPB, contact the company in Pennsylvania at (610) 644-1123; fax: (610) 644-8561; e-mail: lpbsales@lpbinc.com; or circle Reader Service 76.

SPECIAL REPORT

Relamping a Tower

by Troy Conner
Owner
Tower Maintenance Specialists

BRASSTOWN, N.C. One problem I constantly face on transmission towers deals with old red beacon lighting systems. Many should probably be replaced, and most are in need of considerable rebuilding. They also go through an inordinate number of light bulbs.

When confronted with any ailing lighting system, I call Jason Jennett at **Fuellgraf Electric Co.**, an engineering and contracting firm in Nashville, Tenn. The people at Fuellgraf are true lighting specialists, versed in red systems and strobe systems. The company sells parts and service lighting systems, and also trains tower technicians to service all the existing strobe systems typically found on towers: EG&G, Hughey & Phillips and Flash Technology, to name a few.

Fuellgraf Electric primarily is devoted to lighting systems on smokestacks and cooling towers. The company does, however, perform some lighting work on transmission structures. The number for the Nashville office is (615) 883-9405, or in Butler, Pa., Fuellgraf can be reached at (412) 282-4800.

A clear choice

There are two basic types of beacon fixtures: older ones with clear outer lenses and red glass inner "filters," and the newer style with red exterior lenses. Ask any tower worker which they prefer to service and the answer is universal — the new ones with the red glass outside and clean, uncluttered insides.

While talking with Jennett a couple of weeks ago, I was lamenting the condition of a top beacon on a small, 300-foot AM tower that I had just relamped. The gaskets and O-rings were shot and the red inner filters were both cracked. In addition, there were a number of chips and small cracks in the clear outer lenses.

The insulation of the cord connecting the beacon to the conduit was cracked and the entire bottom of the fixture was awash in at least 2 inches of broken glass from the exploded bulbs of years past.

The options for the long run are fairly obvious — either lower and rebuild the existing fixture, or replace it altogether.

Jason suggested another option: Reuse the metal components of the beacon and replace the clear glass with red. Not only are four red Fresnel lenses cheaper, but using them makes relamping and future service considerably easier to perform. The current cost difference between clear and red lenses is significant. Most of the clear lenses seem to be manufactured in Europe. As one might imagine, after shipping, tariffs and distribution costs, prices are practically doubled.

A full set of red lenses can be purchased between \$400 and \$700. A full set of clear glass lenses can be more than \$900; these in turn require a pair of delicate red color filters for a minimum of \$70 each.

If your lighting system is showing its age and contractors have suggested a rebuild, definitely consider switching to red exterior lenses. Not only will you save a bit of money, you will probably make the tower worker happier.

PiRod reliability

You are probably already familiar with the name **PiRod**; it is practically synonymous with the tower industry.

The quality of these structures never surprises me. They are always a delight to climb and they are heartily engineered and manufactured. You may not be aware that PiRod also has a tower parts and accessories catalog that is chock-full of neat tower stuff.

PiRod is in Plymouth, Ind., and can be reached at (219) 936-4221. Whether you need a couple of beacon bulbs or a complete tower, PiRod can probably serve your needs. What impresses me most about PiRod is the way an obviously busy firm deals with the small contractor just as quickly as it would a larger company.

Well, I am out of space. I had hoped to get to isolation transformers and base insulators but I will close by soliciting suggestions for future topics. If it has to do with towers, I'm interested. Give a call or send a fax to me at the numbers shown below.

■ ■ ■

Troy Conner is a North Carolina-based tower specialist and author of the column *Man of Steel*. If you have any questions or tower topic suggestions he can be reached at (704) 837-3526 or by fax at (704) 837-1015.

NAB97

DAILY NEWS

IT'S HOT!

So hot you can hardly hold onto it! We know how it goes - you get your hands on the Daily first thing in the morning, then set down your copy while you're with some rep from Omaha that you've been dying to sit down and talk with since that show in Springfield, and **POOF!** it disappears into the sea of conference attendees. PLUS, this year there were 3 **EXTRA** afternoon editions.

PLAY IT COOL!

You don't have to fret. We'll send the whole enchilada to the home office - 2 editions from each day - Monday's, Tuesday's and Wednesday's AM & PM editions, and all the news, names and numbers will be delivered right to where you really need them - on your desk.

P.S. - If you missed the show in Las Vegas, you can't afford to miss this opportunity!



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Crown pwr base I, \$425; Crown D-150-A, \$250; Crown D-75, \$225. D Lundy, Lundy Recdg & Tape Duplicators, Cumberland Gap Pkwy, Heidrick KY 40949. 606-546-6650.

Pioneer stereo amp w/tuner, rt chnl weak, \$45. Will or Lisa, WLD Recdg Std, Music Valley Rt 1, Mill Spring MO 63952. 573-998-2581.

Audiometrics 2x8 stereo dist amp; Crown D-75; RDH studio switcher dist amps intercom. J Phillips, 414 Washington Ave, Defiance OH 43512. 419-782-8591.

Yamaha 2150 ISO w/ch, 300W mono, excel cond, \$300. A Wurel, ILCC, 1209 N 7th St, Estherville IA 51334. 712-362-7939.

Want to Buy

RCA tube preamp BC-2B console modules, specifically the transformers. W Arp, Arp Studio, 1550 West Kingsbury, Sequin TX 78155. 210-303-5699.

All tube type amps, limiters, mixers, old speakers, etc. The Great Wireless Talking Machine, 419-782-8591.

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Phelps Dodge FMC HP12 12 bay center fed high pwr mdl tuned to 91.1 MHz, \$3000; ERI Rototiller

high pwr center fed tuned to 91.1 MHz, \$5000. J Stortz, WKES, POB 8888, St Petersburg FL 33738. 813-391-9994.

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Fax 800/644-5958 972/473-2578

3" 4 port. J Phillips, 414 Washington Ave, Defiance OH 43512. 419-782-8591.

ERI 1105 7 bay FM CP tuned to 92.7, \$5000/BO; Comark/Cablewave CFM-LP 3 bay FM w/radomes, CP, tuned to 94.3, used as backup, \$2500/BO. L Fuss, WDTL, POB 1438, Cleveland MS 38732. 601-846-0929.

ERI 1105-3A tuned to 104.3 w/heaters & brackets for 8" pole mount, gd antenna, you pick up, \$2100. A McEwing, WGLY, POB 8260, Essex VT 05451. 802-878-8885.

Scala CA5-FM, 5 element yagi, rear mount, 9.0 dB gain, \$200 ea/\$300 both; Scala PD4, 4-way pwr divider, \$50. D Magnuson, LPTV W50CC, POB 332, Seymour TN 37865. 423-525-6258.

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Eventide H-910 Harmonizer, factory refurbished 8 yrs ago, vgc. J Winters, Wintersound, 45 E Washington St, Elizabethtown PA 17022. 717-367-1119.

Inovonics David II, 3 mos old, \$1750/BO. J Kellstrom, KZBR, 125 Corporate Terr, Hot Springs AR 71913. 218-525-9700.

Symetrix TI-101 telephone interface: 501 compressor, 528 voice proc; Eventide Harmonizer H949; Gentner ETF-100 digital freq ext; Motorola C-Quam exciter; CRL SEP 400, PMC 300, Dynafax. J Phillips, 414 Washington Ave, Defiance OH 43512. 419-782-8591.

Yamaha GC2020B stereo limiter/expander XLR & 1/4" connections, +4 & -10 switchable inputs & outputs, like new, box, manual, etc, \$200. M Schackow, Schackow Recdg, 307 4th Ave E, Lemmon SD 57638. 605-374-3424.

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Want to Buy

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Want to Sell

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Kingdom Technologies automation control boxes (2) w/IBM interface card, \$75 ea. A McEwing, WGLY, POB 8260, Essex VT 05451. 802-878-8885.

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ITC SP-0003 (2) mono single play in OK cond, \$125 ea +shpg; ITC R/P 0003 mono R/P in OK cond, \$200 +shpg. G Gibbs, KWSL, 1113 Nebraska St, Sioux City IA 51104. 712-258-0628.

ITC WP, \$500/BO; ITC RP, \$750/BO; Gates/Harris 994-6701-002 (2), \$1200/BO. Don or Mike, KOPY, POB 731, Alice TX 78333. 512-664-1884.

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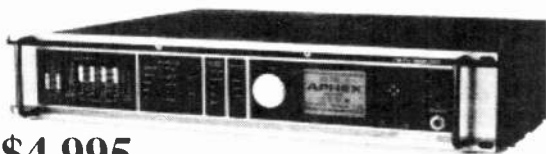
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Harris Medalist 8 chnl stereo console, \$875; Audiotronics 110-A console, whole or parts, \$500; RCA BC-7A console, \$275, as is; UREI mode one 5 chnl stereo, \$175; JBL 7510 mixer, \$250. D Lundy, Lundy Recdg & Tape Duplicators, Cumberland Gap Pkwy, Heidrick KY 40949. 606-546-6650.

Sparta Centurion II 10 chnl stereo; CCA 10 chnl stereo; BE 8 chnl mono; Audiotronics 110 Grandson. J Phillips, 414 Washington Ave, Defiance OH 43512. 419-782-8591.

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LPB Monogram II, need 2 or 3 line level chnl module cards. F Truatt, WTBO, 62 N Main St, Florida NY 10921. 914-651-1110.

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EV 660 mic, dual Z, super cardioid, brushed aluminum, excel cond, BO; Telex headset mic, single muff, like new, BO. A Wurel, ILCC, 1209 N 7th St, Estherville IA 51334. 712-362-7939.

EV MC-150 low Z, cardioid, blk finish, new cond, \$75. A Wurel, ILCC, 1209 N 7th St, Estherville IA 51334. 712-362-7939.

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Moseley TRC-15 studio & xmtr units, BO. T Moore, WSWR FM, Shelby OH. 419-347-9797.

Moseley Tri 450 MHz link; Marti M30B; Marti RPT-1; Motorola 161.76 base station; Moseley 505C rcvr. J Phillips, 414 Washington Ave, Defiance OH 43512. 419-782-8591.

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Ampex 440c pro tape machine (4) 2 trk 10.5" reel, 7.5-15ips, vgc, \$1000 ea; Ampex 440c transport only, 4 trk, 10.5" reel, 7.5-15ips, vgc, \$500; Ampex 440c varispeed control unit, for servo motor, new cond, \$500; Ampex 350 tube pro tape machine, 2 trk 10.5" reel, 7.5-15ips, excel cond, \$1000; (2) Tascam 32 r-r, 2 trk, 7.5-15ips, roll-around, excel cond, low hrs, \$600 ea. A Funk, Masque Snd & Rcdg Corp, NANY, 718-421-0582.

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Marantz PMD-220 prof portable 2-speed cassette rcd, mono, 3 heads, immaculate, \$250 includes shpg/ins. S Lawson, KAK Prod, 928 Hyland Dr, Santa Rosa CA 95404. 707-528-4055.

Revox A77 (4) r-r decks. T Moore, WSWR FM, Shelby OH. 419-347-9797.

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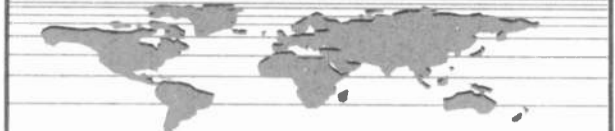
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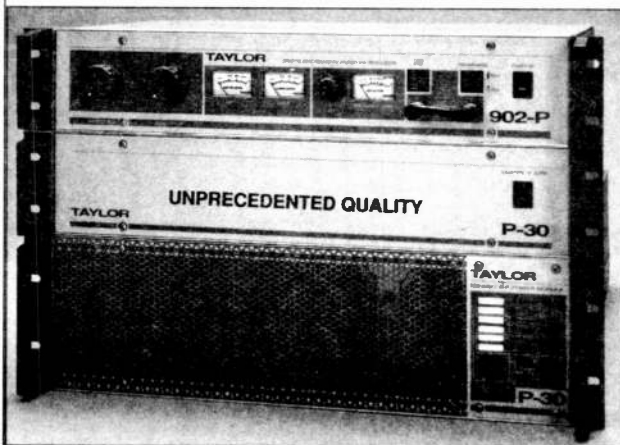
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 - I. Mfg, distributor or dealer
 - J. Other _____

Brokers, dealers, manufacturers and other organizations who are not legitimate end users can participate in the Broadcast Equipment Exchange on a paid basis. Line ad listings & display advertising are available on a per word or per inch basis.

- II. Job Function**
- A. Ownership
 - G. Sales
 - B. General management
 - E. News operations
 - C. Engineering
 - F. Other (specify) _____
 - D. Programming/production _____

WTS WTB Category: _____
Make: _____ Model: _____
Brief Description: _____
Price: _____

WTS WTB Category: _____
Make: _____ Model: _____
Brief Description: _____
Price: _____

*Closing for listings is every other Friday for the next month's issue. All listings are run for 2 issues unless pressed for space or otherwise notified by listee.

Broadcast Equipment Exchange
PO BOX 1214, Falls Church, VA 22041 • Tel: 800-336-3045 • Fax: 703-998-2966

EMPLOYMENT

HELP WANTED

Aggressive multi-station chain has an immediate opening for a Chief Engineer. Must be computer, transmitter and DCS knowledgeable. Great company, location and compensation package. Send resume to: Radio World, POB 1214, Falls Church VA 22041. Attn: Box #: 97-4-30-1RW.

ENGINEER WANTED: Live where the cost of living is low and the quality of life is high. in Kansas City! We need a qualified engineer with at least 2 years previous experience including RF and high power AM & FM. Good troubleshooting and studio technical skills a must. If you're a self-starter and a team player please send your resume to: Shelly Pennington, Entercom Kansas City, 4935 Belinder Road, Westwood KS 66205.

Broadcast Engineer

Clear Channel Communications is seeking an assistant engineer for our five station operation in Raleigh/Durham, NC. The candidate that we select will have at least five years of experience in radio broadcast engineering, and must be proficient in analysis and repair of studio equipment, high power broadcast transmitters, and associated equipment. Familiarity with rpu systems, digital audio storage systems and computers is desirable.

Submit applications to: Clear Channel Communications, 8601 Six Forks Rd. #609, Raleigh NC 27615. Attention: Engineering Dept. Application deadline is May 9, 1997.

* Clear Channel Communications is an equal opportunity employer.

The Westwood One Companies

has an immediate opening for an Operations Manager in our Arlington, VA facility. Individual must have 3-5 years experience in the operations of broadcast facility, with at least one year supervisory experience. Must have understanding of technical operations; computerized switching; traffic; production and satellite distribution. Must have ability to work all shifts including weekends, holidays, evenings and have valid driver's permit. If you meet the above qualifications please forward your resume to Westwood One Companies, Personnel Dept., 1775 S. Jefferson Davis Highway, Arlington, VA 22202. EOE/M/F

POSITIONS WANTED

A/C, Oldies, Country morning A/T, topical humour, w/semi-fab phones, creativity. Mike, 517-362-7251.

Announcer/manager w/over 20 yrs exper (6 in mgmt), seeks mgmt and on air position w/temporary Christian music station, talented, hard-working, honest, willing to relocate. E-mail info to: Manager@broadcast.net@aol.com.

Board op, w/5 yrs major market exper seeking PT AM or FM position in the Atlanta area. Write to: Board op, POB 53365, Atlanta GA 30355.

Broadcasting grad, gd training on board ops, voice inflection & on air delivery, exper P-B-P & announcer, any format. David, 405-799-3175.

CE position, 10 yr exper w/computers, xmtrs, automation, DCS, UDS, digital studios, great references. Robert King, 702-876-5151.

ABOUT OUR EMPLOYMENT SECTION

HELP WANTED: Any company or station can run "Help Wanted" ads for \$2/word or buy a display box for \$69/column inch. Payment must accompany insert, use your MasterCard or VISA; there will be no invoicing. Blind box numbers will be provided at an extra charge of \$15. Responses will be forwarded to listee, unopened, upon receipt. Call 703-998-7600 for details.

POSITIONS WANTED: Anyone can run a "Position Wanted" ad, FREE of charge (25 words max), and it will appear in the following 2 issues of Radio World. Contact information will be provided, but if a blind box number is required, there is a \$15 fee which must be paid with the listing (there will be no invoicing). Responses will be forwarded to the listee, unopened.

Mail to: Broadcast Equipment Exchange P.O. Box 1214, Falls Church, VA 22041 Attn: Simone Mullins

American Radio Systems/ Cincinnati

Seeks an experienced individual to join our engineering staff. Five years of hands on installation, repair, and maintenance experience with radio broadcast equipment from studio to transmitter. Associates degree or equivalent. PC network, PC hardware, and software installation/support a plus. On call required. If the thought of joining one of the nation's fastest growing radio companies appeals to you, contact:

American Radio Systems Jeff Bennett 101 Pine Street, Suite 200 Dayton, OH phone: 937-224-1137

American Radio Systems, an EEO employer, "grows people faster than assets" and strongly encourages females and minorities to apply.

Radio Chief Engineer

Paxson Broadcasting - 5 yrs exp. req. Knowledge of directional arrays, transmitters, studio equipment, computer systems, audio processing, telephone systems. Fax resume: Roy Pressman 305-999-6100.

Chief Engineer

Needed for Coastal NC Group. Experienced in all areas: Studios, Transmitters, PCs, LANs, etc. Fax resume: 800-478-5426

SUBSCRIPTION/READER SERVICE FORM



FREE Subscription/Renewal Card

I would like to receive or continue receiving Radio World FREE each month. Yes No

Signature Date

Please print and include all information:

Name Title

Company/Station

Address

City State ZIP

Business Telephone ()

Please check only one entry for each category:

- I. Type of Firm
D. Combination AM/FM station
A. Commercial AM station
B. Commercial FM station
C. Educational FM station
E. Network/group owner
F. Recording Studio
K. Radio Station Services
G. TV station/teleprod facility
H. Consultant/ind engineer
I. Mfg, distributor or dealer
J. Other

- II. Job Function
A. Ownership
B. General management
C. Engineering
D. Programming/production
G. Sales
E. News operations
F. Other (specify)

Copy & Mail to: Radio World, PO Box 1214, Falls Church, VA 22041, or FAX to: 703-820-3310

Reader Service

April 30, 1997 Use until July 30, 1997

Please first fill out contact information at left. Then check each advertisement for corresponding number and circle below.

Purchasing Authority 1. Recommend 2. Specify 3. Approve

Table with 10 columns of numbers for reader service tracking.

CE/computer tech w/20+ yrs hands on engineering exper seeks CE position in a top 100 market, strong audio, computer networking & RF skills. 704-563-8676.

News announcer, production, AT, adult sounding, tape avail on www.airtalents.com & then go to new004, or call Alex Kuhn, 513-777-8423.

Stable, mature, talented broadcasting school grad ready to start now in entry level radio position. Kevin, 405-733-3677.

Station engineer, presently part-time, seeks position, FCC General Class license, h.f., microwave, fax & data maintenance exper, mili-

tary & civilian electronic schools. 715-831-1199.

Any on-air, copywriting or production position wanted. M Wolf, 405-325-9584.

Broadcasting school graduate ready & willing to relocate, enjoys air shifts, prod & hard work, 30 yrs old interested in Western US. Darren, 405-298-5292.

Experienced engr/tech seeks AM/FM station, will consider relocation. 512-321-3594.

Experienced, dedicated, knowledgeable, high school/college sports reporter seeks position, professional attitude team player, computer skills, Western America.

Jay, 972-480-8918.

If you program directors are looking for a truly knowledgeable & prof R&B disc jockey w/a great personality that can boost your bottom line & get your rating quarter a lift then call me to receive a free 1 hr audiotape. G Foster, 1-800-414-4348.

Looking to be part of your future success, 2 yrs on-air, creative, dynamic, hungry, motivated. B Cooper, POB 1054, Cincinnati OH 45253-1054.

News announcer, production, AT, adult sounding, tape avail on www.airtalents.com & then go to new 004, or call Alex Kuhn, 513-777-8423.

ADVERTISER INDEX


This listing is provided for the convenience of our readers. Radio World assumes no liability for inaccuracy.

Large table listing advertisers and their corresponding page numbers in the index.

Table listing key staff members and their roles: Production Director, Production Manager, etc.

Table listing Advertising Sales Representatives and their contact information.

Free Subscriptions are available upon request to professional broadcasting and audiovisual equipment users. For address changes, send current and new address to RW a month in advance at P.O. Box 1214, Falls Church, VA 22041. Unsolicited manuscripts are welcomed for review: send to the attention of the appropriate editor.

FROM THE LARGEST FACILITY
TO
THE SMALLEST STATION
PEOPLE KNOW
THE
 **AUDITRONICS 210 SERIES**



PEOPLE KNOW:

- ◆ classic style when they see it
- ◆ sturdy reliability when they feel it
- ◆ convenience when they operate it
- ◆ support when they need it
- ◆ affordability when they buy it
- ◆ longevity when they use it year after year
- ◆ thousands are in use right now

AND PEOPLE GET THE BEST AUDIO FROM:

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3750 Old Getwell Road, Memphis, TN 38118 (901)362-1350 Fax: (901)362-8629

GSA #GS-03F-4032B

Circle (59) On Reader Service Card

World Radio History

Some Countries Have It ALL!



WSIX - Nashville, Tennessee "Country Music Station of the Year"

A-500 Studio Furniture delivered March 1993
A-500 Console S/N 20789 delivered April 1993
A-500 Console S/N 20792 delivered April 1993
A-6000 Studio Furniture delivered March 1995
A-6000 Console S/N 22536 delivered March 1995
R-16 Console S/N 22557 delivered March 1995
SP-5 Console S/N 22593 delivered April 1995

1995 Academy of Country Music Award
1995 Marconi Country Music Award
1995 Billboard Country Music Award
1995 Country Music Association Award
1995 Country Music Association SRO Award
1995 Gavin Country Music Award
1996 Gavin Country Music Award
1996 Academy of Country Music Award

Wheatstone Model A-6000 Audio Console shown

 **Wheatstone Corporation**
tel 315-452-5000 / Syracuse, NY.

Circle (63) On Reader Service Card

World Radio History