RADIOWORLD

Two views of the former KARR/KKDZ site, in 2014 and 2016.

Real-Life AM Revitalization in Washington

KARR and KKDZ both survived the loss of two tower sites

▶ AM REVITALIZATION

BY THOMAS R. MCGINLEY

AM radio continues to struggle for vitality and survival. The ongoing Federal Communications Commission AM Revitalization proceeding has opened up a number of new opportuni-ties for AM owners and operators to save and improve their stations.

One fine example of this is KARR(AM), 1460 kHz in Kirkland. Wash., a Seattle suburb on Lake Washington. He described it in a pre-sentation at the spring NAB Broadcast Engineering Conference.

The station was licensed in 1965 as a daytimer and at the time our story begins was owned by Family Radio. It had been operating since 1986 as a 5/2.5 kW DA-2 facility with six towers on a seven-acre leased site. It was shared and diplexed with KKDZ(AM), 1050 kHz 5 kW DA-N, a Disney Channel station.

As has happened with many AM transmitter sites in populous areas, the land became much more valuable than the leases or even the stations them-selves. In 2012, the landowner gave notice to both station owners that their leases would not be renewed and the site would be developed into high-end single-family residences.

KARR(AM) fell silent in February 2014. KKDZ vacated the site and con-

SONICUS MAXIMUS
COSTICUS MIDIMUS
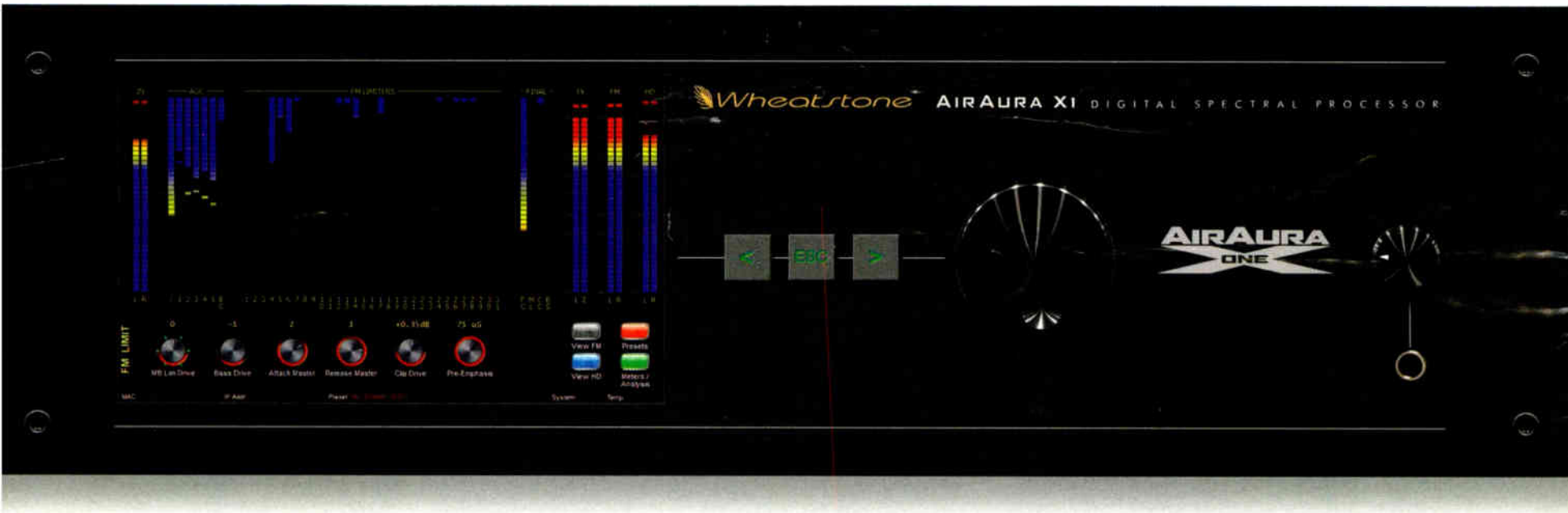
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PREC Hits 10-Year Mark

Houg calls it something of a "coming of age" for the association

Several current and past board members of the Association of Public Radio Engineers posed at PREC: Steve Johnston, Wisconsin Public Radio; Victoria St. John, Vermont Public Radio; Paxton Durham, WVTF Public Radio; Jobie Sprinkle, WFAE; Shane Toven, Linear Acoustic; Jonathan Clark, Shively Labs; John George, RF Specialties; Dan Houg, KAXE/KBXE Northern Community Radio; Daniel Mansergh, KQED Public Radio; and Pierre Lonewolf, KOTZ Kotzebue Broadcasting

BY MIKE STARLING

The Association of Public Radio Engineers met this spring for its 10th annual conference. APRE President Dan Houg of Northern Community Radio in Grand Rapids, Mich., said, "Attendance, sponsorships and insights shared were at their peak. This was a coming of age event for the association as the last of the founding board, Dan Mansergh of KQED, term-limited off the leadership."

Ralph Hogan, founding president of APRE, was honored with the association's Lifetime Achievement Award at a Friday night banquet.

"It is immensely gratifying to see the association doing so well in terms of membership, conference attendance, sponsor support and overall quality of the activities," Hogan said.

"Everything is run so professionally, it is hard for people to believe this is an all-volunteer organization. I think I speak for all of the founders in congratulating the current APRE leadership for taking the organization to the next level of relevance, leadership and quality of services."

IN HARMONY

Several sessions stood out.

Of note was one led by Gray Haertig of Haertig Associates in Portland, Maine, and Michael LeClair of WBUR, Boston, with support from Jeff Welton at Nautel offering a live demonstration of the 12th-order harmonic of how an NCE FM station could affect an LTE system's operation.

LeClair, who also contributes to Radio World, demonstrated how signals as low as –124 dBc could force a 64 QUAM signal into throttling back to lower levels of throughput in coping with the residual carrier radiation. It gave the room a much better sense of the math and physics involved as well as the best means to address the issues for common solutions.

Content Depot, the content delivery operating enterprise of the Public Radio Satellite System, was in focus as Jim Duff and David Gray highlighted the progress and benefits of deploying the MetaPub system for pushing network provider program-associated data through the most common middleware vendors, including Tagstation, Jump2Go, Broadcast Electronics, ENCO, ArticPalm and Wide Orbit.

Duff noted that metrics from NextRadio point to much higher usage and satisfaction with stations that are visually appealing. MetaPub is new real-time story-by-story content with text, images, links and station information all capable of being indexed.

NPR's Michael Beach noted that the system can also be useful to transmit text info during EAS, similar to what NPR has demonstrated for public radio seeking to send text messages for use by the deaf and hard-of-hearing constituencies.

During the conference, KNPR(FM) in Las Vegas was providing MetaPub data on all three of the HD channels. Duff also highlighted an increased focus on enhancing security measures by detecting unusual activities, and enhancing PRSS's extensive performance and impairment tracking metrics. "You can't improve what you're not measuring," he said.

BIRD PLANS

Beach, the vice president for NPR Distribution, talked about plans and timetable for the next-generation satellite system.

Funding uncertainties have resulted in a changing focus from the theoretical benefits of distribution via interactive solutions that a terrestrial transformation might provide. Towards that end, an RFI for vendors related to system improvements will be shopped this year,

KIRO Radio Accidentally Saves American History

A confluence of favorable circumstances led to preservation of an invaluable audio resource

BY FELIKS BANEL

American radio broadcasting came of age during World War II, when networks brought live speeches by political leaders and live analysis of rapidly-developing events into living rooms from coast to coast. Recordings of radio news programs from that deadly, years-long conflict from the late 1930s to 1945 offer a priceless window into that tumultuous time.

For one particular network, the fact that recordings of reports by Edward R. Murrow and other talented correspondents exist at all is something of a happy mishap.

An expert speaking this winter at the first Radio Preservation Task Force Conference at the Library of Congress in Washington described how one of the most important tools for understanding World War II is available to researchers only because of an "accident" at KIRO Radio in Seattle more than 70 years ago.

ACCIDENTAL PRESERVATION

During his keynote address, longtime archivist and librarian Sam Brylawski spoke of KIRO's role in saving a priceless audio record of American history.

Brylawski told the audience of more than 200 radio history scholars from

Recordings of CBS network programs were recorded and stored at the KIRO transmitter site on Vashon Island, across Puget Sound from Seattle.

Photos by Feliks Banel

played back highlights a few hours later at times that were more convenient to Seattle-area listeners.

"As a result, those lacquer discs are the closest thing to a complete record of CBS World War II news that we have," Brylawski said. And they were saved "only because the station, prob-

KIRO recorded this broadcast from Richland, Wash., home of the Hanford project, the day after the atomic attack on Hiroshima.

what KIRO had saved — beyond a few Churchill speeches for his class.

MILO RYAN PHONOARCHIVE

The scope and scale of Ryan's efforts quickly grew, and he began what was to become one of the first intentional efforts to preserve, catalog and make accessible a large collection of archival audio.

In 1957, the collection of discs was moved to the University of Washington northeast of downtown Seattle. Professor Ryan secured funding from CBS and led the effort to make copies on reel-to-reel tape and to create a catalog. Engineers from the UW's public TV station KCTS and public radio station KUOW, when both were still on campus, assisted with technical aspects of making the tapes.

In the catalog written by Milo Ryan

> **One of the most important tools** for understanding World War II is available to researchers only because of an "accident" at KIRO Radio in Seattle more than 70 years ago.

around the United States and Canada that a case of "accidental preservation" resulted in creation of a nearly complete archive of CBS news broadcasts during World War II.

"KIRO is the station in Seattle that cut lacquer discs to timeshift," Brylawski said, explaining how the scheduling of live broadcasts of CBS Radio's news coverage was aimed for the Eastern time zone, not convenient for West Coast audiences.

KIRO, Brylawski said, made recordings of network news programs on giant, 16-inch diameter discs, and then

ably against its [network affiliation] agreement with [CBS chairman] William Paley, was timeshifting."

The full story of how the recordings were saved is long and a little complicated. The original 16-inch discs were recorded off the network feed from CBS in New York at the old KIRO studios in the basement of the Cobb Building at Fourth Avenue and University Street in downtown Seattle.

After later playback, rather than throw them away, for some reason, KIRO staff moved the discs, perhaps gradually or in small batches, to the

KIRO transmitter site on Vashon Island. Vashon is in Puget Sound, a few miles southwest of Seattle.

That's where University of Washington Professor Milo Ryan "discovered" them in the 1950s, along with help from former KIRO Station Manager Loren Stone. Ryan had been searching for recordings of Winston Churchill's World War II speeches for a class that he was teaching about propaganda. Stone invited him to visit Vashon, and that's where Ryan realized the value of

and published by University of Washington Press in 1963, Ryan noted that if reusable recording tape had been available to KIRO during World War II, the archive might not exist today. Engineers, Ryan said, may have simply erased and reused the same tape every day. Because 16-inch discs could only be recorded on once, re-use wasn't an option.

Eventually, the discs were moved from the UW to a National Archives

ENERGY MONITOR 120 VAC

119v 0.05A
voltage current
0.4 = 124 =
power energy

10

12

Courtesy iHeartMedia

25

PREC

and next steps will be dependent on the availability of funds. Beach said station options for replacement equipment can be divided by 24 for a two-year purchase, which makes it now an op-ex budget, rather than cap-ex purchase.

There were a number of other interesting presentations.

John Ahern of Davicom talked about SNMP and the fundamental architecture and directions underway on all manner of SNMP-enabled devices. He commented, "Most exciting new discoveries are heralded not by 'Eureka!' but 'That's funny …'" Grounding basics at transmitter sites were covered by Jeff Welton of Nautel with lots of practical advice and case studies.

Michael Dosch of Lawo noted that multitouch control on the screen is the way of the future even for consoles, and has for some time been the last big issue to solve. He notes that today, even haptics (tactile feedback) is making great strides for the disability community and that the industry should stay tuned as these approaches are improving substantially.

Steve Dove of Wheatstone talked extensively about the philosophy and audio architecture of the Vorsis product line. Kirk Harnack of the Telos Alliance discussed multi-rate streaming, Rich Redmond of GatesAir spoke extensively on the likely impact to radio stations of the pending TV spectrum repack. Corey Edwards of Dieletric talked about the efficiencies of manifold combiner design.

Attorney Melody Virtue of Garvey Schubert Barer spoke about a variety of regulatory matters, especially translators and repacking and the FCC's "work it out" stance on cellular vs. FM interference matters. She also cautioned stations that the new 250-mile modification allowances for translators for AM stations are being acted on by the FCC within just weeks so stations can be blindsided if unaware of potential interference issues. "Translator stations are like poker chips," she told APRE.

Steve Lampen of Belden told the group that the best analog cables are digital cables because the capacitance is so low. "A –90 dB noise floor from digital is more nothing than you've ever heard." David Layer of the National Association of Broadcasters updated the group on Pilot, the new name and focus of the unit formerly known as NAB Labs; he showed the group how all-digital AM lab testing resulted in a SNR that is 10 dB worse than the existing signals. Society of Broadcast Engineers President Jerry Massey highlighted the society's increased focus on training the next generation of engineers, while Chris Crump of Comrex focused on dedicated bandwidth solu-

NEWS

Photo by Jim Peck

APRE presented Ralph Hogan, right, its founding president, with a Lifetime Achievement Award. He was with Jonathan Clark.

tions and security concerns. Crump told the group, "Web RTC is basically going to be the way we make phone calls in the future."

Finally, Rhode Island Public Radio's Aaron Read and Tony Peterle of Worldcast Systems showcased an RIPR implementation of SureStream Reliability on an existing IP codec link, noting it was powerful in reducing network errors and works well with DHCP.

PowerPoints of the presentations are available to PREC members on the website *apre.us*.

REAL-LIFE

solidated operations to a non-directional day site in west Seattle, which required reducing night power significantly. Family Radio had been marketing the station and looking for a buyer that would hopefully be able to find a new site and relocate the station.

With no other offers forthcoming, Family agreed to sell the station to Jim Dalke, CPBE CBNT 8-VSB AMD and the CEO of Dalke Broadcast Services, if he could get on the air under a special temporary authorization before the one-year silent period would automatically cancel the station license.

Dalke prepared an STA plan to operate with 100 watts into a temporary antenna at a private residence in the Kirkland area. He found a Broadcast Electronics AM 1A transmitter to drive a "long-wire" slant antenna hung from a nearby fir tree. Dalke then transmitted programming provided by Family Radio from their IP stream long enough to satisfy the FCC rules to keep the license alive until a permanent site could be found.

Dalke acquired the KARR license from Family a few months later. When he attempted to renew the STA, the commission suggested a more robust facility that did not have the antenna suspended from a tree in a residential area.

Dalke then engaged his friend Warren McPherson, owner of Vetco Electronics in Bellevue, Wash., a favorite area parts house for hams and broadcasters. At Vetco he not only could rent office space for a studio but could also erect a roof-mounted pole to serve as a better antenna. That was acceptable to the commission as a means to buy more time until a suitable site for perhaps a two-tower DA and increased power can be obtained.

GROWTH AND CHANGE

Over the course of the 51 years since KARR was licensed, the city of Kirkland grew in size from a population of 8,000 people in land area of two square miles to 85,000 residents in 18 square miles.

Dalke was able to take advantage of the newly relaxed city of license minimum allowable coverage rules, as well as elimination of the "ratchet rule" and the
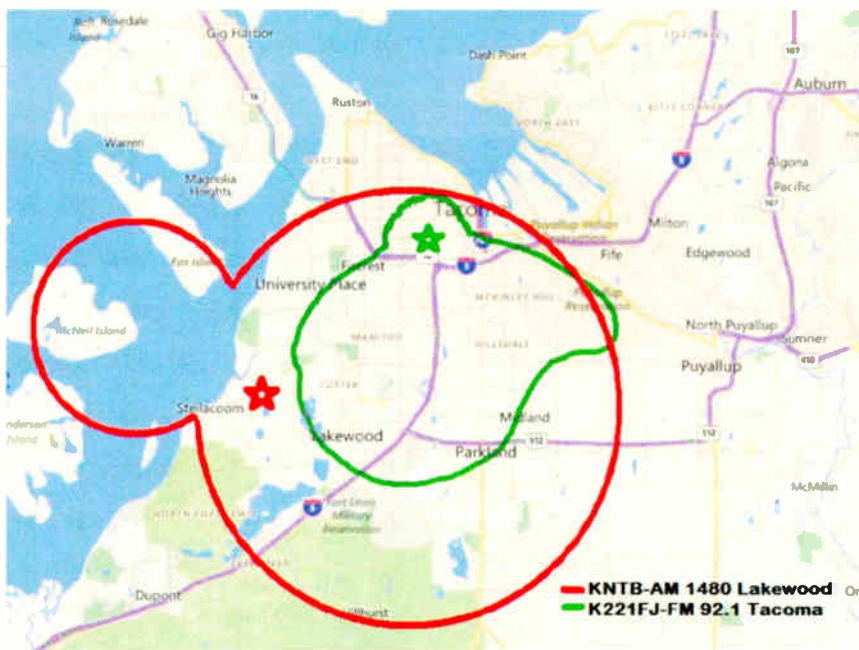
Another AM case study described by Jim Dalke was that of KNTB and its FM translator K221FJ.

specified minimum radiation efficiency antenna rule, to get his STA and a more reasonable chance of finding an appropriate permanent antenna location.

Currently, Dalke is also looking to

obtain an FM translator to pair up with KARR, which will open up even more revitalization opportunities. He is also considering a number of format options including unique local news, weath-

er and traffic reports and community events coverage that other local media do not provide.

Dalke described the project in a presentation at the spring NAB Show.

Another similar example of a real-life AM station survival story that Dalke cited is KNTB(AM), 1480 kHz in nearby Lakewood, Wash.

KNTB was a 1 kW two-tower DA-2 facility that lost its leased tower site. The nearby residential neighborhood grew and expanded around the site. Again, new houses became more valuable than the tower lease. The owners of KNTB were able to obtain a downtown rooftop location and an STA for 250 watts into a temporary long-wire antenna. They were also fortunate to have been able to obtain an FM translator license — K221FJ on 92.1 MHz with 150 watts — that serves their city of license quite well.

Tom McGinley is Radio World technical advisor.

Got a revitalization story to share? Email radioworld@nbmedia.com.

KIRO

and Records Administration regional warehouse a few miles from campus, and ultimately moved to NARA's archival facility in College Park, Md., in 2002 or 2003. The tapes that Ryan made originally remain at the University of Washington Library, where they're still accessible to researchers in-person and where they are gradually being made available online (listen to SoundCloud files at *http://tinyurl.com/phonoarchive*).

At the National Archives (*www.archives.gov/research/guides/catalog-film-sound-video.html*) location in Maryland, Dan Rooney is the NARA employee who oversees what's known as the "Milo Ryan Phonoarchive." On a morning in late February, he donned a white glove, and displayed a box full of original 16-inch KIRO discs.

The second disc Rooney carefully removed from the acid-free archival box was labeled, in pencil, "Richland B'cast, Atomic Bomb, 8/6/45." This would've been just hours after the world learned of the existence of America's atomic bomb. It is also when Seattle residents learned, perhaps by listening to KIRO, about the massive secret federal project at what was called the Hanford Engineering Works in eastern Washington.

In terms of the historical significance, Rooney said, one of the most significant things about the Milo Ryan Phonoarchive is that it is a kind of ay-by-day accounting during the World War II period. "Bombings in London, on the ground reporting going on, there's [Edward R.] Murrow broadcasts in there, prominent journalists."

Brylawski minces no words in his assessment of the value of the Milo Ryan Phonoarchive. "It's an extraordinarily important document for American radio

history," Brylawski said, "or, I should say, journalism history and American history."

While reluctant to speak ill of visual artifacts, Brylawski believes archival audio such as the KIRO recordings can be powerful tools for understanding the past.

"At this conference, a lot of people have spoken of the importance of actually hearing a voice from the past," Brylawski said in February, "and how much more effective [sound] is, in terms of understanding the person and the times, than a photograph."

He said KIRO deserves recognition for what the station did during World War II, even it was unintentional. "KIRO should get a gold star for 'inadvertent archiving,'" Brylawsi said. "That wasn't their intention, but thank God they did it."

A version of this story first appeared on MyNorthwest.com. *The author can be reached at* fbanel@kiroradio.com. *Comment to* radioworld@nbmedia.com.

The recordings were catalogued for a book published by the University of Washington Press in the early 1960s.

World Radio History

▶ NEWSROUNDUP

A roundup of headlines from Radio World's News-Bytes. Sign up for the daily email at radioworld.com under "Subscribe to email newsletters."

NAB: The National Association of Broadcasters planned to break ground on its new Washington headquarters in late June. NAB is now at 1771 N Street N.W. at DuPont Circle but wants to be closer to Capitol

Hill; the new headquarters is a mile from the Capitol and two blocks from the Washington Nationals' baseball stadium in an area of resurgent business activity. The headquarters will house about 150 employees at 1 M Street S.E. Plans are to move in by fall 2018.

EAS: New event codes may soon be added to the Emergency Alert System for extreme wind and storm surge situations in the United States, particularly those caused by Category 3 and higher hurricanes. If a pending Federal Communications Commission rule change passes, which seems likely, manufacturers will have to add three codes into new equipment and stations would have to update their existing gear ahead of next year's Atlantic hurricane season. The commission was expected to vote on the change in late June. Codes would be for "Extreme Wind Warning," "Storm Surge Watch" and "Storm Surge Warning."

ECFS: The FCC has been testing an updated Electronic Comment Filing System. The ECFS is used by law firms, industry and public interest groups, media and citizens to weigh in on commission activities. In a blog post, Alison Kutler, chief of the FCC's consumer

and governmental affairs bureau, and Dr. David A. Bray, its chief information officer, said the update should provide greater reliability and improved usability. A public API will allow outside groups to submit and pull comments in bulk. The comment system was beset by significant delays in April and May, causing some filers including Protect Internet Freedom, the Taxpayers Protection Alliance and the Tea Party Nation to ask for extensions of comment deadlines; but the commission declined to take that step broadly.

RADIO LIBERTY: The Russian Service of RFE/RL has published an online searchable database of its programs from 1953 to 1995. Radio Svoboda worked on the project with the Vera and Donald Blinken Open Society Archives at Central European University and the Hoover Institution Library & Archives at Stanford. Radio Liberty launched in Munich in 1953 and moved to Prague in 1995. According to the OSA website, the original open-reel tapes containing live broadcasts from the "Munich period" were preserved, archived and digitized by the Russian Service staff in Prague in the late 1990s. RFE/RL donated the tapes and digitized copies to Hoover Institution Archives, which last year authorized OSA to create metadata for the digitized audio, process the collection and prepare it for publication online. RFE/RL said the archive consists of some 26,000 audio clips aimed at the Soviet Union and Russian Federation including news and political programs about the U.S.S.R. and a collection of clandestinely published materials.

SHARE OF EAR: Data from Edison Research's Q1 2016 "Share of Ear" study shows AM/FM still dominates the American listening landscape. The Westwood One Insights department highlighted some of the Edison findings about how U.S. consumers listen to audio; it noted that while advertisers believe there is a fairly close split in terms of consumers time spent with AM/FM versus streaming, the research does not bear this out. On the contrary, 52 percent of time listening is

Reality: AM/FM radio is the centerpiece of audio

spent with AM/FM radio, while Spotify and Pandora combined reach 9 percent of time spent listening — and owned music is still going fairly strong with 14 percent. Radio still reaches three-quarters of Americans on a daily basis. Streaming may be increasingly popular, particularly among millennials; however many of those listeners will also turn on the radio. Streaming is more likely to cut into time spent with owned music, not OTA radio. For those who favor streaming, Spotify and its on-demand offerings are increasingly en vogue while Pandora is decreasing in popularity.

SANDY ACT: The introduction of the Securing Access to Networks in Disasters Act of 2016 in the Senate drew praise from various quarters, following its passage in the House. The bill is meant to address communications failures following Superstorm Sandy. Among other things it seeks to ensure that during an emergency, "consumer cellphones work on other carriers' networks if their own network goes down, giving priority to calls to 911 services and emergency alerts" and also "makes sure all communication providers — radio, TV and phone — can fix outages faster, even across state lines." The bill directs the FCC to conduct a study on network resiliency during times of emergency. It also explicitly makes radio and TV broadcasting eligible for the benefits of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.

PIRATES: The FCC issued penalties to three alleged radio pirates in northern New Jersey. The populous area is attractive for illegal operators. Broadcasters and lawmakers around greater New York City have been among those actively pressing the commission for more enforcement activity.

Keep an Eye on Power With These Meters

An affordable metering solution; also, that's one heck of a Ditty Desk!

WORKBENCH

by John Bisset

San Diego-based Marc Mann keeps with the engineering mantra of "doing more with less" in describing several digital panel power meters he has found useful. Thanks to their low cost, you can install these wherever you need to know power status at a glance.

The 100A 80–260 VAC power meter modules are available in several versions and come with a 1-inch-diameter current transformer. The meter display is pictured in Fig. 1. Marc mounted the meter module in a plastic case, making the instrument portable.

The meters are unique in many ways but their ability to display four states simultaneously is what caught Marc's eye. How about a simultaneous display of voltage, current, power and energy? Values are displayed on a bright blue LED edge-lit LCD display. Their small rectangular footprint allows for mounting to many plant and transmitter site devices. Install enough of these around a station, and anyone can tell at a glance whether all is well, power-wise.

You can find these meter modules on eBay and from Amazon and other retailers (source info in a moment). The lowest price Marc has found so far is $10.48 with delivery. For a few dollars more, the meter can be obtained with a split-core current transformer for applications where you don't wish to power down a leg or pull cable out to slip the current transformer over the cable end.

Fig. 1 (above): The meter measures voltage and current as well as power and energy.
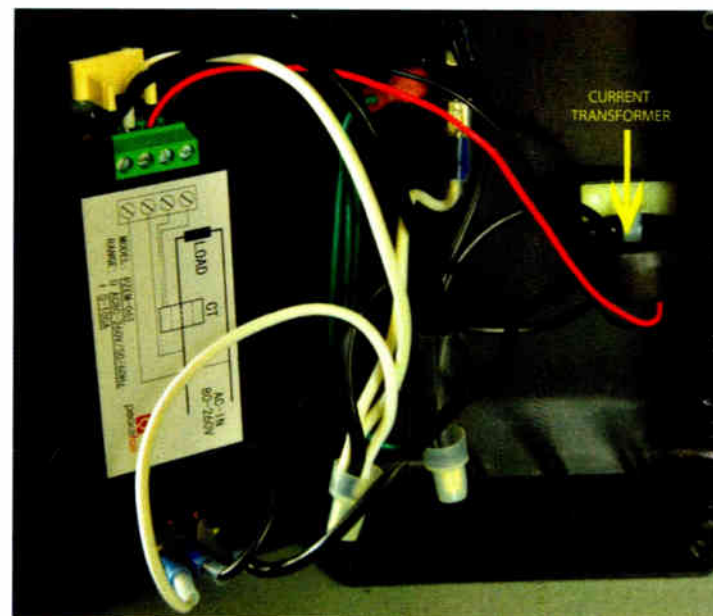
Fig. 2 (right): Interior view. Mount the meter in a portable enclosure.

Claimed accuracy is 1.0, but Marc's guess is that your mileage may vary! They have an optional alarm threshold feature that will blink the backlight display when over power is reached. They are cheap enough that should you need

three-phase monitored, just mount three modules together — one for each leg.

An application example: How about constructing a portable power meter, shown in Figs. 2 and 3. With nothing more than a 2x4-inch junction box, a

Fig. 3: This is a rear view of the power meter enclosure.

blank cover for it and a short extension cord, you need only mount the meter to the junction box cover, run the cord through the box and split one leg for the current transformer to run through. Then run both legs of the power to the meter itself, and you have a capable display to readily monitor most any 120 V device. Keep it in your vehicle for your next field assignment.

Marc issues a cautionary note. The meter is not rated for permanent outdoor use and comes with a further dis-

claimer of its measurement capability: The meter can only measure the active power (real power). It doesn't show apparent power, which includes reactive power and active power.

But even with those caveats, Marc has been amazed that the cost of meters such as these has fallen to such a degree, and how useful the meter has been for him.

Marc includes a couple of hints to help you find your own. One site is *bonanza.com*. Search for "100A Power Monitor Module AC Meter Panel." Or on Amazon, search for "DROK Digital Multimeter AC 80-260V 20A Voltage Amperage Power Energy Meter." And on eBay, search for "100A AC 260V Digital Watt Power Energy Current Amp Meter Voltmeter Open-close CT." This listing includes the split current transformer, which slips over the conductor to be measured.

FEATURES

Next-Gen Engineers: Amanda Hopp

Name: Amanda Hopp, 30
Company/title: Crawford Broadcasting Denver, Chief Engineer
City: Denver
Certifications/memberships: Society of Broadcast Engineers, Certified Broadcast Radio Engineer

"Education is never over. Find groups such as the Society of Broadcast Engineers to join and participate in the courses they offer. Also, have fun! This is a fun job!"

tant industry trend affecting broadcast engineering today? How might it affect the profession?

Hopp: I think the biggest issue is the fact that most engineers are older. My dad is 55, many of our engineer friends are in their 50s or 60s. You see very little when it comes to young engineers. At some point, these guys are going to have to retire and when they do, who will take over? If we don't find a way of attracting younger people to the broadcast engineering field, then radio will be crippled in the next 15–20 years.

RW: What advice would you give to other young or aspiring engineers?
Hopp: Keep at it. Education is never over. Find groups such as the Society of Broadcast Engineers to join and participate in the courses they offer. Also, have fun! This is a fun job! Don't let the people you work with get you down.

RW: What's an important thing that you've learned from an industry mentor?
Hopp: Everything! Haha. Seriously. My dad has taught me so much over the years. He is always someone I can go to for advice and to learn new things.

▶ ENGINEER PROFILE

This is one in an occasional series highlighting engineers in their 20s and 30s, men and women who are building the "next generation" of technology leaders.

Radio World: *How did you get into the field?*
Amanda Hopp: I actually grew up around it. My dad [W.C. Alexander] has been with Crawford Broadcasting for 32 years. I would go with him to work sometimes, even went on a trip to St Louis and as a young kid helped punch the wires down to the blocks during a studio buildout. When I turned 16, I needed a job and was hired on part-time working for one of the stations. I did a lot of production, ran live shows, and once high school was out of the picture, I got more hours. Finally, when I finished school at Cleveland Institute of Electronics, I was promoted to the engineering department. I've worked my way up to being chief engineer. It's been a fun ride.

RW: How do you think your age affects your approach to your job? Or do you

think it doesn't have an impact on how you work?
Hopp: I really don't know. A lot of kids my age have a "who cares?" attitude. Think about it — how many 30-year-

olds have had one job their whole life? The only other person I know of is my husband, actually. ... I learned from the mistakes of others, so I don't make them myself. I work hard to learn the things I need for my job, I try to treat others with respect and approach my job with a sense of gratitude. Mr. [Donald] Crawford took a chance on me years ago, and I want to show him, through how I work, my gratitude.

RW: What do you see as the most impor-

WORKBENCH

I'm sure you will come up with some great uses for these meters. If you do, snap a high-resolution picture and send it to me for inclusion in a future column. The email address for all Workbench tips is *johnpbisset@gmail.com.*

Marc, thank you for discovering such a useful instrument at such an unbelievable price.

Santa Rosa contract engineer Randy Wells reminds me that we're in the middle of remote season and asked whether I remembered setting up a complete Sparta Ditty Desk, with two genuine idler-drive three-speed turntables, in beautiful burnt orange, a Sparta five-rotary-pot board, complete with a gooseneck-mounted mic and optional leg assembly.

Randy adds the Ditty Desk was perfect for remotes — and your first hernia! Any engineer with a bit of gray probably remembers the Ditty Desk, but I want you to see how far we've come.

While at the Telos Alliance factory in Cleveland, recently, I was chatting with colleague Kristen Bowman. Hanging on the wall by her desk was a picture, shown in Fig. 4, of her grandfather Burt Bowman, who will be 90 this year. The photo was taken in 1951, at the Wayne County Fair in Wooster Ohio. Burt was broadcasting live from the WWST remote booth under the grandstand. Now that's one

heck of a Ditty Desk! How many of the product models visible in the photo can you name?

Contribute to Workbench. You'll help your fellow engineers and qualify for SBE recertification credit. Send Workbench tips to johnpbisset@gmail.com. Fax to (603) 472-4944.

Author John Bisset has spent 46 years in the broadcasting industry and is still learning. He handles West Coast sales for the Telos Alliance. He is SBE certified and is a past recipient of the SBE's Educator of the Year Award.
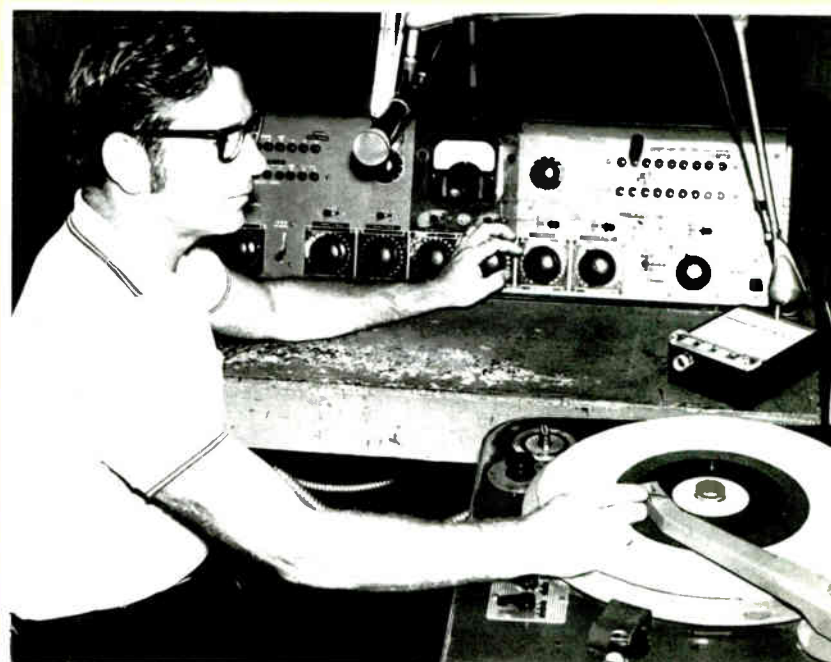
Fig. 4: This is how remotes were done in 1951! Burt Bowman broadcasts on WWST at the Wayne County Fair in Wooster, Ohio.

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Super-sharp OLED channel displays. Machined metal work surfaces with rub-proof markings. Optical encoders. Aerospace-grade switches. Premium faders rated for millions of flawless operations. Fusion's elegant design sets off any studio.

And Axia backs you with the industry's only 5-year warranty, 24/7 Support, and the experience gained from having more than 7,000 AoIP consoles on the air.

Brains, beauty, or backup? Choose all three.

Broadcasters General Store | **AXIA** THE TELOS ALLIANCE

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Stay Cool With Hot New Gear

It's new equipment season again! Radio World's "Summer of Products" feature is all about new gear that has come onto the market in recent months, especially during spring convention season. Here and in the next several issues we feature equipment that caught our eye. Send ideas to radioworld@nbmedia.com with "Summer of Products" in the subject line.

NAUTEL ADDS TO NX AM TX LINE

Transmitter manufacturer Nautel is adding two new models to its NX AM transmitter line.

The NX3 and NX15 (shown) are 3 kW and 15 kW units, respectively. Nautel says they are highly efficient in AC to RF factor, the NX3 rated at 82 percent and the NX15 at 84 percent.

The NX3 and NX15 are capable of providing RF spectrum analyzer and Smith Charts of the transmitter's performance. MDCL is included for up to 30 percent additional power savings. And the transmitters can handle AM analog, HD Radio and DRM.

Both models are compatible with Nautel's Advanced User Interface and its Nautel Phone Home service support system.

Info: www.nautel.com

NEW ANTENNAS RAISED BY DIELECTRIC

Dielectric has new products to please both low- and high-power broadcasters.

The DCR-U (shown) is aimed at the higher-power broadcasters while the DCP-K is for the lower range.

The company says, "The DCR-U is a broadband, circularly polarized ring antenna that minimizes tower footprint while doubling capacity. Its full bandwidth and high-power design characteristics — notably a pressurized tap point and 4-inch balun — support capacity and high-voltage requirements for multi-station operations." It says the high-voltage protections are especially important for handling the voltage peaks that come with passing multiple analog FM and/or HD Radio stations through the same antenna.

The DCP-K is a broadband, circularly polarized panel antenna. It "reduces the number of cables required in the feed system by half. Instead of using the traditional hybrid feed system and dual-input panels, the DCP-K design incorporates a single input directly into the balun — thus reducing feed line count and connections, which equates to increased reliability."

In addition, Dielectric says it will introduce an "innovative field-tunable, FM two-channel combiner that eliminates various traditional components from the design. This includes the absence of coaxial Tee junctions, as well as the associated coaxial line and elbows."

Dielectric Senior Engineer Derek Small said, "Traditionally, a Tee junction, a pair of delay lines and filters are used to multiplex two channels. By removing the Tee and delay lines, we've reduced the combiner footprint for space-limited sites and improved efficiency." He said the tunable common case design also protects a broadcaster's investment in the event of a frequency change, allowing the station to use the same infrastructure instead of replacing filters and line.

Info: www.dielectric.com

HENRY OFFERS MORE WIDGETS

California-based Henry Engineering is doing what it does best: making nifty utility tools for broadcasters.

The latest are the AES DigiSwitch 3X1 switcher and Superelay II.

The AES DigiSwitch 3X1 is a switcher for AES digital audio signals. It can select up to three AES sources, one of which is selected to be sent to the output. Users can control the switcher via front-panel pushbuttons or remotely with any GPI contact closure. It uses passive relay switching to keep the AES stream bit-accurate with no added delay or latency.

An updated version of Henry's Superelay, Superelay II is now compatible with LED "on the air" warning lights. It features a DC tally light output that provides up to 300 mA of current. The tally light can "sink" up to 1 amp of current for use with LED lights that require more than 300 mA. Both the AC and DC tally outputs can be used simultaneously. The Superelay II features a built-in flasher.

Info: www.henryeng.com

WHIRLWIND ANNOUNCES THS ANNOUNCER BOXES

The Whirlwind THS series of sports announcer boxes combine headphone amplification with various microphone control options in a metal desktop chassis. THS boxes are ergonomically designed to put control buttons within easy reach of an announcer even if the person is shuffling through stat sheets.

The THS 1 models of sports announcer boxes have single-button mic controls. The THS 1T is push-to-talk and the THS 1M is push-to-mute. The Whirlwind THS 2 has two mic control buttons, a latching mic on/off switch and a momentary cough switch.

The THS 3 and THS 4 are described as all-purpose, feature-filled sports announcer consoles. Both main and talkback microphone outputs are provided, with mic on/off, cough and talkback switches for control.

Info: www.whirlwindusa.com

NEW BROADCAST MIC FROM MICROTECH GEFELL

Germany's Microtech Gefell has released one of those rare gems, a new broadcast microphone.

The MD 300 is a top-address dynamic with a cardioid pattern. Its frequency response has been "optimized for intelligibility" with a 2 dB bump at 2 kHz–8 kHz.

Internally it has an elastic capsule suspension to handle noise. Price: $650.
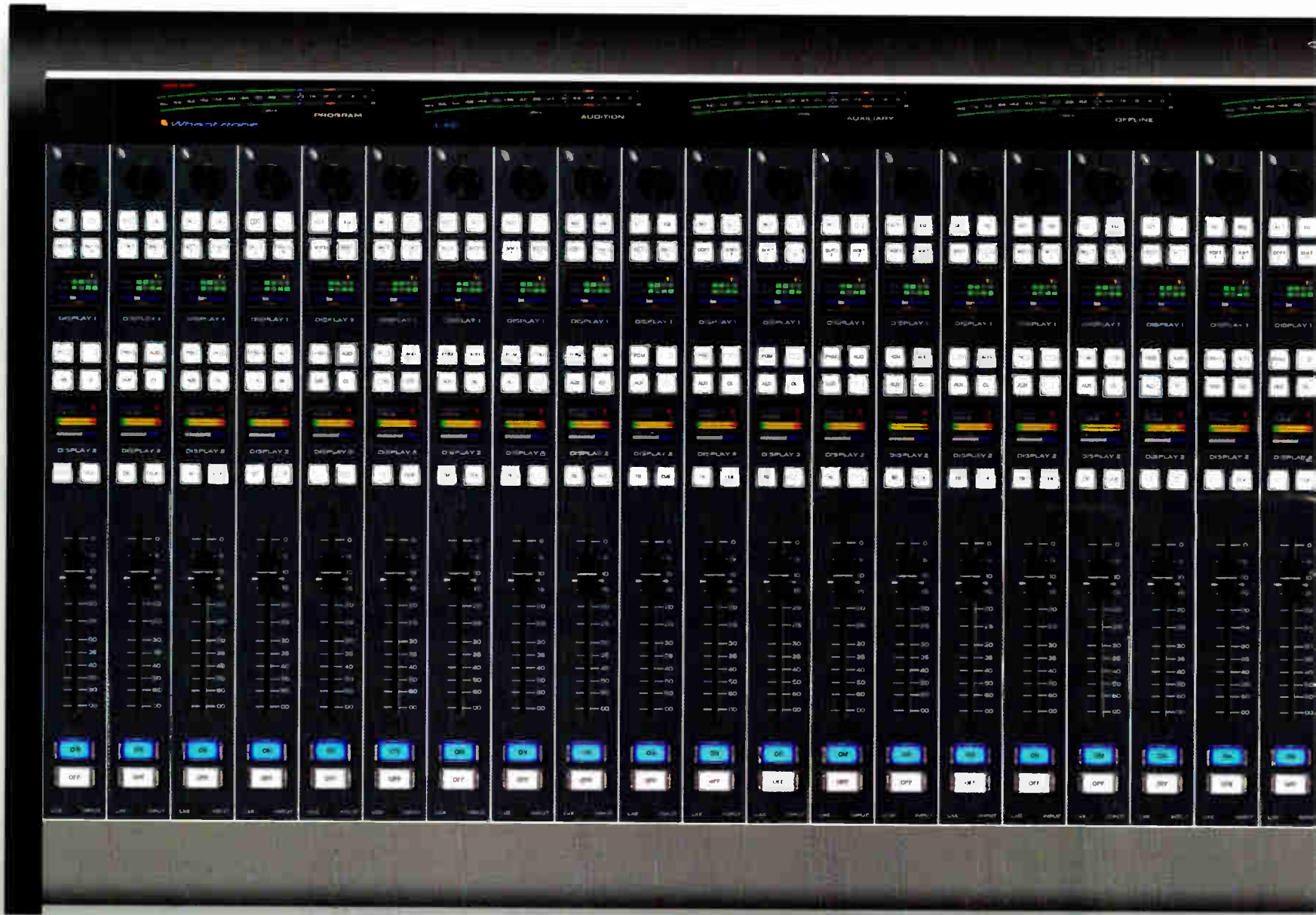
Info: www.microtechgefell.de

TOTAL DOMINATION

More #1 stations use Omnia than any other processor.
Rise above the noise with a signature sound that jumps off the dial.
Greatness awaits.

OMNIAAUDIO.COM/11

Omnia
THE TELOS ALLIANCE

LXEvolved

The Evolution of LX Radio Control Console

Wheatstone's new LXE console brings control surface configuration to a new level. Going far beyond the usual "any source to any fader" network concept, the LXE is a fully flexible control interface, where every switch and rotary control is programmable to perform any desired function. This means console architecture is completely customizable to client requirements, and limitations to functionality are no longer a factor. Physically compact, the LXE is available in several different form factors including countertop, countertop sunken, and split frames (split sections are not confined to one room, they can actually be in different studios).

Any Way You Want It

ConsoleBuilder software allows every switch on the surface to be programmed for function, mode, and even color (switches are RGB led illuminated). In fact, built-in software allows every button to be scriptable, letting you create powerful macros for as many controls as you want. Multiple full color OLED displays on each panel keep pace with ongoing operations, and event recall allows painless one touch console reconfiguration at the press of a button. With its inherent control flexibility and ability to access thousands of signals (sources and destinations are limited only by the size of the network) the LXE takes facility workflows and audio control to a new level.

The World At Your (Motorized) Fingertips

The LXE can have up to 32 physical motorized faders, with full DSP processing available on all 32 channels. Surface(s) interface seamlessly into the WheatNet-IP Intelligent Network, and utilize BLADE-3s for audio, control and associated logic data flowing on single CAT6 interconnecting cables. The system can ingest and convert virtually all audio formats: analog, microphone, AES/EBU, SPDIF, AoIP, MADI, SDI and even AES67. Loudness metering, phase control, and full EQ/Dynamics are included.

All New Graphical User Interface

LXE's new GUI is has pre-built screens for everything you normally use – metering, clocks, timers, dynamics, EQ, assigns, and more. All are touch-screen accessible with gestures you're used to using on your smart devices. And, the GUI is just as customizable as the LXE surface. Using our ScreenBuilder-LXE software, you simply drag and drop objects and define their functions via a simple wizard interface. You can store multiple custom screens, if you like, to go with your custom LXE setups.

THE ALL NEW LXE BROADCAST AUDIO CONSOLE

SUMMER OF PRODUCTS

WHEATSTONE DELIVERS VOXPRO 6

Wheatstone is releasing its first whole number version of the VoxPro digital audio workstation since acquiring the company last year.

VoxPro 6 has new features focusing on editing including Gap-Buster for quickly eliminating long gaps in material such as interviews and phone calls. It can simultaneously record audio while editing or playing back audio.

It offers support for Hot Key and markers in multiple languages along with adding color-coding for the markers. The GUI also offers additional minimizing capabilities to "reduce on-screen clutter." Not surprisingly, integration with WheatNet is enhanced.

VoxPro Lead Engineer Rick Bidlack said, "We've combined all the intuitive capability that VoxPro is known for with several new features, then we Wheaty-ized it to turn it into an even more powerful tool in the broadcast studio."

Info: www.wheatstone.com

NEW COMBINERS FROM BEXT
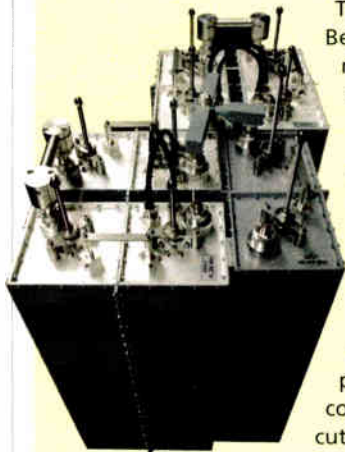
Transmitter and support equipment manufacturer Bext says that cross-coupling combiners are designed to maximize performance by allowing users to combine closely-spaced frequencies with excellent separation while minimizing insertion loss.

It says that in standard designed-combiners the traditional method used is to combine closely-spaced frequencies is by using a high number of RF filters, which has the undesired side effects of critical tuning, high insertion loss, bulky size and heavy weight due to the extensive number of RF filters necessary.

Bext says the cross-coupling combiner design in its new series of FM combiners accomplishes better performance by the use of an additional out-of-phase coupling which, when properly designed, creates a sharp cutoff without generating high insertion losses, or needing a more limited number of RF filters when compared to standard RF combiners. By using this design, Bext is able to offer combiners capable of putting two or more stations on the same antenna with good isolation among the transmitters, even when the RF spacing between them is as close as 400 kHz.

Info: www.bext.com

MUSICMASTER CS STREAMLINES WORKFLOW

Broadcast software developer MusicMaster introduced a scalable solution for medium and large radio groups with multiple stations and users.

The MusicMaster CS client server-based music scheduling system duplicates features found in the MusicMaster Pro edition, including optimum goal scheduling and the rule tree. MusicMaster explains that client-server architecture puts all business intelligence on a powerful central server for a faster and more streamlined workflow.

The user-defined, multiple station enterprise library keeps song metadata and station-level rules and clocks in a single central SQL database, providing comprehensive management oversight while eliminating redundant data storage at individual station locations.

Founder, President and CEO Joseph Knapp said, "Your music flow is just as important to your listeners as your work flow is to us."

Info: www.MusicMaster.com

ORBAN INTRODUCES PCIE CARD-BASED PROCESSOR

Orban's Optimod-PC 5501e is a PCIe card-based FM audio processor designed for work with Windows computers. The company says that it provides the functionality of its Optimod-FM 5500.

Features include two-band and five-band processing, a stereo encoder with Orban's Half-Cosine Interpolation composite limiter and a low-latency monitor output.

Dedicated on-chip DSP chips relieve the CPU of the heavy lifting.

Using an Orban OptiEXP PCIe expansion chassis, a single computer can shepherd as many as eight 5501e cards.

Both left and right analog and AES3 digital inputs and outputs are available. There two analog composite outputs and two analog SCA inputs plus two sync inputs: AES11 sync and word clock/10 MHz.

Orban says the card can also function as a standard Windows sound card, providing "a recording input and playback output, so it can accept a left/right audio input and emit a processed L/R output through the normal Windows Sound mechanism." For example, a 5501e can accept the output of playout software that runs on the same computer. "Moreover, integration with Windows Sound allows the 5501e to be interfaced to an audio over IP distribution system using an Ethernet port and audio-over-IP distribution driver on the host computer."

The 5501e can be controlled remotely and multiple cards can be monitored across a network.

Info: www.orban.com

INOVONICS UPDATES 525 MOD MONITOR

The Inovonics 525 AM modulation monitor/receiver is a well-known member of many radio station equipment racks. Now the company is bringing the 525 into the digital network world by adding an IP network interface and creating a web application to take advantage of the new possibilities that IP networkability brings.

The 525N retains all of the 525's features but it can now be operated remotely via computer, tablet or smartphone. The web app also provides greater depth of information than the small two-line onboard LCD display.

Price: $2,750.

Info: www.inovonicsbroadcast.com

BW BROADCAST ADDS TO V2 TRANSMITTER LINE
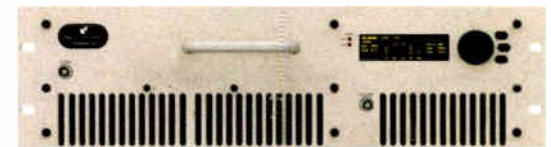
BW Broadcast is now offering a 2,500 W member of its TX V2 FM transmitter line.

The TX2500 is available in 3RU with a slide-in power supply, BW Broadcast's Gold Clamp technology, and built-in multiband audio processing.

The transmitter features a front-panel navigation system and help menu. The unit can be controlled and monitored remotely, including through a smartphone. Additional features include email alerts; silence detection; advanced alarms; analog, digital and composite inputs; and FSK ID keyers as standard.

Info: www.bwbroadcast.com

HIGH CAPACITY
EVENT STUDIO TRANSMITTER LINKS

Moseley

outdoor unit

TAKE ADVANTAGE OF WIRELESS HIGH PAYLOAD STL/TSL CAPACITY

Moseley EVENT STL/TSL systems provide up to 155 Mpbs combined IP, T1/E1 payloads. Multi-station clusters can convey multiple linear uncompressed audio pairs for a truly cost-effective STL/TSL link. Connect your existing T1/IP audio hardware directly into the EVENT system, or use Moseley Rincon for your audio payloads. An optional DVB-ASI module is available for full duplex video.

EVENT systems are fully bi-directional including a Software Defined Indoor Unit (SDIDU) and Outdoor Unit (ODU), eliminating the need for costly waveguide hardware. The ODU is available in the license free 5.8 GHz band, or licensed 11, 18, or 23 GHz bands. Appropriate external antennas are selected based on path length.

indoor unit

INTELLIGENT SYSTEM DESIGN

Spectrum-scalable digital radios with user-selectable data rates enable broadcasters to have greater flexibility in STL planning and future growth. The integrated T1/E1 and Ethernet interfaces allow for a combination of T1/E1 and IP packet data.

IP APPLIANCES AND APPLICATIONS
Offer IP transmitter control, surveillance security, and site monitoring to reduce downtime, and protect valuable station assets while saving travel time to the site.

REMOTE MIRRORED SERVERS
From the transmitter site, offers backup of business records and programming content to get you back on the air quickly in the event of a studio outage.

EMAIL AND INTERNET ACCESS FROM THE TRANSMITTER SITE
Saves engineers time accessing manuals or technical support from manufacturers during maintenance sessions.

SIMPLE NETWORK MANAGEMENT PROTOCOL (SNMP)
Full SNMP package with GUI provides easy monitoring and configuration changes.

Contact The Moseley Sales Team to Custom Configure Your EVENT STL/TSL Today!

moseleysb.com

RADIO**WORLD**

AUDIO-TECHNICA

BP40 Large-Diaphragm Dynamic Broadcast Microphone

Patented Floating-Edge Construction and Optimized Capsule Placement Ensure Commanding Vocal Presence

The BP40 broadcast vocal microphone offers a rich, natural, condenser-like sound from a large-diaphragm dynamic design. The microphone, intended for use in radio, overdubs, post production, podcasting and other broadcast applications, features Audio-Technica's patented floating-edge construction. This new, innovative design eliminates the ridge from around the capsule, resulting in maximum diaphragm surface area and uniform diaphragm tension — a quality that can be lost as the glue dries on typical diaphragm-to-ridge adhesion schemes.

The optimized diaphragm performance is further aided by a humbucking voice coil that prevents the electromagnetic interference that is all too common in today's studios with their computer monitors and other electronics. Additionally, the BP40's capsule has been placed back a bit from the end of the housing, enabling the mic to maintain a commanding vocal presence, even when the speaker is not right up on the microphone. The housing incorporates a multistage windscreen to provide superior internal pop filtering.

Since it is intended primarily for close-up vocal work, the BP40 features a hypercardioid polar pattern to keep the sound focused on the intended sound source. The mic's excellent off-axis rejection helps generate clear, articulate vocal reproduction — reproduction that can be further tailored by employing the mic's switchable 100 Hz high-pass filter to combat excessive low-end response and provide additional pop protection.

With rugged, all-metal construction, the BP40 is built to deliver long-lasting, dependable performance in professional broadcast environments. Yet, with a body fashioned after the peaks and valleys of a waveform, the mic also doesn't skimp on style. The BP40 comes standard with the AT8483 adjustable swivel mounting clamp that fits 5/8-inch 17-threaded stands and also includes a 5/8-inch 27-threaded to 3/8-inch 16-threaded adapter. The AT8484 shock mount, designed especially for use with the BP40, is available separately to provide additional protection from noise, shock and vibration. The BP40 has a U.S. street price of $349, and the optional AT8484 shock mount has a U.S. street price of $99. ■

www.audio-technica.com/cms/wired_mics/d38854ca3f6290c0/index.html

RADIO**WORLD**

ES-410, GPS-Based Frequency Standard

Get Synched! Eight High-Stability 10 MHz Outputs

The ES-410 is a GPS (Global Positioning System) based frequency standard that generates a stable source of 10 MHz and 1 PPS using GPS satellites as a reference.

The unit provides 10 MHz in both Sine Wave and Square Wave (5 volt logic) form. Four Sine Wave and four Square Wave outputs are provided. The 1 PPS output is a 50 percent duty, 5-volt logic signal, positive-edge coinciding with the UTC seconds change. An ESE TC90™ Time Code output is also provided for driving remote time displays. Two front-panel LEDs indicate when the ES-410 is locked to GPS and when power is supplied to the unit. A USB interface allows configuration of the Time Zone and other parameters, and outputs the time. The unit is housed in a black anodized aluminum desktop enclosure. ■

www.ese-web.com/410.htm

RADIO**WORLD**

RCS

The Selector Cloud™

Software Giant Introduces New Way of Scheduling

RCS, the world's largest broadcast software company, has announced a move that will change the concept of music scheduling. The Selector Cloud™ is a new service that RCS will offer to radio stations and webcasters around the world.

The Selector Cloud provides constant and secure access from anywhere with a simple username and password, allowing the user to perform all music scheduling functions, such as library management, clock-building, policy setting, log editing, transfer to the automation system, analysis and much more. A single music library can be used across an unlimited number of stations and data is secured and constantly backed-up for ultimate safety.

Users can access their scheduler through the browser-based Selector2GO interface with no software installation required on local hardware, thereby minimizing the need for engineering involvement. Of course, the full-scale GSelector desktop client can also be used, to access all functions.

One of the major advantages of The Selector Cloud is that all users will constantly benefit from the latest and greatest version of the world's number one music scheduling system; there's no software to request, install, update or download. The Selector Cloud is browser- and device-agnostic; users can access the scheduler by Mac and PC desktop, or tablets and phones running Android or iOS.

With The Selector Cloud, there is no need to send backups around; data can be shared and accessed in real-time by colleagues and consultants. Existing station-based Zetta automation systems will still work in perfect synchronicity with Selector in the Cloud.

Philippe Generali, RCS President/CEO said: "Selector continues to be the #1 system to schedule music, links and every asset you need to make great radio on air and on the web. Being the first and only company in the world to offer professional music scheduling as a service, is a way for RCS to continue to innovate for our users' convenience. Moving to The Selector Cloud will provide additional flexibility for all customers — from the smallest webcaster, to the largest broadcasting corporation in any of the 110 countries where we currently operate. RCS will continue to lead the industry in offering our products as services in the cloud where it makes sense for the end user." ■

RCS President/CEO Philippe Generali with Radio World's Paul McLane.

www.rcsworks.com

TIELINE THE CODEC COMPANY

ViA Portable Remote Audio Codec

The Remote Revolution Is Here...

You imagine, we create … It's time to reimagine remotes with the definitive remote codec of our generation. Tieline's revolutionary new ViA portable codec sets a new standard in wireless remote broadcasting and will fundamentally change the way you perform live remotes.

Picture yourself or an announcer taking your codec to a remote site, powering it up and tapping a single button on a color touchscreen to get connected — just like making a phone call. Wouldn't it be great if remotes were that simple? Well now they are — with ViA.

Remotes without limits: Our mission is to empower you with the technology to go live where no broadcaster has been before, and make it simpler. To achieve this, ViA delivers more IP choices and backup options than ever before.

Connect using dual LAN Ethernet ports, or two USB modems, or use the on-board Wi-Fi module to connect over Wi-Fi. Insert an optional POTS or ISDN module and the codec is instantly transformed to connect over alternative network transports. This means you can configure primary and backup connections over different network transports as required, or use them as your IFB circuit.

Fuse-IP and SmartStream PLUS: Tieline's proprietary Fuse-IP data aggregation technology lets you bond any IP interfaces you choose, including:
- Two USB modems, or
- On-board Wi-Fi, or
- Dual Ethernet LAN ports.

Imagine the peace of mind knowing you can bond two USB modem data links from different telcos and let Tieline's Fuse-IP technology automatically manage the data capability of each link! Tieline understands flexibility is paramount for remotes, so you can even bond a USB modem with a Wi-Fi connection, or bond two Ethernet connections.

ViA also includes Tieline's Smart-Stream PLUS dual redundant streaming software, which sets the benchmark
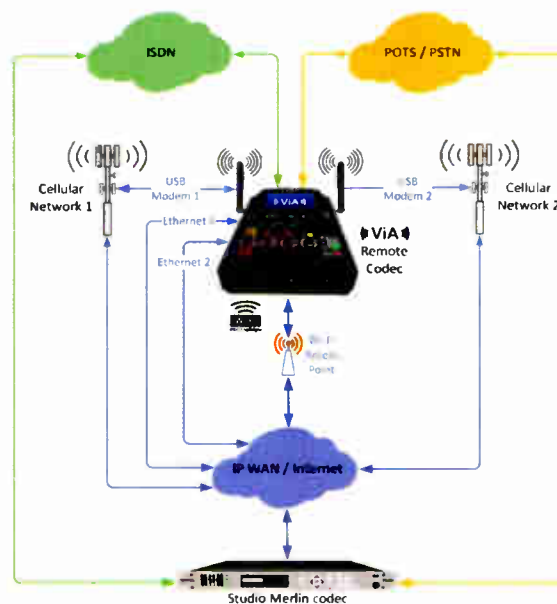
for redundant IP streaming over the public internet. Some manufacturers charge thousands of dollars for IP management software like SmartStream PLUS as an optional extra, however Tieline believes high performance and rock-solid reliability is an essential part of each and every broadcast, so you get it for FREE! Nobody likes a traffic jam, least of all broadcasters dealing with IP packet congestion! With Tieline's SmartStream PLUS and Fuse-IP technologies, as well as automated jitter buffer management and error correction strategies, you can be assured of trouble-free motoring on the information superhighway!

Program and Communications: ViA seamlessly integrates with Tieline's Merlin and Merlin PLUS audio codecs to transmit high fidelity, full duplex stereo program audio with a separate bidirectional IFB circuit. As an example, you could use a USB data modem to broadcast your main program feed and another USB modem or Wi-Fi to transmit your IFB circuit. Now that's flexible!

Key Features:
- Three balanced mic/line XLR inputs.
- Three headphone outputs.
- Support for digital AES3 in (stereo) and AES42 Mode 1 and Mode 2.
- Stereo auxiliary input (analog/digital).
- Dual Gigabit LAN ports.
- Dual USB ports.
- Module slot for optional POTS or ISDN module.
- Four relay inputs and four opto-isolated outputs.
- Stream high-fidelity audio using 24-bit, 48 kHz linear audio, Opus, Tieline Music or MusicPLUS, LC-AAC and HE-AAC v.1 and v.2, AAC-LD, AAC-ELD, aptX® Enhanced, MPEG Layer 2, G.711 and G.722.
- Remotely control and configure ViA from anywhere with an internet connection using the HTML5 or Java ToolBox web browser GUI.
- More features added free in progressive updates.

Join the #ViARevolution: For more information visit *www.tieline.com/via*, like our Facebook page, and follow the #ViaRevolution @Tieline on Twitter. ▪

www.tieline.com

SUMMER OF PRODUCTS

OMNIA GIVES AM THE .7 TREATMENT

Following in the footsteps of the Omnia Audio Omnia.7FM processor, the Telos Alliance has released an AM station version, the Omnia.7AM.

CEO and Omnia Audio founder Frank Foti explained, "The Omnia.7AM is a tool specifically designed for the AM spectrum's unique challenges that AM broadcasters can start using immediately to improve their sound."

A release said, "[T]he Omnia.7AM uses current, up-to-date technology to address the problems AM broadcasters face today. It employs some of the same features of the 7FM. All aspects of the processing infrastructure, bandwidth, and their output signals, however, have been specially engineered for maximum efficiency and performance within the AM spectrum."

The release offered specifics: Omnia's Psychoacoustic Controlled Distortion Masking Clipper analyzes and masks distortion perceptible to the human ear. [The]Dry Voice Detector applies processing for clearer voices on talk content, a big plus for AM talk radio.

Additional features include onboard real-time analyzers, oscilloscopes, FFTs, three-stage wideband AGC with adjustable sidechain equalization, program-dependent two-to-five multiband AGCs and limiters, dual independent power supplies, and relay bypass for a backup processor. The Omnia.7AM can also be remote-controlled via IP.

Info: www.telosalliance.com

AUDIOSCIENCE DEBUTS SOUND CARDS

Audio card specialist AudioScience has two new cards available, the ASI5810 and ASI5811.

Both are 192 kHz-capable half-height PCI Express cards.

The ASI5810 provides one stereo analog and digital input, one stereo analog and digital output, two record streams and four play streams. Audio formats include 8-, 16- and 32-bit PCM. The GPIO features consist of four opto-isolated inputs and two relay isolated outputs.

The ASI5811 adds a low-noise microphone preamp with a software adjustable gain.

Both analog and AES/EBU interfaces are standard on the ASI581x cards. AudioScience says that the analog interface is balanced and uses 24-bit oversampling converters to deliver more than 100 dB of dynamic range with THD+N better than 0.002 percent at sample rates from 32 kHz to 192 kHz. In addition, the AES/EBU input features a hardware-based sample rate converter with a range of 32 to 192 kHz.

The ASI5811's balanced microphone input is designed to work with professional studio microphones requiring 48 V phantom power. Gain is adjustable from 20 dB to 60 dB. Processing effects for the ASI5811's 32-bit floating point DSP include a compressor/limiter/expander, and a three-band parametric equalizer.

Each has SoundGuard technology to prevent damage from lightning strikes and voltage surges.

The cards are Windows 7-, 10- and Server-compatible, along with Linux-compatible. Both are compatible with AudioScience's Multi-Rate Mixing technology for playback, recording and mixing. They will ship with XLR breakout cables.

The card is suitable for broadcast applications that do not require onboard audio compression, such as production. The microphone preamp allows you to create a low-cost recording studio for producing spots and promos.

Info: www.audioscience.com

DAS UPGRADES DASDEC SOFTWARE

Emergency alerting equipment specialist Digital Alert Systems has a new version of its main hardware platform for its DASDEC EAS/CAP emergency alert hardware boxes.

According to the company, version 3.0 "features dozens of new functional and operational improvements including the unique Alert Agent, a more enhanced and powerful way to selectively process EAS messages from a variety of sources, as well as to streamline menus and reduce compliance complexity."

In addition, the company says, it is compliant with 2016 FCC requirements.

Not done with the updates, DAS has announced that version 2.0 of its Audio Management System is available. The company said that many of its tweaks were customer-driven. DAS VP for Business Development Bill Robertson highlighted a new auto-recue feature.

Info: www.digitalalertsystems.com

STERLING POLISHES MONITOR SERIES

Sterling Audio debuted the MX series of powered two-way monitors: the MX8, MX5 and MX3.

The company says that the series uses its proprietary WaveGuidanceVH, "advanced, dual-axis WaveGuidanceVH technology [that] gives MX monitors a very wide 'sweet spot,' with extraordinarily wide and high dispersion." It says this provides a clear, articulate and centered sound, even when listening off-axis both horizontally and vertically.

The MX8 features an 8-inch multi-fiber woofer and 1-inch silk dome tweeter and is powered by a 125 W Class A/B amplifier. The MX5 has a 5-inch multi-fiber woofer and 1-inch tweeter. Power is courtesy of an 80 W Class A/B amp. The smallest of the lot, the MX3 has a 3-inch multi-fiber woofer and a 3/4-inch tweeter with a 20 W amplifier.

All members of the family have high- and low-pass filters. The MX8 and MX5 have XLR, 1/4-inch and RCA inputs. The MX3 has RCA inputs.

Prices: MX8 $249.99 singly; MX5 $149.99, singly; and MX3 $99.99 per pair

Info: sterlingaudio.net

DAYSEQUERRA DEBUTS NEW TIMELOCKS

Processor maker DaySequerra is upgrading its series of TimeLock HD Radio diversity delay processors.

A release explains: "The original DaySequerra TimeLock algorithm, used in the M4 and M4.2 products, measures the time alignment of the MPS and HD1 streams with accuracy to one audio sample. The company's new TimeLock algorithm maintains this precision with the added capability of working under the most adverse conditions, including situations where an FM station is operating in mono on the legacy analog side and in stereo on the HD Radio side."

Series 2 of the M4 TimeLock extends delay capability to almost double that of the first series, reaching ±7 seconds. It has also beefed up SNMP capabilities for improved monitoring. The M4 TimeLock Series 2 and M4 TimeLock DDC Series 2 are compatible with Omnia, Orban and Wheatstone processors and the GatesAir HDE200 exporter and Nautel Exporter Plus.

President David Day said, "Proper synchronization is critical to ensure the best HD listener experience. Shifts in synchronization can occur at any time."

Info: www.daysequerra.com

Radio Stations, "Licensed to Serve"

Doing good in your community ultimately can help your station's bottom line

PROMO POWER

Mark Lapidus

When is the last time you heard about audio giants Pandora, iTunes or Spotify — or any national audio streaming service — doing something to help your local community? I'll give you a second to think about it.

Hmm, you say. How about … never?

Yep, let's face it. That's not their mission, and it likely never will be on their roadmap to profitability.

My question to you: Is helping your local community part of your fiber, or are you content with being just a jukebox or news/talk machine?

VANGUARD OF SERVICE

For quite some time now I've been concerned that actually serving a local community has become an afterthought in today's auto-license renewal environment. I firmly believe that community service best shows how broadcast radio remains vital. A station's positive standing in the community can generate loyalty from listeners and, if done correctly, can even generate revenue.

Recently, when I received the National Association of Broadcasters' "Licensed to Serve" e-newsletter, I was thrilled to read of like-minded station operators that remain in the vanguard of service. Please permit me to recount a few of these stories about industry leaders, with hope that they will encourage many others to re-energize commitment to the local community.

Here are just a few highlights:

• After wildfires scorched 500 square miles of grazing area in two Kansas counties, WIBW in Topeka brought 1,100 pounds of milk to a relief center four hours away. Many cows had died in the fire, and their orphaned calves urgently needed milk.

• During its 11th annual radiothon, stations WPRO, WWKX and WWLI in Providence, R.I., raised $436,000 for Hasbro Children's Hospital. This event has brought in more than $7 million over the years.

• "Coins for Kids" at KONY, KPLD and KZHK in southern Utah raised more than $100,000 to help more than 800 families during the holiday season. This incredible effort has been going on for 17 years.

• "Kans 4 Kids" began with children raising money for their baby cousin who was facing cancer. KHOK in Great Bend, Kan., made it a station priority and

brought in $42,000 in its most recent collection efforts.

• KSNX in Heber, Ariz., and its five sister stations produced and aired anti-drug PSAs with high frequency over the cluster for half a year. They raised more than $16,000 for the Arizona Meth Coalition to fight the widespread use of the drug.

Courtesy iHeartMedia

Courtesy NAB Public Service

Above: Townsquare Media's WCYY(FM) in Portland, Maine, raised $50,000 during "The Markathon." Mark Curdo is shown at left.

Left: iHeartMedia Detroit station WNIC organized a bottled water drive to help hydrate its neighbors in Flint, Mich. Jay Tower, the drive's organizer, is shown here with some of donated water.

• WNIC Detroit morning host Jay Towers organized a water drive for Flint, Mich. Other radio and TV stations helped him collect 240 tons of water.

• KBBO, KDBZ, KFAT and KXLW in Anchorage, Alaska, joined forces to help out a master sergeant in the Air Force, who wondered if they had any extra CDs.

Their CD/DVD drive collected more than 1,500 for troops overseas.

• WTMJ afternoon host John Mercure in Milwaukee, Wis., led an effort that raised some $250,000 to fund flights for veterans to take them to memorials in Washington. "Operation Parallel" featured Mercure interviewing veterans

telling their stories and what a trip to their war memorial would mean to them.

• Mark Curdo of WCCY, Portland, Maine, stayed live on-air for 102 hours playing requests for people who donated to the Center for Grieving Children. This center helps 4,000 children each year who have lost a family member, who came to the state after experiencing war or witnessing genocide.

• In Hartford, Conn., "The Chaz & AJ Morning Show" on WDRC helped raise nearly $16,000 for a local veteran at risk of foreclosure. The money was raised during one special day that they and their listeners will never forget: Veterans Day.

Congratulations to these stations who are leading by doing. Perhaps their stories will inspire others to do more and provide initial ideas to generate some local brainstorming.

If you'd like to read more and see how you might also be able to partner with TV stations in these efforts, visit the NAB's specific public service website at *broadcastpublicservice.org*.

Mark Lapidus is president of Lapidus Media. Contact him at marklapidus@verizon.net.

GM JOURNAL

Broadcasters Advise Potential Up and Comers

Get an internship, take risks, network and be very, very persistent

▶ CONTINUING ED

BY DICK TAYLOR

I'm the director of the KBA WKU Radio Talent Institute at Western Kentucky University. Each year, I host a guest faculty of professional broadcasters — the best in their area of specialty — who teach at the institute. I also do a video interview with each of them, and I am always sure to ask what tips they have for aspiring radio broadcasters.

Today, I am going to share some of their career advancement advice.

Barbara Bridges, program director, WJXA(FM), Nashville, Tenn., emphasizes the importance of an internship.

"It's always great if you can intern somewhere. Then you can really get a taste and feel for the business, a chance to experience real-life applications. Make sure you're reaching out to people who are in the industry who can assist you. Let them know what your interests are. Get somebody to listen to an air check. Constantly network and get inside a radio station and experience it firsthand."

Barbara Bridges

Erica Farber, president/CEO, Radio Advertising Bureau, Los Angeles, Calif., says you have to have a passion — for radio.

"You have to show you are willing to work hard. But you also have to be specific, and what I mean by that is that we don't always know what we're going to do for the rest of our lives. One thing that experience shows us is how many of our own peers woke up one day and have been doing something for 30 years and aren't happy in their careers. So when you're first starting out, it's OK to move around and make changes. You may think you want to be on air and find that you like being in the sales area. You need to be very specific and very organized to go after that, and sometimes we are actually afraid to say that. You [need to show] that you'll work hard, you're willing to roll-up your sleeves and in the beginning you're willing to do just about anything and I think people respond to that."

Erica Farber

Kevin Robinson, program director and talent coach, St. Louis, Mo., recommends networking.

"Find a mentor or two that you respect and continue to be in contact with them. Don't be afraid to take out the trash at the radio station. Just get your foot in the door. You

Kevin Robinson

learn by osmosis, by being around and just seeing things, and how people operate, and how different radio stations go about business. Get inside a radio station and continue to network, because the radio people who really love it — like you and I do, and we have for several decades — we're not going anywhere, we're going to be here. Don't be afraid to move if you feel it's going to advance your career."

Don Anthony, founder and president, Talentmasters, Atlanta, says students in a job interview should focus on their desire and their confidence.

"Focus on who you are, be yourself, and what you're selling — your desire, your passion, for what you want to get in to. Put more emphasis on your want and need to get into the business and what you're going to do once you get into it. ... Be confident and build relationships."

Don Anthony

Chris Lynn, program director/air talent, WRRM, Cincinnati, Ohio, advises students to bug the heck of somebody and not go away.

"Find someone that will mentor them. Ask lots of questions. Find a radio station you want to get into. Find a specific employee that attracts

them and ask what can I do, who can I meet, what can I learn and learn everything immediately, and the sooner the better."

Chris Lynn

Derron Steenbergen, chief revenue officer, Commonwealth Broadcasting, Glasgow, Ky., says be a proactive individual who has a passion for the business, a passion for people, who has a work ethic, who wants to get into our business and to invest the time and energy to learn.

Derron Steenbergen

Be proactive, and don't think you can send one email and expect that to move the meter. Walk in the door and shake someone's hand. The first sale they have to make is selling us on they're someone we need to talk to. I had someone tell me one time 'I'm really too busy to let you in the first time. If you're not willing to make the effort to try a multiple of times, then you're probably not someone I want to meet with.' It's their responsibility to get to us; the opportunities are there."

Kelly Carls, regional programming manager, iHeartMedia says people must be willing to do anything, anytime, anywhere.

"If you're willing to work on weekends, on holidays, doing the jobs other people don't want to do, jump in and do them. That will do two things: give you a well-rounded background in the business

Kelly Carls

and it will also establish you as a person who's truly dedicated to the cause and people will notice that. They will notice the passion. Passion sells."

I think you can recognize a theme, from these professionals, no matter what aspect of the radio business you're interested in pursuing, and I hope you put this advice into practice.

Dick Taylor is a Certified Radio and Digital Marketing Consultant and assistant professor of broadcasting at Western Kentucky University in Bowling Green, Ky.

ACOUSTICS

ANTENNAS/TOWERS/CABLES

WANT TO SELL

TOWER SIGNS: Antenna ID Products. AM-FM custom&ASR. PDF product list. antennaid@ msn.com, 610-458-8418, www. antennaid.com.

CCA FM8000G 107.9, like new; 4-Bay Jampro antenna deicers, gd cond; 4-bay Shively circul polar FM antenna, manual. D Brockman, 606-965-3436.

SC48 Marti STL Antenna, $600.00, and an XLink STL Frequency Agile Receiver, $750.00, new, both in original boxes, left over from relocation project, buyer pays ship cost from Show Low, AZ. Bob Zellmer, 970-302-0161.

AUDIO PROCESSING (INCLUDES ON-AIR)

WANT TO BUY

Teletronix LA-2A's, UREI LA-3A's & LA-4's, Fairchild 660's & 670's, any Pultec EQ's & any other old tube compressor/limiters, call after 3PM CST - 214 738-7873 or sixtiesradio@ yahoo.com.

AUTOMATION EQUIPMENT

WANT TO SELL

DIY-DJ Version 2.0 is now available. Over 500 copies of DIY-DJ, a Linux based radio automation system, have been distributed and now version 2.0 is available. Voice tracking, join satellite feeds, do unattended sports and remote events, temperature announce, scheduler, automatic cut editing on import, and much more. It's FREE. If you are using version 1.0 or would like to try DIY-DJ, go to krwsfm. com, register and down load your free full version. The only thing we ask is that you let us know if and how you are using the software. Call (406) 679-0527 or email krws@digitaldevelopment.net for a copy today.

MICROPHONES/ HEADPHONES/ SPEAKERS/AMPS

WANT TO SELL

1934 RCA 77A double ribbon microphone, originally used by Arthur Godfrey at WFBR Baltimore. 100% perfect condition. Contact Bill Cook, 719-684-6010.

WANT TO BUY

RCA 77-DX's & 44-BX's, any other RCA ribbon mics, on-air lights, call after 3PM CST, 214 738-7873 or sixtiesradio@ yahoo.com.

CONSULTANTS

MISCELLANEOUS

WANT TO SELL

I'm selling between 150 and 200 cassette tapes that consist of old-time radio shows, sports shows, some local New York radio talk shows, etc... Must take entire collection and the price is negotiable. Please call me for details and, my phone number is 925-284-5428.

Radio broadcasts of Major League Baseball, NFL, and some college football games that are on cassette tapes, approx 100 to 125 games, time period of entire collection os from the 1950's – 1970's, BO. Must purchase entire collection. Contact Ron, 925-284-5428 or ronwtamm@yahoo.com

WYBG 1050, Messina, NY, now off the air is selling everything: 8-chnl consoles w/mics & access; transmitter reader meter; EBS receiver, 250' tower w/building on 4 acres, collection of very old 78's, 12' satellite dish on concreate base and (3) commercial production aid library music, sound effects and copy, complete radio advertising training course w/book, cassettes and CDs, all at great prices. 315-287-1753 or 315-528-6040.

WANT TO BUY

Collector wants to buy: old vintage pro gears, compressor/limiter, microphone, mixing consoles, amplifiers, mic preamps, speakers, turntables, EQ working or not, working transformers (UTC Western Electric), Fairchild, Western Electric, Langevin, RCA, Gates, Urei, Altec, Pultec, Collins. Cash - pick up 773-339-9035 or ilg821@aol.com.

2" plastic "spot" reels 6.5 or 8" diameter, as used for quad video. Wayne, Audio Village, 760-320-0728 or audiovlg@gte.net.

Equipment Wanted: obsolete, or out of service broadcast and recording gear, amplifiers, processing, radio or mixing consoles, microphones, etc. Large lots preferred. Pickup or shipping can be discussed. 443-854-0725 or ajkivi@gmail.com.

I'm looking for San Francisco radio recordings from the 1920's through the 1980's. For example newscast, talk shows, music shows, live band remotes, etc. Stations like KGO, KFRC, KSFO, KTAB, KDIA, KWBR, KSFX, KOBY, KCBS, KQW, KRE, KTIM, KYA, etc, I will pay for copies... Feel free to call me at 925-284-5428 or you can email me at ronwtamm@ yahoo.com.

Looking for a broadcast excerpt of a SanFrancisco Giant's taped off of KSFO radio from 1959, interviews with Willie Mays, Dusty Rhodes & some play by play excerpts, also features a homerun by Willie Mays and Felipe Alou stealing second base, running time is 18:02, also looking for SF Giants games and/or highlights from 1958-1978 also taped off KSFO Radio. Ron, 925-284-5428 or ronwtamm@yahoo.com.

Looking for KFRC signoff radio broadcast from 1930 Andy Potter, running time is 0:22 & also the KLX kitchen the program guest is Susanne Caygill, a discussion of women's affairs with a long promotion for Caygill's appearance at a local store. Anne Truax, Susanne Caygill, running time is 13:44. Ron, 925-284-5428 or email ronwtamm@yahoo.com.

Looking for KTIM FM radio shows from 1981-1984 if possible unscoped. R Tamm, 925-284-5428 or ronwtamm@ yahoo.com.

RECEIVERS/ TRANSCEIVERS

WANT TO SELL

Johnson Electronic SCA880 module, 67/92 Khz, 417-881-1846.

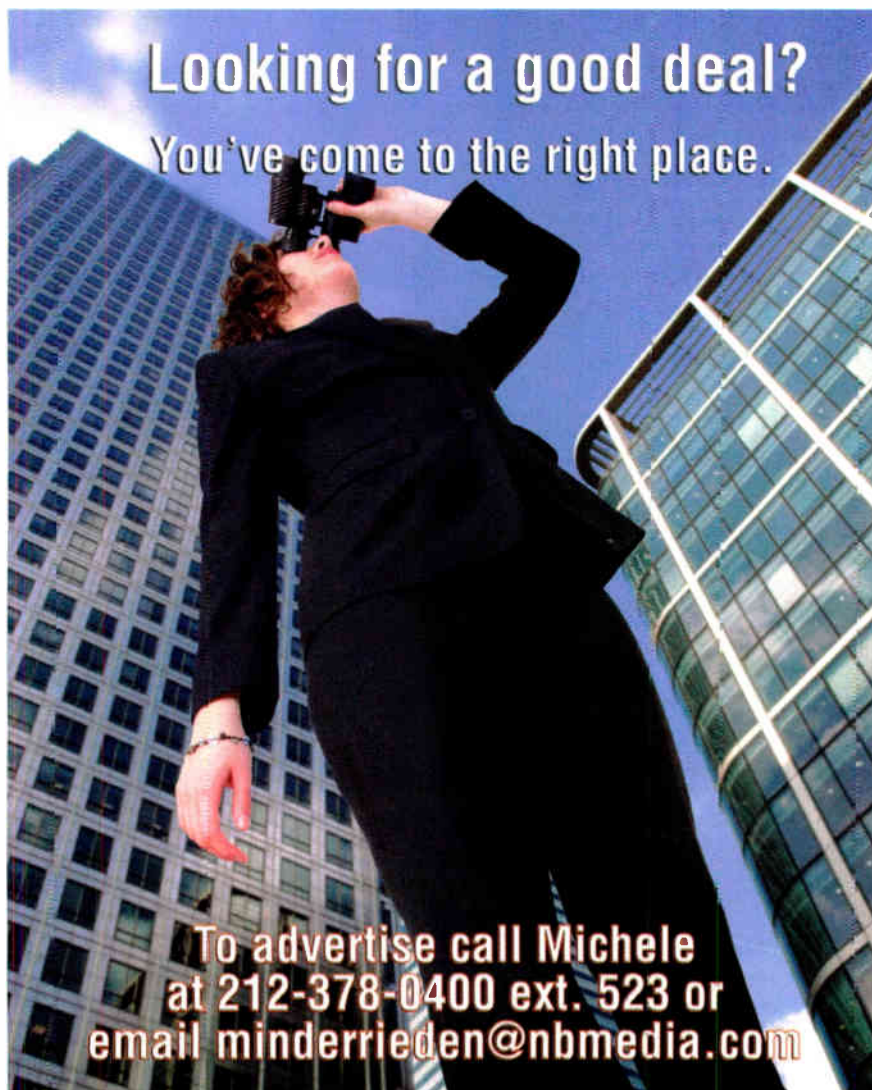## RECORDING & PLAYBACK HARDWARE

WANT TO BUY

Large or small collections of 16" transcriptions or 12" transcriptions, not commercial LPs. Bill Cook, 719-684-6010.

Schnader telescriptions 16 mm musical films produced in the early 50s. Bill Cook, 719-684-6010.

Standard Short-tune series. Bill Cook, 719-684-6010.

TAX DEDUCTIBLE EQUIPMENT

Donations Needed: All Volunteer, Non-profit Low Power community radios stations need Equipment. Will offer tax deduction letter, You determine donation value, We will pay shipping. Equipment shared between three Wisconsin stations. Looking for Mics, Mixers, field equipment, etc. You name it. Email: Dan@ WIECradio.org.

NextRadio Delivers Data Attribution

Brenner cites rich measurement of listening,
interaction and data attribution reporting

▶ NEWSMAKER

*Paul Brenner, president of NextRadio,
spoke at the spring NAB Show about
the app and how stations can explain
its appeal to advertisers. This text is
based on a transcription of his remarks
in the presentation "Radio Done
Differently: Delivering Data Attribution
to Advertisers."*

NextRadio is an app for a smartphone
with an FM tuner enabled. Earbuds work
as the antenna. It is not IP streaming, it
is local broadcast radio. The magic, our
secret sauce, is the imagery and visuals
that match with what the listener is hear-
ing. The picture on the screen shows the
song that aligns with the FM audio being
listened to on that station. Providing a
visual with the on-air spot allows adver-
tisers to now measure radio and track the
value of that broadcast message down to
data attribution levels.

Broadcasters can provide their adver-
tisers with a synchronous companion
ad. How it essentially works is every
time the commercial is played on a local
radio station, anyone that is using the
NextRadio App with their FM-enabled
smartphone sees the image and call to
action aligned with what they are hear-
ing. This display allows consumers to
visualize the on-air radio spot.

What does radio creative do typically
to get the listener to engage with their
advertisers? They verbally ask listeners
to visit a website, call a number, direct
response. The station gives information
about a sale. They tell the nearest loca-
tion to visit locally or for national brands.

So what NextRadio has done is essen-
tially create visual, click-through short-
cuts in the app that you, the broadcaster,
if you're part of the Tagstation platform,
can now offer to your advertisers. And
all of this can be tracked to share with
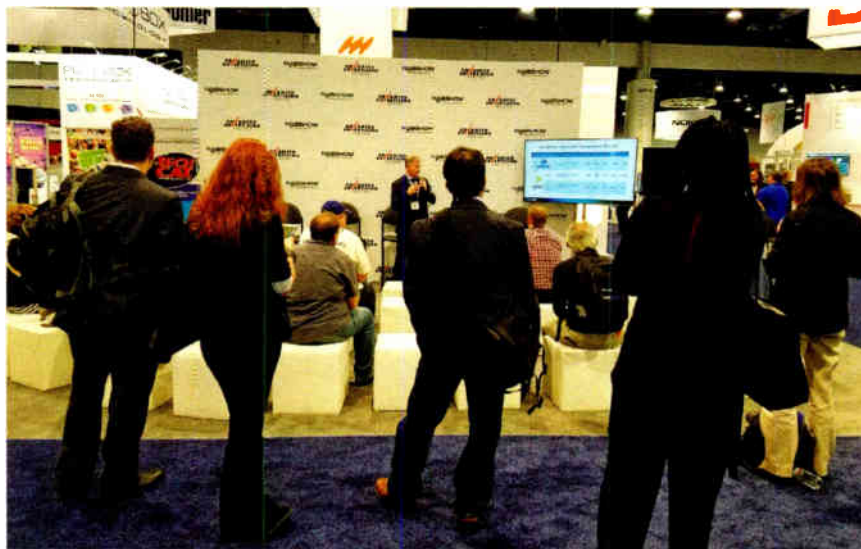the advertiser.

PROOF OF PERFORMANCE

So let's talk about radio measurement
for a little bit.

The radio industry can now measure
engagement with the listener. Reports
for advertisers can be used to show the
census-based demographic data about
listeners. This is not sample data, this is
census data from 7 million downloads
covering every market in the United
States and sharing what exactly your

**Paul Brenner speaks during the NAB Show about "Radio Done Differently:
Delivering Data Attribution to Advertisers."**

advertiser is getting, the benefit they are
getting from radio. Who can say "proof
of performance" better than that, right?

So we have listener engagement, we
have demographic data; and because it
is a smartphone we have the exact loca-
tion of a listener.

Why is that important? We traveled
around and talked to carriers, handset
makers, record labels, advertisers, agen-
cies and different people that have inter-
est in radio's future as an advertiser.
This is the story we tell and it resonates.

Everyone in radio understands the
reach of radio. So what we do is take that
audio you hear and we enhance it with
content, which grows the engagement
rate by four times. People listen four
times longer to local radio when you put
engaging enhanced content in front of
them and present them with an associ-
ated call to action. And for everything
they do in NextRadio, we measure it.

We create this near-real-time report-
ing aspect that if at the end of the day,
if you're standing there talking with
Home Depot, Burger King, Allstate or
Comcast or your local advertiser, you
will find out that this kind of informa-
tion is what they want. They want to
know that their radio commercial buy
ultimately ends up in a data-driven
decision.

That is what we often pitch and often
get the most positive response on —
how we convert the mass-market reach
of radio down to a functional report of
exactly how many people you reach that

made a difference.

I mentioned that we go around to the
record labels, advertiser and agencies
and we tell this story. And to be blunt,

some of the largest radio advertisers in
this country would tell you, if you sat
across the table with this topic in your
hand, they would tell you that this solves
the single largest problem facing radio
in the future.

Yes, we have created a platform that
brings portability, increases listening and
gives the listeners something new. But it
also gives the radio broadcaster some-
thing more powerful, a new tool that
empowers you to measure the listener
yourself. And it empowers you to engage
with them in a new way that ultimately
you can use for your own music pro-
gramming decisions, ad sales and pro-
motional tools. You can do all of those
things yourself.

That is what our platform is built
for, and why the NAB has sup-
ported NextRadio since inception.
As broadcasters ourselves, Emmis
Communications owns NextRadio, we
are doing this because we want our
radio industry to succeed. So this is
about the radio broadcasters.

A few things we are doing with the

measurement now are things like plays,
listens, views and interactions. But also
for a particular song are reports on the
listener genre, by call sign, which city
performed better, what daypart, what
hour, what part of the hour got the most
results when you're commercial played.
All of those are things we can deliver
to advertisers and that we have deliv-
ered. We then convert that information.
We match up a Google AdID and a
latitude and longitude; we trade data
with powerful companies like Experian,
NinthDecimal and others to turn this
into something that tells a better story.

FIRST-TO-MARKET OPPORTUNITY

What NextRadio does is it brings
portability back; it lets the consumer
take it with them, which is what we see
a lot of. They take FM radio with them
out of their car again. They save battery
life, they save data usage and they listen
to live radio more often.

Which means listening to local
live sports that may be blacked out on
streaming; which means news and talk
that's not buffered; which means live
radio is live again. What we are building
is a solution that the radio industry in its

> **Providing a visual** with the on-air spot allows
> advertisers to now measure radio and track the value of
> that broadcast message down to data attribution levels.

entirety can benefit from — rich mea-
surement of radio listening, interaction
and data attribution reporting.

This is a first-to-market opportunity.
When you go out in the marketplace
and you're talking to an advertiser or
an agency where people have money to
spend, you find they are always look-
ing for ways to invest in things that are
new and can provide data insights. We
are giving them something new to try.
Hopefully we convert them into always
thinking about radio data attribution
as a component of radio spot buying;
that would be ideal. But for now we
are coming in here as a first-to-market
opportunity to help the radio industry
grow and evolve.

OPINION

▶ READER'S FORUM

TEAMWORK

The prime lesson taught by the FCC's Operation Server Lift ("Bray Seeks Fresh IT Approach at FCC," March 30, issue) is the importance of teamwork.

While it is easy to be complacent and to complain about shortcomings, it is more productive to identify specific problems and formulate solutions. If this is done as a team, the collective experiences can result in an efficient, cost-effective plan, as was the case cited in the article. When an obstacle is encountered, pulling together to solve the problem usually results in a satisfactory solution.

Let's take the case of designing and constructing a new studio facility. I ask for input from everyone including the announcers, PDs and news personnel, as well as the office staff. One PD and morning host wanted a stand-up operation, while the staff preferred sit-down. A compromise of a raised console and bar stool type chairs satisfied everyone. The layout of the equipment was a collaborative decision. I try to please everyone, but that is not always possible.

Sometimes after the job is complete, some changes not originally foreseen need to be made. It was necessary to swap two news workstations because one faced the west window. The afternoon news anchor used this workstation. The issue? The setting sun was in her eyes during certain months.

Working together as a collective can be very productive from both morale and efficiency standpoints. This practice serves the Borg well, and there is no reason it cannot enhance any business.

Thomas G. Osenkowsky
Radio Engineering Consultant
Brookfield, Conn.

TRIPS DOWN MEMORY LANE

Kudos for "AFVN: The GI's Companion" story in the April 13 issue.

It brought back great and vivid memories of that time. I served as sergeant in charge of an avionics repair shop for the U.S. Army's OV-1 Mohawk surveillance aircraft 1968 to '69. The job was repairing electronic equipment to "keep 'em flying."

The Armed Forces Vietnam Network broadcast truly great music from the 1960s, minus war protest songs. There were no commercials, but reminders for soldiers to take anti-malaria pills and clean their weapons. It was complete with echoes behind DJ voices, a lot like 770 WABC in New York, which I heard while teaching electronics at Fort Monmouth, N.J. We don't hear that kind of programming nowadays. Thanks for the memory trip.

Mark Persons
M. W. Persons and Associates Inc.
Brainerd, Minn.

I read with interest (and not a little nostalgia) your article on the NAB Show history ("My Brief History of the NAB Show"), and it brought back memories of the first show I attended in 1983.

I was a contributing editor on the masthead of the (defunct) Broadcast Communications magazine

under Ron Merrell; only 27 years old, my full-time employment was as a studio and master control engineer for the ABC Radio Networks ... but was there with a list of radio equipment vendors in hand (still have the list somewhere) to visit and gather product info for the wrap-up issue the following month.

The early '80s was a time of folks trying to figure out what these new-fangled microprocessors were going to do in the equipment ... and some of the smaller vendors had some ground-breaking technologies on display. I remember the beginnings of the invasion of the newsroom computer systems that linked the news feeds to the writing tasks and early desktop traffic systems, the early automated transmitter control systems ... as well as the standard, at the time, remote control systems, cart machines (Audicord and ITC were a popular stop), Bob Orban's Optimod offerings and tape systems, as well as the requisite Amateur Radio reception (still active all these years later). I also remember being blown away both by Las Vegas... as well as how sore my feet were at the end of the day.

Great memories, 33 years later, of a great show. I went on to attend in '84, '85 and '86 as a member of the editorial staff for (also defunct) BM/E ... and though not actively involved in the business full-time (except as a part-time consultant on the side for some local stations), always something I looked forward (sore feet notwithstanding) to every spring.

Bryan D. Boyle
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