

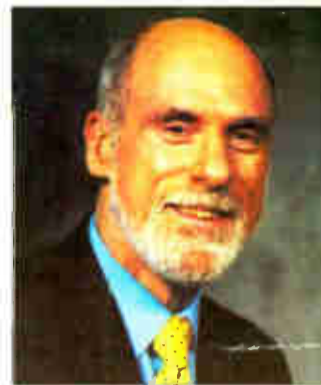
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Infinity Quits NAB
 CBS pulls membership in dispute
 over TV ownership caps.

Net Architect
 Vinton Cerf talks about the challenges
 faced by radio online.

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Radio World

The Newspaper for Radio Managers and Engineers

April 25, 2001

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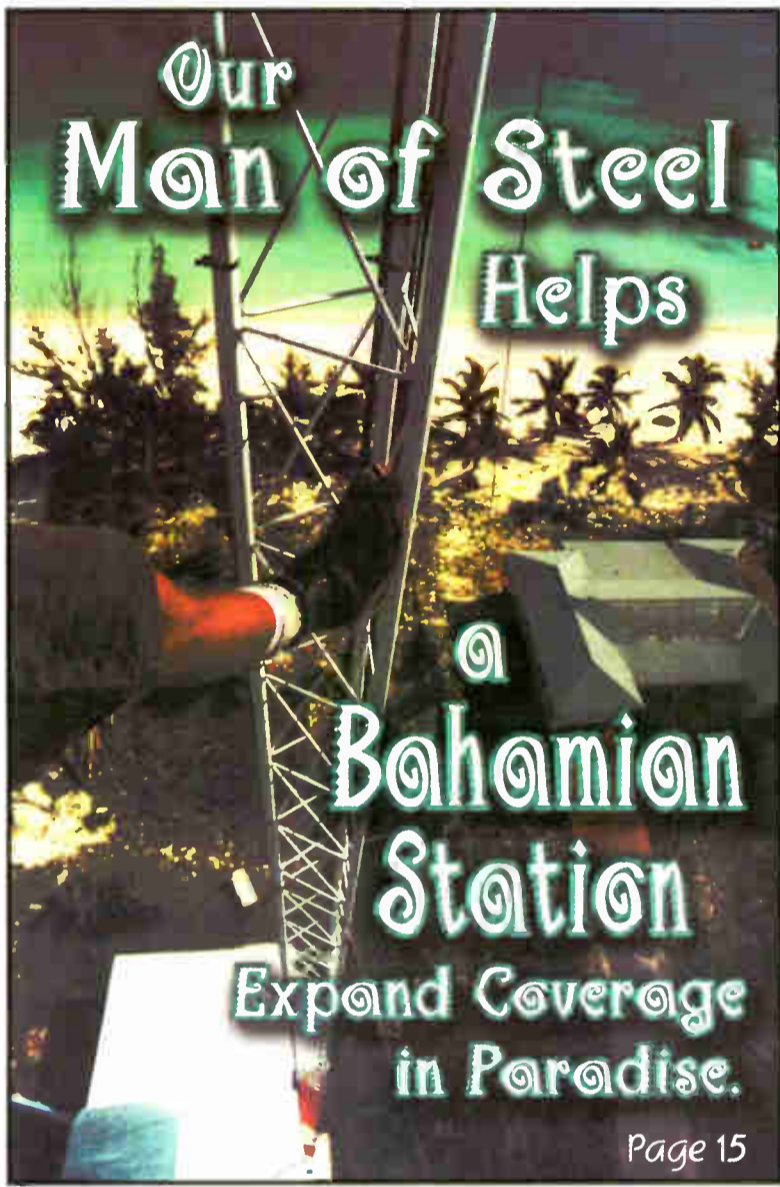


▼ We dole out an Audix CX-211 condenser mic. Sweet!

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a Bahamian Station Expand Coverage in Paradise.

Page 15

EAS Users Eye Patent Fight, DAB

NWS 'Perfect Paul' Voice May Sound Better By the End of the Year; EAS Leaders Remain Leery of Patent Dispute

by Randy J. Stine

WASHINGTON This may be the year Perfect Paul, the not-so-perfect computer-generated voice of the National Oceanic and Atmospheric Administration's Weather Radio, regains a human touch.

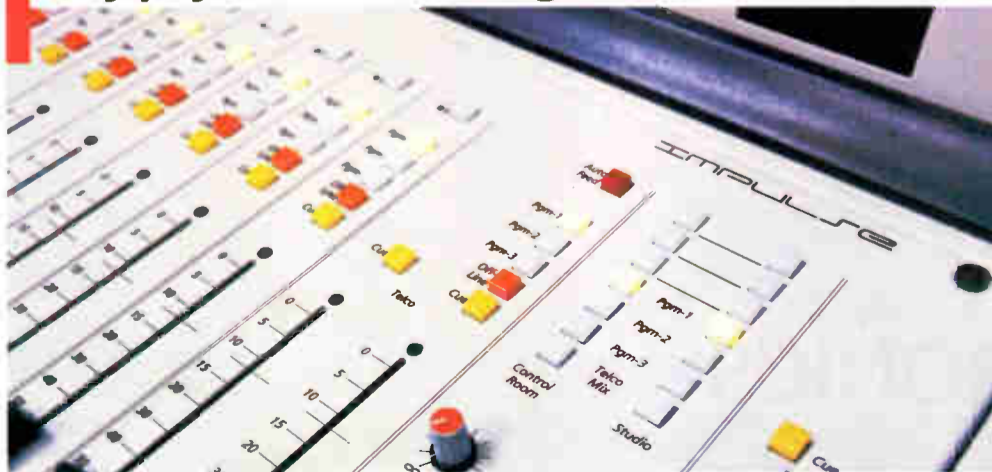
The National Weather Service hopes to begin converting weather offices to a concatenated system, one that uses a human speaking voice with words reassembled by computer, later this year. NWS officials said audio samples from vendors hoping to supply the new system should be available sometime this spring.

Emergency Alert System planners have worked with NOAA to seek improvements to Perfect Paul. They also will explore the wave of new wireless technology and how the result could be an alert system that can reach more people in less time.

Attendees of the EAS National Advisory

See EAS FUTURE, page 3 ▶

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◆ NEWSWATCH ◆

CBS/Infinity Quit NAB

by Leslie Stimson

WASHINGTON CBS Television and Infinity Broadcasting pulled more than 180 radio and 35 TV stations out of NAB membership this month in a dispute over broadcast ownership regulation. This leaves Disney/ABC as the last of the traditional broadcast networks that still belongs to NAB.

In a resignation letter sent by CBS executives to NAB President and Chief Executive Officer Eddie Fritts, CBS stat-

ed it is "convinced that the NAB no longer fully represents the best interests of free over-the-air television and radio."

The practical effect of the pullout at the station level was unclear at press time. CBS/Infinity spokesman Dana McClintock said it was too soon to spell out what the resignation means for employees at CBS and Infinity stations, i.e., whether NAB convention travel, speaking engagements and membership on technical standards committees would change.

Infinity was radio's top-earning group in 2000, with estimated gross revenues of \$1.9 billion, compared with \$1.39 billion for No. 2 Clear Channel, according to preliminary figures from BIA Research. Estimated rev-

enues for CBS TV were \$1.6 billion.

What sparked the sudden resignation is the same issue that drove the Fox and NBC networks out of NAB membership more than two years ago: NAB's commitment to the FCC's 35 percent national ownership cap for TV stations. The cap limits one group's coverage to 35 percent of the 100 million TV homes. Network affiliates want to keep the cap to limit the networks' market power. CBS wants that limit raised but the NAB TV board voted in early April voted to reaffirm the cap where it stands.

This "was the straw that broke the camel's back," for CBS, said spokesman Dana McClintock.

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"We want deregulation," said McClintock, "and they're not fighting for that anymore."

NAB spokesman Dennis Wharton said, "It is regrettable when any member leaves the association." Neither CBS nor NAB would divulge how much in membership dues NAB will lose due to the pullout.

In a statement released by CBS and Infinity after the resignation, the networks stated, "For some time we have called for the elimination of the national (TV) broadcast ownership cap as well as other outmoded regulatory constraints on broadcasters. We are optimistic that through either the courts or the FCC, that reasonable goal may soon be achieved. CBS and Infinity will continue to work with others in the industry to make sure free over-the-air television and radio stand on an even footing with their competitors for both the good of the business and for the public we serve. It has now become clear that we cannot remain with an organization that is actively working against those objectives."

CBS and Infinity pointed to their successful efforts to deregulate radio. But executives Leslie Moonves and Farid Suleman, president and chief executive officers of CBS Television and Infinity Broadcasting, respectively, wrote in their letter that broadcast ownership deregulation cannot be

See NEWSWATCH, page 3 ▶

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OPINION

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EAS Future

► Continued from page 1

Committee meeting in late February also discussed whether additional EAS event codes are needed for radio and TV stations going digital.

NOAA Weather Radio implemented Perfect Paul with the promise of relaying weather warnings almost instantaneously by an automated system. The system is part of the Console Replacement System the NWS undertook beginning in 1997. Some broadcasters find the NWS' synthesized voice used for weather alerts hard to understand.

'Im-perfect Paul'

Many weather offices have stopped using Perfect Paul for weather warnings and funding needed to replace the system has been unavailable until this year, NWS officials said.

Joanne Swanson, NWS meteorologist and voice-evaluation team leader, said the

process to determine the new system started in March of this year when the NWS issued a Request for Proposal soliciting bids from vendors to provide a concatenated system.



Frank Lucia

Swanson said that, in her opinion, "No computer voice-generated system in existence today could satisfy the NWS requirements for audio quality."

The NWS will most likely select from several technologies of concatenated models, including canonical phoneme models, which can be logically concatenated in order to create templates for different words, Swanson said.

In other words, the NWS is trying to make the computer-generated voice sound less automated.

"We should have audio samples available by the end of April. We will then assemble a listener panel of EAS people and broadcasters to listen to the samples and decide the route to pursue. Of course, cost is also a consideration," Swanson said.

Audio samples will be available for the general public to download from the NWS Web site at www.nws.noaa.gov

Swanson said the NWS would use comments posted on the Web site and form focus groups to determine public opinion on which system is easiest to understand.

"Our job will be to improve the automated system and speech system for the entire NOAA Weather Radio system, and not just for emergency warnings. We want as much input from different sources as possible," she said. "Some of our methods may be a little unscientific, but I think including more opinions is good."

The NWS expects a quick conversion once a concatenated system is chosen, possibly by this December. The NWS hopes to have 121 offices after the latest round of modernization is complete by mid-2002.

With the NWS' Perfect Paul project moving forward, EAS officials will next look for ways to make the current EAS system more efficient.

Richard Rudman, chairman of the National Advisory Committee and the Los Angeles County local emergency committee, said one goal of the NAC is to increase the level of EAS participation by local emergency management agencies. The committee hopes to see more local agencies purchase EAS equipment to originate messages themselves via wireless links to Local Primary broadcast stations.

Proper implementation

"We are reaching out to local emergency management to get them involved with EAS. Since broadcasters essentially

See EAS FUTURE, page 6 ►

Corrections

The March 30 story "AM Antenna Tests Suffer Setbacks" referred incorrectly to the founding of EH Antenna Systems and the design of that antenna as joint efforts. Ted Hart developed the antenna and founded the company.

Hart states, "Bob Zimmerman was brought on in the summer of 2000 to assist in the development of the EH antenna due to his background in physics ... He is no longer with the company."

Also, the EH antenna does not use small discs; rather, it uses a bi-cone configuration for the AM band.

The March 14 issue omitted a photo credit for Linda Harris of KFWB(AM), Los Angeles. Harris took the photos of Richard Rudman on pages 3 and 8.

NEWSWATCH

► NEWSWATCH, continued from page 2 approached in a piecemeal fashion, "selecting for elimination those that directly help one's own company while supporting those that hamstring a competitor."

"The effort to prop up the national television cap is a classic case of this selective approach."

A day after the resignation, ABC parent Walt Disney said it would remain an NAB member "and work from within the organization with the twin goals of restoring broadcast-industry unity and embracing consistent and principled deregulation of broadcast ownership rules."

At presstime, a federal appeals court gave Viacom/CBS a stay pending court review of the ownership cap. McClintock could not comment on whether CBS/Infinity might form a competing association with Fox and NBC.

Arbitron Now Public

NEW YORK As Arbitron went public in April, its largest subscriber, Clear Channel Communications Inc., indicated it might cut back what it buys from the ratings service.

Clear Channel says it doesn't plan to subscribe to Arbitron's surveys in 130 markets; yet it has signed an extension to published accounts. Talks between the companies continued at press time.

Clear Channel now owns stations in more than 1,000 markets. If a new deal isn't reached with Clear Channel, Arbitron's 2002 revenue would be down by about \$14 million, according to the Wall Street Journal.



Arbitron began trading on the New York Stock Exchange as an independent company April 2 using the symbol "ARB." Pictured are several Arbitron executives. President/CEO Stephen Morris, center, is shown ringing the closing bell on March 30.

On the first day of trading, the stock opened at \$23.80 and closed at \$23.26.

After nearly four decades as a division of Ceridian Corp., both companies split when Ceridian completed a tax-free, reverse spin-off of Arbitron.

Morris said being a separate, independent company would place Arbitron in a better position to focus on radio stations, ad agencies and advertiser customers. It plans to expand its audience measurement services with its Portable People Meter and Webcast services.

C-5 Customers Moved to GE-8

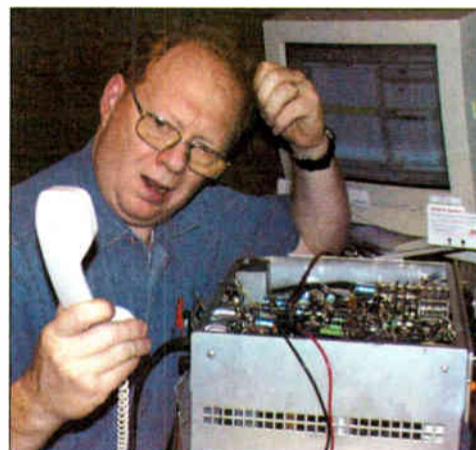
PRINCETON, N.J. A new satellite is serving many of the nation's radio stations. GE Americom retired Satcom-5 after nearly a decade of service in March. C-5 customers were transferred to the replacement satellite, the GE-8. Some of the radio customers include ABC Radio Networks, Disney and Deutsche Welle.

"GE-8 (Aurora III) was designed to provide improved performance flexibility and redundancy over its predecessor, C-5 (Aurora II)," stated Ron Capozzi, lead engineer on the GE-8 satellite program. Our customers, AT&T Alascom and the radio programmers, are getting a superior spacecraft."

The GE-8 is a C-band satellite, located at 139 degrees west longitude and covers all 50 states and the Caribbean. The spacecraft has 24 36-MHz transponders.

SBE Moves

INDIANAPOLIS The SBE national offices are in a new location: 9247 N. Meridian St., Suite 305, Indianapolis, IN 46260, phone (317) 846-9000, fax (317) 846-9120.



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Just Add a Pair of Tin Cans

Musings, moanings and etchings about the world of radio ...

Infinity Broadcasting and CBS Television resigned from the NAB this month, saying the association "no longer fully represents the best interests of free over-the-air television and radio."

While CBS and Infinity cited the dispute over national TV ownership caps, the impact spills over into radio. Infinity employees, how are you affected? Tell us about it at radioworld@imaspub.com

★ ★ ★

I saw recently that the National Religious Broadcasters will have Dr. Laura Schlessinger as its featured speaker at the association's annual media breakfast this week during NAB2001.

In its announcement, NRB President Brandt Gustavson stated, "We invited Dr. Laura to speak ... to share her struggles as a high-profile broadcaster on the front line of a battle for free speech and religious expression. As you know, various special interest groups have attacked her because of her religious views. We support her because we believe that in many ways, her fight is our fight. If the forces that seek to silence her are successful, their next targets will be Christian radio and television."

NRB commended her for her "strong stand for the role of religion, the Ten Commandments and encouraging millions of Americans to do the right thing." Just last year, NRB presented Dr. Laura with its Chairman's Award.

I disagree strongly with much of what Dr. Laura says; I firmly support her right to say it. Your thoughts?

★ ★ ★

Separately, we learned recently that Dr. Gustavson has been diagnosed with cancer of the liver and pancreas. The NRB chairman released the news in a memo to the membership and described the association's staff as "in a state of shock."

Gustavson has been president since

1990. He is a former executive of Trans World Radio and Moody Bible Institute. The thoughts and best wishes of all at Radio World are with him.

★ ★ ★

It has become fashionable in some circles to bash in-band, on-channel DAB research and even to imply that it might be best to give up on IBOC. I disagree.

We have a responsibility as participants in the radio industry constantly to seek new and better ways of serving our listeners and our licensees. If the pioneering spirit that launched our industry early in the last century can still be found in radio today, most likely we will find it in the lab and test facilities of engineers trying to find ways to better ourselves — whether it's an improved way to distribute audio programming, or new profitable applications of sending data over our airways and Internet streams.

Which is not to say I'm flat-out convinced IBOC is indeed the next great thing. We've been hearing promises for too many years (a decade, to be precise); we've had too many hopeful predictions delayed and seen too many troubling problems during the DTV transition, not to be skeptical.

So call me an agnostic, rather than an atheist, on IBOC. As they say in Missouri, "Show me."

But don't stop *trying*, for crying out loud. We can't afford to stand still.

★ ★ ★

What radio station would be complete without this neat item from SystemsStore? I quote verbatim from the supplier's Web site:

"Gadco RETROLUX Transducent Passive Audio Cable: Just in time for April, our friends at Gadco have come up with a major breakthrough in electro-acoustic technology.

"This new energy-saving cable requires no amplification and is already a big hit in California. Utilizing a user-provided transducer at each end, RETROLUX cable passes audio like your grandfather used to hear! To our knowledge, it has not been on the air yet, but we have been having pretty good suc-



Gadco RETROLUX

cess with it around the shop. (It does not pass video very well, but we are working hard to remedy that).

"Note: Requires minimum end-to-end tension of 500 lbs., with no bends,

From the Editor



Paul J. McLane

bundling or cable ties. Order 1,000 feet now. Be the first in your market to 'air' this cable! Product Code: 59772-b, Price: \$299."

Before you rush to place your order, note that this item appeared on April 1, from the same folks that brought you a one-pin XLR connector last year.

You can see the company's more traditional offerings, too, by visiting www.systemsstore.com

We've given away almost \$25,000 worth of radio equipment so far in our 25th Anniversary Silver Sweepstakes, celebrating the founding of IMAS Publishing in 1976; and there's lots more to come.

Our latest winner is Tom Schulze, vice president of engineering for Vmi in Riverside, Mo. He qualified for our random drawing by signing up at www.rwonline.com, and you can too.



Tom, who told me he enjoys our articles about the CFA and EH antennas and other RF technology, wins a CX-211 cardioid condenser microphone from Audix. This fine mic has a one-inch gold vapor diaphragm, bass roll-off, 10 dB pad, rugged brass housing, steel mesh grill screen and Audix trademark black satin finish. It runs on phantom power of 48 to 52 volts. Suggested retail price: \$649.

The CX-211 includes a mic stand adapter and foam windscreen. Thanks to our friends at Audix for this week's prize.

In the past four months, we've also given away a spectrum analyzer, RPU transmitter, digital phone hybrid, IBOC filter system, headphone amp and mic arm package. If we keep this up, we'll give away a whole darn radio station.

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GUEST COMMENTARY

EBS to EAS — Analog to Digital

by Frank Lucia

The Emergency Alert System that broadcasters know today has evolved through many changes over the years.

On Nov. 10, 1994, the FCC established the Emergency Alert System to replace the Emergency Broadcast System. The commission's action culminated a five-year effort that included several Notices of Inquiry, Notices of Proposed Rule Making, field tests and demonstrations of alerting techniques.

In a sense, the replacement process was a repeat of events that happened when EBS replaced CONELRAD in the 1960s. Back then, the National Industry Advisory Committee explored several alerting techniques, including some rudimentary digital techniques. NIAC finally recommended that the commission adopt the EBS two-tone attention signal, even though the signal contained no coded information that would identify the contents of the audio message following the signal.

Two-tone signal

EBS worked well as long as broadcast station personnel heard the message or tape-recorded it after being alerted by their EBS equipment. Then they could pass the message to their audiences. All the states and U.S. territories, with the help of volunteer

EBS state chairs, developed EBS plans that contained procedures that allowed state and local officials to enter the system and disseminate emergency information to the public.

In the 1980s, it became evident that soon broadcast stations would be operating unattended. Also, cable systems were beginning to capture a large share of the viewing public. The federal government saw these factors as limiting the success of EBS.

Any expansion of EBS into cable would be very difficult because cable system head-ends were almost always unattended. These events led the FCC to begin a proceeding to investigate new alerting systems.

At about the same time, the National Weather Service was investigating new signal alerting techniques for its NOAA Weather Radio (NWR) system. NWR was using a single-tone, 1050 Hz attention signal that de-muted NWR consumer receivers.

But there were limits with this system. For example, when NWS personnel wanted to alert the public in only one county over NWR, all NWR receivers within range of the NWR transmitter would be de-muted, even those receivers not in the affected county.

To correct this, NWS eventually adopted a system called Specific Area Messaging Encoding. SAME uses a coded digital signal that is transmitted over NWR using Audio Frequency Shift Keying.

Elements that are coded include the originator of the message, the event, the location(s) of the event and the valid time period of the message. NWS retained the 1050 Hz signal as an alerting signal after the transmission of the digital signal.

Also, the existing NWR consumer receivers would still work. With their new system ready to go into deployment, NWS personnel were anxious to participate in the FCC field tests to display SAME.

Expanded code structure

Eventually, the FCC decided to use the SAME signaling technique for the new EAS. But the code structure of SAME needed to be expanded to include new elements that were necessary for the system to operate properly in the broadcast and cable environments. Elements added were the exact time in Universal Coordinated Time that a message was transmitted by a SAME/EAS encoder and the identification of the NWR transmitter, broadcast station or cable system transmitting or re-transmitting a message. NWS agreed to add these new elements to SAME so that the two systems would be compatible.

This is how EAS came into existence and made the leap from analog to digital. EAS equipment can be programmed by broadcast and cable personnel to store selected incoming EAS messages and re-transmit them immediately or on a delayed basis, all automatically, with or without attendant person-

nel. The old EBS plans were updated in record time to reflect the capabilities of the EAS equipment. The volunteer work of the EAS state chairs made this possible.

Soon, county-level emergency managers were finding out that they could purchase EAS equipment and interface with the EAS equipment at broadcast stations and cable systems. All that was needed was a communications link to get their messages to the participating broadcasters and cable operators. Also, EAS manufacturers have been upgrading their equipment to make it more user-friendly, including the use of Windows-based software to develop and store canned emergency messages for immediate release.

Amber Plan

EAS is working fine based on reports received from broadcasters and cable operators. Case in point is the use of EAS to get missing children returned under the Amber Plan, developed in Dallas-Fort Worth and now used in Houston, Oklahoma and Arkansas. The plan is under consideration for use in several other states and cities; it works well because of the automatic storage and forwarding of EAS messages.

This is about where things stand today, but who knows what other avenues may arise to get EAS emergency warnings to the public.

Lucia recently retired from the FCC as special adviser for EAS. Reach him via e-mail at elyerty@starpower.net

RW welcomes other points of view and encourages you to tell your experiences with EAS — what works, what can be improved and how. Send your opinions to radioworld@imaspub.com

Powell Ponders Ownership Regs

WASHINGTON Should the FCC still have a role in determining what's in the public interest when it reviews broadcast transactions?

New Chairman Michael Powell believes it does. Speaking with reporters earlier this month, he said that although the Department of Justice reviews broadcast transactions too, the DOJ doesn't consider ownership diversity.

tour overlap method. Powell said such a change may limit ownership concentration in a market, but that doesn't automatically mean more diversity.

On the topic of low-power FM, Powell said the FCC is soliciting bids for an independent entity to conduct the field tests to determine if LPFMs cause interference to existing stations if third-adjacent channel protections were dropped or relaxed.



Michael Powell

Photo by Leslie Stimson

"How to do that effectively is what I struggle with," he said. Determining what's in the public interest as far as diversity is "easy to say, harder to do," he said.

The question comes as the FCC reviews the prohibition against owning a TV station and newspaper in the same market, and to redefine what constitutes a radio market for determining compliance with ownership rules.

Powell is skeptical of the cross-ownership prohibition and questions its relevance in an age when media are combining.

The commission has proposed narrowing the definition of a radio market to an "Arbitron-like" measure such as Arbitron's Radio Metro rather than the current con-

It's not clear what happens if the tests do show interference, he said, whether Congress would become involved or not. According to language Congress passed last year, the FCC needs congressional authority to change the channel protections in the LPFM rules. No mention of necessary congressional authority was made in the commission's recent order incorporating lawmakers' changes to its LPFM rules.

He expects the testing period to take more than a year.

LPFMs can still be licensed in the meantime, he said.

— Leslie Stimson

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EAS Future

► Continued from page 3

built EAS, we have to go to the program originators and make sure they understand what we built and that EAS meets their needs. The involvement of FEMA (Federal Emergency Management Agency) will also be important," Rudman said. "FEMA is very active in researching advanced warning systems."

Proper implementation of EAS relies on the combined efforts of local emergency management and broadcasters, Rudman said, and the training of on-air personnel at broadcast stations is a key element to future EAS planning.

also be the responsibility of, surely, the news director, program director, station manager. We all need to take seriously the contribution the EAS system has for the communities we serve."

(See related articles, pages 3, 5, 7 and 8.)

Another EAS issue still to be resolved is the patent dispute with Quad Dimension Inc. ("EAS Could Cost You More Money," RW, Feb. 14.) Quad believes its patent for "Storm Alert for Emergencies" is the basis for the Emergency Alert System. A re-examination by the Patent and Trademark Office in 2000 allowed the majority of Quad's claims. At press time, Quad was appealing the findings of the second re-examination. As a

of the patent controversy.

"We are very concerned with where this case goes. It seems as if Quad is trying to patent the very idea of broadcasting warnings. How far they get is anyone's guess," said Rudman.

FCC Chairman Michael Powell made supportive remarks regarding the contribution of the NAC at the February meeting.

"We are especially pleased to have your public service because it plays a critical role for us. There will be many challenges on the horizon for both the committee and commission. I know (FCC) has at least one rule making issue that involves EAS that we'll be dealing with. More important are the many technology challenges in the next few years that will present both opportunities and challenges," Powell said.

Rudman said the committee looks forward to working with the new chairman.

"I think it was significant that he took time early in his appointment to address the NAC meeting," he said.

The 25 members of the NAC meet once a year to make appointments and to set an agenda. Al Kenyon, vice president of projects and technology for Clear Channel Communications, is vice chair. New appointments to the committee this year include Herb White, NWS dissemination services program manager, and Constance Perrett, administrator of the Los Angeles County Office of Emergency Management.

FCC officials said earlier this year that all 50 states had filed EAS plans with the commission. There are 132 local EAS plans covering most of the major metropolitan areas. 🌐



Photo by Marty Hadfield

From Left: Entercom's Marty Hadfield, Vice President, Engineering; John Price, Assistant to the Vice President of Engineering; Wendy Castro, Administrative Assistant; and Clay Freinwald, Senior Facilities Engineer

Just last year, human error at a radio station in Michigan caused the broadcast of a false Emergency Action Notification ("When EAS Goes Bad," RW, Sept. 27, 2000). The false EAS seized the audio from approximately a dozen Michigan radio stations and triggered on-screen scrawls at several television stations and cable systems.

Clay Freinwald, chairman of the SBE/EAS committee and Washington State EAS committee, said training is especially important since EAS is not something board operators use every day. "If you don't understand the EAS box and what it is capable of, sometimes it can be viewed with disdain," he said.

Local EAS leadership is often lacking when it comes to training, according to Freinwald.

"This is not only an engineering issue and shouldn't become the sole responsibility of the station engineer. It should

result, confirmation of the allowed claims will be delayed.

QDI spokesman Daric Laughlin said, "The appeal of two claims will delay issuance of a second certificate of reexamination."

Patent claims

He said the majority of claims have been indicated allowable and would become enforceable when the second reexamination certificate issues.

The two claims in question cover several issues, including the timing of QDI's development of their SAFE technology. QDI received the original patent in 1992.

According to a company press release, "QDI will earnestly begin an aggressive program to license and assert its past and present rights." In early 1999, Quad sent notices to nearly 1,500 broadcasters asking them to sign license agreements.

The NWS and EAS officials are wary

FCC Acts on SBE, NWS Proposals

WASHINGTON FCC staffers are studying public comments submitted about proposed changes to the commission's Part 11 EAS rules.

Some EAS experts speculate that an order codifying the changes could be in place by the end of the year.

The NWS and SBE filed petitions with the FCC asking for further rule makings in 1997 and 1998. The NWS has added revisions since.

The SBE petition seeks an extension of the relay window for Required Monthly Tests from the current 15 minutes to one hour to help minimize on-air disruptions.

SBE also wants a reduction in the required modulation level of EAS codes from 80 percent to 50 percent of full-channel modulation limits.

Richard Rudman, chairman of the National Advisory Committee and the Los Angeles County local emergency committee, said the FCC seems amenable to both requests.

"After more than three years, the FCC is giving us the opportunity to make adjustments and correct problems with EAS," Rudman said.

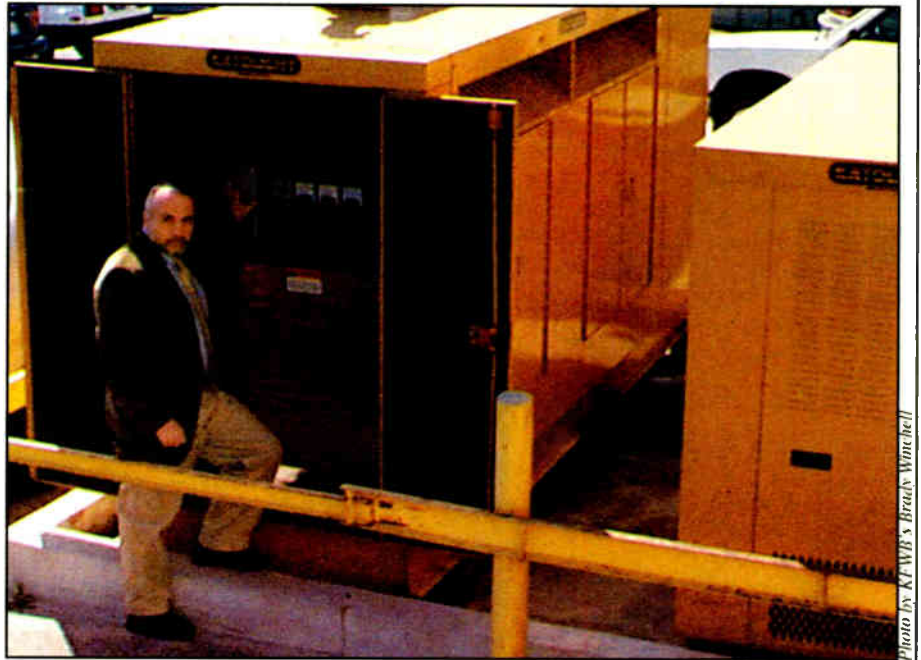


Photo by KFNB's Breck's Winchel

Richard Rudman stands in front of one of KFNB's emergency generators that served the AM station well even before the Northridge earthquake.

Also proposed: amendments to the list of state and local EAS codes for emergency conditions.

Rudman said EAS leaders welcome the opportunity for further discussion of more-specific warning codes.

"This process will really be a synthesis of what EAS can do. We can get a lot more out of the system. There is a possibility of even a warning code in the menu for missing children," Rudman said.

The National Center for Missing and Exploited Children has been lobbying the FCC and EAS officials for the change. Rudman pointed to the Amber Plan in Texas as a good example of broadcasters using EAS for the good of a community. That plan uses EAS to find missing children.

Larry Estlack, State Emergency Communications Committee co-chair for Michigan, said there is a need for additional non-weather event codes.

"That will be very useful for local or state emergencies. We need the added versatility."

Comments for EB Docket # 01-66 are due June 11.

— Randy J. Stine

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PDA's, 'E-Chip' in EAS Future?

by Randy J. Stine

New technology is high on the EAS National Advisory Committee's agenda in 2001. Richard Rudman, chairman of the NAC, said EAS leaders are keenly aware of sweeping changes in technology and the impact those advances could have upon EAS. Personal communication devices and the Internet could someday lend themselves to EAS.

Rudman said Personal Digital Assistants, including the Palm Pilot, are being studied as part of an advanced warning system.

Pagers tested

"A lot of EAS is based on people tuning in to a broadcast station. The technology that is embedded in pagers and other wireless communication systems certainly carries with it some emergency warning capabilities. Those capabilities need to be explored," Rudman said.

Frank Lucia, the recently retired special EAS advisor for the Technical and Public Safety Division of the FCC Enforcement Bureau, said pagers were field-tested in 1993 with some success.

"The graphics and text read-out worked fine. Cell phones are another question. The cost of forwarding messages would be a consideration," Lucia said.

The wireless industry is welcome to participate in EAS, Lucia said. Industry representatives addressed the NAC meeting in Washington.

"If they want to help and volunteer they can. It's doubtful that the FCC would ever mandate them to do so. Phone companies were never required to be a part of the EBS, either," Lucia said.

Technology can also create more EAS headaches than it solves, said Rudman. Case in point: the FCC mandated the parental control V-Chip in television sets. All sets with picture screens of more than 13 inches manufactured since Jan. 1, 2000, have the V-Chip technology. This allows parents to block programming based upon its rating.

V-Chip or E-Chip?

"It turns out that anything broadcast that's not encoded with a V-Chip rating is blocked. So, if an un-rated EAS message goes out, it could be blocked. We've heard of only a few problems so far. But as the penetration level of V-Chip-equipped sets goes up, it could become one," Rudman said.

The NAC continues to work with the Society of Cable Telecommunications Engineers on issues that affect the cable industry.

Rudman said he and the SBE remain in favor of the idea of an E-Chip. The E-Chip would be able to embed EAS proto-

cols in set-top boxes, television receivers and PDAs, allowing them to monitor one

questions for the FCC and NAC. Yet to be determined is how stations

Technology that is embedded in ... wireless communication systems ... carries with it some emergency warning capabilities.

— Richard Rudman

channel for EAS information.

Digital radio and TV raise further

in the digital realm would encode and decode EAS warnings.



Photo by Leslie Simson

iBiquity's Phillip Vanness holds a Hewlett-Packard Pocket PC displaying NYSE stock quotes using iBiquity's IBOC technology.

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SBE NEWS

SBE & EAS: A View From Here

Clay Freinwald

RW regularly provides space for commentary from the Society of Broadcast Engineers as a service to the industry. The author of this edition is chairman of the SBE EAS Committee and Washington State SECC.

It seems like a long time since the FCC announced that the Emergency Alert System would be replacing the old Emergency Broadcast Systems. But before I look ahead, let's do just a bit of looking back.

The primary goal of EAS is the same as that of EBS: provide a means for the president to address the country should an emergency situation arise.

Basics

In its rule making, the FCC in its new Part 11 laid out how the system was to work to carry out the national-level mission. A message from the president would be delivered to the country via a network of high-powered Primary Entry Point, or PEP, AM stations, which would automatically relay it to the Local EAS Areas. This EAS message, called an Emergency Action Notification, or EAN, was to be received and relayed in each local EAS area by two sources to be called Local Primary facilities, or LPs, at the same time.

In most cases these LPs were broadcast stations. Each broadcast station and cable company was then to monitor these two LPs. Testing was prescribed: Required Monthly and Weekly Tests, called RMTs and RWTs.

And oh yes, we all had to purchase a piece of equipment that would enable the new system to operate.

The FCC pretty much quit at that point and, giving us minimal instructions, told us we were welcome to take it from there. It suggested that we work with NOAA, as well as state and local governments, and integrate them into the system utilizing the capabilities of new hardware that we now all had installed.

Just how we integrated these other entities into the system was again up to us. The FCC did, however, want to review the state-level plans.

Unfortunately, there were minimal instructions as to how to put together

these plans and systems. Some states simply warmed over their old EBS plans; others took a serious look at what was wrong with EBS and what EAS offered, and started with a clean sheet of paper.

The result is a checkerboard of functional and working systems mixed with those in need of help and revision. To be sure, there has been a lot of criticism of EAS from many areas.

What should we do now? I'd like to share a number of things with you based on my experiences.

EAS is a checkerboard of functional and working systems mixed with those in need of help and revision.

It's very likely that your state or local EAS committee could use your help. To paraphrase Kennedy, "Ask not what EAS can do for you, but what you can do for EAS!"

If you are critical of the way EAS operates in your area, look in the mirror and ask yourself what you could or should be doing to make it better. Whether an EAS system is something we are proud of or not is determined by us. The point: get involved! Your state or local area's EAS plan and system are only as good as we all work to make them.

Join up

The State Emergency Communications Committee, or SECC, sets the course for EAS matters on the state level. Local Area Emergency Communications Committee, or LAECCs, handle matters closer to home. These groups would love to have you participate. EAS at the state and local level is a partnership among various government entities, broadcasters and cable.

The SECC develops a state plan, which is approved by the FCC; that plan sets out rules governing how EAS is used at the state and local levels. These rules cannot replace nor be in opposition to those developed by the FCC; they aug-

ment them.

Here's how the process worked in the state of Washington:

1. The SECC was formed.
2. The SECC wrote the state plan.
3. The plan was submitted to the FCC for approval.
4. The approved plan became the guidebook for all uses of EAS beyond that mandated by the FCC's rules, i.e., how we use EAS for weather and state- and local-area messages.
5. The SECC divided the state into local EAS areas.
6. Local areas create LEACCs.
7. Each local area, with the help and support of the SECC, develops EAS procedures and policies, which become part of the draft local plan.
8. The local plan is submitted to and approved by the SECC.
9. All plans usually have provisions for approval by the government entities with which they are working.

When I travel around the country to conduct an EAS workshop, I plan on at least four hours. It's hard to convey EAS quickly. It's not rocket science, but visuals are handy. I use a lot of diagrams and flow charts to help make this all clear.

Having said that, there is a great misconception that EAS is somehow a "techy thing," something that engineers handle. In addition to the technical skills that engineers bring to EAS, we also need skills that general managers and news types can bring to the table. Just like a broadcast station, EAS requires various skill sets.

EAS is a cooperative effort between government entities and broadcast and cable systems. The SECCs and LAECCs should be made up of representatives from all sides. In areas where EAS is a



one-man show, not only does the task quickly overwhelm this person but the potential of EAS is diminished because many of its vital aspects are not represented.

At the state level, members should include state government emergency services, NOAA and FCC, as well as radio, TV, cable and the state broadcasters' association. At the local level, the committees should have representation from all local government entities that originate EAS messages, as well as radio, TV and cable.

In each case, I highly recommend that the committee name a broadcaster to lead the effort.

Clear plans

State and local EAS plans are critical to the mission in that they codify just how the various systems function to make EAS viable. These plans are not static documents; they must accommodate changes and improvements. There is no such thing as a "perfect" EAS plan; each can be improved, and should be.

EAS messages come in four varieties. Your state plan should make clear just how these messages get from their sources (government entities) to their recipients (broadcast and cable).

It is important that all parties assume that every radio, TV and cable system is operating unattended; EAS plans should be written accordingly.

Other than the FCC requirement that everyone must relay EANs and RMTs, no broadcast station should be called upon to originate or relay any EAS message. Distribution of EAS messages should be handled totally by background channels. These channels can be Part 74 frequencies; however, the first place to look is existing government radio systems, for example a public works

See SBE NEWS, page 22 ▶

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Zephyr Xstream. Sometimes the sequel is even better than the original.

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Cart Guys Keep the Format Alive

Scott Fybush

Remember carts? Yeah, those big blue (or brown, or gray) rectangles filled with that old-fashioned stuff called tape? Splice finders, bulk erasers — they are all a thing of the past, right?

After all, a PC that costs less than a single cart machine can store hundreds of hours of audio, all accessible instantly, with no waits to re-cue or worries about tape tangling.

You'd be forgiven, then, if you thought the humble cart was as dead as that electrical transcription lathe over in the corner.

You'd also be wrong. Meet Jim Martin and his son James, aka "The Cart Guys" of Tucson, Ariz. — perhaps the last bastions of cart technology.

Ironically, Jim Martin doesn't even remember the days of triple-play

Martin says he recently took an order for 18 cart machines from satellite broadcaster XM Satellite Radio.

Cart Guys" of Tucson, Ariz. — perhaps the last bastions of cart technology.

Spotcasters. He worked in the construction business before entering the

cart business last year — yes, you read that right: 2000 — at the suggestion of his friend and RW contributor Barry Mishkind.

"It has been a huge undertaking," Martin said of the purchase, which closed last July. "Barry received an e-mail from a buddy of his at LPB, which had bought Fidelipac as a whole, and they wanted to spin off the cart business," he said. A trip to the LPB office in suburban Philadelphia followed.

"We ... took a look, and said, 'It looks good to us,'" Martin recalled.

The last of carts?

So, at the end of last June, everything that remained of Fidelipac's cart business arrived in Tucson in the back of a big truck, leaving Martin as perhaps the only proprietor of America's cart industry at the dawn of the 21st century. Martin believes his is the only company left making new cart machines.

Why would anyone buy *into* the technology now? For the business, Jim Martin said.

"We have orders for carts going all over the world. We have some going to Sri Lanka right now."

Martin said large national broadcasters in many countries are reluctant to abandon proven cart technology to make the changeover to computers throughout their operations. The result, he said with pride, is that they still need his services.

"They said we'd only sell three cart machines a month," Martin said. In fact, Cart Guys has sold dozens of Dynamax-brand machines since production began in Tucson, and that's not even counting the carts themselves.

"We've sold several thousand carts, total: a few hundred a month," Martin said. Cart Guys' product line includes Fidelipac standbys such as the Model 300, Master Cart and Cobalt cartridges, in lengths from 10 seconds up to 7.5 minutes.

Used machines

Next up for the Cart Guys: using their newfound expertise to take on the backlog of old cart machines still sitting in storage at stations around the world.

"We're starting a line of used cart machines which will be restored totally up to factory specs," Martin said. "We're also going to start a cart-rewinding service. We can totally rebuild a cart so it's good as new — new tape, new bearings."

The Martins also are taking cart machines for service, not to mention giving out plenty of advice to cart owners.

Jim Martin knows he stepped into a business that's long past its heyday, but he believes there's still plenty of business left for the Cart Guys.

"We're expecting that things will continue (at this pace) for at least five years," he said. "The message we're getting from some people is that they'll never go to computers, their stations are so small and they have so many carts on hand."

He also expects at least some business from the big guys.

"A lot of large-market stations still keep carts around as backup," he said.

Even the newest players on the

See CART GUYS, page 12 ▶

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FM 100



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BUSINESS DIGEST

BSI, BSW Strike Distribution Deal

EUGENE, Ore. U.S. radio managers who want to buy BSI software in the future will call the company's new exclusive distributor, BSW.

Broadcast Software International, a subsidiary of Cumulus Media, has contracted with Broadcast Supply Worldwide to be the sole outside domestic distributor of BSI software products, which include the WaveStation digital automation, WaveCart digital cart machine, Stinger audio player and Speedy CD-to-PC ripping.

Not long ago, BSI was selling its wares through approximately 20 U.S. distributors, but has gradually reduced the size of that dealer force. In choosing BSW, it discontinued arrangements with four

remaining U.S. dealers, according to President Ron Burley. BSI's international dealer relationships were not affected.

"BSW has a fantastic reputation in the industry," Burley said. "What we want to do is have a distributor that not only sells the products but is knowledgeable about them and how they interface to other products."

The factory will continue to offer products for sale direct to customers, but does not offer credit terms.

"We're cash-and-carry. BSW also has a very strong marketing presence. In our previous relationship with small distributors, they didn't really have a marketing presence," Burley said, adding that BSW also has the capability to "bundle" products.

With a dealer that can focus on the broadcast market, Burley said, BSI can also expand into other areas like consumer audio, sound reinforcement and background business audio markets.

Several automation suppliers have changed teams

in recent months. Enco Systems is now selling direct in the United States. Harris Corp., which had been selling Enco, announced an exclusive distribution deal with Computer Concepts, which itself is now part of Scott Studios.

The new relationship with BSI was suggested by BSW, which Burley found a bit ironic. He recalled presenting an early version of WaveStation to the BSW sales team in 1994, along with his co-developer Frank Klekner.

"They pretty much handed me my head on a platter, they just ripped it apart," he said. "I had to be very humble. They said, 'It needs to do this, and do this.'"

Even though BSW declined to represent the line at the time, Burley said, the dealer's commentary "helped us build a product that wasn't just a sequencer or a jukebox."

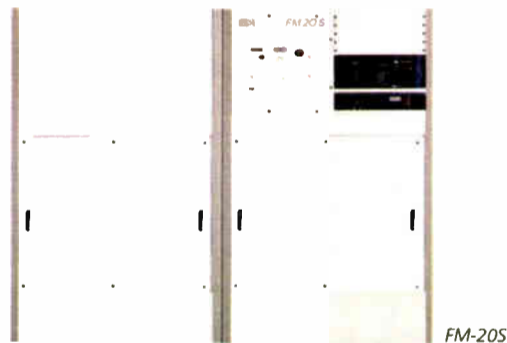
"It's great poetry. Six years ago we chose them; now they choose us."

— Paul J. McLane



FM-10S

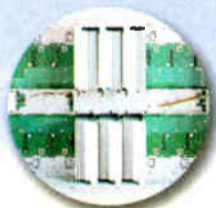
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Cart Guys

► Continued from page 10

radio scene are turning to the Cart Guys: Martin says he recently took an order for 18 cart machines from satellite broadcaster XM Satellite Radio.

On the other end of the technology spectrum, Martin says he's depending on international business to keep business going for years to come.

"The word that we're getting back from the third world is that they're never going to go to computers" for on-air audio, he said.

Call them an anachronism; but Martin believes the Cart Guys are here to stay.

"Our plan is to stick with this," he said, "and to build it to a point where our family is kept in bread and milk."

The Cart Guys can be reached at (520) 327-4466 or on the Web at www.cartguys.com

Scott Fybush will never forget dropping a whole stack of news carts in the hallway of Boston's WBZ(AM) radio with just a few seconds to air. 📻

The Last Audi-Cords

In researching Scott Fybush's story about the Cart Guys, we contacted the company that makes Audi-Cord cart machines to confirm that they were, in fact, still being manufactured.

"We have enough (parts) to build five more," said Steve Sabran, vice president of sales and marketing for ACC Electronix in Normal, Ill. When those are built and sold, he said, the company will make no more, thus bringing to an end one of the few remaining cart machine assembly lines.

ACC Electronix is owned by Andy Rector. In the early 1990s, Sabran said, the company moved its business focus to electronic contract manufacturing — assembling printed circuit boards for industrial clients.

The firm still services the cart machines it sold. Reach ACC at (309) 888-9990.

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Splash FM Reaches Out in Islands

Troy Conner

The author is the owner of Tower Maintenance Specialists. He writes about tower climbing for Radio World in his guise as our "Man of Steel."

Over the last several years, I have corresponded by telephone with a gentleman in Spanish Wells, Bahamas. Spanish

Wells is a small community located on tiny St. George's Cay. It is a small "working" island just off the north tip of Eleuthera and about 50 miles from the city of Nassau.

Chris Forsythe, his wife Jane and son Timmy have created what they call the Bahamas' first truly independent radio station, "Splash 89.9 FM."

After battling for a number of years

with BaTelCo, the Bahamas Telephone Company, which is the equivalent of our FCC, the Forsythes obtained a license for a 3 kW FM station.

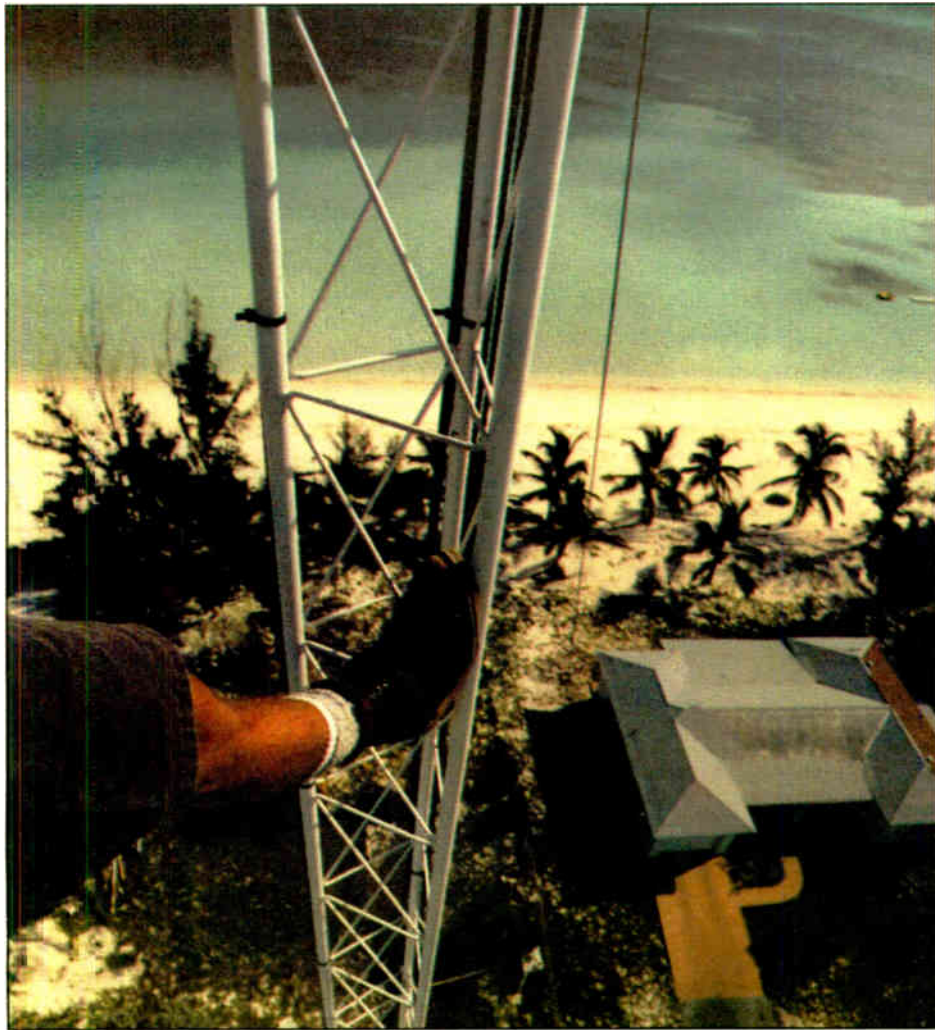
This proved to be only the beginning, as anyone who has been through this process can attest. Being somewhat isolated in the Bahamas meant that every single item needed to build the station had to be air-freighted or containerized in Miami for shipping by sea. Obviously, this added to the expense of the endeavor. Indeed, phone calls alone amounted to several thousand dollars.

CD automation

Eventually, Mr. Forsythe's remarkable patience, plain old hard work and creative solutions to the many stumbling blocks along the way paid off. In order to really appreciate what he and his family have created, a visit to the station would be required.

The studio is not only immaculate but well-designed. In fact it looks better than many of the high-dollar station studios I visit stateside. By mixing professional, semi-pro and consumer equipment, Chris was able to create a nearly automated station affordably.

Recordable CD technology has enabled Splash FM to pre-mix days of music and commercials to be played sequentially by several linked consumer 300-disc changers. The other interesting aspect of the station is its format—more specifically its lack thereof. The music is



The Man of Steel suffering a tough day on the tower. Actually, being July, it was rather warm, but the scenery more than compensated for the temperature. As you can see, the ocean is but a stone's throw from the base of the tower.

a wonderful mix of rock and roll, pop, soca, reggae, country, oldies and hip-hop from the 1960s, '70s, '80s and '90s. I really enjoyed their casual mix of music.

In addition to building, equipping and wiring the studio, the Forsythes erected their own 125-foot tower installed the initial antennas and hooked up the transmitter. While this sounds remarkable, it really just demonstrates the natural self-sufficiency shown by many native Bahamians.

When the station finally went on the air, informal propagation testing was begun. The community of Spanish Wells was covered easily, even using just the exciter. The island of Eleuthera presents more of a coverage challenge. Eleuthera is a long, thin, awkwardly shaped island that looks a bit like a backwards C. It is nearly 100 miles long by road, but

See STEEL, page 16 ▶

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Steel



► Continued from page 15 because of its strange shape, the effective length of the island is only about 75 miles tip to tip, as the crow flies.

Freedom

Eleuthera took its name from the Eleutherian Adventurers, who fled religious persecution in Bermuda and England and were shipwrecked there in 1648 or 1649. The word itself invokes the Greek for "freedom."

Interestingly, that makes Eleuthera the oldest settlement in the Bahamas, and in fact, the first republic in the New World.

While Nassau was the main base of the pirates who preyed on the Caribbean,

the settlement of Spanish Wells became something of a retirement home for many of them when offered the choice of amnesty or the hangman.

After talking at length with the antenna experts in this country, Chris soon discovered that sending an FM signal 50 or more miles on 1,000 watts with his current transmitter was simply and theoretically impossible. Or was it?

I had been talking with Chris for about a year at this point. Some of what he was telling me that he was hearing made sense to me, and some of it I had to wonder about.

The one factor that most all of the RF engineers he spoke with failed to take into account was his location on an island less than 10 feet above sea level. Having grown up on and around boats, I knew that it was always possible to get more



The cool little Daewoo mobile studio has sliding doors on both sides and a hatchback. Using an ingenious antenna support pole and RPU system, Splash FM can do remotes from all over Spanish Wells.

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radio range over salt water than dry dirt. A couple of the engineers he consulted mentioned using stacked and phased arrays of yagis to increase gain effectively and indeed dramatically. It seemed to me that this was the logical approach to the dilemma of how to get more bang for his transmitter buck. Using increased gain, good grounding (literally in sea water) and a flat sea with no obstructions to scatter the wave front, I thought we could push his signal further than the RF naysayers predicted.

Chris contracted me to come down and install his new antenna system. I flew down from Atlanta by way of Miami on July 4.

Welcome back

Having been both to Eleuthera and Spanish Wells nearly 20 years ago, I was struck by déjà vu as soon as I boarded the water taxi between the two islands. The ocean around the Bahamas is always stunning, but the waters near Spanish Wells are particularly clear and beautiful because the island is so far out into the Atlantic.

I must mention at this point that I really hate suffering through jobs like this. In a day and a half, we removed the two existing six-element yagis. Then we installed two new five-element yagis for the Nassau azimuth and a matched pair pointed down Eleuthera. Next I spent the remainder of the afternoon installing the power divider and sealing connectors on all of the jumpers.

Of course, at this point one of the two mated transmitters decided to take a dive. So we pulled the unit, opened it up and found a broken solder joint. Patting ourselves on the back, we reinstalled the heavy little bugger, only to discover it was still acting up.

After numerous expensive phone calls and faxing of schematics, we arrived at the conclusion that we lacked the one part needed to repair the unit. Meanwhile, Splash FM limped along at between 350 and 450 watts. No matter what we did, the other machine would not stabilize.

More phone calls, and we learned that indeed there might be some problem with a single machine and its inability to achieve a stable output unless it was slaved to the now-broken machine.

Given the low power we were putting out, we were astounded to discover how well the new phased antenna array worked. It penetrated nearly halfway down Eleuthera. With several solid reception reports from Governors Harbour, we

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See STEEL, page 18 ►



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World Radio History

Steel

► Continued from page 16
determined we were getting nearly 40 miles on less than 500 watts.

In fact, we were getting just about as far, with less than half the power, as the system did with the original pair of antennas (which were pointed at two different azimuths) running at 1 kW. The new setup consisted of a matched and phased pair of vertically polarized five-element yagi antennas pointed down Eleuthera and a second, identical phased



This is a view up the 125-foot tower of the interim four-antenna array. Also visible, and lower on the tower, is an anemometer (wind meter) and a back-up yagi.

pair pointed southwest towards the town of Nassau, on New Providence Island.

After running for a while, and making some calls to Nassau, we determined we even had spotty coverage on New Providence Island, nearly 50 miles away! Unfortunately, it was time for me to head on home, so I boarded the little Continental puddle jumper for the quick run to Miami and then my Delta connection to Atlanta.

Sometimes the old joke is true: it doesn't matter if you are bound for heaven or hell, in the south you'll pass through the Atlanta airport.

After some haggling with the sales rep

the manufacturer, Splash FM got its second transmitter back from repairs and is finally able to run a solid 1,000 watts. This seemed to improve stereo reception in the existing coverage areas, which were remarkable already, but did little actually to increase penetration.

Not given to standing still, Chris Forsythe wondered what they could do to improve the solidity of the signal in Nassau, almost exactly 50 miles southwest of the station in Spanish Wells. Reaching the Nassau market is critical if Splash FM is to be truly successful.

There were isolated reports, but reception was marginal at best. After more expensive overseas phone consultations with a sympathetic engineer at the Scala division of Kathrein, Chris concluded that another pair of antennas would help.

The existing four-antenna system offered a power gain of 8.3 and a maximum array gain of 9.2 dB. The system that Scala proposed using two more five-element yagis would push the power gain to 14.5 and the maximum array gain to 11.6 dB.

Woe is me ...

So it came to be that I again had to visit the Bahamas. Oh, woe is me. We scheduled my visit for two days after Thanksgiving.

Once again I taxied to Atlanta, Delta'd to Miami and not-so-promptly had my connecting flight to Eleuthera canceled. This was right in the middle of all of that election recount business, making Miami even more hectic than usual. So after spending the night at the Hotel Mia in the Miami airport, I departed for the Bahamas the following morning.

Given the delay, I felt like I was on island time before I had even left the States. Since I had been down last, Chris had been busy. At my recommendation, he had designed, fabricated and installed two torque arms equipped with six guy wires apiece. The torque arms made a huge difference in the torsional rigidity of the structure. Gone was the twisting shimmy many small, traditionally guyed structures develop when being climbed.

Even with my late arrival, that afternoon we were able to relocate two antennas and the power divider, install two new antennas and re-plumb the system with new coax jumpers, and still enjoy an adult beverage before dinner.

What we ended up with is a phased pair of Scala F six-element vertically polarized yagis pointed southeast at 140 degrees. This pair of antennas is oriented

basically down the length of Eleuthera. The rest of the array is made of two stacked vertically polarized yagi pairs directed southwest towards New Providence Island (Nassau) at an azimuth of 225 degrees.

Power is divided 50 percent to the 140-degree pair and 50 percent to the four-antenna 225-degree array. However, the additional gain provided by two more antennas gives the 225-degree array a bit more than 2 dB increase in effective radiated power towards Nassau, at the expense of an equal loss toward Eleuthera.

man's vacation in a bit of tropical paradise. When I last spoke to Chris, he was negotiating with two landowners in Nassau and the civil aviation authority for the translators.

In addition, Splash FM hopes to purchase a Henry tube transmitter of higher wattage and relegate the troublesome solid-state units to backup status.

I should mention that Chris and his family built their entire radio station using a couple of dog-eared copies of Radio World given to him by a retired station owner living nearby in the Bahamas. Those few issues provided him



A view from the tower early one morning looking literally across the entire island. The ocean is only about 200 feet from the base of the tower behind.

Alas, Nassau still suffers from marginal coverage at best. It is solid enough now to support a translator, however, so that is the next project.

Chris anticipates that the license application for a pair of translators, which has been filed, should not take too long to be granted. Once licensed, the actual equipment can be installed quickly. Hopefully, by mid-spring I'll get another working-

with a wealth of sources from which he developed their station.

You can learn more about Splash FM at www.splashfmradio.com or send e-mail to the station at splash899@batelnet.ba

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Workbench

Radio World, April 25, 2001

Keep the Console Bulbs Burning

John Bisset

Many engineers are all too familiar with the task of changing switch lamps on consoles.

Over the years, we've seen improvements in console designs, the most recent being the use of LED replacement lamps. In one of the discussion threads on Dave Biondi's *radio-tech@broadcast.net*, several engineers

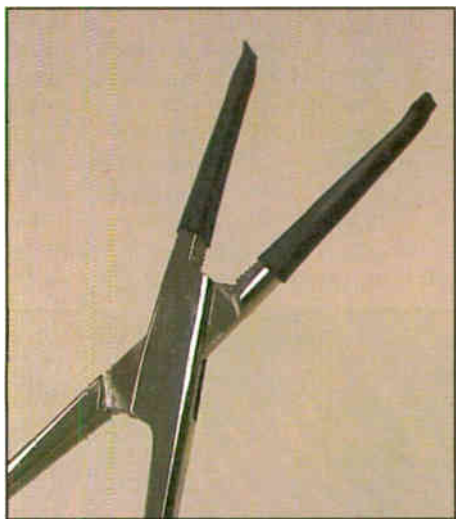


Fig. 1: Use heat shrink to cover the jaws of pliers or clamps and create a handy bulb extraction tool.

asked for information on these LED replacements. Milos Nemcik at KCPR - Cal Poly Radio suggested checking out the Web site *www.ledtronics.com*

The only drawback is cost; LED replacements haven't quite gotten down to the price of incandescent lamps, but the cost is dropping.

As you select a replacement bulb, note the polarity of the circuit. The LEDs come in two polarities for the most common bulb replacements.

Jerry Mathis of LifeTalk Radio came up with a novel method of removing the wedge-base lamps used on the module on/off switches in Arrakis 12000 audio consoles.

Although the on/off switch bulbs aren't too difficult to remove, the lamps on the TRRI module are another story.

Jerry found a piece of cable jacket from a large-gauge microphone cable. The cable brand and stock number are unimportant. The inside diameter of the jacket will fit snugly over the lamp. Once placed over the lamp, the snug fit permits easy removal of the lamp.

Bob Hughes and I have chased each other around stations here in Washington for too many years. Bob now works at the Pentagon, handling audio and video requirements for the Joint Chiefs of Staff. He's got his share of illuminated switches, which require periodic bulb replacement.

We've all attempted to extract bulbs using a pair of long-nose pliers. The task is risky at best, because you usually wind up breaking the bulb, shorting something and having to clean up the mess to boot!

Bob's solution can be seen in Figure 1. He outfitted a pair of hemostats (Kelly clamps) with two pieces of heat-shrink tubing. This modification provided two beneficial effects. First, the adhesion was increased. Then, the shrink tube offered a cushion on the "jaws" of the clamps, making them less likely to break the bulb.

It won't be long before AM engineers will be seeing sights like those of Figures 2 and 3 inside their ATUs/ACUs (antenna tuning units/antenna coupling units).

network, Ralph recommends 5/16-inch refrigeration copper tubing for your connections — but the tubing needs to be sized according to power. Needless to say, the tubing diameter is much larger in 25 kW and 50 kW networks.

Corrosion where components join together is a common problem. To reduce corrosion, Ralph recommends



Fig. 2: Inside an ATU, lightning has damaged a sampling toroid.

Direct strikes and Delta sampling toroids don't always mix, as you can see in Figure 2.

In addition, the physical shock of the strike literally can shake a coil off its mounts. Figure 3, on page 22, shows the cracked insulators as a result of the strike.

Ralph Winquist, P.E., suggests leaving a burning light bulb inside your coupling unit box. In cooler weather, the light keeps a more consistent temperature. In damp weather, the bulb reduces humidity.

If you are reworking your coupling

wiping the joints with De-Ox manufactured by Ilasco, available through your electrical wholesaler.

One of the most frustrating problems for an engineer starting a new job or working at a newly purchased station is AC wiring. A variety of problems result from improper wiring.

As you do your due diligence, grab one of those AC polarity indicator plugs, available at most hardware or electric

See WORKBENCH, page 22 ▶

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SBE News

► Continued from page 8
repeater or paging system.

The goal of the EAS committees should be to establish communications systems that will deliver, via unattended electronic means, each of the following varieties of messages to each media outlet *at the same time*. (What they do with the message is a subject for another time.)

National messages from your region's PEP Station need to be distributed. Just how the messages get from the PEPs to the LPs in each market is left up to the states. Thankfully, National Public Radio is getting involved in this process, and, as a result, connecting this "national circuit" may be as easy as contacting your local NPR station and working out the details.

It's critical that *everyone* be able to relay the EANs. Be sure that your EAS box is *in the program line*. This is the only way to guarantee that your station will be fully compliant with the requirement that EANs are to be aired immediately. Having your EAS decoder appear on an audio console input or router somewhere will not cut it. The feds need the ability to break in, even if the station is unattended or the person in charge is "down the hall."

Now let's turn to the three types of messages that will comprise 99 percent of EAS activity:

NOAA messages arrive at your facility fully encoded via NOAA Weather Radio. Every station should be connected to NOAA as it's likely that 90 percent of EAS messages will come from them.

If your station operates unattended, you will want to program your EAS box to relay weather warnings so that they will be automatically broadcast. If you operate attended, you will likely want to have your station's voices relay the information. All attended stations should have an electronic reader-board sign connected to their EAS box as this makes EAS messages *very user friendly*.

State messages, or messages originating in the state EOC, should be distributed via a State Relay Network (SRN) so that they can be received by all of the electronic media at the same time, statewide.

This requires some serious effort and

hardware. Some states have utilized existing state microwave or police systems while others have developed their own using broadcast station subcarriers or other systems. The SRN is a great vehicle for relaying the national level

The Amber program uses EAS to spread news of missing children.

EAS messages. If it's used for this purpose, it must be a required monitoring assignment. Every station should monitor the SRN.

Local messages from local governmental entities should be distributed to the electronic media via a Local Relay Network (LRN) so that everyone gets the message at the same time. Local EAS messages should be encoded at their source, just like those from NOAA.

Each station or cable system should then connect the LRN to their EAS box. Here in Washington state, LRNs are called for in the state plan and utilize a variety of methods, Part 74 facilities, Separate Audio Program (SAP) channels and existing government and private radio systems.

It's critical that the EAS encoder be located at a 24/7 manned location. 911 Dispatch Centers are ideal, Emergency Management Offices that are only activated after an emergency event are not ideal, for the simple reason that for EAS to be effective, the message must be delivered immediately.

EAS 101

Training is vital to make sure EAS will work well in time of need. Training must take place on the source end as well as on the broadcast and cable side.

Each committee should have one or two people who fully understand how EAS works available to go out and teach "EAS 101" on a frequent basis. My commitment to this effort has led me to travel all over this state, as well as to several others to conduct EAS workshops.

The future of EAS is bright, thankfully, because we have a system whose foundation permits us to expand and improve its performance. We have a full plate this year as we look forward to the FCC's release of a further rule making for EAS. This will enable many changes and improvements to be made.

Already around the country the Amber program is becoming popular, giving EAS another mission. Amber is a program with roots in the Dallas/Ft. Worth area of Texas, named after a child who was abducted. Its goal is to use EAS to reach broadcast and cable systems rapidly with news of a missing or abducted child.

The system is only used in cases where law enforcement feels the public can be of help if informed very quickly. Amber is catching on, supported now by a number of cities and states. At present, the Amber use of EAS is via codes that

are not designed for this type of use. Amber proponents are likely to propose to the FCC an event code of their own.

Here in Washington state, we are pioneering some innovative and exciting cooperative activities involving NOAA Weather Radio.

Being connected is important, for it enables us to share and learn from each other. The SECC and SBE-EAS remainders enable us to all communicate in a way heretofore impossible. At NAB2001 this month, SBE is holding a two-hour session dedicated to EAS; and on May 10, I will be in Nebraska to conduct a statewide workshop. If you have a question or just want to share about EAS, drop me a note.

As you can tell, I am a believer.

Clay Freinwald is employed by Entercom as a senior facilities engineer who works in Seattle. Reach him via e-mail to k7cr@wolfenet.com

Workbench

► Continued from page 21
supply stores, and check the outlets.

Just as important is proper wiring of plugs connecting to equipment. Most manufacturers now use molded cords, but some pieces of equipment still require hand-wired plugs.

So for your "clip-and-save" file, here's the scoop on plug wiring. Present-day plugs have silver, brass and green screws on the plug. The

white AC wire is connected to the silver screw. The black (or hot) wire is connected to the brass screw, and the green ground wire is attached to the green "ground" screw.

John Bisset has worked as a chief engineer and contract engineer for more than 30 years. He is a district sales manager for Harris Corp. Reach him at (703) 323-8011.

Submissions for this column are encouraged, and qualify for SBE recertification credit. Fax your submission to (703) 323-8044, or send e-mail to jbisset@harris.com



Fig. 3: Check for cracked or broken insulators supporting coils and other components in an ATU.



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GM Journal

Radio World

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April 25, 2001

Chicago Radio in State of Flux

Two Giants Boss Chicago Radio, as the Market Sells, Moves and Flips Its 89 Stations With Abandon

by Tim Jones

Since the Telecom Act passed, Chicago radio revenues have increased more than 60 percent.

When it comes to radio, the city of big shoulders has always been exceptionally well-endowed.

As many markets were losing their classical radio stations, Chicago offered two. The city also had two 50,000-watt clear-channel all-news stations and three sports-talk stations. (Some might call this a mixed blessing, given the recent performance of its pro sports teams.)

Things have changed in Chicago, the third-largest Arbitron market. It now has one classical station. Last August, one of the all-news stations disappeared. The three all-sports stations remain, but some fans bemoan that it is difficult to distinguish among them.

That's the increasingly homogenous nature of Chicago radio, which lost some of its quirky identity in the past year through consolidation forces that have helped redefi-ne radio across the nation.

'Good mix'

"Deregulation has certainly been good for the business of radio. Obviously with fewer owners there is the ability to make higher profits," said Mike Elder, operations director at ABC's WLS(AM), which earned a 4.5 share of the Winter Arbitron ratings, among listeners 12 and older, Monday to Sunday, 6 a.m. to midnight. (All references to Arbitron Winter ratings in this article refer to this demographic, except where noted.)

"From the listeners' stand-

point, I don't know."

Elder said he has not taken one telephone call from a listener complaining about the corporate control of radio or the loss of competition in the marketplace. He thinks Chicago has maintained a good mix of local and syndicated programming, such as Rush Limbaugh and Dr. Laura Schlessinger, two popular draws on WLS.

"But it's really a different marketplace now," Elder said, adding that the loss of localism brought about by companies trying to maximize profits "has hurt to some degree."

That is a belief held by many in the industry, most recently expressed by John Gehron, co-chief operating officer of Infinity.

At a country music conference in Nashville in March, Gehron said he heard "a sameness from station to station. I hear

See CHICAGO, page 24 ▶

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Chicago

► Continued from page 23
wonderful production and I don't hear any personality."

To be sure, Chicago still has its home-grown favorites. Don and Roma Wade, a husband-and-wife team, host the morning drive-time gabfest on ABC news/talker WLS(AM). Steve Dahl holds court every afternoon at Infinity talk station WCKG(FM). Mancow Muller is morning drive-time anchor on Emmis' alternative WKQX(FM), as is Kevin Matthews on ABC's WZZN(FM). Tribune Co.'s news/talker WGN(AM) has the distinction of shunning syndicated show hosts.

The Chicago market also has changed in ways unrelated to deregulation. For one, English-language stations can no longer

simply carve the pie for themselves.

Ten years ago, Chicago had four Spanish-language stations; now there are seven. Two — Spanish Broadcasting System's WLEY(FM) and Hispanic Broadcasting Corp.'s WOJO(FM) — have cracked the top 15 stations as measured by ad revenue. WOJO earned \$14.3 million and WLEY collected \$12.1 million ad revenue dollars in 2000, according to BIAfin.

Hispanic boom

Recent census figures show the Chicago area's Hispanic population soared 68 percent in the past decade, to more than 1.4 million. Chicago is the fifth-largest Hispanic market in the country, according to Arbitron, and the media market here has reflected that growth.

While the market's Spanish-language stations earned \$44.3 million in revenues

last year — a figure that lags far behind the proportional representation of the Chicago market's Hispanic population — station executives are convinced the new census numbers will present a compelling case for advertisers to spend more money at Hispanic radio stations.

"I gotta believe that after the census numbers are digested," said Mario Paez, general manager of WLEY(FM), "the numbers will go up."

If Hispanic's ad dollars were to reach parity with the Hispanic population in this market, those dollars would reflect a dou-



WBBM(FM)'s SummerBash 2000 featured fashion shows in addition to big-name musical talent that included Destiny's Child, R. Kelly, Sisqo and Enrique Iglesias.

bling of the advertising dollar over the current amount.

Thanks to deregulation, radio in Chicago has been in rapid transition from mom-and-pop operations to the corporate suite since the mid-1990s. Chicago, with 89 stations, provides a good example of how the business has changed to a battle among giants.

The two largest owners dominate the city: Clear Channel Communications and Infinity Broadcasting Corp.

Combined, these Goliaths earned \$304.3 million with their 14 stations, or almost 54 percent of the market's \$564.4 million ad revenue last year.

Clearly urban

The nearest single competitor was Tribune Co., whose WGN(AM) collected \$38.5 million last year, according to BIAfin.

The big companies' consolidation strategy is paying ratings dividends. Clear Channel and Infinity placed six stations in the top 10 during the Winter Arbitron ratings period.

Clear Channel's urban WGCI(FM), with \$38.8 million in revenue, was the highest-rated station, with a 7.5 share. Clear Channel's smooth jazz WNUA(AM), with \$25.4 million, finished fourth with a 4.0 and

See CHICAGO, page 26 ►

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Chicago

Market rank: 3
Market revenue rank: 3
Number of FMs: 46
Number of AMs: 43

Estimated Revenue (in \$ 000s):
1996: 349,700
1997: 388,600
1998: 439,400
1999: 534,800
2000: 564,400
2001: 603,900

Revenue Growth:
'94 - '99: 11.4%
'00 - '04: 7.2% (proj.)

Local Revenue: 72%
National Revenue: 28%

1999 Population: 2,896,016
Per Capita Income: \$21,094
Median Income: \$47,532
Average Household Income: \$58,280



The Field Museum in Chicago displays their treasure, 'Sue,' the largest, most complete, best-preserved skeleton of a T.Rex.

Contest Rules: To enter the drawing, simply register online at www.rwonline.com/sweeps. 25 drawings will be held throughout the year. Contest ends December 19, 2001. One prize per winner. All contestants MUST reside in the United States and have a valid mailing address. Winners should receive prizes within 30 days of notification, however, actual delivery time may vary and is not guaranteed by IMAS Publishing. Federal, state and local tax laws may apply to prizes and are the sole responsibility of the winner.

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Chicago

► Continued from page 24

urban/adult contemporary WVAZ(FM), with \$24.6 million in 2000 revenues, was fifth with a 3.8.

Infinity stations ranked third, sixth, eighth and 10th. Its contemporary hits station WBBM(FM), with \$27 million in 2000 revenue, earned a 5.3 share, and news/talk WBBM(AM), with \$26.1 million, had a 3.6 share. Infinity's oldies station, WJMK(FM), which earned \$19.8 million last year, held a 3.3. Country WUSN(FM), with \$34.8 million in revenues, earned a 2.9.

Seven-station share

Infinity's seven stations had a combined share of 23.2 percent, while Clear Channel's six-station group collected a 21.2 percent share. This kind of strong performance was unthinkable five years ago.

When Congress unlocked the regulatory floodgates by approving the Telecommunications Act of 1996, the Chicago radio market — like virtually every big market in the country — went through a monumental change.

And through it all, radio revenue soared in Chicago, from \$349.7 million total for the market in 1996 to \$564.4 million in 2000, an increase of more than 60 percent.

Chicago was a central player in the consolidation movement. Sam Zell, the financier and real estate czar, was the chairman of Chicago-based Jacor

Communications. Jacor epitomized the meteoric growth of radio groups as it rose to become the fourth-largest station group in the country before agreeing to be bought by Clear Channel in 1998.

Chicago radio veteran James deCastro rose to the top of Chancellor Media Corp. (later AMFM Inc.) and saw his company swallowed by Clear Channel a year later, in October 1999. The domination by one or

Evergreen Media and Tribune vying for listeners.

In fairly short order, AMFM, Infinity, Clear Channel and to a lesser extent, Bonneville redefined the Chicago radio landscape.

Jack Minkow, president of Broadcasting Asset Management Corp. of Winnetka, Ill. should know. He brokered the whopping \$165 million sale of WNIB(FM) and its sis-



(From left) Mike North, weekday afternoon 'Score Guy' at WSCR(AM), broadcasts in February from the 'Tasty Dog,' an Oak Park, Ill., hangout in danger of seizure via eminent domain by local authorities who plan to sell the property to developers. Rob Barton, talking with North, owns the Tasty Dog with his brother Mike, said the 'Dog' would be saved and moved across the street. (That's Mike North's friend 'Knuckles' in the background.)

two companies was unheard of five years ago, when the Chicago market was a balkanized realm of station ownership, with companies like Gannett, Viacom, Century, Diamond, Pyramid, Westinghouse,

ter station, WNIZ(FM), the last local independent stations in the market, in November last year. Bonneville International Corp., the privately held broadcasting arm of the Church of Jesus Christ of Latter-day Saints, added the signals to its stable of 18 stations, including three in Chicago.

Biggest sale

WNIB is a case study in the power of money and the lure of a strong broadcast signal. Owners Bill and Sonia Florian began running the station in 1955, offering an odd mixture of jazz, show tunes and classical music. The station was like their home, as well as the actual home to a mangy assortment of cats and dogs.

As Minkow said, they indulged their tastes and consistently earned higher ratings and more revenue than their wealthier opposition, WFMT(FM), owned by the nonprofit



The entrance to public station WBEZ(FM) on the Navy Pier is marked by a Ted Gall sculpture.

Window to the World Communications.

Radio regulation and their own programming savvy enabled the Florians to stay in business and continually fend off lucrative offers to sell. That all changed last summer.

Classical music fans were horrified when the Florians couldn't say no any longer. But then, they weren't there when the Florians pondered the monetary implications of \$165 million.

"I don't think (selling) had been in our minds until the broker started calling this summer," Sonia Florian said in November when the WNIB/WNIZ sale was announced.

"We'd hoped to keep it until death, but that's a bad time to start thinking about the future."

The Florians certainly weren't the first in Chicago to find the temptation irresistible. George Collias and his broadcast partners turned a \$300,000 investment in 1966 in obscure station WFMT(FM) — now WNND(FM) — into a \$77 million sale 31 years later.

Evergreen Broadcasting Corp. was the
See CHICAGO, page 27 ►

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Chicago

► Continued from page 26

buyer, but it would soon be bought by Chancellor Communications, which itself would be bought by Clear Channel. Bonneville now owns WNND(FM).

Big changes

The Chicago radio market is still in transition.

Last August, Infinity Broadcasting Corp. pulled the plug on WMAQ(AM), one of the oldest names in broadcasting, and shut down the station's all-news operation. Infinity took the call letters from WSQR(AM), another Chicago station it owned, and recreated WMAQ as a sports talk station.



Davante Stone, afternoon host on Chicago's top-ranked WGCI(FM), is at the mic for Clear Channel's 'Big Jam' holiday concert at the United Center last December. With him are producer Lisa Edwards and station staff.

Infinity owned the other all-news station in the city, WBBM(AM), and didn't see economic sense in competing against its own property.

The demise of WMAQ may have helped news-oriented public station WBEZ(FM). The station now competes in drive-time hours with WBBM(AM) for the news audience and has been able to cut its on-air pledge drives from four per year to two thanks in part to the Internet.

Over a three-day period in January, WBEZ ditched its regular on-air fundraising drive and asked listeners to pledge online. The goal was modest: \$100,00 and the on-air reminders were brief — anywhere from 15 seconds to 1 minute — totaling 55 minutes over three days.

It marked the first time the station

replaced an entire on-air pledge drive with the Internet. The results exceeded expectations: WBEZ collected \$135,000.

Still, that is a tiny portion of the station's annual \$4.1 million fundraising budget, \$1.7 million of which it receives directly from listeners. Torey Malatia, WBEZ's president and general manager, said the Internet helps but has its limitations.

"The Internet does reduce the annoyance to a minimum, but you can't cut the on-air drives down to zero," Malatia said.

Timeless rock

In late February, Bonneville, which owns WLUP(FM), WNND(FM) and WTMX(FM), officially took over WNIB(FM). In late March, the company changed the call letters to WDRV(FM), dropped the classical format and launched yet another derivation of the classic rock format.

"Timeless rock," said the new WDRV promo. "Different? Yeah. This radio station is all about you — your life, your times."

Bonneville already operates two classical music stations — in Washington and San Francisco — so it chose to enter the already-fierce competition for the Chicago popular music audience rather than operate a third classical station there. And Chicago already has classical music station WFMT(FM).

Where the Florian's WNIB was always a clearly defined niche player in the Chicago radio wars, the station's re-creation as WDRV has heightened the already fierce competition for the popular music audience.

Six of the top 10 stations in the Winter Arbitron ratings were either urban or adult contemporary formats.

One example of the phenomenon was exhibited on the day the Florians said they would sell last November. ABC-owned WXCD(FM) fired nearly its entire staff and changed its format from classic rock to '80s.

In January, WBUT(FM) changed its call letters to WKSC(FM) and its format, moving from jammin' oldies to contemporary hit music.

News/talk placed three in the top 10, with Tribune Broadcasting's WGN(AM) second, with a 6.4 share and ABC's WLS(AM), with a 5.0 share was fifth, joining No. 6 WBBM(AM) in that category.

No doubt, the market will continue to change as it settles into its new ownership patterns and tries to determine just the right programming to entice listeners in the "Windy City."

Tim Johnston is the media writer the Chicago Tribune. Contact him via e-mail to txjones@tribune.com

CHICAGO Commercial Radio Market Overview

Station	Owner	Format	BIAn's 2000 Est. Station Revenue (\$000s)	Winter '00 Rating
WGCI(FM)	Clear Channel	Urban	38,800	7.5
WGN(AM)	Tribune Broadcasting	News/Talk	38,500	6.4
WUSN(FM)	Infinity Broadcasting	Country	34,800	2.9
WTMX(FM)	Bonneville International Corp.	AC	28,100	3.6
WBBM(FM)	Infinity Broadcasting	CHR/Dance	27,000	5.3
WBBM(AM)	Infinity Broadcasting	News	26,100	3.6
WXRT(FM)	Infinity Broadcasting	Progressive	25,800	2.2
WNUA(FM)	Clear Channel	Smooth Jazz	25,400	4.0
WKQX(FM)	Emmis Communications	Alternative	25,100	3.4
WVAZ(FM)	Clear Channel	Urban AC	24,600	3.8
WCKG(FM)	Infinity Broadcasting	Talk	21,600	2.1
WSCR(AM)	Infinity Broadcasting	Sprts/Talk	21,400	1.7
WLIT(FM)	Clear Channel	Soft AC	19,900	3.0
WJMK(FM)	Infinity Broadcasting	Oldies	19,800	3.3
WLS(AM)	ABC Radio Inc.	News/Talk	18,300	4.5
WKSC(FM)	Clear Channel	CHR	17,100	2.9
WLUP(FM)	Bonneville International Corp.	Cisc Rock	16,600	2.4
WNND(FM)	Bonneville International Corp.	AC	16,100	2.8
WOJO(FM)	Hispanic Broadcasting Corp.	Mexican	14,300	2.0
WLEY(FM)	Spanish Broadcasting System	Mexican	12,100	2.5
WZZN(FM)	ABC Radio Inc.	80s Hits	10,000	2.0
WYLL(AM)	Salem Communications Corp.	ChrsContemp	9,000	1.1
WMVP(AM)	ABC Radio Inc.	Sports	8,600	0.8
WIND(AM)	Hispanic Broadcasting Corp.	Span/News	6,500	0.6
WFMT(FM)	Window to the World Comm. Inc	Classical	5,900	1.4
WKIE(FM)	Big City Radio	CHR/Rhymc	4,500	0.9
WNIB(FM)	Bonneville International Corp.	Variety	4,400	1.7
WXXY(FM)	Big City Radio	Spanish	4,300	0.9
WYBA(FM)	Crawford Broadcasting Co.	Gospel	3,400	0.7
WZSR(FM)	NextMedia Group	AC	2,800	0.5
WIL(FM)	NextMedia Group	Adult Rock	2,750	0.4
WYPA(AM)	NewsWeb Corp.	Talk	2,500	N/A
WLXX(AM)	Hispanic Broadcasting Corp.	Spanish	2,300	0.7
WGCI(AM)	Clear Channel	Black Gospl	2,000	1.1
WRZA(FM)	Entravision Comm. Co. LLC	Spanish	2,000	0.3
WNTD(AM)	Radio Unica	Spanish	1,850	0.6
WYCA(FM)	Crawford Broadcasting Co.	Gospel	1,700	0.6
WPNA(AM)	Polish National Alliance	Polish	1,600	N/A
WRDZ(AM)	ABC Radio Inc.	Children	1,600	N/A
WVON(AM)	Midway Broadcasting	Talk	1,600	0.7
WXLC(FM)	NextMedia Group	Hot AC	1,600	0.3
WAIT(AM)	NextMedia Group	Nostalgia	1,450	1.7
WNVR(AM)	Polnet Communications Ltd	Polish	1,400	N/A
WSPY(FM)	Nelson Enterprises	AC	1,200	N/A
WERV(FM)	NextMedia Group	Oldies	800	N/A
WLIP(AM)	NextMedia Group	Adit Stndrd	700	N/A
WCCQ(FM)	Three Eagles Comm. Inc.	Country	650	N/A
WJOL(AM)	NextMedia Group	Talk	650	N/A
WZCH(FM)	Entravision Comm. Co. LLC	Spanish	650	0.1
WCGO(AM)	Q Broadcasting Corp. Inc	Nostalgia	600	0.4
WJTW(FM)	NextMedia Group	AC	550	N/A
WKTA(AM)	Polnet Communications Ltd	Diverse	500	N/A
WNIZ(FM)	Bonneville International Corp.	AC	500	0.1
WCSJ(AM)	Nelson Enterprises	Adlt Stndrd	400	N/A
WLLI(FM)	NextMedia Group	Rock	400	N/A
WKRS(AM)	NextMedia Group	News/Talk	350	N/A
WYKT(FM)	STARadio Corp.	AAA	350	N/A
WYXX(FM)	Big City Radio	Spanish	300	N/A
WYLL(FM)	Salem Communications Corp.	ChrsContemp	300	N/A
WBVS(FM)	NextMedia Group	CHR	250	N/A
WKKD(AM)	NextMedia Group	News	100	N/A

BIA Financial network Stations are ranked in order of Arbitron Winter 2000 12+ share. Copyright 2001 the Arbitron Company. May not be quoted or reproduced without the prior written permission of Arbitron. Other information provided by BIA Financial Network through its MEDIA Access Pro Radio Analyzet Database software.

Background: Clouds scrape the mighty Sears Tower as it stands on Jackson Ave. in downtown Chicago.

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Retail Tops Radio Advertising List

Dot-com Companies Spend Almost as Much as Leading Category Retail in 2000

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also increased the percentage of their national ad budgets allocated to our medium, according to Interep.

Retail lead the spending list with \$396.9 million on national radio ads, followed by media companies with \$311.1 million. Among the top individual radio advertisers was Verizon, with \$72.18 million, followed by AT&T with \$56.4 million spent on radio ads last year. As a category, telecommunications ranked fourth in dollar rank, according to the Interep analysis.

Of the companies increasing the percentage of their national ad budgets to radio, six increased their percentage of spending by more than two percentage points. They include gum manufacturer William Wrigley, General Motors' Dealers' Associations, DaimlerChrysler Dealer Association, Sears & Roebuck, AT&T, Procter & Gamble and pharmaceutical and consumer healthcare company Pfizer Inc.

Debbie Durben, president of the Interep Marketing Group, stated, "Advertisers' decisions to allocate an increasing percentage of their media budgets to radio is the best testament to the medium's marketing effective-

ness. We are particularly proud of the progress that we are making in the packaged goods and pharmaceutical categories, areas that have typically under-utilized our medium."

dot-com spending.

The categories reported in the "2000's National Radio Ad Categories" chart shown here exclude dot-com spending.

"We break out the dot-com spending from the traditional companies' categories because we find most people like to see the contrast between

2000's National Radio Ad Categories by Dollar Rank *

- | | |
|-----------------------|-----------------|
| 1. Retail | \$396.9 million |
| 2. Media | \$311.1 million |
| 3. Automotive | \$287.9 million |
| 4. Telecommunications | \$275.7 million |
| 5. U.S. Government | \$172.7 million |
| 6. Financial | \$164.5 million |
| 7. Restaurants | \$150.0 million |
| 8. Medicines/Remedies | \$129.9 million |
| 9. Insurance/Realty | \$127.1 million |
| 10. Department Stores | \$110.7 million |

* Above figures exclude dot-com spending in each category.

Source: Interep Analysis of CMR data, January - December 2000; Total National Spot & Network Radio Expenditures.



Top 10 National Radio Advertisers of 2000 (000's)

- | | |
|----------------------------|----------|
| 1. Verizon | \$72,118 |
| 2. AT&T Corp. | \$56,395 |
| 3. National Amusements | \$52,502 |
| 4. Time Warner | \$50,252 |
| 5. U.S. Government | \$49,973 |
| 6. DaimlerChrysler Dealers | \$47,381 |
| 7. SCB Communications | \$46,832 |
| 8. Berkshire Hathaway | \$44,403 |
| 9. General Motors | \$39,891 |
| 10. General Electric | \$37,968 |

Source: CMR 2000; Total National Spot & Network Radio Expenditures.

Interep said its analysis is based on data from Competitive Media Reporting, which separates the large department store sector from the retail category. If the two are combined, total retail dollars still slightly exceed

them," said Michele Skettino, vice president, marketing communications at Interep.

Last year, dot-com advertisers spent half a billion dollars on national radio, according to Interep.

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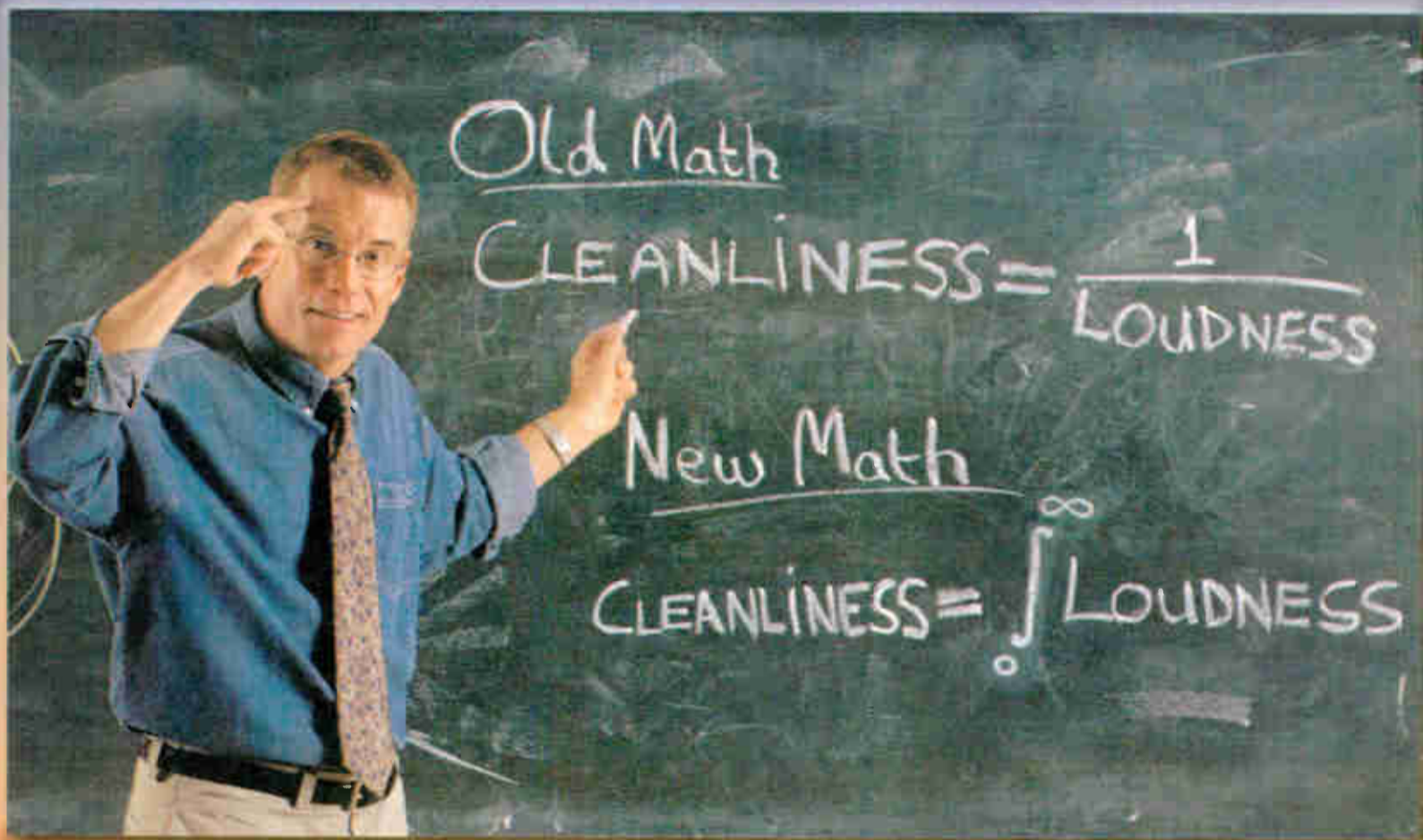
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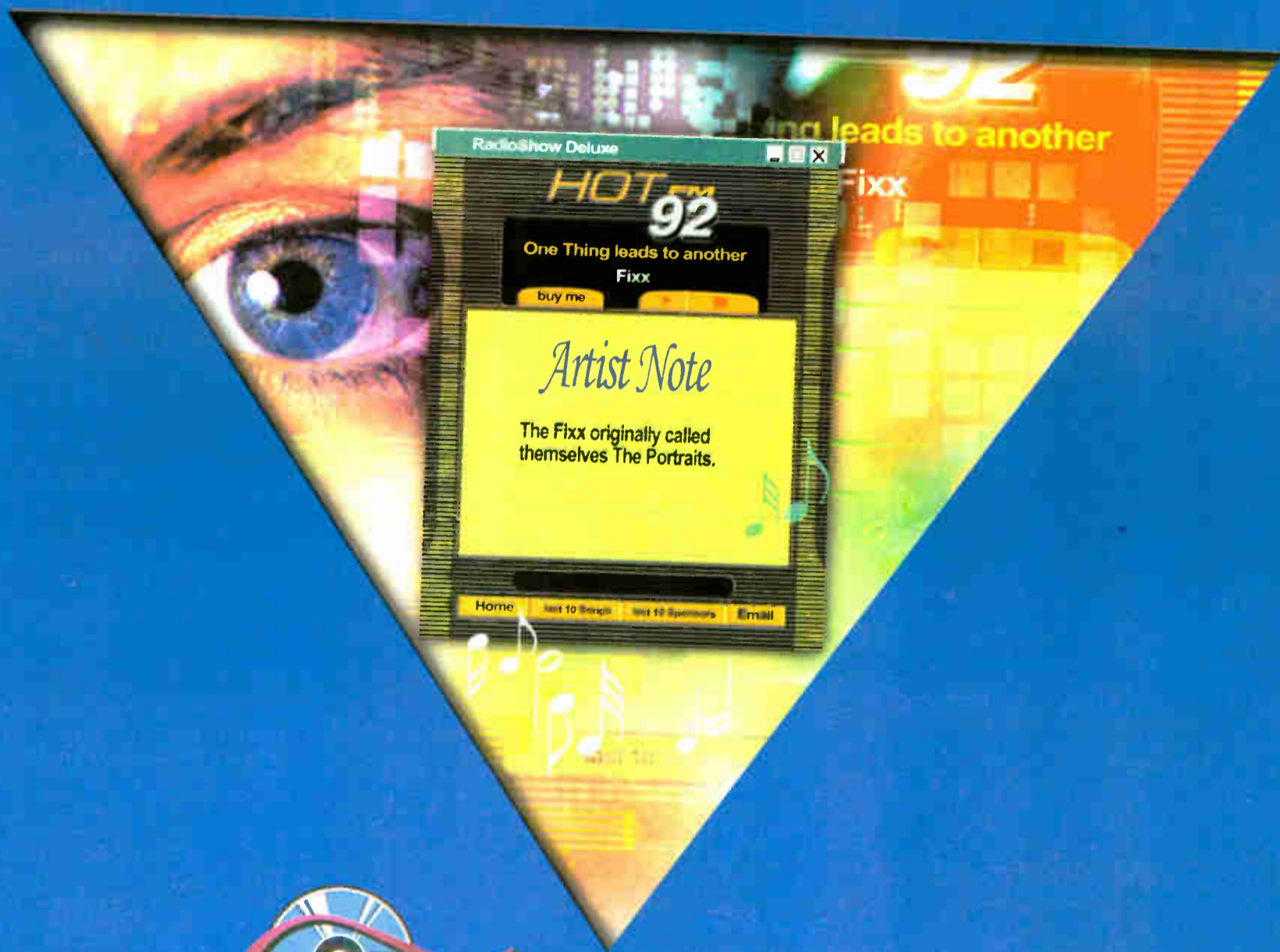
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Internet Radio



Fish Finder
See Page 38

Radio World

How to Succeed in the Dot-Com World

April 25, 2001

NEWS MAKER

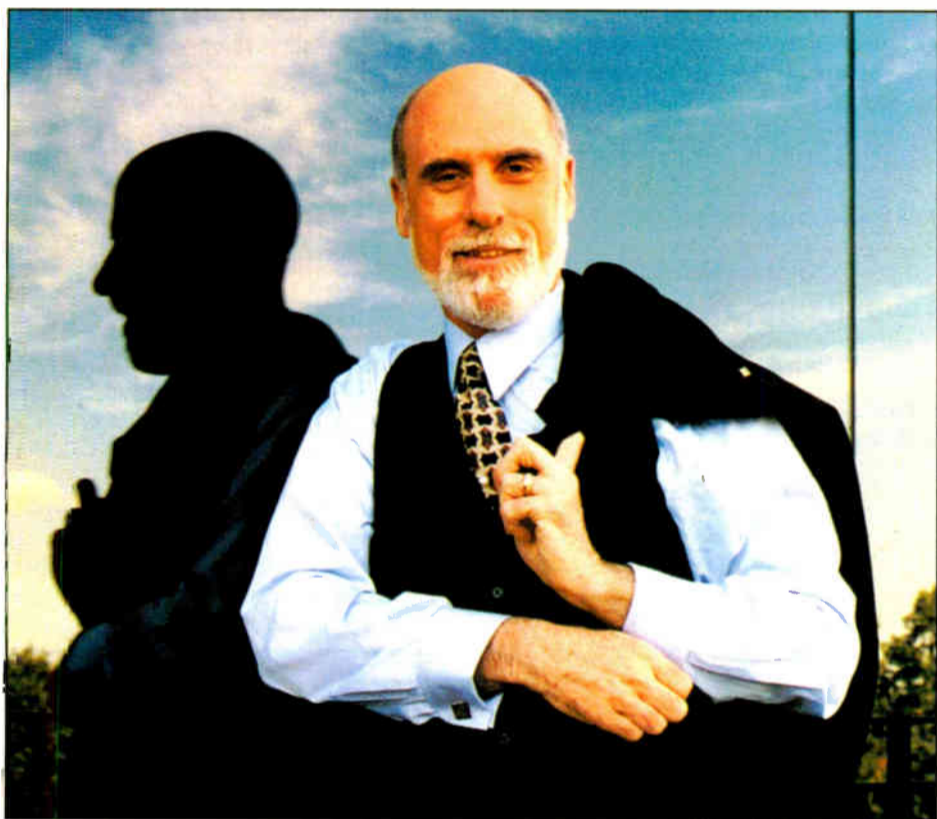
Vinton Cerf, Architect of the Web

No doubt he's tired of hearing the Al Gore jokes by now. But a few pioneers are recognized as the founding fathers of the Net. Among them is Senior Vice President of Internet Architecture and Technology for WorldCom Vinton Cerf.

Cerf delivers the Technology Luncheon keynote address on Wednesday, April 25, at the NAB2001 convention in Las Vegas.

chairman of the board in 1999.

He is the founding chairman of the new Internet Societal Task Force, charged with making Internet access universal and analyzing international, national and local policies for Net use. He has been a member of the U.S. Presidential Information Technology Advisory Committee since 1997.



Vinton Cerf

His technical innovations include co-designing the TCP/IP protocols that serve as the underlying architecture of the World Wide Web. He served as the founding president of the Internet Society from 1992-95 and the organization's

Cerf's work has helped create an emerging communications medium based on delivering packets of data quite unlike the steady stream typical of traditional broadcast. The Internet's distinctive information infrastructure defines both

limits and possibilities for new media.

Radio World's Carl Lindemann interviewed Cerf about what lies ahead for radio and the Internet.

RW: Does radio really translate to the Web given the Internet's IP protocols?

Cerf: First, we need to define what we mean by "radio." It's commonly understood as broadcast radio. But radio as a means of wireless communication is affecting the Internet in ways beyond conventional broadcast radio.

A lot of my interest goes beyond the reproduction of broadcasts over the Internet. Think about wireless telegraphy. That's what Marconi demonstrated in 1901. We didn't get the first broadcast use till 1916.

RW: Yes, but station streams are gathering audiences online.

Cerf: Of course. Looking at broadcast in the Internet context, it's already very clear that on-demand radio is happening quite broadly on the Net. So far, there aren't a lot of devices to support this.

Walking around my office, I see people listening to streaming audio in their cubicles with headphones on.

RW: What do you make of the intellectual property issues raised?

Cerf: I don't know what to think about that. My biggest fear is that we'll end up with laws that can't be implemented or, worse, are enforced by the wrong people, like the Internet service provider.

There are other issues that are important to look at as broadcasters move online. Equal time, for example, looks very different here because there's no limit to time on the Internet.

RW: But the FCC does not have the same
See CERF, page 39 ▶

WEB WATCH

Fear and Loathing: Net Radio Stymied

Carl Lindemann

Web Watch is a roundup of all things radio and the Web. Send your news and tips to Internet Radio editor Laura Dely at ld@imaspub.com

Was Chicken Little right? The dot-com downturn has most saying that the sky is falling. Moody markets



have soured. Are all the industries they purportedly represent in shambles? The pullback in online audio is obvious. Not so very long ago, there was a flood of announcements from companies homesteading the Internet/radio frontier.

See WEB WATCH, page 34 ▶

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Clear Channel Enters Net Ratings

Clear Channel Communications Inc. made its first appearance in the latest Internet radio ratings from both Arbitron and MeasureCast Inc.

In the latest Arbitron's Webcast Network Ratings, Clear Channel had 95,000 aggregate tuning hours for the month of December. Ironically, in April the group suspended streaming as a reaction to increased spot talent expenses.

Arbitron defines ATH as the total sum of hours that listeners tune to a given station. Clear Channel ranked 23rd in the Arbitron December, 2000 "Webcast Networks Ratings Report"; while CyberAxis/Clear Channel station Star98.7, KYSR(FM) appeared in the No. 7 spot in the March Internet radio station ratings from MeasureCast.

Topping the chart in December's Arbitron Webcast Network Ratings was NetRadio, an aggregator that offers music in many formats, with more than 2 million ATH for the month. Live365, an Internet-only radio service that enables anyone to create their own radio station or listen to thousands of stations created by others, has climbed to the No. 2 spot with more than 1.7 million ATH.

Live365 bumped ABC Radio Networks, which slips from the No. 2 to the No. 4 slot, which Live365 held in the previous month.

Other newcomers to the Top 25 list are No. 6 CableMusic Networks Inc., No. 7 Beethoven.com,

No. 13 Entercom and No. 14 MEDIAmazing.

To see the complete Arbitron December Webcast Ratings, visit www.Arbitron.com

MeasureCast Inc. reports that while Internet radio listening is primarily a weekday (at work) activity, there are a few shows Webcast on weekends that draw even bigger audiences.

ABC Radio's "Money Talk," with host Bob Brinker, broadcast from WLS(AM) in Chicago, draws a larger audience during his Saturday and Sunday afternoon shows than the station's programming in the same time slot during the week.

But weekend listeners tune in online throughout the weekend. MeasureCast found that only 44 percent of Saturday and Sunday online listeners were tuned in between 7 a.m. and 3 p.m., far less than the 67 percent of weekday listening that occurs during this time period.

MEDIAmazing, a listener-formatted Internet-only station, moved up to take the No. 1 spot in the MeasureCast March Internet Radio ratings, trading places with March's No. 2: WABC(AM)/77.

MeasureCast also reports that in March, Internet radio audience increased 21 percent over January's, continuing the trend of ever-bigger audiences for online audio every month.

—Laura Dely

The MeasureCast Top 10 — March 2001

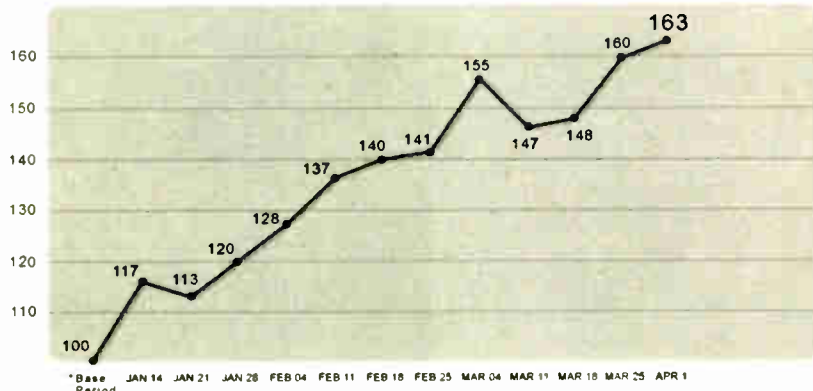
measurecast

Stations are rated by TTSL — Total Time Spent Listening — the number of hours streamed by the broadcaster in the reported time period (March 2001).

Channel/Format	Owner	URL	TTSL
1. MEDIAmazing/Listener Formatted	MEDIAmazing	www.mediamaizing.com	429,366
2. WABC(AM)/Talk Radio	ABC Radio	www.wabcradio.com	344,736
3. Virgin Radio/Adult Alt	Ginger Online	www.virginradio.co.uk	277,652
4. WSKQ/Spanish	LaMusica/Spanish Broadcasting	www.lamega.com	243,821
5. Radio Margaritaville/Classic Rock	InternetAmerica	www.radiomargaritaville.com	199,437
6. WPLJ(FM)/CHR-Top40	ABC Radio	www.wplj.com	193,888
7. KYSR(FM)/Adult Cont.	CyberAxis/ClearChannel	www.star987.com	187,878
8. Black Gospel Network/Gospel	Oneplace/Salem Comm	www.oneplace.com	187,022
9. WJZW(FM) Jazz	ABC Radio	www.smoothjazz1059.com	175,055
10. KQRS(FM)/Classic Rock	ABC Radio	www.kqrs.com	156,423

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2001



* Base Period is an average of the weekly Total Time Spent Listening (TTSL) from OCT 30, 2000 through JAN 07, 2001
** Index values are for an entire week ending on the date listed above

Arbitron Webcast Networks Top-10 Report — Dec. 2000



Webcast networks (either radio station owners that stream their content online or aggregators of online content) are rated by ATH — aggregate tuning hours — the sum total of all hours that listeners tune to an Internet station.

Network	Owner	URL	ATH
1. NetRadio*	NetRadio Corp.	www.netradio.com	2,198,500
2. Live365	Nanocosm, Inc.	www.Live365.com	1,796,200
3. GlobalMedia	GlobalMedia,	www.globalmedia.com	1,607,400
4. ABC Radio	ABC Radio	www.abcradio.com	1,594,800
5. BroadcastAmerica	BroadcastAmerica	N/A	713,900
6. CableMusic Networks	CableMusic Networks	www.cablemusic.com	590,200
7. Beethoven.com	Marlin Broadcasting	www.Beethoven.com	565,700
8. Enigma Digital	Enigma Digital	www.enigmadigital.com	416,400
9. DiscJockey.com	DiscJockey.com	www.disjockey.com	389,500
10. Corus Entertainment	Corus Entertainment	www.corusentertainment.com	373,500

* Tuning information for the Dec. 13 to Dec. 31, 2000 period is incomplete.

N/A: BroadcastAmerica has dissolved its business and is no longer online.

Web Watch

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For all the panic, here's the simple truth for broadcasters to hold on to through the downturn: Online audiences continue to show strong growth with streaming audio one of the main draws.

Roosters crow

Content may be king, but in a downturn, the ad man rules the roost. Live365, which made an impressive move to the No. 2 slot in the latest Arbitron Webcast Network Ratings, has also restructured its sales force.

The company brought on new leadership to manage it, with Terry Higham appointed director of advertising sales. He moves from SurferNETWORK, where he was national sales manager. In addition to selling and educating ad agencies about streaming media, Higham will represent Live365's east coast relationships. Also, a "new business sales group" has been formed.

Ron Denman will lead the new group as vice president of new business sales. Denman is a radio veteran. He is co-founder of DG Systems, the digital distribution network for radio and TV commercials. He also served as general sales manager at Infinity's KFRC(AM/FM) in San Francisco.

Garrett Jamison will work with Denman as director, new business sales. Jamison comes to Live365 from OnAir Streaming Networks, where he was director of business development.



Ron Denman

Stepping up

Interactive media sales are starting to line up some high-profile clients.

CyberRep, an interactive ad agency, announced that the Discovery Channel bought ads on two of its Webcasting client's sites to promote a documentary, "Land of the Mammoths," in March. The CyberRep sites, RadioWave and TheDial, streaming audio channels, used the same radio spot copy for the streaming spots.



"Forward-thinking advertisers like the Discovery Channel are recognizing that if it works on radio, it can work on streaming audio," said Emily Beys, vice president of CyberRep.com.

Of course, advertisers continue to look to research firms for information to inform media buys. The new MeasureCast Internet Radio Index is a weekly measurement that places audience statistics in a context that reveals trends. (See Net radio ratings, at left.)

"Our index is calculated much the way the S&P 500 and other stock indices are calculated, meaning it is a representation of the trend in 'total time spent listening' across a spectrum of online stations measured by MeasureCast," said

Evan Oster, vice president of research for MeasureCast.

At Arbitron, a surprise winner surfaced in the December Arbitron Webcast Ratings, when Beethoven.com managed to nudge out the formerly first-place WABCRadio.com for the most aggregate tuning hours. Beethoven.com is owned and operated by Marlin Broadcasting, better known for WCCC-FM-AM in Hartford, Conn.

The Web-only classical station racked up an impressive 565,700 ATH in December, well over news/talker WABC(AM)'s 294,800. What is most amazing is that Beethoven.com managed this coup while news/talk formats thrived both on-air and online in the wake of the presidential election fracas.

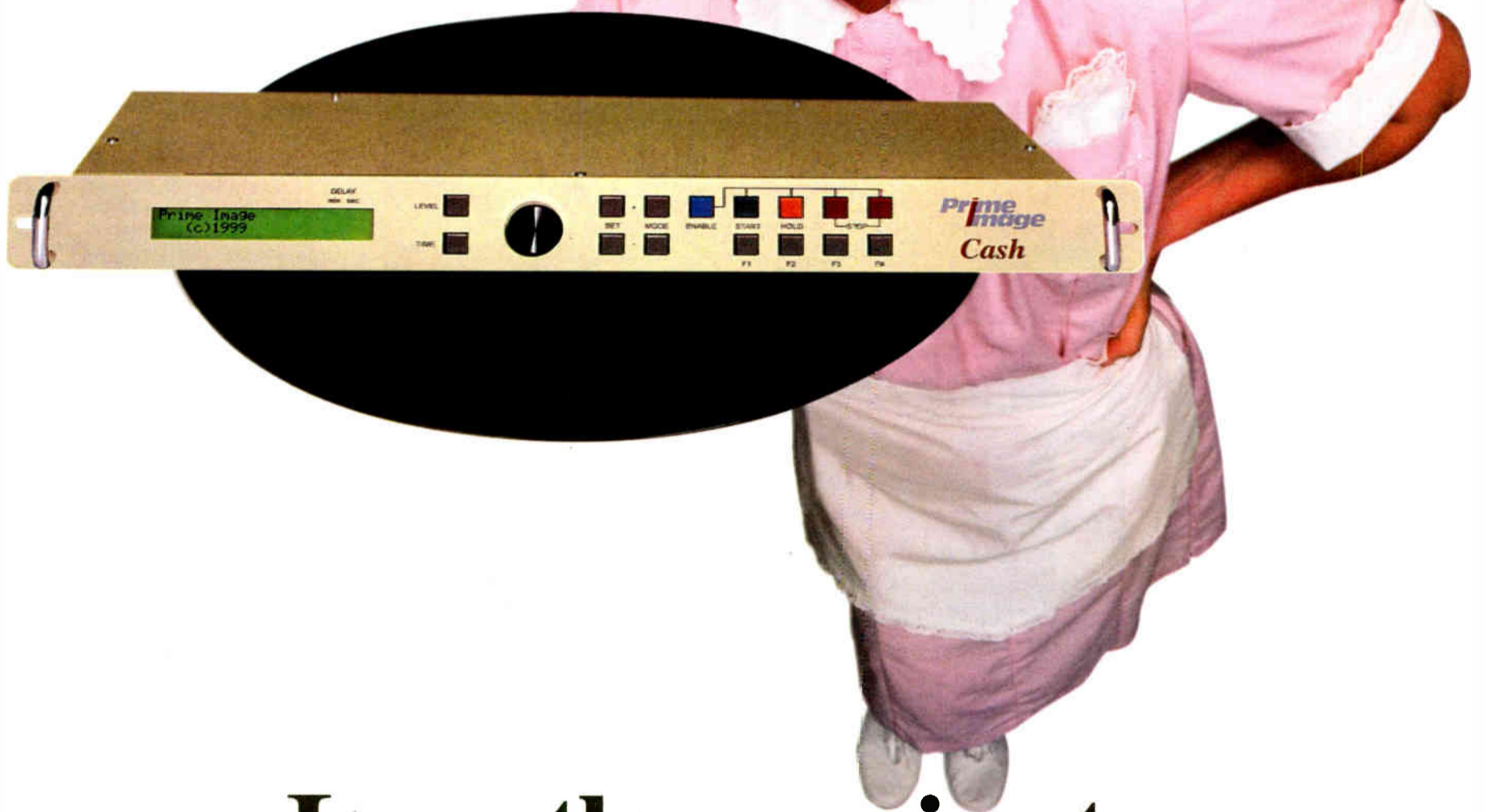


Evan Oster

"A major part of our success is that we've created a relationship with the listener that makes them want to come back to Beethoven.com on a daily basis," said Kevin

See WEB WATCH, page 36 ►

Introducing the Cash™ miracle diet.



Lose three minutes in an hour!

Gone are the days of hunt-and-cut editing, warbling time compression, and sped-up chipmunk audio. Now overstuffed, overtime audio productions can be reduced through a real-time, undetectable process that can cut up to one minute of audio from every twenty without reducing program content.

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something more important to do. Like kicking back and enjoying a cup of coffee—but, in the interest of your waistline, take a pass on the donuts.

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Shively, director of Web content and business development at Beethoven.com.

Two other classical stations hit the Arbitron Top 25 Webcast ratings, including sixth-ranked Seattle-based KING(FM), a Classic Radio Inc. station and Washington-based Bonneville station WGMS(FM) which placed 23rd.



SurferNETWORK

The Voice of the Internet

SurferNETWORK, the New Jersey-based Webcasting company, continues to pull together the pieces left in the wake of the dissolution of BroadcastAmerica.com.

Gordon Bridge, chairman and chief executive officer of SN, said it was working through lists of stations orphaned in BA's demise to offer to restore streaming services, after SN secured BA's radio assets in bankruptcy court.

"Technically speaking, the contracts (they had with BA) are binding. We're in the process of contacting the radio stations and getting them up and running. Our intention is not to obligate people. It's never a good idea to sue your customers," he said.

Meanwhile, Broadcast-URBAN.com has come over to SN. The 100-plus station urban radio Webcaster has formed a strategic alliance reminiscent of one made previously with BA. BroadcastURBAN is privately held.

"They did have a relationship with BA, actually brought up some stations as BA affiliates. We plan on doing

something similar," said Bridge.

According to Bridge, SN is up more than 100 stations and is adding several daily. He expects to pass the 500-station mark by midyear.

They're here

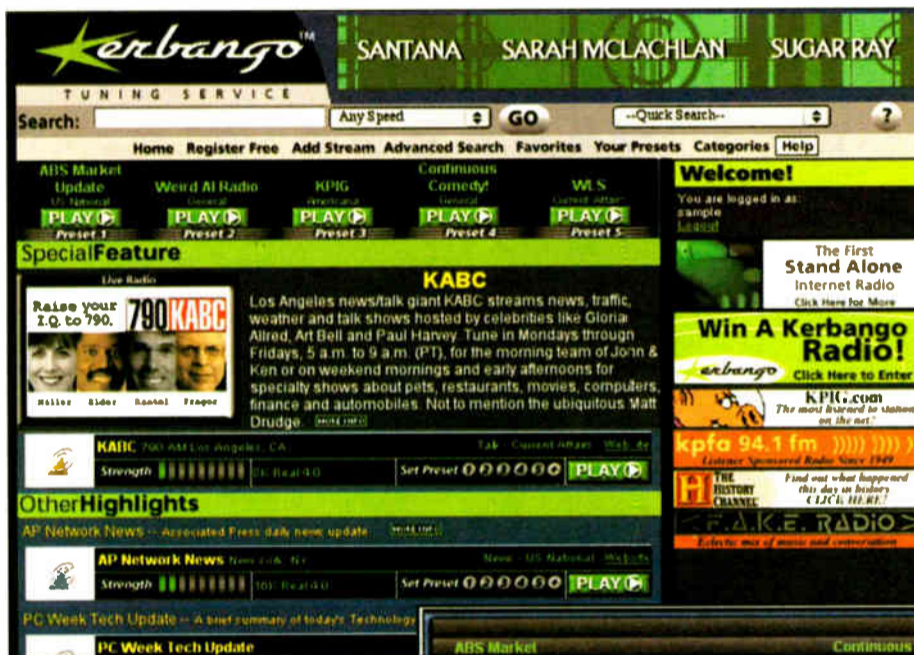
According to the Pew Internet & American Life Project, many millions join the online ranks each month. The study reveals that as of January, 56 percent of adults have Internet access, as do 45 percent of children.

This is a dream come true to those who can remember back five years ago. Back then, the Web was populated by early adopters who occasionally took time out from deep reflections inspired by the latest episode of the "X-Files" to rant about the presence of any commercial activities online.

We are way past the "If you build it, they will come" phase. Now that they've arrived, the challenge is to figure out how to make money from the



The Late, Great, Kerbango Radio



The Kerbango Internet Radio Web site is Ker-gone-go.

gathered multitudes.

Given this reality, the reaction by some companies is utterly astounding, with Intel at the top of the list of those throwing the baby out with the bath water. In February, the giant chipmaker gave up on its streaming services initiative. After investing in mammoth facilities both stateside and in England, the company made an about-face on this year-old initiative.

Hasty?

Did Intel suddenly decide that the Internet was a fad? Did they have some research that showed this something like the CB radio craze in the '70s?

More than likely, the drastic decision was more a reaction to other problems that make the fate of the streaming services initiative seem like a ripple in a tidal wave.

In the first quarter 2001, Intel's chip sales dropped 25 percent from the previous quarter and some 5,000 jobs are about to be phased-out.

At 3Com, first-quarter 2001 losses hit \$246 million — quite a shift from \$506.3 million revenues from the year before.

"The abruptness and severity of the current technology slowdown has clearly impacted 3Com," said Bruce Clafflin, the company's chief executive. "3Com is taking immediate steps to reduce costs and achieve profitability," he said.

Kerbango gone

One of those steps is to pull the plug on all its Internet appliances. The recently released "Audrey," an e-mail station and Internet surfboard, and the long-awaited Kerbango Internet Radio are history. Incredibly, announcements of Kerbango's final release were sent out just days prior to the bad news.

Other companies are simply cutting back. The incredible growth in many organizations in the past few years was in anticipation of a continuing boom. Up until the end of last year, it was still possible to argue that the markets would bounce back, that the downturn was only temporary.

See WEB WATCH, page 37



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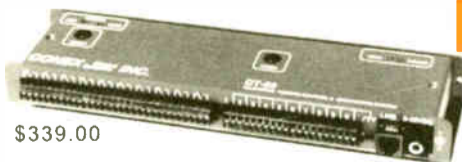
Operates with Motorola bag type cell phones.



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Web Watch

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Those hopes faded as the winter's chill set in. The **Walt Disney Internet Group** cut 135 staff positions at the

Though the Chicken Littles of Internet radio may be — I think they are most certainly — mistaken, sometimes such paranoia isn't totally misplaced. Some savvy marketers even capitalized on the "sky is falling" motif. On its Web site, **Taco Bell** offered a certificate for free taco to

everyone in the United States if any core elements of the **Mir** space station happened to land on a floating target they'd set adrift in the Pacific.

The odds of a direct hit on the floating 40-foot target painted with a **Taco Bell** bull's eye and bold purple letters stating: "Free Taco Here" logo were pretty remote. But how can you know for sure?

Just in case, the company took out an insurance policy so that it wouldn't get stuck with having to pay for the whole enchilada.

Too bad more Internet companies didn't have the same foresight last year to set aside something just in case the boom didn't last.

Carl Lindemann has worked in radio as a field reporter and production director.



Taco Bell's Web site offered a minute-by-minute countdown of Mir's descent and this picture of its 'Free Taco If Mir Hits This' target that was floating in the South Pacific.

He consults on radio/new media projects and writes extensively on these subjects. Reach him at carl@cyberscene.com

As of January, 56 percent of adults have Internet access, as do 45 percent of children. Has the Internet become a mainstream mass medium?

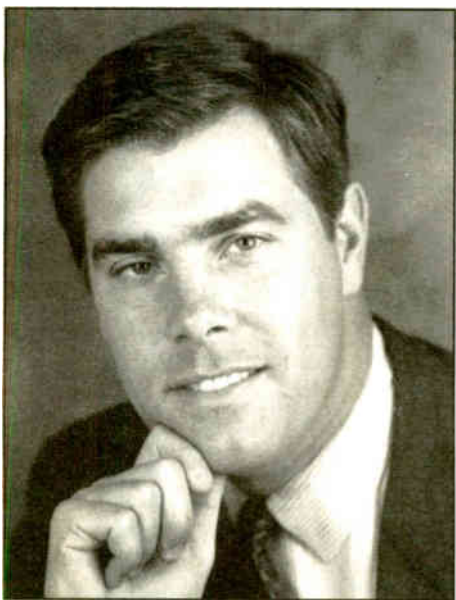
end of February, mostly from **ABC.com** and **ABCNEWS.com**.

These cuts came in the wake of Disney's decision to give up on its **Go.com** portal strategy. Even so, rumors have it that Disney still has an eye out for Internet opportunities. According to **CNET**, when asked about possible interest in acquiring **Yahoo!**, **Disney Chairman Michael Eisner** said that the Internet powerhouse was a great company — just overvalued.

As **Yahoo!** continues to drop — its stock in March was down more than 90 percent from its peak a year earlier — it may soon become part of one of the major media companies. How the world has changed since **AOL** managed to buy **Time Warner!**

Still, the Internet will continue to expand its presence on traditional media. **Salon.com**, the award-winning news and lifestyle Web site, will go forward with plans for producing a weekly public radio version. **Public Radio International** was to launch the show on March 1 on more than 100 affiliate stations including most major markets.

The launch was first moved back a month and now has been postponed until fall.



Michael O'Donnell

"While we felt excited and encouraged by the progress we were making with the show creatively, we felt that the finished product wasn't quite ready," said **Michael O'Donnell**, chief executive officer and president of **Salon Media Group**. The extra time will allow **SMG** to build the show's staff. This expansion into radio is in stark contrast with staff cuts for **Salon.com's** core operation.

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New PNP 150

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Vindigo Wireless Service Sends Ads to Moving Users



Vindigo is a wireless service that delivers targeted, measurable, location-sensitive advertising to commercially available mobile devices, such as Palm Pilots, Ricochets or Internet-enabled cell phones.

It allows users to carry listings, information based on the user's location and update content whenever the user's device is in sync with their personal computers.

Vindigo offers a feature called "point-of-interest advertising" that allows a consumer to search for more information about products and services.

Webcasters could, for example, send ads to listeners who

were in the vicinity of an advertiser's business.

The base of people who actively synchronize with Vindigo's server numbers approximately 300,000 in 20 cities.

Last year the Ad Council began using mobile devices to make public service announcements in partnership with Vindigo.

The Ad Council uses these new advertising opportunities to promote charitable campaigns.

For more information on Vindigo wireless services call (212) 590-6900.

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Scott Studios Delivers Radio's Only Self-Healing Redundant Digital System

Major stations in major markets choose Scott Studios' *Invincible*. It's a *mirrored* pair of top-of-the-line SS32 digital audio systems, plus Scott's *exclusive* diagnostic watchdog that double-checks everything several times every second by fast USB. At any *hint* of trouble, the backup automatically starts playing where the problem unit left off! *Invincible* switches so fast that most listeners hardly hear a glitch. In fact, one touchscreen controls both systems seamlessly so some announcers don't notice a switch.

Hands-free redundancy is one of many reasons why major stations in New York, Chicago, Los Angeles, Houston, Dallas, Philadelphia, San Francisco, DC, San Antonio, Phoenix and Toronto installed Scott Studios' SS32 recently. 3,500 stations in the U.S. have Scott systems and those of our sister company, Computer Concepts Corp. More stations use our systems than the second and third largest digital vendors combined! Our customers benefit from the biggest and best service and support staff in radio's digital audio industry, with 105 people at your service.

Scott's *Invincible* SS32 is the most robust digital system of all! SS32 delivers more streams of perfect uncompressed and MPEG audio than any other system. You get industrial rack computers, the fastest CPUs, mega-memory, hot swap redundant power supplies, ultra-fast RAID mirrored hard drives, extra cooling, NT networking, two premium four-output stereo audio cards per system, the best flat panel touchscreens and up to a 5-year exchange warranty! Nothing else gives so much peace of mind as Scott's *Invincible*.

Scott Studios SS32's user-friendly intuitive touchscreen is the simplest for announcers to use and gives all the features that creative major market air talent demands.

For example, SS32 delivers:

- 30 sets of 30 hot keys for instant play of jingles and effects.
- Cart walls that play song requests within 1 to 3 seconds.
- Display of last play and next scheduled play dates/times.
- Ripper puts CD music on hard disk digitally in 18 to 28 seconds!
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- Fast "no-dub" production uploads from Sound Forge.
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For details about SS32 *Invincible*, go to ss32.com or call toll-free at 1-888-GET-SCOTT.



Shown above is the top-rated "Big Boy" morning drive personality pointing to the SS32 touchscreen at KPWR, Power 106 FM in Los Angeles. For details, visit ss32.com or call 1 888 GET SCOTT.

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Give Streaming Media Ocean Access

Singingfish.com allows Internet users to locate streaming content including audio, video, MP3 files or Webcast stations. The service is custom-fit to each customer's Web site.

Singingfish provides search engine architecture and access to a collaborative network of content producers that the company says is respectful of ownership and copyright issues.



The service provides listeners with the ability to find movie trailers or clips for any of the films that a morning talent mentions on the Friday weekend preview, or video clips of a musician who will soon be in town when a station is giving away tickets for that show via an on-air/online contest.

Or a station can add streaming media to the Singingfish.com multimedia search engine, allowing Internet users to find it.

The Singingfish search engine is scalable, so it adds and updates more streaming media to its listings, increasing the efficiency for users and reducing the number of "dead ends."

Dial-up and broadband users will find access to 7 million streams in the company's streambase.

Singingfish.com is a subsidiary of Thompson Multimedia, the world's fourth-largest consumer electronics producer and marketer of RCA brand products.

For more information call Singingfish in Seattle at (206) 691-0565 or visit www.singingfish.com

Cerf

► Continued from page 33

regulatory responsibilities over the Internet as it does radio and TV.

Cerf: That's been a subject of some discussion and debate. (FCC Commissioner) Harold Furchtgott-Roth would agree with you. But others would say that it does and that, for now, they've just held off regulating to let the new medium grow.

'Radio as a means of wireless communication is affecting the Net in ways beyond conventional broadcast radio.'

We could have a good debate at NAB2001 if we could get Michael Powell to come out. He's going to be under pressure because of a kind of schizophrenia that strikes Republicans. They're split between a desire for a hands-off regulatory attitude and a concern for content — an outrage over the fact that certain things are found on the Net.

(Ed. Note: FCC Chairman Powell was indeed expected to speak at NAB2001.)

RW: What about concerns about free, open access as media giants like AOL/Time Warner try to direct those online to its content?

Cerf: AOL/Time Warner will have to skirt that with some care. Otherwise, we'll be moving back to the time when the movie studios owned the theaters and would only play what they had produced.

RW: What are the non-broadcast radio concepts that interest you?

Cerf: The idea of reproducing audio online opens up all kinds of intriguing possibilities. Really, this allows for an expansion of what we think of as radio.

In cars, for example, an Internet-enabled device can deliver more than just sound. It might just as well have a "heads-up" display with it. What's powerful is that you can separate audio and video advertising, or have audio with video information that's not tied to it.

Using the Internet this way makes it a richer medium than radio. You don't have to interfere with the audio playing to

achieve advertising objectives because that information can be offered elsewhere.

And it's not just video and audio, either. You can deliver anything embedded in Internet packets — all kinds of additional content on top of the audio.

RW: What about altogether different communication concepts unique to the Internet?

Cerf: I'm still toying with the idea of

what it might mean to have "group radio." This is where people use a Web-based application where sound is produced.

RW: This sounds similar to some attempts at musicians having online "jams" as well as talk radio programming.

Cerf: Yes. And it's hard to make that work. You can't afford much delay before the jam or the conversation breaks down.

Doing audio and video synched is tricky. I participated in a talk radio show we did all around the Net. A fellow in San Diego was taking audio off the phone line from around the world and dumping it on the Internet.

Meanwhile, we were also in a chat session online. I was typing something about the sound I was hearing. Someone typed back that they were hearing something else. We discovered that people on dial-up connections were anywhere from 30 to 90 seconds behind those connected with a T-1 line. The typing and the talking weren't in synch.

It's partly a consequence of having to buffer audio to keep it from breaking up. The buffering is a consequence of (the need for) storing forward. Packet switching over varying bandwidth circuits introduces a great deal of variability.

RW: So the Internet is really better geared for asynchronous communications rather than those in real-time?

Cerf: In some ways, simultaneity no longer means anything. Looking far into

the future at the interplanetary Internet, the phrase "at the same time" is completely empty.

RW: Speaking of space, what about the wireless future where Internet data is distributed via satellite?

Cerf: I've gotten very excited about digital broadcast satellite as a way to deliver high-bandwidth IP packets to targets. It is a very reasonable thing to do, especially if it is a one-way multicast.

With enough forward correction, you can do a fairly good job of sending (more) than just sound and video. The satellites going up for broadcast radio are not geared for this. However, the digital broadcast satellites for video are perfectly suited for it.

RW: What about the next-generation cell phone network?

Cerf: Things have been evolving rather quickly with the third-generation cell phone network. Supposedly, it's got a 2 megabit burst rate. That's not a continuous rate and I'm not sure what these can sustain. It's also an open question as to how many of these can operate per square mile.

This depends on technical issues that will have to be sorted out — things like power control issues and how it relates to the "near-far" problem.

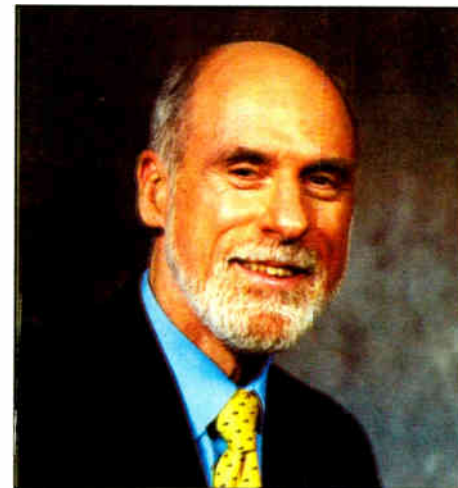
RW: Is it a mistake to just think of the Internet as an alternate means of distributing broadcast material?

Cerf: It's like calling an automobile a

horseless carriage.

It's a common thing (with an innovation) to start out with something that emulates the known medium with a known market in place. Then, once it's become established, you discover a lot of other things. In time, Internet telephony will sound as sensible as "horseless carriage."

RW: And this gets back to radio's first use — "wireless telegraphy."



Vinton Cerf

Broadcasting followed much later.

Cerf: Exactly. (Where the Internet differentiates itself from traditional broadcast) is in the ability to do things on demand and interaction in general.

What's terrific about some new devices, for example the TiVo (personal TV service), is that it allows you to pause real-time TV broadcasts. Think of how this could translate to radio. Suppose you're driving and the phone goes off. How nice to be able to hit pause and pick up the radio show where it left off!

RW: So broadcasters should be looking for ways to add amenities offered by the Internet — combinations of the media.

Cerf: Hybrid ideas are what I preach about all the time.

'Suppose you're driving and the phone goes off. How nice to be able to hit pause and pick up the radio show where it left off!'

Think about voice-enabled browsers. We're seeing speech recognition becoming a very valuable tool. You could even have a conversation with the Internet-enabled computer playing the streams to your car.

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Your Grandmother is certainly a very nice lady, but a Porsche is probably not her ride.

It's the same with processing: Some people should stick with the conservative stuff. Give them something too fast and they just won't know what to do with it. Frankly, the new Omnia-6 is probably not for them. It's just too potent, too flexible.

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Studio Sessions



ARP & Greaseman

See Page 44

Radio World

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April 25, 2001

Stroll Down Radio's Memory Lane

An Equipment Junkie Takes a Look at Studio Equipment That has Shaped Our Past, Present

Tom Vernon

I've worked in radio over the past 30-odd years. Whatever other job titles I've had, my unofficial title has always been "station packrat."

My philosophy is this: what was once worn-out junk becomes with the passage of sufficient time "vintage gear." Whether it was sales catalogs, tech manuals or broadcast equipment, anything that looked interesting and was about to be

tossed out never made it to the dumpster.

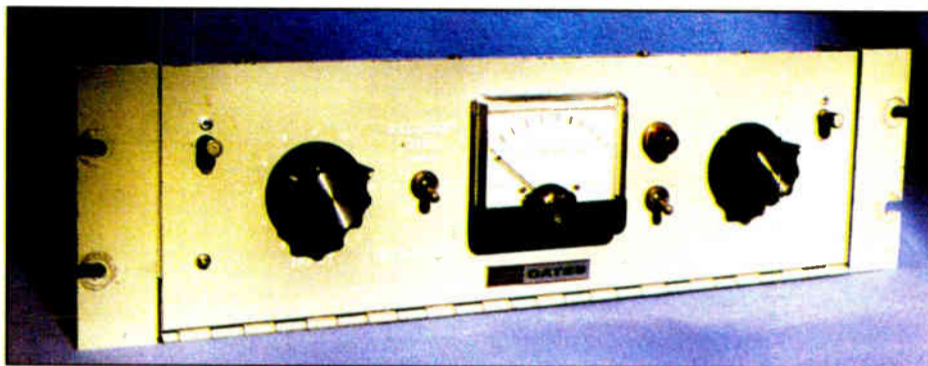
For the interest of collectors everywhere I've decided to share some of a few of the items from my attic and bookshelves, pictured in these pages.

Pull up a cart

The cart machine was introduced in the late 1950s as a way to reduce the drudgery of reading the same live spots over and over. This tool quickly became an essential item in the studio.

As technology advanced, the limitations of the cartridge and tape medium made cart machines the weak link in most broadcast chains. By the 1980s, compact disc players and digital storage devices were beginning to replace the cart machine.

The rapid-fire barrage of commercials and jingles that was a staple of top-40 radio would not have been possible without them.



The Gates Sta-Level was found in many stations throughout the 1960s.

Later, with secondary and tertiary cue tones, and the larger B and C size carts, they were an important component in early automation systems. The NAB later adopted stereo carts, originally mono devices.

Head alignment on the early cart machines was rather crude by today's standards. A long, thin wrench was inserted on the mounting nut behind the head and slowly rocked back and forth devices.

See VINTAGE GEAR, page 42 ▶

PRODUCT EVALUATION

GEM Burns Tape With TurboTrax

Read G. Burgan

When the audiocassette was introduced nearly 40 years ago, it created a revolution. The cassette provided an inexpensive, high-quality and convenient recording medium. The masses and professionals readily embraced it.

That was then; this is now. The audio compact disc has eroded the cassette market severely. With blank CDs selling for as low as 20 cents and CD recorders for under \$200, the audiocassette is in retreat.

In retreat — yes, but far from dead.

Additionally, where there are audiocassettes, there is a need to duplicate them. Good cassette duplicators are easy to come by — if money is no object. Most quality, high-speed duplicators run \$2,000 or more. That price is a bit stiff if all that is needed is to duplicate a few spots or an occasional program.

Makin' Trax

But what if you want a low-cost unit? I went looking for a good, affordable, one-to-one duplicator, and was impressed by a unit made by

Why would a company choose to market a new line of cassette duplicators when the world is marching vigorously toward the digital realm?

Almost everyone owns several cassette players or recorders, and there are almost as many cassette players in cars as there are cars themselves.

Even radio stations and production studios still find plenty of uses for audiocassettes. What better way to make a copy of this morning's talk show for a listener? How about a quick copy of that new spot for the corner grocery store? And how many news departments still prefer their trusty old cassette recorder?

Graph Electronic Machines Ltd. of England. The GEM TurboTrax one-to-one monaural duplicator can be purchased for as little as \$350.

Why would a company choose to market a new line of cassette duplicators when the world is marching vigorously toward the digital realm? For an answer, I asked GEM General Manager Alan Leonard.

"Graff Electronic Machines Limited was founded in 1983 by its
See TURBOTRAX, page 47 ▶

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Vintage Gear

► Continued from page 41

while the engineer monitored the 10-kHz tone on the alignment tape for a peak reading. A liberal glob of nail polish on the nut more or less locked the setting.

Even with mono cart machines, this was a hit-or-miss proposition. Life became much easier when head height and azimuth could be accurately set with Allen wrenches on the newer-style head brackets.



This ATC/Collins cart machine featured plug-in modules with vacuum tubes for both program and cue amps.

My 1961 Spotmaster 500 was built in Washington, and was the first cart machine to be manufactured by the company that would later be known as Broadcast Electronics. The Spotmaster 500 family was around in various forms for about 20 years, but this prototype machine had some unique features.

Start or stop buttons are absent from the front of the machine. Rather, this device is started with a spring-loaded toggle switch on the right side of the chassis.

Design

Line and mic input jacks are located on the left side of the machine. The circuitry is a hybrid tube/transistor design, with the playback and cue tone amps being solid state, while the record electronics uses vacuum tubes.

Neon bulbs indicated ready and record status. The tape transport was an early variant of the Viking-manufactured belt and flywheel drive device included in every Spotmaster and Tapecaster cart

machine from that era.

FCC type-approved frequency and modulation monitors used to be a required item in every station until the rules were relaxed. When the FCC eliminated the requirement for logging carrier deviation readings on the transmitter log in the early 1970s, the stand-alone frequency monitor went the way of the dinosaur.

The early modulation meters were not too accurate with program audio. In addition, users had to rely on the adjustable peak flasher to gauge where modulation

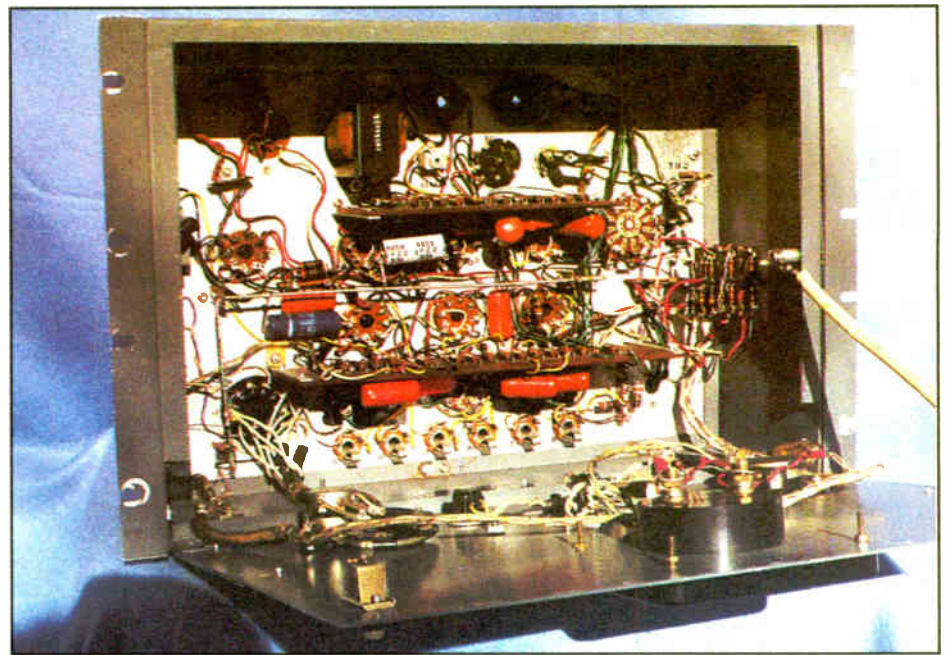
peaks were hitting, even with very limited processing.

The sight of the flasher regularly lighting at 100 percent, while the meter indicated 30- to 40-percent modulation, was not uncommon.

Manufacturers gradually improved the



The author spent many hours doing progressive radio shows in New Hampshire with this 1946 Gates model 31-B console.



The front panel of the SA39B hinged down for easy access to interior components. Note the jacks on the bottom for checking tubes.

circuitry so that the meter was more of a true representation of average modulation. Eventually, modulation meters incorporated bar-graph displays, eliminating the mechanical meter movement altogether.

The 1947 GE BM-1-A FM frequency and modulation meter was built at a time when General Electric was a major player in the manufacturing of both radio and TV broadcast equipment. The blue hammertone finish we see on this monitor

was a signature of the company's gear.

The BM-1-A has 14 tubes and uses 8-3/4 inches of real estate in the equipment rack. Its companion regulated power supply weighs in at 26 pounds, takes up and additional 7 inches of space and was usually mounted below the monitor.

Both meters and the peak flasher could be remote to an extension panel or remote control. Some of the meter's specifications might not be up to today's standards. The illuminated center frequency meter had an accuracy of +/-500 Hz.

The monitoring output had an overall distortion of less than 0.25 percent, frequency response within 0.5 dB of the standard de-emphasis curve from 50 to 15,000 Hz and noise level about 75 dB below 100-percent modulation — pretty impressive specs for 1947.

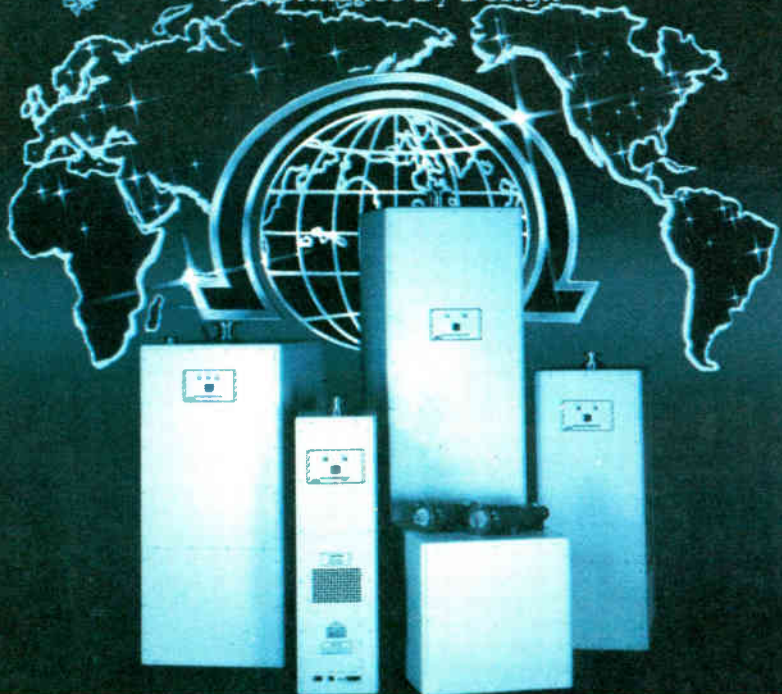
Except for one control on the front panel, this monitor has all its original components. While it will probably never see service again, it makes a unique display piece.

Audio processing has not always been a competitive sport. Originally, AGC amps and peak limiters merely smoothed out dynamic range and kept modulation within FCC limits of 85 to 100 percent of

See VINTAGE GEAR, page 43 ►

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Vintage Gear

► Continued from page 42
frequently recurring peaks. Then the FCC revised the rules so that AM stations could modulate at 125 percent on positive peaks and the loudness wars really heated up.

This strategy became even more necessary with the advent of disco in the late '70s, where energy in the low-frequency band of dance records reached levels never before imagined. Eventually, the audio processor evolution had more to do with software innovations than analog circuit design, as digital signal processing techniques were incorporated into broadcasting.



This 1948 General Electric BM-1-A FM monitor kept a Boston broadcaster legal for many years.

Early asymmetrical AM peak limiter circuits used simple logic devices and a small relay to reverse polarity of the audio if the negative peak had a higher amplitude than the positive, ensuring a continuous train of high positive peak audio to the AM transmitter.

The Gates Sta-Level AGC and SA-39B peak limiter are typical 1960s processing devices.

The Sta-Level was usually located at the studio. The unit had six tubes and its only adjustment was a front panel toggle switch for single or double recovery time.



The 1972 Wilkinson GCA-1 was one of the first AGC amps to use a true RMS detector in the limiter circuitry.

Later, it was discovered that a more natural sound was possible by dividing the audio signal into three or more bands and processing each one separately and multi-band limiting was born.

The control circuitry was developed around the type 6386 variable-mu remote cutoff dual triode. The system was similar to a circuit developed by GE for the Uni-Level amplifier



Shown is the first cart machine manufactured by Spotmaster. The original 500 contained both tube and transistor circuitry.

The SA-39B lived at the transmitter site and had only a six-position switch to adjust recovery time. Optimal balance of the push-pull stages was essential both to good audio quality and to eliminate the thumping sound that plagued tube limiters with fast attack and recovery times.

collection is the 1972 Wilkinson GCA-1 stereo AGC amp. It was among the first devices to use a true RMS detector circuit rather than the traditional peak detector, allowing more accurate gain reduction on both voice and music.

A Rayistor, a proprietary Raytheon device with an incandescent bulb and LDR, largely governed the limiting action speed of the GCA-1. The user could not adjust the limiting action. The GCA-1's naturally slow response made it a favorite with classical music broadcasters.

Quarter-inch open-reel tape has been the most pervasive medium in broadcast. This tape can be traced back to its origins in Germany during the late 1930s. Reel-to-reel machines still survive in small

Detect and reject

To that end, the SA-39B featured 1/4-inch phone jacks in the cathode circuits of all six tubes in the audio stage so balance could be checked without a tube tester. Neither the Sta-Level nor the SA-39B had "operate/disable" switches to defeat limiting action. When it came time to do the annual proof, you simply removed the rectifier tube in the limiter circuit.

A seldom-seen item in my processor

See VINTAGE GEAR, page 44 ►

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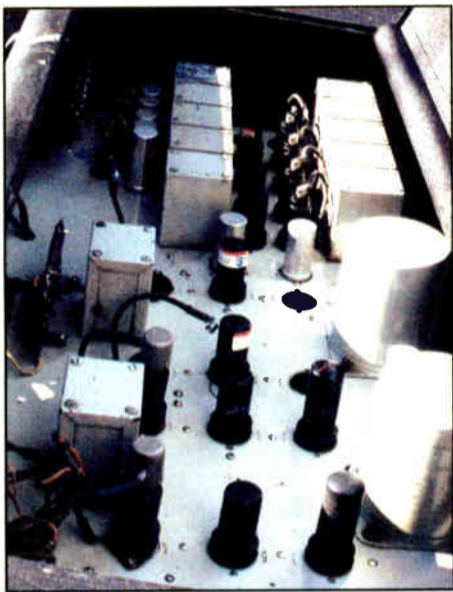
Vintage Gear

► Continued from page 43

market and college stations and the vast amount of material archived on 10-inch reels insures that a few machines will be around well into the 21st century.

While the basic three-head design of most recorders remained unchanged, transports evolved from rather crude devices with high torque motors, felt brakes and microswitches to microprocessor-driven devices with regulated DC motors, photocells and motion sensing logic.

Record/playback electronics evolved from tube to integrated circuit. The latest machines have microprocessor control of levels with indications via a digital display of hexadecimal numbers.



A Look Inside the Eight-Channel Gates Console

Besides enabling the recording and playback of radio programs at a later date, the reel-to-reel machine gave birth to the art of editing tape. For the first time, programs could be edited both for length and creative content.

Almost every radio station in the 1960s had at least one Ampex 350 with a splice block mounted on the head stack in the production room. This Ampex 601 was the baby brother to the 350 series. Not as versatile as the larger machines in terms of reel size or editing capability, it came in a portable case, making it useful for field recordings and newsroom operations.

The machine was available in full- and half-track configurations and some models allowed selection of both 3.75 and 7.5 IPS speeds. The AG600, introduced in 1967, was a solid-state version of the old 601.

Consoles usually were the focal point of studios and many of these vintage boards were works of art. Some had a built in multimeter and switching so all the tubes could be checked without taking the board out of service.

A hot standby program amp was often available with the flick of a switch, should the main line amp fail. Some Western Electric consoles had a built-in patch panel. A number of unwired utility switches were usually provided so there were unlimited opportunities to design custom intercom, door buzzer, muting, and remote switching functions.

Chrome trim and wood end pieces were also common. Gradually, many of the superficial design frills disappeared and slide faders replaced the familiar rotary pots. Today's digital consoles look very similar to the analog predecessors

and computer touch screens may replace consoles altogether.

My 1946 Gates model 31-B 8-channel console comes from the generation of boards that preceded the popular Yard, Studioette and Gatesway series and features the same sleek black and chrome front panel as the other models.

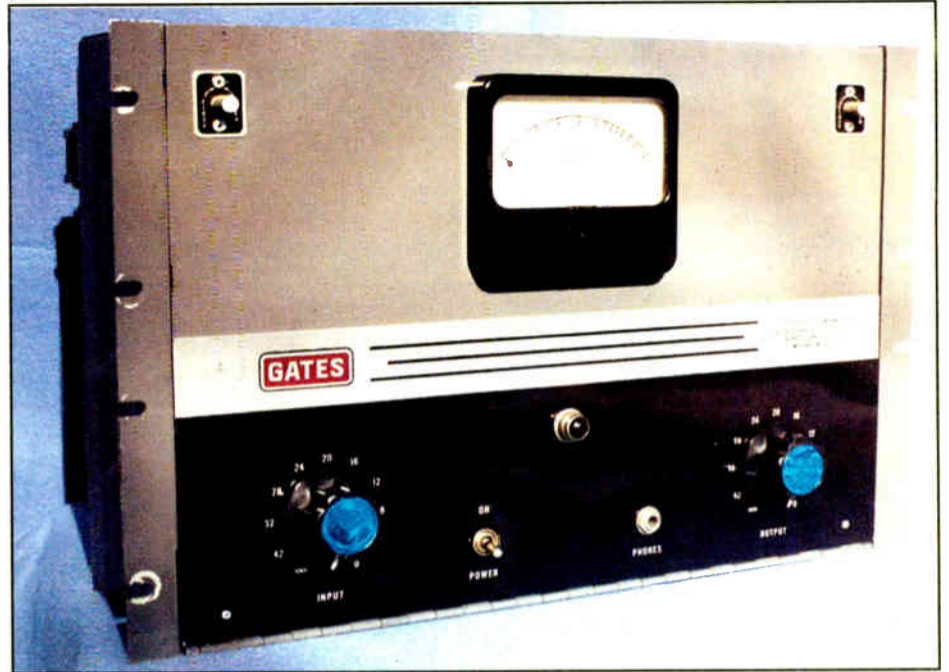
Classic design

While the 31-B is housed in the metal enclosure shown here, the 31-A featured handcrafted wood cabinetry, an option not seen since then. The five mic pre-amps are two-tube circuits with a 6F5 and a 6C5.

The identical program and monitor amps each have a three-stage 6J7, 6C5, 6F6 push-pull circuit. A cue amp was not originally included in these older consoles. Attenuators with a cue position were added later.

Interestingly, the audition and program positions on the channel keys reversed. An external power supply provided filament and plate voltages, as well as 6 VDC for the muting relays. Smaller Gates consoles in this series used a large lantern battery to power these relays.

A six-position rotary switch on the chassis selected several ranges for the VU meter and also connected it to terminals on the rear of the chassis so that it could be used for external metering. This was a common feature of older broadcast gear.



This Gates SA-39B peak limiter once processed beautiful music for a Boston radio station.

It's somewhat sad to recall these once-vital items as display pieces in a collection.

Over the past 30 years, broadcast gear has transitioned from analog equipment with vacuum tubes, transistors, and integrated circuits, and now to software and sound files on a hard drive. A glimpse of this old equipment brings to mind sounds not heard around the station for some

time: 45 records being slip-cued, reel-to-reel tape fast forwarding, the once-a-second clunk of the Western Union clocks and the ever-present clatter of the teletype machine.

In his spare time, Tom Vernon still scavenges for vintage broadcast gear. Reach him at tlvernon@blazenet.net or at (717) 367-5595. 🌐

Lending a Hand in the Grease Pit

Alan R. Peterson

If you have kept track of the trades, you may have seen that Doug "Grease" Tracht is trying a comeback in the Washington market and in syndication.

You may recall CBS Radio dismissed Tracht two years ago for a blurb that backfired on him due to racial overtones. He was for the most part considered untouchable by the broadcast industry, except for some TV projects.

peared from the Boss Jock roster and the public awareness.

But Tracht had to be on the air. Not as a matter of pride, but because it is what he *does*.

How he got there will be told in a moment. As for me, it was a ride I would not have missed.

Wanna swap?

In the mid-1980s well into the '90s, Grease tapes were traded among DJs like so many Pokémon cards

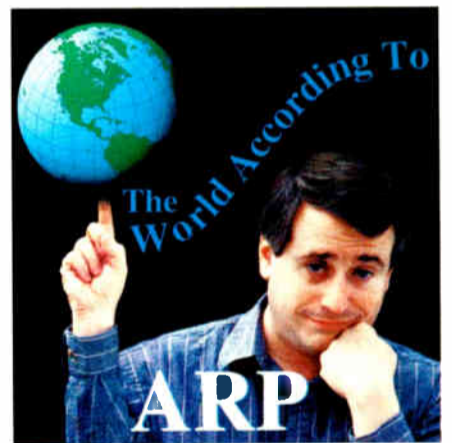


Who's giving the pointers here?

Many lesser jocks would have taken the same road traveled by others unemployed before them: become a wedding DJ, hang out the "consultant" shingle or repackage themselves as an "ad agency" specializing in one or two vanity accounts and moonlighting at the beer distributor warehouse at night. Within months, their names would have disap-

peared between fifth graders. Consultants would play them in jock meetings to demonstrate real creative radio. Other jocks stuck in Liner Card Hell could only wish their own stations gave them such freedom.

In 1984, I was a fan of comedy-based jocks like "The Real Bob James" in Cleveland and Gary Craig in



Hartford, Conn., and was already doing my own fast-talking, wisecracking thing in Western Massachusetts. A friend and former news director at WMRV(FM)/WENE(AM) just outside of Binghamton, N.Y., sent me a cassette of the Grease man. It made me feel as if my own show efforts were mired in wet cement.

The wheels on the bus

In 1986, I chaperoned a bus trip to Washington and heard the show live on WWDC(FM). The day before, I had four wisdom teeth pulled and prescription codeine painkillers were blunting my consciousness. What I remembered about the show was practically a rumor.

It wasn't until I moved to D.C. in 1995 that I finally heard an entire broadcast. In 1997, I began submitting unsolicited comedy material to the program, which almost always aired. And in 1999 came the unfortunate denouement.

Move ahead two years.

An Internet newsgroup reported that Tracht was poised to begin anew at a brokered 5 kW directional AM station in

See GREASE, page 48 ►

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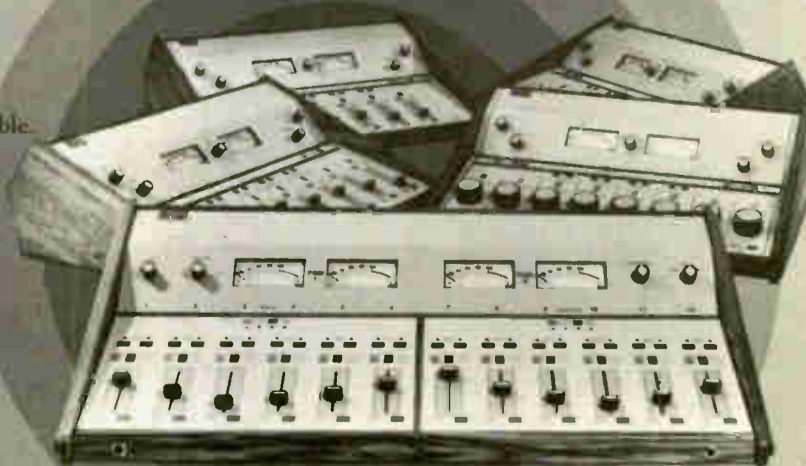
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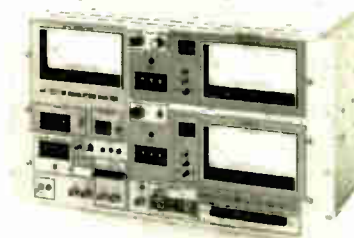


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TurboTrax

► Continued from page 41

sister company, Tector Limited, who were manufacturers of visual systems for flight simulators," said Leonard.

"The purpose (was) to have a product range that would create regular assembly work for a highly skilled production staff who were not always fully occupied on a day-to-day basis due to the lengthy contracts that were involved in flight simulation."

As to why cassette duplicators in particular, Leonard said, "The reason for choosing duplicators, was to further an engineering concept and our belief that there was a real need in the market for a duplicator that would offer the ease of use and performance that can only be achieved with a true direct drive mechanism."

Look ma, no belt

The company's TurboTrax series of duplicators offer some attractive features for a low-cost unit, including a direct-drive system that uses no belts, pulleys or flywheels.

The units feature a microprocessor that controls all functions and even slows the cassettes down prior to stopping in the rewind mode.

The units actually break down into two categories and, from there, into two more subcategories, each with several variations.

One set of duplicators is not expandable. The other can accept slaves to increase the number of cassettes that can be duplicated at one time.

Each of these categories

has either a one-to-one or a three-to-one configuration. In addition, the units can be purchased with standard or long-life heads, with or without erase heads. Mono and stereo units are available.

GEM sent me a mono, one-to-one unit with standard heads and an erase head. The unit has a plastic exterior case that is held in place without screws.

After playing with the unit for a few minutes, I figured out that the case just snaps in place and I was able to remove the cover to see what makes it tick.

The first thing to catch my eye was the mounting plate. The plate is a rugged, all-steel chassis that should hold up well to any normal abuse.

The second thing to catch my attention was the unit's simplicity. Three sets of motors exist for each cassette well — two smaller ones for the hubs and one larger one whose shaft serves as the capstan. Missing are the usual flywheels and belts and interconnecting rods.

The motors connect to an electronics board that runs the entire length of the left side of the unit. The board contains the microprocessor as well as the record/play amplifiers and bias electronics for units with erase heads. A hefty power transformer is mounted on the other side of the unit.

All of the heads and idler wheels for both wells are mounted on a common sliding plate. This ensures that the alignment for all wells remains constant.

All in all the TurboTrax is an attractive-looking piece of equipment, but how well does it perform?

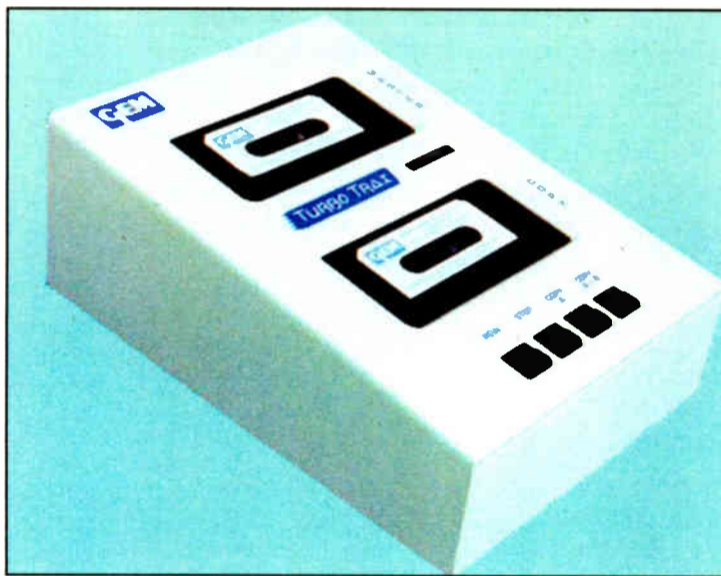
The machines are a pleasure to use. I have owned several duplicators, and all of them have been heavy, noisy affairs. At eight pounds the TurboTrax is light in comparison to other units and with direct drive motors, is delightfully quiet.

Operation is simple. Four push buttons control the unit — Rewind, Stop, Copy A and Copy A+B. The unit is so quiet, the user will hardly know it's running and because of the microprocessor, a user can stop and rewind the cassettes at any time.

The TurboTrax duplicator copies at 16x speed and can rewind a C-60 cassette in approximately 35 seconds. I use C-65 length cassettes and found I could copy a cassette in just over 2 minutes and rewind it in 37 seconds.

New and improved

This was not the first unit I tested. Last year I tested a similar unit and the



The GEM TurboTrax

wow and flutter was unacceptably high. At that time I was told that several design changes were under consideration and I was asked to wait until the changes had been made.

What changes did GEM make in the TurboTrax? Leonard indicated that they had made several changes.

"The overall width of the sliding plate was reduced to give greater rigidity. The method of head mounting was revised to improve alignment between erase and record heads.

"The pinch roller arm was redesigned to give greater rigidity and the pinch roller arm fitted to main chassis instead of the sliding plate to maintain parallel path with capstan shaft. The left hand spool motor (rewind) has improved specifications and all speed control circuitry is now part of main PCB's to reduce number of interconnections."

With all of those changes, how would this unit fare? The initial copies I made sounded very good with great levels. I used chrome masters with high-quality, duplicator-grade, regular-bias cassettes for the copies.

Then it was time for serious tests. This time when I ran a frequency run, the tones were steady. The wow and flutter measured out at 0.25-percent — right in the ballpark and quite acceptable for a unit in this price range.

The frequency response was also respectable for a unit in this price range. The response was down -2.5 dB at 50 Hz and -3.0 dB at 5 kHz.

At 6,000 Hz the response was down

-7.0 dB, and by 10 kHz it was down -17 dB. When I re-measured the frequency response using cassettes supplied by GEM, the frequency response at 6 kHz improved to -4 dB. While not exactly high fidelity, the frequency response is respectable for a duplicator in this price range.

However, when I checked the timing accuracy, I discovered that the copies were running 1.2 percent faster than the master cassettes. This confirmed what my ears were hearing, i.e.: that the copies sounded a bit higher in pitch.

This result suggested that the copy well was running slower than the master well. When I brought this to the attention of Alan Leonard, he said, "The copy position is factory set to run approximately 1-percent slower than the master position. This was requested by our U.S. dealers from the outset to compensate for variation in tape lengths, and thus ensure the total content of the

master is transferred to the copy cassette."

He said, "The capstan speeds are individually adjustable and can be set to identical frequencies."

Armed with that information, I recalculated the timing accuracy and it came out to a very respectable 0.2 percent.

All in all, I'm impressed with the Gem TurboTrax cassette duplicator. I have ordered three of the one-to-one units with long life heads from the factory. These will be set with the master and copy wells in sync to ensure proper pitch.

And that would be my caveat: when purchasing a TurboTrax duplicator, specify that the master and copy wells are

synchronized.

I did not test a stereo version, so I cannot provide any insight on how well these units might perform. However, I have owned stereo duplicators in this

Product Capsule:

GEM TurboTrax Cassette Duplicator



Thumbs Up

- ✓ Lightweight
- ✓ Easy to use
- ✓ Direct Drive Motors
- ✓ Quiet operation
- ✓ Good quality copies
- ✓ Rugged



Thumbs Down

- ✓ U.S. models set to run fast
- ✓ No user adjustable volume controls
- ✓ No level indicators to measure output levels

List price starts at \$350.

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price range manufactured by other duplicator companies, and the results were not good.

It is difficult to maintain sufficient contact between the head and the tape on an inexpensive duplicator. In many cases, the result is unacceptable frequency cancellation when you record a mono tape on a stereo duplicator.

My recommendation is that if you need to duplicate something in stereo, do it on a compact disc. But for inexpensive, monaural duplication, the GEM TurboTrax is a delight to use and provides good quality copies.

If I were making a wish list, I would want level controls and level indicators. But in fairness to GEM, none of the competitors offers these features in a comparably priced unit.

In addition to the TurboTrax series of duplicators, GEM has a line of duplicators, some with Quartz Crystal capstan motors and high-speed digital duplicating from computer to cassette.

Read Burgan is a free-lance writer and a former public radio station manager. Reach him at (906) 296-0652 or through e-mail at rgb@bresnanlink.net

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Grease

► Continued from page 44

Washington. He would pay the station to allow him to bring back his theater-of-the-mind sketches, complete with music and sound effects mixed on the fly — a craft deftly developed with multiple turntables decades earlier in Connecticut by Bob "Colonel Hogan" Crane and now handled by two 360 Systems Instant Replays.

Permanently deleted from the Grease repertoire: ethnic-based humor. Lesson learned, thank you.

Jump on board

Finding his old e-mail address, I dropped a line offering to write or produce some recorded material, maybe a sound effect montage as a welcome-back. Instead he replied, "I could use some help on the show from 8 to 10 a.m. There is no pay, but it would be a labor of love."

Why not? My free-lance endeavors did not affect my mornings, it would give me a reason not to oversleep, and I'd be actively contributing jokes and silly stuff to The New Greaseman Show as it rebuilt itself from a two-year exile.

At first I offered to help produce for one week. That turned into two. At deadline, it may turn out longer. In those two weeks I offered joke ideas, loaded music and carts, predicted what direction his sketches took and pre-staged appropriate sound effects, timed his network breaks and mastered the entire show daily to CD-R. In other words, I was the world's only 43-year-old *radio station intern*.

I didn't make a buck on the deal, but how many jock/columnists do you know who can say they worked with the Greaseman just for giggles?

After a broadcast finished last month, I asked him where he was hiding out for the last two years and how the new show came about.

A year or so earlier, he was gearing up to do a radio show in the Virgin Islands, but the protesters arrived there before he did, and the station manager got cold feet. The show was scrapped.

their efforts. The chance encounter resulted in Dime One, as in "We are never going to see ... from this deal."

He still retains an acting agent for any TV work that comes his way.



Al lends a hand during the new 'Greaseman Show,' syndicated via satellite from the studios of WZHF(AM), Arlington, Va.

He mentioned a pending divorce that was on his mind. As a diversion, he spent time on his boat, worked out in the gym and even volunteered at a soup kitchen just to stay busy. "Now I'm rested, refreshed and ready to do what I'm famous for," he grinned.

To become ready, Tracht had to become an entrepreneur and launch his own syndication effort, Dime One Productions.

Back on the horse

"I ran into Jimmy Townsend, an old friend of mine," said Tracht.

"He asked, 'Why don't you get back on the radio?', and I said, 'Well, I'm kinda running into a little bit of resistance.' He asked why I don't buy my own station. I said I didn't think I had the money, and he said, 'I just might.'"

The duo realized they didn't need to buy an entire station; only syndicate

"Being a one-man band with a syndication company means my day is pretty tied up," he said. "I wouldn't mind a role here or there, but radio is my favorite."

Most jocks would be content with just going back on the air in their particular market. Dime One sends the show out by satellite and on the World Wide Web via Live365.com

"In the course of doing the show I love to do," he said, "it makes it better because I get calls from around the country and get a lot of different points of view. And if I can make a couple of bucks by doing it, what's not to like?"

The Dime One moniker is an appropriate one for the startup efforts. The show is cheerfully offered to markets at bargain rates and the local rate card works out to about one-fifth of what the market's top-rated shows command. The duo feels the show content

is more important than instant returns.

"If you do this for the sheer love of it, you'll make money in the long run," he said. "It's easier for me to do the show when I'm getting calls from all over the country."

Tracht also avoids being baited by other jocks in the market that insult other talent on a regular basis.

"Why? We're all broadcasters," he reasoned. "It would be like DeNiro slamming Al Pacino: 'That actor stinks, he's no good, he's rotten ...' when all he does is show his own style. It's so much easier to destroy than create, that's why they do it."

Judgment

I'm old enough to remember a well-known and -loved New York City weatherman who self-destructed on-camera with an insensitive quip about rape. Inside a 4-minute weathercast he went from trusted friend to despised outcast. In 1999, a similar emotional outcry went up against Tracht for his own indiscretion.

But this time, listeners responded positively to his public apologies. Some organizations offended by the crack forgave him and moved on. Station managers tired of Angry Radio and wannabe shock-jocks took a chance and aired his syndicated efforts.

Regardless of how the public or broadcast history in general will regard the Greaseman in the final analysis, it is clear Tracht loves radio. Instead of getting paid, he's paying *someone else* to be on the air. And I'm working for him for free.

I think I know how broadcast history is going to remember me for this outing:

Broke.

At the conclusion of the interview, Al asked Tracht if he had anything else he wanted to add. In character, he vocalized several splat effects, then bellowed, "That's for all you radio maggots that have been on my ass!" Obviously there are no hard feelings ...

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Sony MDSB2P mini disk R/P, BO. R Lankton, Clear Path Comm, 5053 Ocean Blvd #18A, Siesta Key FL 34242. 941-544-6842.

Sony PCM-3203 digital 1/4" 2 trk & Sony PCM-3402 digital 1/4" 2 trk. Dash format, gd condition with manuals, one is in roll around, as-is, BO. Bill Hineman, NPR, 202-513-2494. whineman@npr.org.

Studer Revox PR99 Mark-2 recorder & Revox monitor-PR99 with heavy duty stand on wheels, sounds great, dependable workhorse, very little use & in gd cond; Ampex 601 & 602 r-r's, nice cond, cable, case; EV 644 shotgun mic, new, box, instructions, cable; EV 647 & 648 mics, nice cond, cables; EV 644 mic in nice cond with cable; EV 649B dynamic mini tie/clip mic, cable. Items from estate sale in excel cond with very little use. Make offer for entire lot +shpg. 914-949-5920, fax: 914-761-7419, email: hdeans@netzero.net.

JVC stereo cassette deck KD-V6, Dolby B&C, digital peak, output level control, mpv filter, well maintained, great sound, \$125. Dennis Scott, 615-309-8688, email: ds.music@home.com.

Onkyo stereo 3 head cassette deck, Integra model, 3 heads, 3 motors, tape type selector, dolby noise reduction, \$250. Dennis Scott, 615-309-8688, email: ds.music@home.com.

Sony PCM2700A pro DAT machine, like new, 50 hrs use, box, manuals, remote, rack ears, etc., excellent condition, \$900/BO. John, 610-644-1123 x120 or email: john@lpbinc.com.

Tanberg 15-21 (2), 7" open reel machines, need belts, \$50/pr. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 63952. 573-998-2681.

Tascam 122MKII cassette deck, working, needs work, BO. Alex McEwing, McLCC, POB 8260, Essex VT 05451. 802-288-1033 x11.

Tascam 32, 1/4" production r-r tape machine, excellent cond w/manual, \$550 +shpg. Mark Schackow, Mark Schackow Recording, 307 4th Ave. E, Lemmon SD 57638-1604. 605-374-3424.

Tascam professional cassette deck model MK122-III, approx 6 yrs old, \$300. Doug Harris, KGNZ, 542 Butternut, Abilene TX 79602. 915-673-3045.

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IFR 1200S service monitor with spectrum analyzer, \$6500. R Lankton, Clear Path Comm, 5053 Ocean Blvd #18A, Siesta Key FL 34242. 941-544-6842.

Tektronix 7614, 7618 RF spectrum analyzer, \$4500. R Lankton, Clear Path Comm, 5053 Ocean Blvd #18A, Siesta Key FL 34242. 941-544-6842.

Tektronix digital multimeter DM 501A, \$150; Tektronix digital multimeter DM 502A, \$150; Eico 150 solid state signal tracer, \$100; Nuvisitors (assorted), \$25. J Price, 214-321-6576.

Weston Instruments model 1240 tester, \$20; Ampex 300E vacuum tube voltmeter, \$35; B&W Nidek 400 distortion meter, \$20; Eico 250 AC VTVM & amp, \$20; Electronic Designs 100 electronic voltmeter/ohmmeter, \$25; GC Electronics model 36-616 CRT tester & rejuvenator FC&BW, \$20; General Radio Co Type 1564-A sound & vibration analyzer, \$40; HP 330B & 330C distortion analyzer, \$25 ea; (4) HP model 400D vacuum tube voltmeter, \$45/all 4. Will Dougherty, WLD, Music Valley, Rt 1, Box 1548, Mill Spring MO 64952. 573-998-2681.

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Cunningham CM 30-50 type approved AM tube xmr, adjusts 0-50W power, rack mount, measures 8.75" h x 19" w x 12" d, weighs 20lbs, special heavy duty case & other professional features, new, \$900. James Cunningham, KEOR, Rt 2 Box 113B, Stonewall OK 74871. 580-265-4496.

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Harris MW1A transmitter, needs repairs, \$4000; (3) 19" x 6' equipment racks, \$100 ea; Gates #80 control board, \$200. WSSG, 116 W Mulberry St, Goldsboro NC 27530. 919-734-1300.

Ramsey AM-25 hobby broadcast transmitter, FCC Part 15, 540 to 1710 kHz PLL, can be jumped for 1W, \$125. Gene Whittenberger, Whittenberger Studio, POB 396, Mexico IN 46958. 765-985-2224.

LPB AM-3CP xmr; LPB transmitter coupling unit model TCU-30 and all manuals, \$800. James Sealey, WMAF, 850-973-3233.

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◆ READER'S FORUM ◆

AFTRA

Regarding the March 1 article by Ken R. ("AFTRA Looks Beyond Strike") ... the photo in the article shows clenched fists, a placard saying, "It Pays to Advertise ... but Advertisers Don't Pay!" and the news that "a committee was established to investigate a plan to monitor radio stations for commercials."

Advertisers do, indeed, pay. They pay a lot of money not only to non-union freelance voice-over talent, but they, likewise, help keep AFTRA's pension and welfare ship afloat.

If AFTRA wants to "monitor radio stations for commercials," then I have to assume they're gearing up to become America's Voice-Over Police.

All of this propaganda reminds me of some of the historical accounts on the start-up of Russian Bolshevism and German Nazism.

Perhaps it's time to look beyond the American Federation of Radio and Television Artists.

Richard W. Fatherley
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AdVoice
Kansas City, Kan.

I found Ken R.'s AFTRA article interesting. At the end of the first page, the story went from talking about the commercials' strike issues to AFTRA contracts with radio stations as if they were the same.

Maybe something was omitted in editing, but the free-lance production contracts for AFTRA and SAG — A1 for AFTRA Radio, A2 for AFTRA TV (TV spots shot on videotape) and S2 for SAG TV (TV spots shot on film) — are quite separate and different from individual station contracts.

Free-lance and station contracts are not negotiated together, and their rates and issues are usually quite different. Interestingly, while some in radio management say they don't like working with AFTRA, many middle managers secretly support AFTRA because as the AFTRA salary and benefits go up, it gives middle managers a reason to ask for their own raises.

Even more interesting: as a result of rough treatment by sales and general managers of their account executives, some AEs have made inquiries about organizing the sales department. Their issues typically are the sometimes arbitrary "reorganizing" and redistribution of client lists, large accounts that mysteriously become house accounts and elusive sales incentives that seem to dis-

appear about the time the AE reaches the specified goal.

Ty Ford
President
Technique Inc.
Baltimore

BEAN

I recently read a letter from the editor (RW, Feb. 1, "Engineer Hams Launch BEAN") concerning the formation of the Broadcast Engineers Amateur Radio Net and its ambition to start a weekly HF Amateur Radio Net for broadcast engineers.

It might interest your readers to know that the Society of Broadcast Engineers has operated just such an HF net for something on the order of 16 years now. It's called "Chapter 73, the Chapter of the Air." It meets monthly on the second Sunday of each month, 14.205 MHz, 0000 hours GMT (4 p.m. PST, 7 p.m. EST). The net control station is WA7BGX (yours truly).

The net is open to all amateurs in the broadcast profession; SBE affiliation is not required. The primary purpose of the net is to provide a chapter meeting for those SBE members who have Amateur Radio licenses and live in an area that precludes attending a "live" meeting.

Participation in the net provides attendees holding SBE Certification the same recertification credit as attending a live meeting. More information on the HAMNet is available at the SBE Web site www.sbe.org/hamnet.html and general information on the SBE is available at www.sbe.org

Hal Hosteller
Senior Engineer (CPBE)
KVOA Television
Tucson, Ariz.

Bollack museum

Great article on the Bollack Museum in Farmington, N.M. ("Playing Tribute to a Radio Giant," RW, March 1).

But KOB's old 50 kW transmitter isn't the only thing there of interest to broadcasters and electronic geeks. Tommy has thousands of square feet of old AM and TV transmitters, consoles, communication equipment, accessories, telephony equipment from years gone by, old street lighting systems, transmit and receive antennas of all different flavors, insulators, old test equipment ... and most of the stuff is in excellent condition, ready to turn on and use.

The crown jewel of the collection, of course, is the KOB transmitter, with its art-

Radio Theater Revival

Is it possible that theater or spoken-word productions could play a bigger role in radio? Since the switch to TV as a form of family entertainment, radio or audio theater has been something of an oddity or rarity. But is it gone?

No. "Theater for the mind" is currently produced on NPR stations, independent stations and for straight-to-audio CD or cassette. Now, with satellite radio, the whole medium may find a rebirth.

Granted, the possibility of a massive audience giving up nightly TV viewing to tune into radio drama is slim to none. However, the audio theater/spoken-word industry is currently at \$200 million per year and growing, according to the 1999 Audio Publishers Association's Listener Habits and Practices survey.

In addition, organizations such as the National Audio Theatre Festivals are offering workshops in audio theater. This year's NATF workshop will be held from June 18-24, at William Woods University in Fulton, Mo. The workshop seminars will discuss topics ranging from independent Webcasting to advanced audio techniques.

Sue Zizza, executive director of NATF, said the workshop expects to draw 60-70 participants. For more information, visit www.natf.org

Events like these stoke the fire for radio theater, but how does it stay lit? NPR and independent stations are one outlet. Listeners can hear programs such as "A Prairie Home Companion" with Garrison Keillor and "This American Life" from Ira Glass every week. Sue Zizza's own show, "Radio Works," has 60 stations playing her program. And NPR Playhouse has 25-30 affiliates.

But why should all this matter to commercial radio? Because of Web radio programmers like SciFi.com's "Seeing Ear Theatre" and subscription radio services like XM Satellite and Sirius Satellite.

Sirius will have 100 stations: 50 music, 50 talk. Ten will feature some sort of audio theater. The company plans a Radio Classics channel, which uses the Radio Spirits Archive, playing programs like "Jack Benny" and "The Shadow." Its SciFi channel has rights to the "Tales From the Crypt."

The service's A&E channel plans to air mysteries from the BBC and various dramas. And, for those long hauls, the trucker channel will play action dramas.

While it's not likely that radio will be taken over by radio theater productions anytime soon, it does seem that listener interest might be on the climb. Will commercial radio start to invest in alternative types of spoken-word programming as a result?

We think they should. We're not expecting stations to switch to all-theater, but creative PDs might find ways to succeed with theater programs — on Sunday afternoons or weeknights after 8 p.m., or possibly one day a week during drive time, for example.

Spoken word and radio theater generate a loyal listening audience. Don't overlook its potential.

— RW

deco nameplates and cobalt blue glass and flying wing accents.

Bruce Anderson
Director of Engineering
Four Corners Broadcasting
Durango, Colo.

O'Donnell remembered

Thanks to Peter King for the moving remembrances of Tim O'Donnell. ("ABC's O'Donnell Remembered," Feb. 14).

I listened to Tim in upstate New York long before he migrated to ABC. He was the "Smilin' Irishman," playing tunes from the WOTT-Hot Tunedex in Watertown in 1962, and a summer fill-in at WTLB in my hometown of Utica in 1963.

When he made the jump to ABC a few years later, I always remembered him as a cordial young gentleman who let a teenage punk like me hang out in the studio to learn

things. Your article filled in a few blanks in my knowledge of his distinguished career, and I'll always be proud and thankful that I knew him "back in the day."

Dan O'Neil
Senior Account Executive
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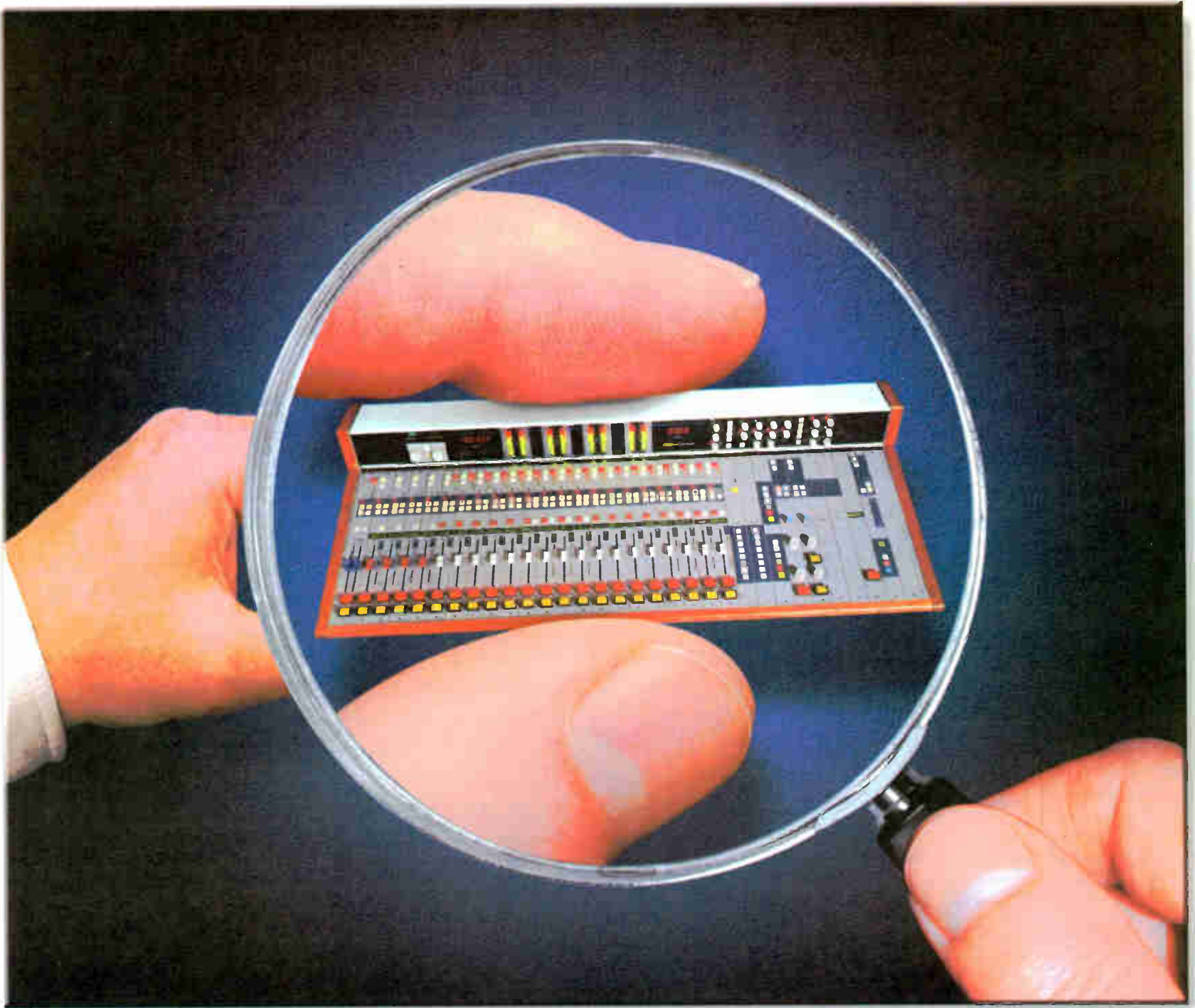
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