Radio–Homeland Security–Computers & Radio–Family & Hobby Comms

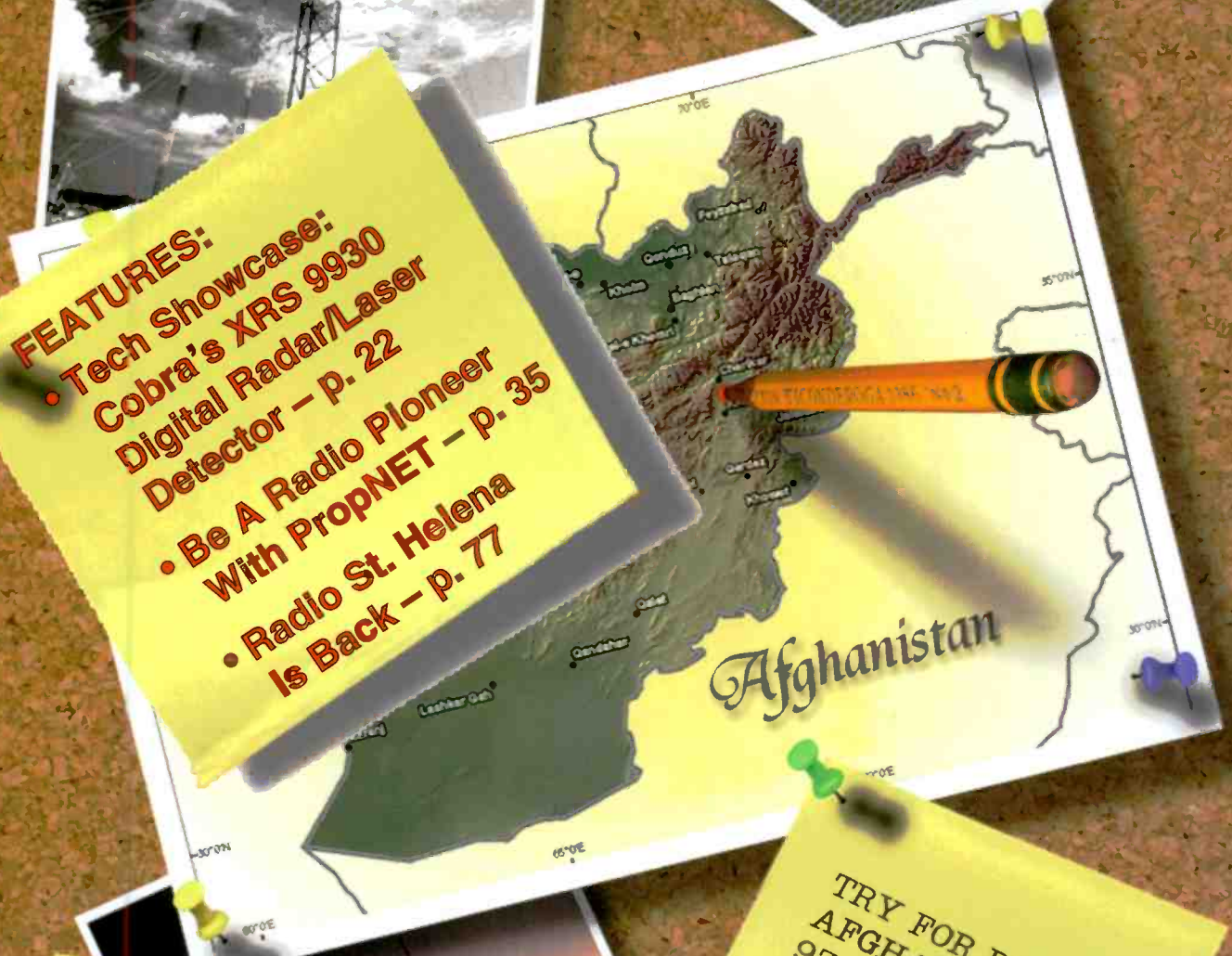
45635

POPULAR COMMUNICATIONS

OCTOBER 2006

DXing The Failed States—Nineteen Trouble Spots You Can Hear

FEATURES:
- Tech Showcase: Cobra's XRS 9930 Digital Radar/Laser Detector – p. 22
- Be A Radio Pioneer With PropNET – p. 35
- Radio St. Helena Is Back – p. 77



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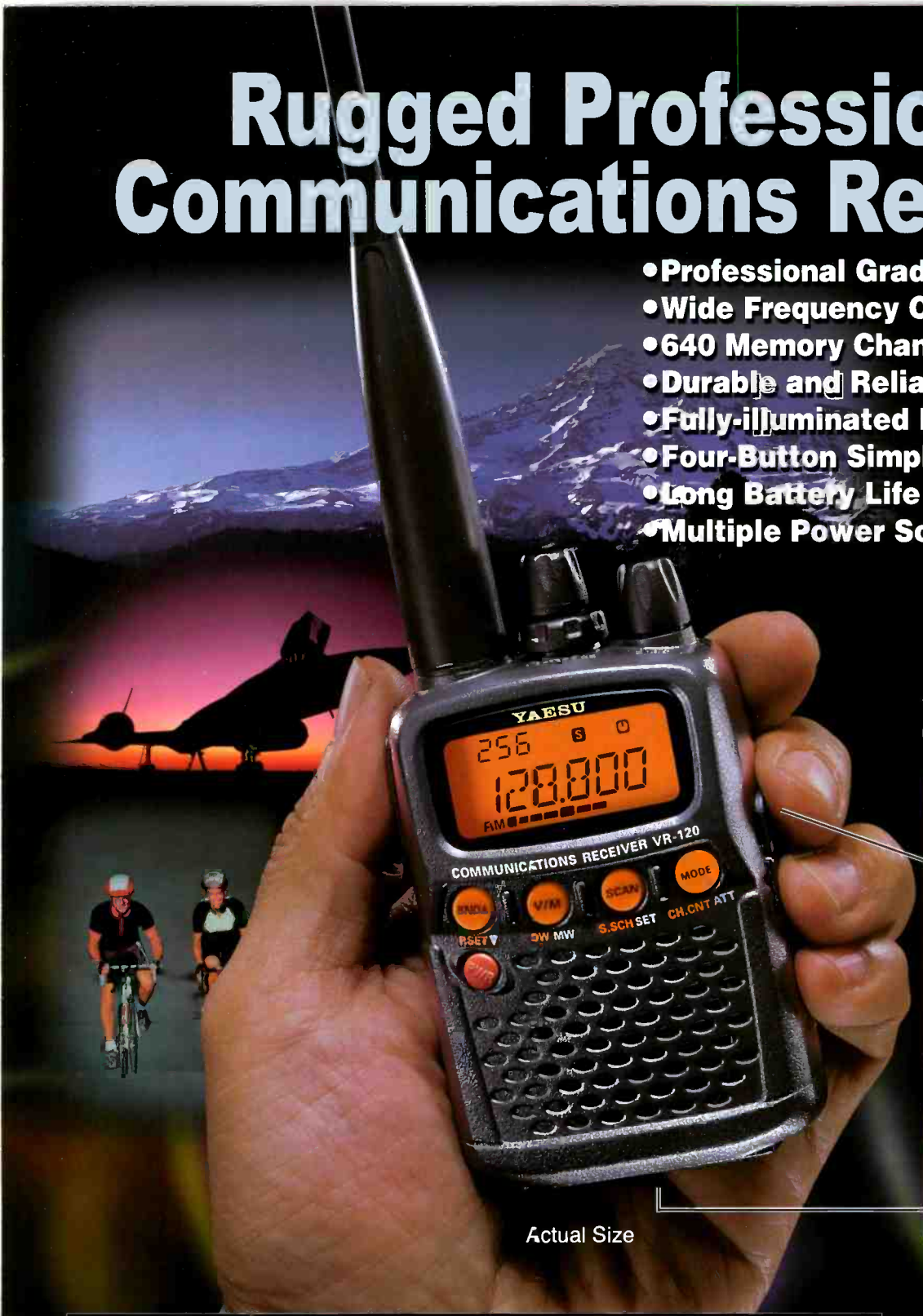

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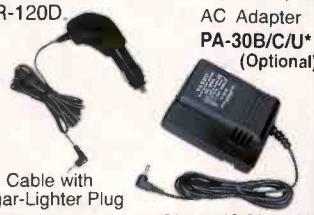

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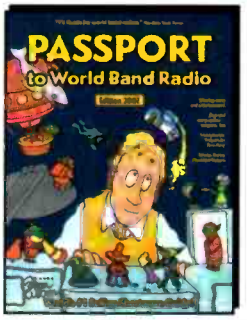

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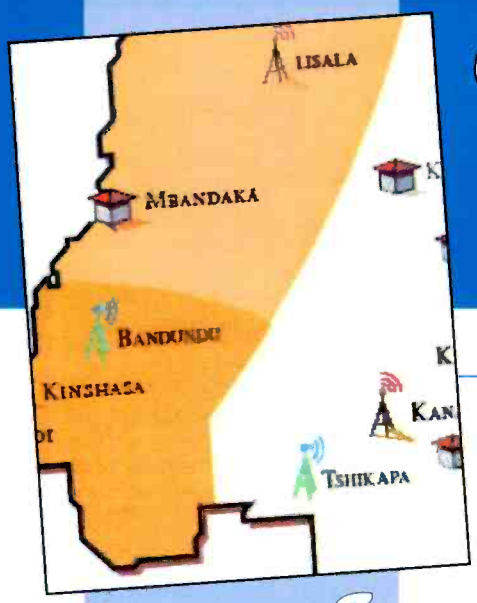

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On The Cover

Can you hear all nineteen "Failed States" in the special feature by Gerry Dexter that begins on page 8? It's a challenge for your receiver—*and* your patience! (Photo by Larry Mulvehill, WB2ZPI)

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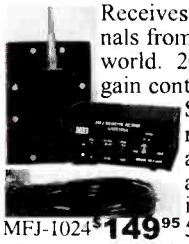

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MFJ-959C **$109.95**

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by Harold Ort, N2RLL

I've Been Workin' On The Railroad, Sort Of

Maybe it's the sound of that powerful locomotive, the steel on steel. Or maybe it's the lure of the train whistle fading in the distance, whispering to our innermost desire to get onboard and ride it to the last stop.

Whatever the calling they're answering by listening to those rail comms, gathering at that special place to take photos of passing trains and old rail equipment. Railfans, as the enamored are called, number in the thousands. Some are there gathering information on trains new, old, and unique. Still others are simply immersed in the romance of watching and waving at passing trains from a safe distance, much like in days gone by when going down to the big crossing with your family was like a mini-vacation. I remember sitting in a '53 Chevy with my parents for hours in Fultonville, New York, watching the East/West freight trains (and even plenty of *passenger* trains!) make their way across upstate New York.

No doubt about it, the lure of trains for many people is so powerful that railfans can now be seen anywhere there's a good view of the tracks, a switching yard, or overpass, usually with camera in hand and a scanner hanging from their belts. Many, I'm sure, have such a broad-based knowledge of rail operations that they'd be a tremendous asset to virtually any rail company in one capacity or another.

However, I don't believe that railfans, regardless of their level of understanding of the safety issues or the rails themselves, are in any position to be the security eyes and ears for the industry. But the Burlington Northern Santa Fe (BNSF) Railway Company is actually "recruiting rail fans to help keep BNSF properties safe by reporting suspicious activities and to help prevent possible security breaches," according to the company's recent news release.

William Heileman, BNSF general director of Police and Protection Solutions, said, "Keeping America's rail transportation network safe from crime and terrorist activity is a high priority for the railroad industry." He continued, "Every day across the country, rail fans photograph and watch trains as they pass through communities. It seems natural to harness their interest to help keep America's rail system safe."

That's okay, but only up to a point—much like those large signs on many of our nation's interstates asking drivers to report "suspicious activity" to authorities. Trouble is, most folks need constant reminding of what constitutes a good, accurate report. Exhibit A is the REACT "CLIP" (Callsign, Location, Injuries, Problem) reminder issued to active CB operators. Fact is that many drivers wouldn't know a mile marker from a gas company "Do Not Dig Here" sign if it hit them on the posterior.

Granted, railfans are different in that regard; they're generally more aware of their surroundings and could, no doubt, readily spot security breaches. It makes sense, because sometimes they *are* the security breach. No harm meant, of course, because they're just railfans, perhaps a little overzealous, but generally a good bunch of folks. And, of course, there are those times when they're on the unfair receiving end of improper and even illegal harassment by local authorities and rail security personnel.

But it's vitally important to remember that the events of 9/11 have led us to this skittish point of reporting "suspicious activity" in our evolving notion of what constitutes security risks. Everyone wants to be safe and cozy, but the truth is that there just aren't enough trained officers to go around. And there certainly isn't enough money for Homeland Security, such as high-tech cameras placed at strategic locations along our nation's railways, because most of it is being spent elsewhere. You guess where *that* breach is located.

Like so many other things in this country that have been shucked aside to non-professionals because of lack of funds or an insufficient number of trained pros, the idea that railfans can help keep rail properties safe and secure as about as hair-brained a PR effort as giving SpongeBob SquarePants an honorary degree in security management.

I don't know about you, but I'd certainly rather have a trained officer or company inspector calling the shots in or near any train I'm riding or that's passing through my neighborhood. An extra set of eyes and ears certainly helps, and yes, security is everyone's business, so don't get me wrong, please. I just think that there's a time and place for trained professionals, and our nation's railways is one of them. Besides, private property is just that: private property. I don't think you'd want folks trespassing on *your* private property to fly model airplanes, take photos of passenger planes taking off and landing, or, yes, even taking photos and listening to train comms on a nearby track. There they are, though—airfans, railfans, whatever—with binoculars and cameras, and the next thing you know the cops are knocking on your door because "someone" (on your property, no less!) reported you doing something suspicious. Besides, what better cover for a would-be terrorist than to simply buy a camera and scanner, and register with "Citizens United For Rail Security"?

I decided to register online this morning at http://newdomino.bnsf.com/website/crs.nsf/request?open. You can, too. All you need is your name, address, phone number, date of birth, and zip code, and you'll immediately get an ID e-mailed to you that you can print and carry in your wallet. Pretty neat.

I'm not sure if they do a background check before issuing the "ID," but I'll know they did if the Feds come knocking at my door in the middle of the night asking me rail questions to see if I'm who I say I am.

Whew, thankfully that ID process is nothing like what the New Jersey Motor Vehicle Commission puts *legal* U.S. citizens through to simply renew a valid driver's license—that's an absolute nightmare! (For that you need more than your great uncle Jerry's birth certificate and Mom's thumb print on parchment signed by the governor). But getting an ID from BNSF is a cinch. Go figure in these times post-9/11.

Meanwhile if you're a terrorist with connections and a big bankroll and are hell-bent on riding the rails and bombing an Amtrak, metro NY, or Chicago commuter train at rush hour, getting fake photo IDs, birth certificates, and other required "proof" is easier than walking onto railway property in broad daylight.

While I'm not a real railfan per-se I regularly monitor rail comms from our home in New Jersey and when traveling (often

(Continued on page 62)

by Harold Ort, N2RLL, Editor, and D. Prabakaran

News, Trends, And Short Takes

Radio Caroline Back On The Air

The legendary Radio Caroline radio station is back on air after a 16-year break. Radio Caroline started broadcasting in 1964 from a ship off the coast of the United Kingdom. The station quickly attracted a loyal band of listeners and remained on the airwaves until 1990. Now the station is up and running again. Radio Caroline is accessible in the UK and Ireland via Eurobird satellite at 28.5 degrees east.

The station's manager, Peter Moore, points out that the new Radio Caroline will be operated by many of the presenters and staff who worked on the station when it was last on the air. The new station will not initially be broadcast from sea, but the station's management aims to do so sometime in the future. The ship *MV Ross Revenge*, from which the station was once transmitted, is currently undergoing restoration. For further information about the new Radio Caroline, visit its website at www.radiocaroline.co.uk.

WRN Signs Contract With Arabsat To Distribute New Arabic Language Station

Broadcasting on Arabsat's BADR constellation of satellites at 26° East will give WRN direct reach to 130 million individuals across the entire Arab world. Audiences across the Middle East and North Africa will be tuning into a unique new Arabic language radio station that brings together programs and content from around the world, following the signing of an agreement between WRN and leading satellite operator, Arabsat.

The new radio station development by WRN, a London-based international broadcaster and transmission service provider, will bring together daily programs produced by the Arabic departments of many of the world's leading public radio broadcasters. Listeners will be able to hear daily perspectives from Montreal with Radio Canada International, Seoul with KBS World Radio, Moscow with Voice of Russia, Bucharest with Radio Romania International, and from Vatican City with Vatican Radio. More international stations are lined up to join the new station.

Listeners may receive Sawt Al Alam from WRN by tuning to the following technical parameters:

Satellite: BADR-2 @ 26° East
Frequency: 11,661 MHz
Polarization: Vertical
FEC: 3/4
Encryption factor: 27,500 MS/s

Deutsche Welle To Launch News/Analytical Program For Belarus

German broadcaster Deutsche Welle (DW) plans to launch a 30-minute news and analytical radio program for Belarus. The program, scheduled for launch in August and called "Belarusian Chronicle," will go on the air at 0700 (0400 GMT) on 5945 kHz via Hotbird satellite. It will be broadcast in Russian and Belarusian from Monday to Friday and feature reports on culture, education, and sports in Belarus, Germany, and the European Union. This project is funded by DW and is of unlimited duration. The broadcaster may receive financial assistance from the European Union, which provided 138,000 euros for a 15-minute program in 2005.

Deutsche Welle Increasing Its Podcasting Offerings

Placing it again in the news, DW has been gradually increasing its podcasting offerings. Programs offered as podcasts include "Inspired Minds," "Living Planet," "Newslink Plus," "Sports Report," "Inside Europe," and—get this—"Slowly Spoken News Reports," DW's German language version of the Voice of America's "Special English" newscasts. The best place to find DW podcasts is its website, www.dw-world.de/english/podcasts.

Radio New Zealand Also Extends Podcasting Service

And speaking of podcasts, Radio New Zealand is to significantly extend the range of National Radio programs available via podcasting following a very successful three-month trial of the new service. Beginning this summer, listeners were able to download their favorite interviews and program segments directly from the Radio New Zealand website at www.radionz.co.nz.

Voice Of Oromia Independence Launches Weekly Broadcast

A new radio station called the Voice of Oromia Independence is beaming a weekly program to Ethiopia on Saturdays at 1500 to 1530 UT on 15650 kHz. Broadcasts starts via a T-Systems facility in Germany.

HD Radio System Restores Private AM Broadcasting In Indonesia

Private AM radio has been restored in Indonesia with the installation of a Broadcast Electronics (BE) transmission system broadcasting HD Radio on 1062 in Surabaya, Indonesia. The mediumwave HD radio system was installed at Radio Sangkakala, some 15 years after private AM stations in Indonesia migrated to FM, virtually abandoning the mediumwave band.

The broadcaster is a religious group affiliated with Bethany Assembly of God, which purchased three adjacent frequencies and began broadcasting HD Radio in hybrid mode from the center frequency, at 1062 kHz. Radio Sangkakala owner and operator, Pohan E Harliman, reported excellent mediumwave analog coverage and exceptional FM quality signals. ■

Each month, we select representative reader letters for "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, *25 Newbridge Road, Hicksville, NY 11801-2909, or send e-mail via the Internet to popularcom@aol.com.*

COMTek's Hearing Aid

Dear Editor:

I just read your "Tuning In" column in the July issue and am glad you're on the trail of COMTek and the FCC. I, too, find it amazing that they think they can get away with the BPL interference, and the FCC is in serious need of oversight for their ineffectiveness with this serious issue.

Lawrence Gatlin
Via e-mail

The Show Goes On

Dear Editor:

You scored big time in North Carolina on the "Allan Handelman Show." I heard you on 101.1 (and always listen to Allan) and, just like in the magazine, you told it like it is. That's unusual today because everybody seems to be just repeating what other people are saying without thinking (as you've said recently), especially when it comes to the state of our country and our freedoms. Good show! Both you and Pat Murphy did a fine job.

Phil Bartow
Via e-mail

Never Writes...Until Now

Dear Editor:

I never write to magazines, even when I get mad or am pleased with something, but am making an exception after all these years. Sometimes your "Tuning In" articles make me mad, but not mad at you for writing it. I get frustrated with the "antics" as you call them of our government and how they ALL try to cover their tracks with "BS" as you say. I hope those you target are reading them, because they should be!

I am also very excited about the articles in *Pop'Comm*, especially those written by Mr. Sturtevant and your "Tech Showcases." Go for it!

John Baker
Via e-mail

A Great Combo

Dear Editor:

The "Tech Showcase" in your July *Popular Communications* by Peter Bertini was very good. But I think all your showcased items are very professionally done and without bias. I already had purchased the Shorty I, but use a mount welded to the rear of my SUV. I suppose getting the antenna up higher on the vehicle would be better, but you sure don't want this thing coming off at highway speed! Keep up the great work because I love *Pop'Comm*.

Dave Sharp
Via e-mail

Wants More CB

Dear Editor:

I'm a "died in the wool" CBer who was a subscriber to your former *CB Radio* magazine. I sure would like more articles devoted to CB and CB antennas. See you on the flip side, as they (we) say.

Bob in Memphis
Via e-mail

Dear Bob:

Thanks for your letter. Coming down the pike are articles on CB antennas and mobile installations as well as a couple of interesting reviews of mobile rigs, so please stay tuned.

All's Well That Ends Well

Dear Editor:

I just finished reading *Popular Communications* for the first time, and while I don't own a shortwave radio or have a license I'm very impressed. Your editorial position is quite unlike anything I've read recently (especially today) and your humor columnist, Mr. Price, is always making me laugh and reminds me of people I've known in the business world. Thank you for a great read.

Robert J. Wilkes
Pensacola, FL
Via e-mail

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Harold Ort, N2RLL, Editor
(E-mail: Popularcom@aol.com)
Tom Kneitel, W4XAA, Senior Editor
Edith Lennon, N2ZRW, Managing Editor
Richard S. Moseson, W2VU, Editorial Director
(E-mail: w2vu@popular-communications.com)

CONTRIBUTING EDITORS

Rich Arland, W3OSS, Homeland Security
Peter J. Bertini, K1ZJH, Restoration/Electronics
Bruce A. Conti, AM/FM Broadcasts
Joseph Cooper, Computer-Assisted Radio
Gerry L. Dexter, Shortwave Broadcast
Richard Fisher KI6SN, Capitol Hill News
Bill Hoefer, KBØULJ, Aviation Communications
Tomas Hood, NW7US, Propagation
Shannon Huniwell, Classic Radio
John Kasupski, KC2HMZ, Utility Communications
Kirk Kleinschmidt, NTØZ, Amateur Radio
Ron McCracken, WPZX-486/KG4CVL, REACT
Bill Price, N3AVY, Humor/Communications
Ken Reiss, Technical/Scanning
Bob Sturtevant, AD7IL, Puzzles and Trivia
Tom Swisher, WA8PYR, Military Monitoring
Gordon West, WB6NOA, Radio Resources

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Elizabeth Ryan, Art Director
Barbara McGowan, Associate Art Director
Dorothy Kehrwieder, Production Manager
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Larry Mulvehill, WB2ZPI, Photographer

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CQ Communications, Inc.
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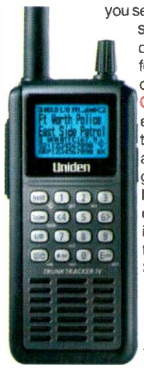
The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning. **Close Call Radio Frequency Capture** – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NiMH or Alkaline battery operation and Charger** – 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAH Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396D using 3 AA alkaline batteries. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. Memory Backup - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. Manual Channel Access - Go directly to any channel. LCD Back Light - A blue LCD light remains on when the back light key is pressed. Autolight - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. Battery Save - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. Attenuator - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at :www.usascan.com or call 1-800-USA-SCAN.



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The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group ID, custom search range, and S.A.M.E. group using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birdies. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAH nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part **#HF24RS** for $29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.

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DXing The Failed States

Tracking Turmoil In Troubled Regions

by Gerry Dexter

Maybe you couldn't quite handle Mrs. Van Meter's ninth grade geometry class and she gave you an "F." Or you didn't keep your New Year's resolutions beyond January 5. Or you neglected to call your mother last week like you promised. Baseball players, even the good ones, fail two-thirds of the time when they face a pitcher. Heck, now and then even Brett Farve failed to complete that last-second pass into the end zone that would have won the game.

Individual failure normally affects relatively few people. But when *nations* fail that's something else entirely. Now we're talking very serious stuff—disruption, turmoil, extreme poverty, starvation, environmental disaster—even violent death!

Last year the journal *Foreign Policy* issued the first "Failed States Index," a list of countries they have been judged either to be failures or headed in that direction. Failed states are seen as a threat to world stability because a weak government tempts trouble, such as an invasion by a neighbor leading to war and creating thousands of refugees pouring into and placing a heavy strain on often unstable neighboring countries. Eventually these problems involve the United Nations or a regional peacekeeping force, as well as various non-governmental agencies, which can just as easily create additional chaos.

Any number of negatives can, over time, put a country on that slippery downhill path to failure. These include a government incapable of dealing with its problems, conflicts that overflow the borders of a neighboring state to create internal havoc, fractional internal politics that turn deadly, rebel armies operating within the borders, lack of an adequate military, no established justice system, widespread poverty, and general instability.

We're going to take a look at the top 20 or so on the list of failed states (as selected by *Infoplease*) and give you a quick picture of the situation in each and then a look at what you can hear from them on shortwave, as well as some broadcasts aimed *at* the countries in question.

AFGHANISTAN—This is a familiar story. Soviet occupation brought 10 years of war and ended in Moscow's defeat and withdrawal. The mujahidin fighters the U.S. supported as they fought the Soviets eventually spawned the Taliban, who took over and later allowed Osama bin Ladin to take up residence, which in turn led to 9/11, which then triggered the U.S. invasion and eventually the stirrings of democracy there. Even so, warlords, fiefdoms, and a flourishing drug economy remain, as do elements of the Taliban and deadly al-Qaeda detritus.

At present, Afghanistan doesn't have very much in the way of shortwave, other than Peace Radio, a 1-kW outlet in Bagram supposedly operating on 9356, but unlikely to be heard much outside the country. But we can look forward to a 100-kW international station there in the months to come, perhaps even before this year is out.

Afghanistan, where the Taliban once ruled, is now a free nation, surrounded by many other "stan" states.

The U.S. operates Radio Free Afghanistan in connection with Radio Free Europe/Radio Liberty, which airs one-hour broadcasts beginning at 0230, 0430, 0530, 0630, 0730, 0830, 0930, 1030, 1130, 1230, and 1330, alternating an hour in the local Dari, then next in Pashto. Frequencies used are 9335 (via Sri Lanka), 11940 (via Kuwait), 12140 (Kuwait), 15690 (Sri Lanka), 17595 (Thailand), 19010 (Kuwait), and 21690 (Thailand). Note that not all frequencies are in use at any given hour. Another broadcaster, Peace Radio, based in the UK, operates from 0200 on 11675 (via Kuwait), from 1200 to 1500 on 15265 (via the UK) and from 1500 to 1800 on 9875 (UK) also in Pashto and Dari.

BANGLADESH—Formerly East Pakistan, Bangladesh broke away from West Pakistan (now Pakistan) in 1971. The country has too much rain, too many people, and too little money. Reforms, such as they are, move forward very slowly thanks to a pervasive culture of corruption, a stubborn bureaucracy that resists change, and various interest groups more concerned with themselves than they are with national betterment.

Radio Bangladesh, known domestically as Bangladesh Betar, is a pretty difficult catch in North America, never mind their 250 kW of power. Try their English broadcast on 7185

This building is home to Radio Bangladesh, also known as Bangladesh Betar.

beginning at 1230. Some other possibilities include 1315 in Nepali and 1400 in Urdu, also on 7185, the only frequency in use. Some time ago Radio Bangladesh was reported to be upgrading its facility and planning a more significant international service, but that has yet to happen.

BURUNDI—Another chapter in the Hutu-Tutsi conflict. Ethnically Burundi is a mirror image of Rwanda (see below). The Hutu are by far the dominant ethnic group, but the minority Tutsis dominate the government. War between the two broke out in 1993, resulting in over 200,000 dead and more than twice that number displaced. Sporadic fighting continues among other groups and often spills over the borders. The UN has about 6,000 peacekeepers in the country.

This is a really tough one to hear. Radio-Television Nationale du Burundi is reportedly inactive. When it is operating it uses 60 kW on 6140 in local languages plus English and French. Your best, albeit micro-slim, bet would be at 0300 sign on.

CENTRAL AFRICAN REPUBLIC—Another of those former French African colonies, CAR also became independent in 1960. The military soon took things over and proceeded to (mis)rule for the next three decades. A thoroughly corrupt civilian government took over in 1993 and lasted 10 years before the military again took over, but it still does not have the entire country under its control. Elections for a civilian government were held again in 2005.

Radio Centrafricaine from Bangui is occasionally snagged on 5035 from 0430 sign on, though it helps greatly if you catch a night when University Network (5030) is off and thus not spreading splash. The main frequency seems to be 7220, but most North American logs are on the so-called alternate 5035. There's also Radio Ndeke Luka, which is sometimes active on shortwave. The UN, the government, and the Hirondelle Foundation of Switzerland jointly operate this local FM outlet. At this writing the broadcasts are not aired on shortwave, but it wouldn't hurt to keep this one in mind in case it reappears. It was last active on 15470 from 1830 to 1930 via the UK.

CHAD—This is another former French colony that achieved independence in 1960. Over the next 30 years it was also a sad story of civil war spiced up by an invasion by Libya. Eventually things calmed down and democracy obtained a toehold, albeit with an ethnic minority in charge. The north continues to be a problem area: a rebellion broke out there in 1998, and manages to sprout anew every year or so. One hopeful sign for the future is oil; Chad is estimated to have a billion barrels of the stuff.

Radiodiffusion Nationale Tchadienne's 100 kW now and then does surprisingly well in North America. It uses 6165 with sign on which varies from 0425 to 0430. Another chance comes during the months of shorter daylight hours during the later part of the schedule, which runs to 2230.

COLOMBIA—Guerrillas trying to take over the country and getting rich in the international drug trade are the main story here. The guerrillas are members of the Revolutionary Armed Forces of Colombia (FARC) and the smaller National Liberation Front (ELN). Although the guerrillas do control parts of the country, they are not powerful enough to actually take over and the government now seems to be making some small headway in its effort to stamp them out.

There are a number of possibilities in Colombia. Try Marfil Estereo on 5910, La Voz de su Concencia on 6010, La Voz del Guavaire on 6035, and Radio Lider on 6140. Less frequent appearances are made by Ecos del Atrato, 5020v and La Voz del Llano on 6115. The best times for all of these are local evenings or very early mornings (around 0900 to your local sunrise).

The FARC guerrillas operate Voz de Resistencia, a small, low-power, and seldom-noted clandestine based somewhere in the northern part of the country. The extremely few logs of this one have been made around 1130 or 1200 in the area around 6350. The station only broadcasts for 30 to 40 minutes at a time. The other guerrilla group, the ELN, operated the also very difficult Radio Patria Libre for a while, but little has been heard of or about this one in several years.

COTE d'IVOIRE (IVORY COAST)—When it gained its independence from France in 1960 it was thought destined to be one of the region's winners. The country was politically stable and relatively wealthy for nearly 40 years. Then in 1999 a military coup overthrew the government. A supposedly rigged election in 2000 shut out the opposition leader, which led to an attempted coup. The rebels failed in their attempt but managed to occupy the northern half of the country and later gained some positions in a new "unity" government. Things are still very tense, and the opposition has not yet given up the area it controls in the north. Troops from France and West African nations are in-country

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FARC guerrillas in Colombia even have their own billboards!

attempting to maintain peace and to move the two sides towards an agreement both can live with.

Radiodiffusion-Televisione Ivoirienne, at one time a "ho-hum" resident of 4940, is no longer active on shortwave. Indeed, there aren't even any opposition groups involved in broadcasting to the Ivory Coast.

DEMOCRATIC REPUBLIC OF THE CONGO—Once upon a time this was the Belgian Congo until it, too, gained independence in 1960. The first coup came in 1965 when Col. Joseph Mobutu took power and renamed the country Zaire. Fighting in Rwanda and Burundi sent a river of refugees into Zaire and eventually Mobutu was toppled. The new leader, Lauren Kabila, renamed the country again. Then Rwanda and Uganda backed an uprising against the government and several other countries sent troops in to put down the insurgency.

At present the Rwandan forces have left, a peace accord has been signed, and a government of national unity formed under the assassinated Lauren Kabila's son, along with several vice presidents representing the former government, various rebel groups, and political parties. Even so, fighting between some tribes, rebel groups, and militias continues in the northeast, and refugees by the thousands have fled into bordering countries.

The government broadcaster Radio-Television Nationale Congolaise (RTNC) is inactive on shortwave. A regional station, Radio Candip, in Bunia, is sometimes active on 5066 variable with sign on at 0400. Radio Okapi, another UN-Hirondelle Foundation effort, is based in Kinshasha and transmits on 11690 from 0400 to 0600 and 1600 to 1700 via Meyerton, South Africa.

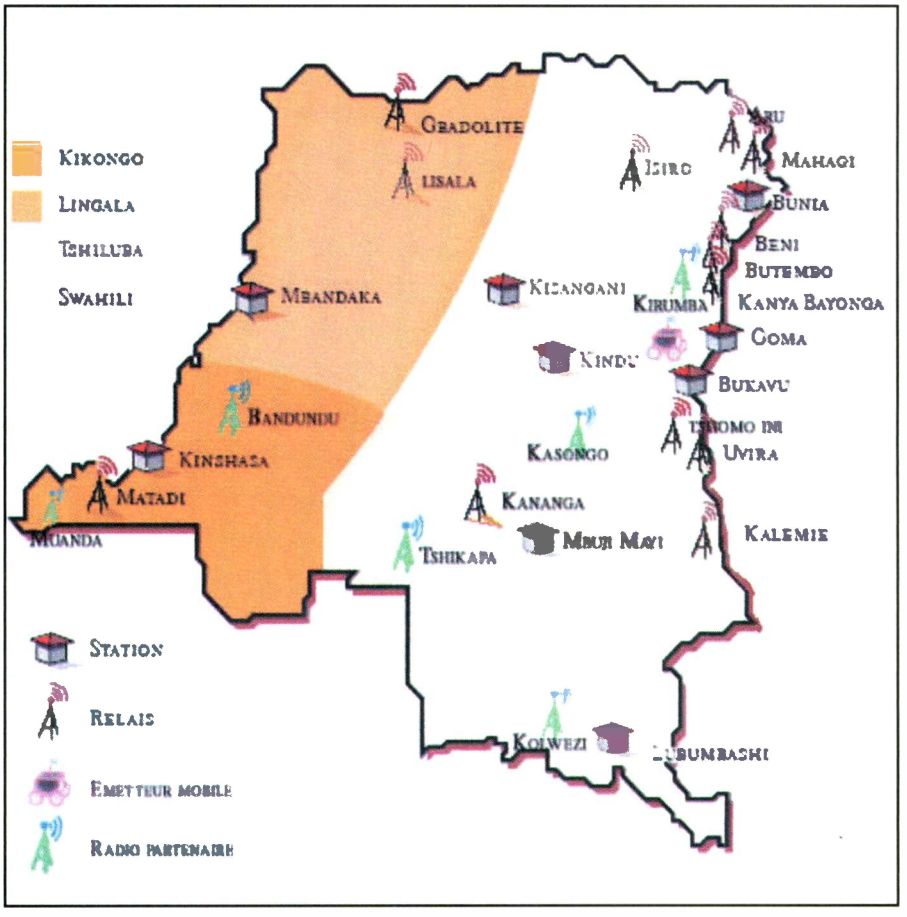
GUINEA—Guinea's problems are mostly the fault of its neighbors Liberia and Sierra Leone, both of which are discussed later. Conflicts in those two countries have created some instability in Guinea, as well as some humanitarian problems. Guinea has a lot of natural resources which, given the right conditions, could pave the way to a much brighter future.

Radiodiffusion-Television Guineennee operates on 7125 from 0600 and can usually be heard there at that hour. Shorter daylight months may well find it appearing in local late afternoons prior to closing at 0000. Incidentally, RTG is one of the world's worst when it comes to the ancient and noble art of QSLs.

HAITI—A thesaurus might well include "misery" under a listing for Haiti. It was the first country with a dominant black population to declare itself an independent nation (1804). No country in the Western Hemisphere is poorer. (They don't even make baseballs there anymore!) If "Poverty" were the name of a Haitian town, 80 percent of the population would be living there. If the non-stop political violence and near universal corruption wasn't enough, the country, like Bangladesh, always seems to be in the path of the next monster storm. There is no army, no navy, and no air force. A UN mission is in the country to maintain order (more or less).

It has been many years since any shortwave station was active from Haiti. The religious broadcaster 4VEH was probably the last one to go. And, like the Congo, no outside group seems interested enough to bother broadcasting to Haiti. There are only 200 to 300 low-power local FM and mediumwave stations.

IRAQ—Well, we know the story here, too, don't we? A kingdom since 1932, the government was overthrown by the military and eventually Saddam Hussein terrorized and murdered



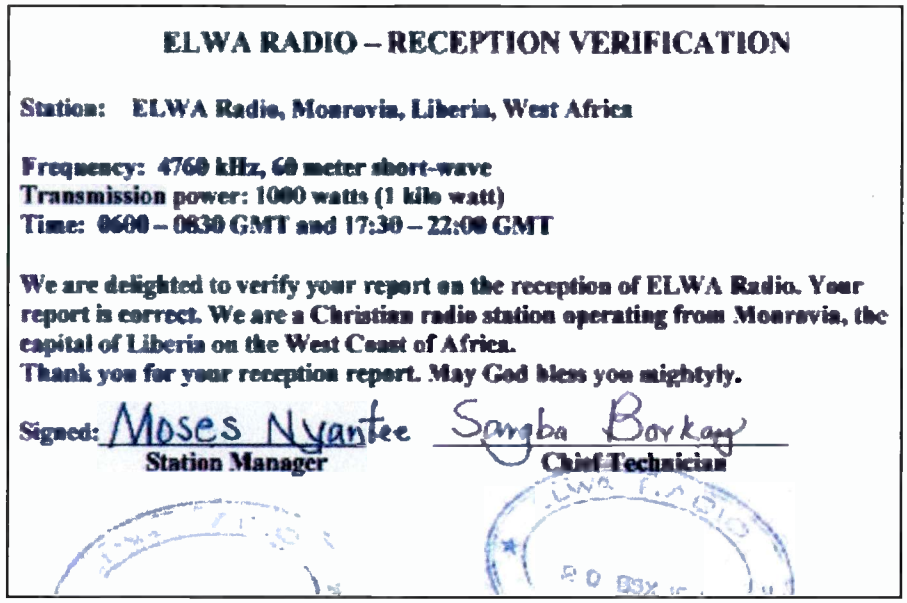
Radio Okapi has a significant presence in the Congo.

his way to the top. There was an eight-year war with neighboring Iran, the invasion of Kuwait in 1990, the Gulf War to reverse that situation, weapons of mass destruction (or not), a dozen or so UN resolutions ignored and finally the U.S.-led coalition and the war which removed Saddam from power. Although there continues to be an ongoing insurgency, most of the people directly involved in the rebuilding effort believe steady progress towards a full democracy is being made. Others still believe civil war could break out.

The two coalition wars against Iraq took out the international service of Republic of Iraq Radio. That leaves only a couple of in-country stations, which rarely make it very far from home. The Voice of Independence, based in Northern Iraq, uses 4160v from 0400 to 0500, plus the impossible 1600 to 1700 hour. The Voice of Iraqi Kurdistan uses variable 6335 from 0300 to 0600 and 1500 to 2000. Again, that's an awful hour for reception in North America. There are also a few broadcasts aimed at the country from outside. Denge (Voice of) Mesopotamia is based in Belgium and is the mouthpiece for the Kurdish Freedom and Democracy Congress, formerly the Kurdish Workers Party. This is frequently reported via Moldova on 11530 from 0500 to 1500 and 7590 from 1500 to 1700. The 11-MHz frequency is the most easily heard here. Radio Free Iraq, another RFE/RL-type operation of the U.S. government no longer broadcasts via shortwave but instead uses satellite and one local mediumwave channel.

LIBERIA—Founded by former slaves, a revolt against President Charles Taylor began a civil war that would last 14 years. A peace accord was signed in 2003, a new government created, and the long trek back to normalcy began. The UN is in strong evidence with the United Nations Mission in Liberia (UNMIL). Things are moving slowly forward, but the key word is "slow" (very). A 2003 estimate puts the unemployment rate at 85 percent. A new (woman) president took over early this year. Perhaps she can be positive force.

Long a member of the Liberian broadcast community, religious outlet ELWA has had its facility destroyed at least twice in various raging conflicts, but has come back to rebuild both times. It's currently on the air on 4760 with an 0600 sign on. Another religious outlet, Radio Veritas, is active on 5470 (and on never-heard 6090) running to 2300 close, making it sometimes audible during the winter months. Local FM station Star Radio, another UN-Hirondelle Foundation effort, is also relayed on shortwave by the Ascension Island facility from 0700 to 0900 on 11960 and 2100 to 2200 on 9525.


ELWA RADIO – RECEPTION VERIFICATION

Station: ELWA Radio, Monrovia, Liberia, West Africa

Frequency: 4760 kHz, 60 meter short-wave
Transmission power: 1000 watts (1 kilo watt)
Time: 0600 – 0630 GMT and 17:30 – 22:00 GMT

We are delighted to verify your report on the reception of ELWA Radio. Your report is correct. We are a Christian radio station operating from Monrovia, the capital of Liberia on the West Coast of Africa.
Thank you for your reception report. May God bless you mightyly.

Signed: Moses Nyantee — Station Manager
Sangba Borkay — Chief Technician

ELWA was destroyed and rebuilt at least twice during Liberia's long civil war.

NORTH KOREA—Have you seen that satellite view of the Korean peninsula at night? The south shines. The north is inky black. And that's about all you need to know about North Korea's economic "success." Run by a guy who seems not to take his meds regularly, Pyongyang is eagerly seeking—and probably building—nuclear weapons and likely has at least has a rudimentary delivery system. (Are we depressed yet?) Kim Jong Il's crackpot quotient is probably just high enough to tempt him to one day order the button pushed. The economy is a complete mess. Such a large amount is spent on the military that there is little if anything left for development. So the population eats—when it does—thanks to the goodwill of other nations, which has helped avert famine more than once.

The Voice of Korea has an international broadcast schedule too lengthy to lay out here so we'll just give you some best bets. Check these frequencies at various times: 9335, 9345, 9975,11710, 11735, 13760, and 15180. The station is active for much of the 24-hour day, broadcasting in Arabic, English, Chinese, Korean, and a number of other languages. The Pyongyang Broadcasting Station can be heard in Korean on 6250 and 6400 during our early morning hours. The Korean Central Broadcasting Station (KCBS) is best found on 9665 or 11680 during favorable conditions from 2000 to 1800. The also government-run National Democratic Front airs from 0800 to 1400 over KCBS frequencies 3480, 4450, and 4557. Their later schedule period doesn't stand a chance here.

RWANDA—Hutu versus Tutsi, back and forth, on and on, forever and ever. The hate and the killings probably date back to the beginning of time, certainly to before Rwanda's independence from Belgium in 1959. In 1990 the Tutsi Rwandan Patriotic Front (RPF) initiated a war against the Hutus, which lasted until 1994 and ended with some 800,000 dead. Millions of Hutu refugees fled to border countries. The present Tutsi-controlled government has twice involved itself in conflicts in the Congo where a Hutu group is determined to reacquire control of Rwanda.

Radiodiffusion de la Republique Rwandaise is a very infrequent visitor. When it does favor us it's on 6055 with 50 kW and an 0255 sign on. The ethnic war made use of the Deutsche Welle Relay impossible for a while, but today the Kigali relay offers many reception possibilities. Here are half a dozen, one of which should work for you: 9565 in English at 0500, 9720 in Indonesian at 2200, 9875 in German at 0200, 11690 in German at 0000, 11810 in Amharic at 1400, and 17800 in French at 1200.

SIERRA LEONE—An 11-year civil war turned about a third of the population into refugees and killed tens of thousands more. UN peacekeepers and internation-

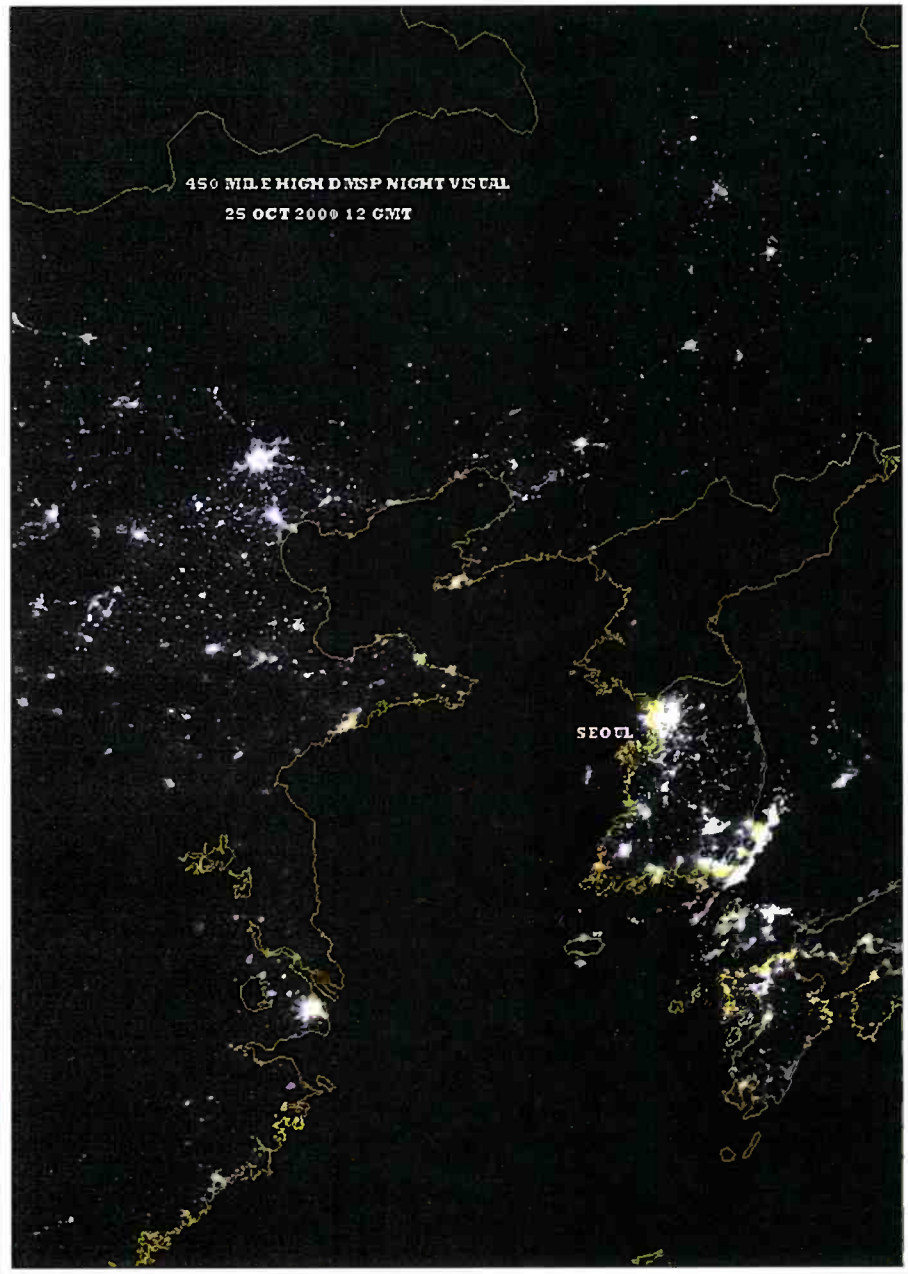
al aid have improved things somewhat. The Revolutionary United Front rebel group has been disarmed, elections were held four years ago and again late last year, so there has been some progress. But the country has unstable neighbors and even a minor spillover from one of them will pose severe problems. Life expectancy in Sierra Leone is just under 40 years.

The Sierra Leone Broadcasting Service is frequently inactive. When it is transmitting it uses 3316 and signs on just prior to 0600. Much of the programming is a relay of one of the local FM stations. They have also been known to carry a good deal of BBC programming. The UN is involved here, too, with its Radio UNAMSIL representing the UN mission there. This service uses 6140 and, when active, operates around the clock. It has been fairly widely heard in North America, despite its modest 1 kW.

SOMALIA—Somalia has literally come apart at the seams. A regime change in 1991 led to anarchy. Various warlords with their ragtag armies control some towns and areas here and there. Six northern regions have banded together to create the Republic of Somaliland, although it's not recognized by any nation. A couple of other regions have formed what they call Puntland, an autonomous area, which isn't seeking independence but wants more territory. Famine struck much of the south in the early 1990s, and that area still suffers from the after effects. Al-Qaeda members are believed to be operating out of Somalia as well. A minimal "Trans National Federal Government" sits in the capital Mogadishu, which various factions are still fighting to control.

Considering the mess it's in, it's a wonder there is any broadcasting activity in this place. But it's also no surprise to learn that all the active outlets are near-impossibilities in North America. Radio Shabele in Mogadishu uses 6960 with an 0400 sign on. Radio Hargeisa, in the so-called Republic of Somaliland, is supposedly active on 7530 and opens at 0330. In Puntland there is Radio Galkayo, which signs on at 0400 on 6980. Two opposition broadcasters are active: Radio Horyaal, aired via Armenia on 7560 from 1730 to 1800 and Radio Waaberi, 17760 via Julich from 1330 to 1400. Another station, this one fairly new, is the Voice of the Somali People, reported to use 7175 on Wednesdays and Saturdays at 1730. This is very likely a relay from an as yet unknown site.

SUDAN—This year Sudan will mark (we won't say celebrate) 50 years since



South Korea glows; North Korea is "lights out" in this satellite photo.

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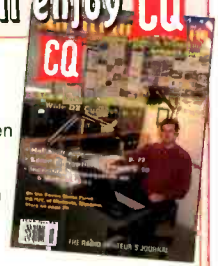

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its independence from Britain. Nearly every one of those 18-thousand plus days has been a story of misery. There were two long civil wars, famine, and discrimination against the southern part of the country where the citizens are neither Arab nor Muslim. The (Sunni) Muslim-dominated north keeps trying to put an Islamic government in place and apply Islamic law. A peace treaty a year or so ago gave the south some temporary autonomy, and eventually there is supposed to be a vote on whether to seek independence. One will get you 10 that never happens. Still another regional war broke out in the Darfur region in 2003, which created another mass of refugees.

Sudan Radio TV is sometimes a fairly easy catch on 7200 with its 0300 sign on. Radio Peace, is located near a place called Narus, a small village in the south. This is occasionally heard on 4750 from 0230 to 0430 but it may not be active on a consistent basis. There is also the opposition Voice of Sudan that uses 7999 daily at 1230 and again at 1500. More easily heard is the Sudan Radio Service funded by the U.S.-based Education Development Center. SRS is on the air from 0300 to 0500 on 7120, 0500 to 0600 on 9525, 1700 to 1800 on 11705, and 1500 to 1700 on 15575.

YEMEN—Let's see. First there was Aden in the south, which later became South Yemen and for a while aligned itself with the Soviet Union. Once that happened North Yemen, once a part of the Ottoman Empire, quickly became a not-so-willing host to southern refugees numbering well into the six figures. In 1994 the two countries unified as the Republic of Yemen. Even though financial success depends largely on oil (of which it has a lot), Yemen is still one of the poorest of the Arab countries.

Republic of Yemen Radio is not a difficult catch if you give it a few tries. 9780 is the place to station yourself for their 0300 sign on. Reception is also possible prior to close down at 2100.

ZIMBABWE—Once it was Southern Rhodesia, later Rhodesia, and then, in 1980, independent as Zimbabwe. Ruled by Robert Mugabe since 1987, his economic policies and politically correct land redistribution program have just about ruined what once was an economy that was actually exporting farm products. Now shortages of basic goods are rampant. Those who openly disagree with the regime are not dealt with gently.

The Zimbabwe Broadcasting Corporation operates on three frequencies: 3306, running to 0530, 5975 reported to be 24 hours but never heard in North America, and 6045 from 0530. There is also a better-heard ZBC signal on 6612, which seems to be a harmonic (2 x 3306). A station opposing the Mugabe government is The Voice of the People, which the government raided a while ago. VOP has studios in the country but transmits via the Radio Nederland relay site in Madagascar. It's on the air from 1700 to 1800 on 11705. South West Radio Africa, another anti-Mugabe voice, was active on shortwave last year, but a shortage of funds has kept it limited to 1197 kHz, aired via a local station in nearby Lesotho.

So there you are. These countries are thought to be the worst cases on the "failed" list. Frankly we think most of the 40 others or so on the list are cases where the compilers have stretched the parameters so as to enlarge the list and make it more impressive. We think our listings here are about right—and there are even a couple we included might be questionable. You can take a look at www.infoplease.com, and decide for yourself Good luck making the catches! ■

by Rich Arland, W3OSS, richard.arland@verizon.net

Turtles: What EmComm Needs

If I said the name Cyril Rescorla, you will probably say that you have never heard of the man. Until recently, neither had I. Born on May 27, 1939, in Hayle, Cornwall, England, Cyril witnessed the ravages of the Nazi bombings of his homeland during WWII. He was so impressed with the "Yanks" who came over to his native England to fight and die for his country he vowed that some day he would be an American. Not just any American, but an American Fighting Man.

One of the few citizenship avenues open to immigrants coming to the United States is by joining our military and serving in our country's armed forces. Enlisting in the U.S. Army in 1963, after careers in law enforcement and the British Army, Cyril became a platoon leader in the newly formed First Air Cavalry. Serving in Viet Nam in 1965 under the command of Lt. Colonel Harold (Hal) Moore, Cyril distinguished himself in the November 1965 battle in Viet Nam's Ia Drang Valley as a professional soldier and a hard core platoon leader who held his men in high esteem. (You can read more about the battle in *We Were Soldiers Once...and Young* by Joe Galloway and Hal Moore.)

His take-charge leadership style resulted in his platoon sustaining minimal losses during that battle, the first large-scale engagement between the North Vietnamese Regular Army and the U.S. Army. In military parlance he was a real "hard charger." Lt. Col. Moore, when asked about Cyril, commented that he was the best platoon leader he had ever seen. High praise from one's commander!

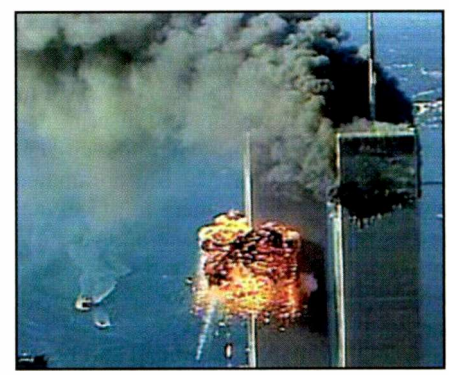
Retires As A Colonel

Cyril became a U.S. citizen and remained in the U.S. Army until his retirement in 1990 at the rank of O-6, full colonel. Life after retirement from the Army was anything but dull. Cyril became chief of security for Morgan Stanley/Dean Witter in New York and took his job seriously. His military career set the stage for his becoming an outstanding security chief, always on the alert for ways to keep "his" people safe. Seeing all sorts of lapses in security at the offices of Dean Witter, Cyril worked diligently to correct them and simultaneously educate upper level management as well as the rank and file within the company to the need for tighter security at this world-renowned financial firm.

The WTC: A Target Identified

He correctly identified that the immediate threat to America was from Islamic terrorists and worked tirelessly to ensure that the offices of his people were as secure as possible against what he considered the ultimate threat against the American way of life.

That the offices of Morgan Stanley/Dean Witter were in the World Trade Center, Tower # 2, has special significance. In 1992, Cyril and his Special Forces buddy, Dan Hill, identified what they considered a high probability target: the basement of the WTC. Cyril informed the World Trade Center Security office, the NYPD, and the New York Port Authority, all of whom



We all remember these horrific shots of the World Trade Center towers on September 11, 2001. Until that day, terrorism was something that happened to other countries.

did virtually nothing. Then came February 26, 1993, and the Islamic terrorist bombing of the garage in the basement of the WTC! The goal of the attack was to so severely damage the North Tower that it would collapse into the South tower. Thankfully, although the damage was extensive, this did not happen. However, six people were killed and over 1,000 injured in this blast. Where was Cyril? He was busily engaged in evacuating people from the building. As a matter of fact, he was the last person to leave the WTC on that day. As in Viet Nam, Cyril took care of "his people."

Following the 1993 bombing of the WTC, Cyril and Dan wrote a scenario that predicted that the next attempt against the Twin Towers would be an assault by a civilian aircraft flown by Islamic terrorists on a suicide mission. They presented their ideas to the authorities but were again ignored. Undaunted, Cyril worked with upper level management within his company and instituted evacuation and survival training for all employees including quarterly evacuation drills. Most employees thought

that this was a bit excessive, but Cyril was insistent to the point of obsession, and thankfully he got his way.

Over the intervening eight years, the 2,800 staff personnel of Morgan Stanley/Dean Witter were trained, trained, and trained some more in how to get out of harm's way in the event the building came under attack. His military background served him well in this, as one of the classic mantras of the military is, "The more we sweat in training the less we bleed in combat." Make no mistake; what has been going on for years behind the scenes across the world involving Islamic terrorism is combat, plain and simple. September 11, 2001, was its grand scale debut in America.

When the first hijacked airliner hit the WTC, Cyril and his security team started evacuation plans over complaints from staff. Still, this is what he and the security personnel had planned for and Cyril's forceful demeanor prevailed. Over 2,800 people owe their lives to Cyril and the security team from Morgan Stanley/Dean Witter. When they were last seen, Cyril and his men were headed back into the WTC to help evacuate more people. Then Tower Two collapsed. His body was never recovered. He left behind a wife and children and a legacy that stretched over 40 years. Cyril "Rick" Rescorla, Colonel, U.S. Army (ret.) was a true American hero, an American Fighting Man to his last breath. In the War on Terror he is often thought of as "The man who predicted 9/11."

We're Still At War

The reason I bring up Rick Rescorla's life is to hammer home the point that we're at war. Every one of us, whether or not we wear a uniform or serve in some branch of military or government service, is a trooper on the front lines of a war against delusional, ultra-religious, hate-filled fanatics whose sole purpose in life is to destroy our country, our freedoms, and our way of life.

Rick Rescorla epitomizes my idea of a True American. Forget the word "hero," although it fits perfectly. Rick saw a way to serve his country and fellow man and did what he had to do. It cost him his life and the lives of his security team. On the flip side, he and his team saved the lives of almost 3,000 people, who very likely have otherwise died in the terrorist attacks on the WTC.

Heroism is not only measured in grandiose actions during times of upheaval during wartime. Heroism is also conquering your fears and moving forward to do "the right thing" in the face of adversity. Being a career military man myself, I would have been honored to serve with Rick Rescorla under any circumstances. He was my kinda guy.

This is Cyril "Rick" Rescorla, 1st Lt., U.S. Army, in action in the Ia Drang Valley in 1965. This shot was taken by war correspondent Peter Arnett during the fighting. This three-day battle pitted 450 U.S. troops against over 2,000 North Vietnamese Regular Army soldiers in the first major exchange between U.S. and North Vietnamese forces of the Viet Nam war.

How prepared are you, and what exactly are you doing to help your family, friends, and co-workers survive another terrorist incident?

Turtles (?)

No, I've not "lost it"! This is the title of an article that appeared in the latest ARES *E-Letter*, edited by Rick Palm, K1CE. Jeff Sabatini, KI6BCX, submitted this article and I have obtained permission from Rick to reprint it here. Jeff has a really great idea: All of us baby-boomers who have ham licenses and are interested in EmComm and also have an RV or travel trailer, could be a tremendous asset to disaster mitigation teams. Read what Jeff has to say and judge for yourself.

Idea: "TURTLES"

I am a member of the boomer generation. We boomers are an eclectic bunch, but where ARES/RACES are concerned, there is one particular boomer demographic that has not been fully recognized for its potential, especially in the very early stages of a disaster response. It is a solid fact that boomers own more self contained recreational vehicles than any other purchasing group. What has that got to do with ARES/RACES? As more boomer-amateurs answer the call, the number of responders arriving on scene who won't "need to be found and issued immediate room and board" will increase dramatically.

The question of where to house responders when every dwelling and structure for miles around has been either destroyed or rendered unsafe for occupation became a logistical nightmare with Katrina and Rita. Planners were forced to set up tent cities dozens of miles away, which resulted in horrific numbers of miscommunications, delays and other logistical pitfalls.

Now just imagine an army of ARES volunteers able to respond and remain on scene for a week or more without the need of housing, food, sanitary or utility needs, and have the ability to contribute generated electricity and other services like satellite TV and even Internet capabilities? As to setting up and manning emergency repeater sites, I've already met operators who have come up with ingenious tower installations. I've seen wire antennas stretched between two motor homes, and many other innovations.

I would like to offer the nickname "TURTLES" to this next generation of self-contained responders, as we can arrive with our house on our back. Instead of having to worry about bed and board for these ARES operators, logistical planners would merely have to provide basic security for an impromptu RV park.

Katrina taught us some hard lessons. It's time everyone started thinking beyond having a few extra batteries and granola bars packed in a go-bag. If the predictions of more severe weather patterns are only partially correct, week to month or longer deployments may well become the standard. Personally, I'd rather spend my sack time in my own (RV) bed than on some government surplus cot. What say you?

—Jeff Sabatini, KI6BCX

So, what do YOU think? If you're a licensed ham radio operator, serious CBer, or avid camper with FRS/MRS/GRMS capability and have an RV or travel trailer, would you be willing to avail yourself and your camping gear for the greater good? I certainly know I would.

Jeff's comments are interestingly, prophetic in my case. In late March, I retired from my job and received a "severance" package of sorts. My wife Pat and I used a small portion of this money to procure a tiny travel trailer, called a Scamp. It's white, only 13 feet long, and trails very well behind my Nissan Frontier pickup. Pat says it looks like "an egg on a roller skate!" It's just the right size for Pat and me, and since we are both hams, it was only natural that we outfit it with some basic radio gear and simple antennas.

The RF gear consists of a Ten-Tec Argosy-II station, a 5–50-watt HF

Here's the exterior of our "little egg on a rollerskate." This 13-foot Scamp trailer is ideal for my wife and me. It also makes a great mobile emergency communications station.

This interior shot of our Scamp shows the rear of the trailer. The table stows and this entire area transforms into a bed. During an emergency, this area would be used for radio gear and operating positions. Two operators can sleep at the other end of the Scamp on a bunk bed combo. Nice and tidy!

SSB/CW radio, power supply, mic and tuner/SWR bridge. In addition to that basic HF radio, we also have a Yaesu FT-1500M a 50-watt 2-meter FM transceiver for tactical comms. Antennas consist of a broadband HF dipole fed with 300-ohm ladder-line via a balanced line tuner, a HyGain 14AVQ vertical for 40 to 10 meters, a homebrew 2-meter omni ground plane (more on this in another column) and a four-element 2-meter "Arrow" antenna that can be mounted either vertically or horizontally polarized. Feed-lines are RG-8X marine (tougher outer vinyl sheath and slightly better shielding) coaxial cable available from Jim Thompson, W4THR, at The Radio Works.

Power for the radio gear is obtained via a pair of 12-volt deep cycle marine batteries under the bed area of the camper. For now, charging is done by a high-tech charger that I obtained from the Black and Decker outlet store nearby. This charger is an amazing piece of gear in that it will not only charge sealed lead acid batteries but wet cell batteries also. It will "recondition" a marginal battery and, through a series of alpha-numeric codes, indicate battery faults like shorted or open cells.

Eventually, this will be augmented with a 60- to 75-watt photovoltaic (solar) panel and charge controller that will allow recharging of the main trailer battery and the radio batteries regardless of the availability of 120-VAC mains.

Our antenna supports are from Fair Radio Sales. They have a nifty little package of three 47-inch fiberglass tubes that interlock to form a single mast about 11 feet long. Add to the top of this the VHF antenna (included) and you have a 12-foot-tall antenna support with VHF ground plane antenna for around $40 (less s/h).

The nice part about this system is that you can purchase extra fiberglass supports and end up with a 20- to 25-foot mast (adding two or three extra supports) that can be guyed (included with the basic antenna/support package) and spend under $60 for the entire thing. I have two of these and have cut the ground plane antenna down (originally it resonated at 81 MHz) to 2 meters using a Dremel MotoTool to cut the main radiator and ground plane elements down to 19.5 inches overall length. The other 20-foot mast support holds the center of the HF dipole for a simple NVIS HF antenna system that lets me use HF SSB/CW to cover local areas that lack 2-meter FM coverage. More on this in an upcoming column.

The Ten-Tec Argosy-II is a 5/50-watt output HF transceiver featuring a digital readout. This is a 20-plus-year-old radio, but it's a solid performer even by today's standards. Used prices range from $250 to $350, depending upon options and condition.

My short-term goals include the addition of a Kantronics KPC 3+ (miniature) packet TNC and an IBM Pentium III laptop. Adding a GPS receiver and APRS software will enable us to use the Automated Packet Reporting System (APRS) to track EmComm assets in real time. Add to this some real-time map software and we'll have a very flexible piece of comm gear that can give disaster professionals much needed topographical information at the touch of a button.

Think About It

So what do you think? Would you be willing and able to be a "Turtle"? Perhaps that's one way for you to be a hero, too.

That's about it for now, gang. Don't forget to do some antenna work while the weather is good. Until next month remember: Preparedness is not optional! ■

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Ad Council

by R.B. Sturtevant, AD7IL

Radio Fun And Going Back In Time

Q. What effect did radio have on the entertainment industry when it first appeared on the scene?

A. The best answer comes from someone who was there. George Burns, in his memoir *"Gracie: A Love Story"* tells us,

> The only problem was that just as we were becoming stars, vaudeville was dying. No one could pin the rap on us, though. Everyone believes it was the movies that killed vaudeville. That is not true. Movies, vaudeville, burlesque, the local stock companies all survived together.
>
> Then the radio came in. For the first time people didn't have to leave their homes to be entertained. The performers came into their house. Gracie and I knew that vaudeville was finished when theaters began advertising that their shows would be halted for 15 minutes so the audience could listen to "Amos & Andy." And when the "Amos & Andy" program came on, the vaudeville would stop, they would bring a radio on stage, and the audience would sit watching radio.
>
> It's impossible to explain the impact that radio had on the world to anyone who didn't live through that time. Before radio, people had to wait for the newspaper to learn what was happening in the world. Before radio, the only way to see a performer was to see a performer. And maybe most important, before radio there was no such thing as a commercial.
>
> Radio made everyone who owned one a theater manager. They could listen to whatever they wanted to. For a lot of performers, the beginning of radio meant the end of their careers. A lot of acts couldn't make the transition. Power's Elephants, mimes, acrobats, seals, strippers, what could they do on the radio? What was the announcer suppose to say, the mime is now pretending to be trapped in a box? The seal caught the fish? You should see this girl without her fan? Gracie and I had the perfect act for radio. We talked.

Q. You've said before that the FCC Radio Intelligence Division (RID) only caught one clandestine transmitter during World War II. Did they accomplish anything else?

A. Yes, they did, and plenty. Besides discovering an illegal transmitter in the German Embassy two days after Pearl Harbor they kept up the lookout for clandestine radios. It became very obvious to the Axis powers that they would have no luck with transmitters from inside the United States, so they moved their agents to South America. RID set up five monitoring stations and triangulated on those transmitters, then passed on the information to the local governments.

They also sent engineers to several Latin American countries to establish monitoring stations and to train technicians. Representatives from South American countries came to the United States for training in radio intelligence, theory, and technique. Monitoring and direction finding equipment was supplied and set up for the local governments to be run by their own technical staffs.

RID was also very active on the west coast, in Alaska, and Hawaii. They picked up radio signals from drifting firebomb balloons sent by the Japanese to start forest fires in the Pacific Northwest, patrolled Alaska's coast for illegal radio transmitters that might have been supporting Japan, and located German radio weather stations in Greenland for the Coast Guard. RID supplied much of the nation's vitally needed radio intelligence and trained military personnel who were then brought in to work.

Q. Who was the first amateur radio operator to become a Commissioner of the FCC?

A. George Sterling went on the air at age 14 in 1908. He was among the first operators licensed in 1912, with the call of 1AE. The year 1917 found George as a junior wireless operator on a steamship. In 1923 he became a Marine Radio Inspector for the Department of Commerce, which then oversaw radio regulation. George showed talent and rose steadily through the ranks of the FCC.

During the 1940s he established a special branch of the FCC to handle amateur affairs. In 1948 President Truman appointed Sterling to fill out the term of a retiring Commissioner. Sterling's own seven-year term began a year later. Sterling served as a Commissioner from 1948 until 1954 when he retired to fish and continue his amateur activities as W1DF (he had been W3DF while in D.C.). George Sterling died in 1990 at the age of 96, still holding an amateur license.

Q. I have heard airplanes ask for a radio bearing from a ground station. How does that work?

A. An aircraft seeking its exact position in relation to a known ground station will request a radio or true bearing, known as a QTE. The ground station will then request the aircraft's radio operator to transmit (i.e., key the mic), or QTG.

The ground station will then zero in on the signal with a direction finding antenna. When the signal has been "fixed" the ground station will give the degrees of the bearing and the exact time. The exact distance from the ground station can be determined by a second radio bearing on another station. The plane is where the two lines of bearing cross.

Looking Back...

Five Years Ago In *Pop'Comm*

Famous during WWII, Tinian and Saipan Islands in the Pacific Ocean are home to Radio Free Asia, and back in October 2001 we had an exclusive look inside RFA, courtesy writer Grant Bingeman. Little did we know five years ago that *Police Call* would soon cease publication, but a half-page ad on page 9 highlighted their new 2002 edition.

Ten Years Ago In *Pop'Comm*

There he was in 1996 doing a feature called "The Pirate Radio Explosion," and now, 10 years later, we're talking with Pat Murphy about doing more writing on his favorite radio subject: pirate radio. Stay tuned. We also looked at "Mega-Receivers," including the ICOM IC-R8500 and AR5000, in an article by writer J.T. Ward on page 27.

Twenty Years Ago In *Pop'Comm*

There was a great cover photo on the October 1986 magazine, showing the Very Large Array's 82-foot reflectors that listen in on the universe. It illustrated the lead feature by Ken McCormack on page 13. New was the Sony ICF-2010 and AIR-8, along with a scanner called the Fox BMP 10/60, advertised as "the only scanner that goes everywhere. You can use it at home, on the road, even as a battery operated portable."

by Gordon West, WB6NOA, WB6NOA@arrl.net

A Marine VHF With A "Magic" Screen

The radio's full-function microphone.

An international procedure detailed in every VHF DSC (digital selective calling) marine radio instruction manual says that in an emergency, a boater in a life-and-death distress situation should lift the small red plastic cover of the marine radio's distress button and hold the button in for five seconds. The distress call will contain the nine-digit MMSI (maritime mobile service identity) number identity, plus latitude and longitude of the vessel if the VHF marine radio is hooked up to a turned-on GPS receiver. Everyone with a turned-on marine VHF will see their DSC radios automatically switching to VHF Channel 16 to enable voice communications with the distress vessel.

"But a problem has been that many mariners don't follow through with obtaining their MMSI number, nor do they hook up their marine VHF to their GPS. So, there is a new radio that can take the problem out of the GPS tie-in," says Jason Kennedy, Western Regional Manager for Standard Horizon. Kennedy is a licensed ham, KG6JIG, who loves talking about this new marine VHF radio that has built-in GPS capabilities and a 7-inch, 256-color thin film transistor sunlight-viewable screen that's downright "magic."

When I tested the Standard Horizon VHF 25-watt marine radio, I found that the "magic" was to be found in all that the screen could display:

- VHF marine radio settings and controls
- Detailed C-MAP ocean and lake cartography

The screen is daylight-viewable in direct sunlight.

- Ocean and lake depth sounder/fish finder
- Automatic identification system (AIS) vessel tracking on C-MAP marine charts
- Full-screen GPS navigation
- C-map aerial photos of popular harbors
- C-map ocean and lake marina information and roads
- Automatic foghorn, intercom, and PA

Everything is built in, other than the optional black box fish finder module. I anticipate they'll be offering soon an optional black box marine radar module, too!

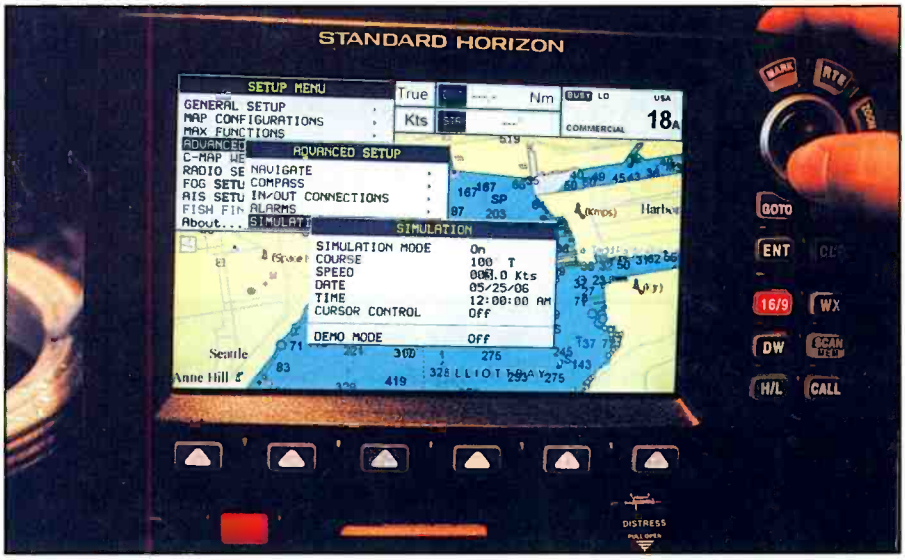
Marine Radio—What You Need To Know

The FCC permits recreational boaters to operate marine 25-watt VHF transceivers without station or personal radio licensing. As long as the boat stays within domestic ocean waters, or within U.S. lakes and rivers, FCC Part 80 rules permit no-license operation.

The VHF marine band is located at 156 MHz FM, 25-kHz channel spacing. Each of the 55 U.S. channels has a specific purpose, and Channel 16, 156.800 MHz, is the distress channel. FCC rules are strictly enforced.

Ocean Region Channel 16 distress and safety watches are maintained by the U.S. Coast Guard, up to 20 miles out at sea. Their new Rescue 21 System is beginning to roll out with sophisticated base stations to help speed up any Coast Guard response to a MAYDAY call.

Inland, larger lakes and rivers may be covered by Channel 16 radio monitoring watches by local marine public safety agencies, local lake and river marinas, and towing agencies ready to offer their services when a fisherman runs up on a sandbar. VHF marine radios also include DSC for data signaling on 156.525 MHz, VHF Channel 70. The nine-digit MMSI numbers are user-programmable into the VHF marine radio's DSC self-identification memory. MMSI numbers are available FREE on the Internet at www.SEATOW.com and www.BoatUS.com.



Using the radio is easy with simple "shuttle" selection of menu items.

The Standard Horizon VHF radio/GPS chart plotter is factory uploaded with a C-MAP base chart showing cartography up to two miles, throughout the world.

"For ocean fisherman, or boaters going up and down the East coast, Gulf Coast, or West Coast, an under-$199 C-MAP vector-based electronic chart card brings ultra-detailed cartography to the screen, including MAX cartridges for flashing NavAids, tides and currents, satellite photography and port diagrams, coastal roads and land elevations, and exquisite chart detail well beyond what you could get with an old fashioned paper chart," says Bill Alber, a marine electronics specialist.

C-MAP also introduces MAX LAKES, a $129 regional cartridge covering north, east, south, or west U.S. lakes and rivers. This cartridge is designed for freshwater fishing and hunting, and also includes campgrounds, bait shops, gas stations, state fishing and hunting regulations, fish photos (!), waterfowl photos, and boat ramps for your favorite lake or river. The inland or ocean cartridge simply slides into the Standard Horizon chart plotter access slot.

A Quick Lock On Satellites

As soon as the radio is turned on, the GPS receiver section quickly locks on to all GPS satellites within view, and the big screen comes to life with latitude and longitude position readout, down to six feet! Base map cartography pops into view, and if you have a C-MAP cartridge installed, you get ultra-detailed positioning of your boat on the screen. You can split the screen to divide charting along with the optional underwater vertical sonar fish finder. And, if you're heavy into fishing, there's also a celestial screen to analyze tides and the moon phase—all tied into the local lake bottom contours where the angler might calculate when and where the fish will be biting.

Like all Standard Horizon products, the marine VHF radio with its built-in intercom and loud hailer is top notch. Channel changing, volume, and squelch knobs are uniquely angled on the right side of the transceiver, giving you the ability to work the radio and hang on to the rear grip in choppy seas!

A Real Winner

This "magic" screen concept may eliminate the need for multiple devices aboard a boat, combining many features into one radio that now becomes a communications and navigation central control and readout. This is my pick hit for the biggest change in radio technology that I've seen this year. And you—as a radio specialist yourself—know the reputation of Yaesu in ham radio and commercial radio equipment, and Standard Horizon *is* Yaesu radio.

For more information, contact www.VertexStandard.com and www.C-MAP.com to inquire about model number CVP 350. It has been seen selling for $999. It's also available by mail order from www.westmarine.com. ■

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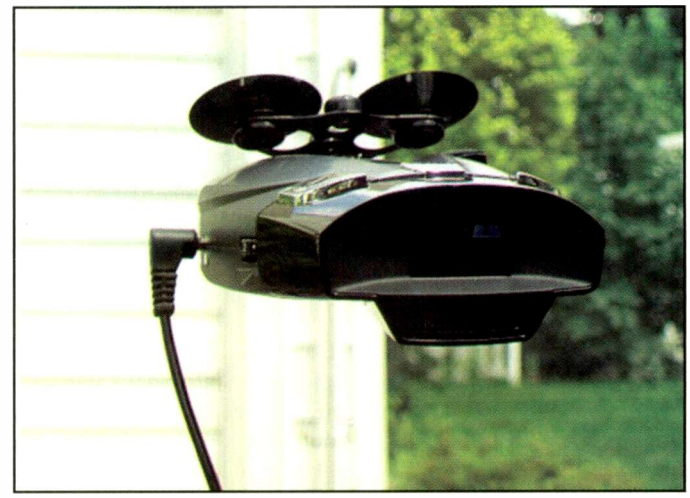
by Harold Ort, N2RLL, Editor

Cobra's 12-Band XRS 9930 Digital Radar/Laser Detector

By now, if you're lucky, you're ready to head out on the highway for one final summer vacation. You've packed everything you can think of (and some things I'm sure you don't want to bring along, like Uncle Bob and his pet hamsters, and Junior's cargo pants) and you're outta there!

Road trips are great, but giving up your hard-earned money to the judge because you got a little carried away with the gas pedal isn't funny. Most of us have been down that road, but you don't have to play and lose. Now frankly, many drivers deserve what they get when they're constantly so far above the posted speed limit that they make the Indy 500 look like a soapbox derby, they're tailgating, or driving recklessly. But if you're a typical driver you'll occasionally push the limit a bit, or if you're in an unfamiliar area you may not know what it is. Sometimes you may have the cruise control set at the proper limit, but it's a good idea to be able to react to Smokey in time.

Enter, Cobra's XRS 9930 laser/radar detector. Cobra has a penchant for long, fancy names—and that's okay, of course—so they call their latest and greatest detector a "12-Band Ultra High-Performance Digital Radar/Laser Detector With Xtreme Range Superheterodyne technology." Whew! That says a lot, but what does it all mean, and how does it perform?



The Cobra XRS 9930 detector mounted and ready to roll.

Range

I tested this detector on two recent trips—one to the Dayton Hamvention and another to Rochester, New York—in very different environments and using very different vehicles, but with similar results.

As for the actual "range" touted by detector manufacturers, it's a lot like many manufacturers' claims about those small FRS (Family Radio Service) radios having a 12- or 18-mile range—not in a million years! Okay, perhaps between mountaintops or out at sea between two yachts, but you're out in the real world and not going to be getting much more than a half-mile or so in typical suburban terrain, less in a city and a little more out in the country. Likewise, when it comes to *radar detectors*, the fact is that there's not a lot a manufacturer can *really* do to give you a much more detection "range," other than better shielding of the receiver and, well, providing a quality receiver in the first place. To that end, Cobra has certainly succeeded with the XRS 9930!

My first trip with the XRS 9930 was in a minivan across New Jersey and to the Pennsylvania Turnpike, on through the tip of West Virginia and all the way to Dayton, Ohio. There's plenty of mountains for the first part of the trip, followed by long—very long, actually—stretches of open highway that's a speed demon's paradise. And indeed they were out there, but so were the radar guns.

The XRS 9930 receives X, K, KA, and Ku band radar along with laser signals. It also gives you the added reception of VG-2 and Spectre I signals, detecting guns with the so-called "instant-on" speed monitoring capability. So, very simply, you're covered. But how far?

With the detector in the "highway" mode for the entire trip, it alerted me several times to the standard radar, X, K and Ka—*and* nine out of 10 times well before the cruiser was visible, and well before my vehicle could be singled out by the officer. The one time it alerted me to radar and I didn't see a patrol vehicle can be chalked up to the presence of an unmarked vehicle or one so well hidden that it wasn't visible.

Since I always travel with my CB on Channel 19, I've got the additional help of the professional drivers and their Smokey reports. With that rig, coupled with the radar detector, I'm about as failsafe as you can get. (Unless there's a tricky officer *in* an 18-wheeler playing the radar game to *win*! Don't laugh—it happens!) Anyway, keeping an ear to the CB, I was often alerted to a radar trap several miles ahead, giving me plenty of time to keep an eye on the XRS 9930 and check out that all important range.

Coming down one of the many long hills, just after exiting one of the tunnels on the Pennsylvania Turnpike, I was getting a report of a "bear" about six miles ahead "taking pictures" of the westbound lane. Lowering my speed from just over 70 and setting the cruise control to 65 mph, I knew it wouldn't be long before the truckers would all be in the right lane being good boys and girls. Sure enough, about 1.7 miles before the reported mile marker, the 9930 sounded with its loud (user selectable level) tones and voice (also user selectable on/off), telling me of an impending radar operation. It continued to alert until I *passed* the location by about three-tenths-of-a-mile.

Good range? I'd certainly say so, because even at the 1.7-mile distance I didn't expect an alert! I've used a lot of detectors over the past few years, and just based on this alert alone,

The highly visible 9930 display is easy to see in all kinds of lighting conditions.

I'd give the Cobra XRS 9930 five radar guns out of five. Good going, Cobra!

The trip to Rochester, New York, was a bit different. This time I was in a midsize car, but with plenty of stop-and-go traffic heading north on the Garden State Parkway to Interstate 80 and 81, to the New York Thruway (Interstate 90). The first part of the trip I was treated to the awful suburban drivers who wouldn't know a speed limit or yield sign if it was tattooed on their chest. Troopers—*real* officers outside the suburban anything-goes realm—absolutely love these folks with New York or New Jersey plates who see the gas pedal as an obstruction in their getting from point A to B while talking on the cell phone (sorry, I digress).

Let's just say there were more radar guns going off the first *two* hours of the trip than during the entire latter part, which was mostly (with the exception of going around Syracuse, New York) rural. And in each instance the highway trooper had one, sometimes two, characters pulled over. In most cases, the stop occurred just *moments* before I came upon the area, and I was able to get a decent warning from the XRS 9930. It wouldn't have mattered too much because traffic was solid in all three lanes at slightly above the limit, except for the sorry guy with the ticket who was trying (for a fleeting moment) to go 95 mph, breaking the general flow of traffic. The range of typical detector warnings (CB isn't useful with four-wheelers on the Parkway simply because it's not used by most car drivers) with the XRS 9930, even in that heavy traffic, was *at least* a half-mile.

Other Alerts

One point I should make, which you can take it for what it's worth (frankly, it didn't give me a headache), is that once the XRS 9930 alerted me to "train approaching" when I was on Interstate 90 West. It could be that it picked up a stray signal from an actual train crossing a half-mile or so away (the railroad *does* parallel the New York Thruway).

Other safety alerts the XRS 9930 warns you about include "road hazards" and "emergency vehicles approaching,"

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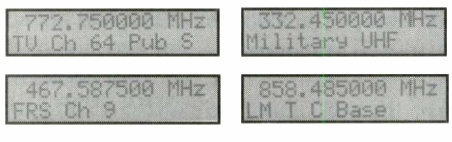

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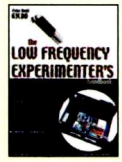

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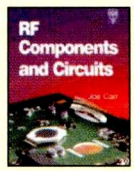

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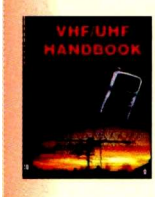

Edited by Dick Biddulph, M0CGN
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"I was quite impressed with the overall quality of the 9930 and its ability to detect signals at sufficient range to allow me to react and not spend the next few minutes on the side of the road with the trooper."

although several times emergency vehicles passed me with lights and siren and the detector didn't respond. Obviously the emergency vehicle must be equipped with the transmitter (K band) in order to warn detector users of their presence. As Cobra says in the manual,

Safety Alert technology is relatively new. Safety Alert transmitters can be found in limited numbers in all 50 states, but the number is growing. Depending on your location, you may not receive these alerts regularly and may often encounter emergency vehicles, trains and road hazards without being alerted. As the number of transmitters increases, these alerts will become more common.

Features

Let's talk a moment about the features, which really can make or break a detector, of the XRS 9930. Now, if you think about it for a moment, it's fair to say that most folks aren't very concerned about the color of a detectors' visible display or even what's displayed in that small window; it's all in hearing an alert tone—or not. (Except, of course, for those times when you or your passengers don't want the incessant noise, and you therefore "mute" the detector, relying solely on the display).

In this respect the XRS 9930 fares quite well. If you're into neat displays, the XRS 9930's display is highly visible even in bright sunlight conditions (Cobra calls it "ExtremeBright DataGrafix Display"). And you can even change the display color to match your vehicle's dash illumination from multi-color (factory default) to red, blue, orange, or green. Is that cool or what!? You also get complete immunity to VG-2 radar detector-detectors.

What I really liked the most about the XRS 9930 is its ease of operation. The fact is, not all detectors are created equal; many require you to have telescopic vision and the sensory perception of a snake in your fingertips. Most humans I know want the fastest possible alert to radar or laser with easy to grasp pushbuttons and controls on their detector. Good news: the city/highway is separate from other buttons, and the on/off control is just that—only on/off! There are only two other pushbuttons on the unit: "menu/save" and "dim." I didn't use either button during my test drives simply because I was happy with the factory default settings.

So what else is neat about this detector? There's the eight-point compass (you've got to take two minutes to calibrate it, which is no big deal at all) and a vehicle battery voltage monitor (and low-voltage warning if the vehicle's battery voltage drops below 11.9 volts). The unit's display shows you in large letters/numbers the type of radar you've encountered, and it also features an "IntelliMute" mode, which allows you to avoid alerts when you're stuck in a long traffic jam, based on your engine's RPMs.

Moreover, there's nothing worse than sticking a detector up on the windshield and having it constantly fall off. The XRS 9930 stays put with the dual suction cup holder.

It's got a lot of other great features, too, most of which you don't need to "program" or play with in order to get up and running out of the box. You just plug it in the cigarette lighter/power receptacle, turn it on, and hit the road. And, since we all know that looks mean a lot these days when it comes to electronics, it's a very attractive unit—sleek and a little futuristic-looking.

Don't Leave Home Without It

The Cobra XRS 9930 weighs about 6.5 ounces and measures approximately 1.5 x 3 x 5 inches (HWD). It includes a quality *fused* power cord and well-written instruction manual, which you should keep in your vehicle's glove compartment at all times.

I was quite impressed with the overall quality of the 9930 and its ability to detect signals at sufficient range to allow me to react and not spend the next few minutes on the side of the road with the trooper.

For more information on the Cobra XRS 9930 (priced at $229.95), contact Cobra Electronics Corporation, 6500 West Cortland Street, Chicago, IL 60707; Phone: 773-889-3087; Web: cobraelectronics.com. Be sure to tell them you read about the XRS 9930 in *Popular Communications*! ■

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by Bruce A. Conti, BAConti@aol.com

Collecting More Than Radios And Antennas

Broadcast enthusiasts are known to collect all sorts of memorabilia, such as airchecks, old time radio programs, newsreels, antique radios, transistor radios, QSL cards, phonographs, microphones. You name it, and there's probably an ambitious group of collectors seeking to add it to their treasure chests. Not that there's anything wrong with that—after all, it's part of human nature to collect things.

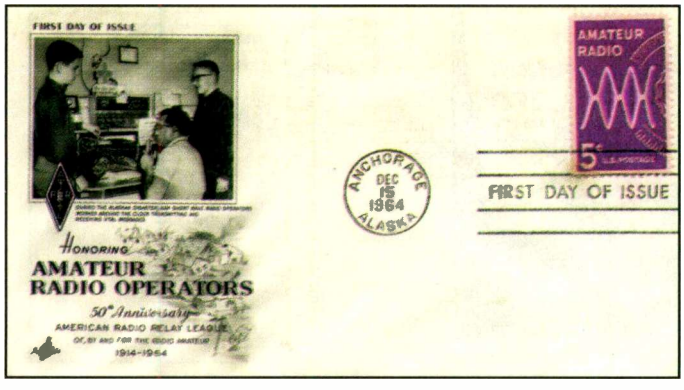
The Philatelic Connection

In the days before e-mail, philately, or postage stamp collecting, was a natural extension of the radio listening hobby. Carefully written reports to distant radio stations in foreign lands not only resulted in verification of reception, but the QSL card or confirmation would be accompanied by exotic postage stamps, thus inspiring an interest in philately.

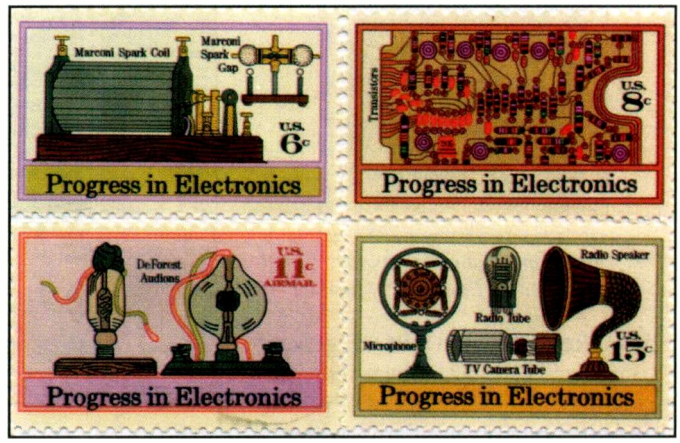
The hobby itself matured in parallel with broadcasting. In fact the U.S. Postal Service established its first philatelic sales unit in 1921, while the evolution of broadcasting via experimental radio stations was underway. The popular *Radex Magazine*, "The all-wave radio log" monthly DX publication that tracked radio news and events through the golden age of radio, featured a philatelic column called, "The Stamp Corner" by David Brockton Browne. Here's an excerpt from the May 1938 edition:

> Continuing with our discussion of stamps that may be obtained to form a collection around the theme "Radio and Electricity," we journey first to Egypt, the land of the pyramids where we add three stamps to our collection. Honoring the International Communications Conference, which met in Cairo, in January 1938, a set of three values were issued. The same design is used on each stamp and shows a wireless mast and aerials, telegraph wires, and the ever-popular pyramids and Sphinx.
>
> Australia joins our growing list with two stamps released in 1936 in commemoration of the linking of Australia and Tasmania by wireless telephone. The design portrays the Goddess Aphrodite symbolically joining the cables between Australia and Tasmania...

Philatelic specialization around a central theme is commonly referred to as topical collecting. Popular topical themes include architecture, Christmas, flowers, inventors, the military, space exploration, and world leaders, to name a few. Broadcast topical collections vary from general to specific, such as world radio, history, personalities, scientists, and antenna structures. The "bandwidth" of a topical collection can be limited to a single person or event. For example, an extensive Marconi collection can be assembled with stamps issued from around the world to commemorate his achievements.



A 1964 first day cover commemorating 50 years of amateur radio.



A four-stamp series issued in 1973 commemorating Progress in Electronics from the spark gap to transistors.

This 1967 first day cover celebrates the 25th anniversary of the Voice of America.

"First day covers" are another popular philatelic collectors' item. Jerry Berg of ontheshortwaves.com and the Committee for the Preservation of Radio Verifications (CPRV) oversees a massive public collection that includes philatelic items. Berg announced a new prized addition to the collection in a recent press release, stating "In Articles, Research, etc. under Philately, DXer Tetsuya Hirahara of Japan has sent along two first day covers, a postal card, and an explanation (in Spanish) from 1971 when Mexico commemorated 50 years of broadcasting." Visit www.ontheshortwaves.com for a look at this and more first day covers related to radio.

A philatelic connection of another type benefits international DXers of domestic broadcast services. Although the Inter-

This 1994 stamp honors legendary broadcast journalist Edward R. Murrow.

national Reply Coupon (IRC) is generally recognized by international shortwave broadcasters to cover the cost of postage for a QSL request, familiarity with it is less likely with local radio stations. In some cases the IRC might be totally useless. Sending dollars with a reception report is ill advised. Often the dollars are confiscated during customs inspection or lost along the way.

So what's a QSLer to do? One alternative is to provide current mint airmail stamps with your reception report. William J. Plum Airmail Postage & DX Supplies in Flemington, New Jersey, is highly recommended as a source of mint foreign postage stamps. Check out the "plum" accolades by DXers at www.eHam.net, then e-mail Plum at plumdx@msn.com to obtain a list of available stamps or for a quote request.

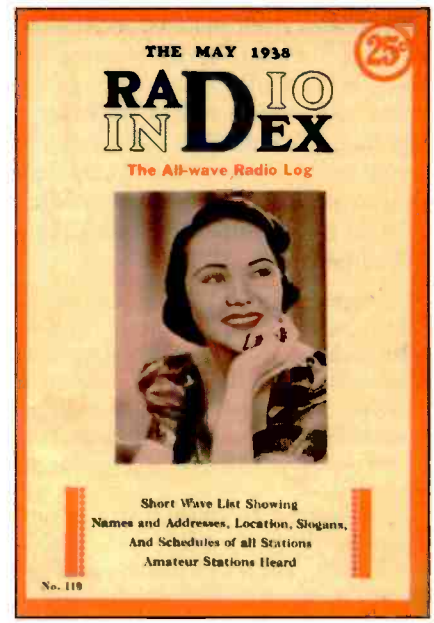
Decalcomania

Postage stamps aren't the only collectibles giving broadcast enthusiasts sticky fingers. Radio station bumper stickers have become very collectible, and there's actually a club dedicated to collecting them. Club publisher Phil Bytheway introduces this unique group as follows:

A small sampling from a topical collection honoring the achievements of radio pioneer Guglielmo Marconi.

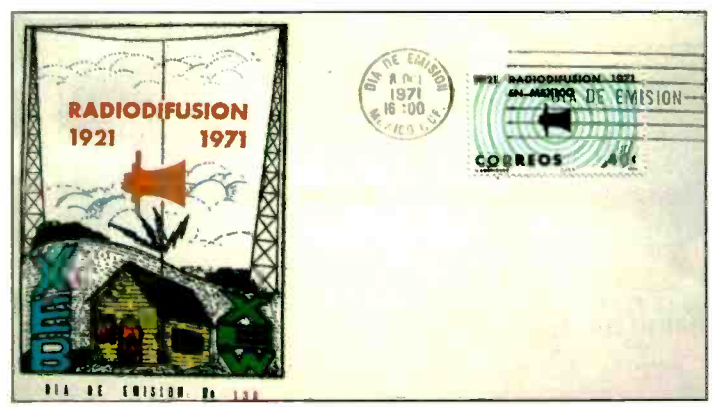
DecalcoMania (Check your dictionary!) began in 1982 as a means of establishing and maintaining contact between collectors of radio/TV station stickers and other promotional material. Before the year was out, collectors of radio broadcast recordings, or "airchecks," even more underserved by established clubs and publications, were welcomed into DecalcoMania. Today, the club's bulletin is the primary "meeting place" for dozens of people who collect and trade broadcasting paraphernalia, recordings, stories and ideas. If any or all of these subjects interest you, then DecalcoMania is ready to be your club!

The club bulletin is issued 10 times a year. DecalcoMania also publishes something called "Care and Feeding of a Promotional Collection," which contains



Radex Magazine, *May 1938.*

You can chronicle communications all the way from the telegraph to satellites with postage stamps.



This first day cover commemorates 50 years of radio in Mexico (www.ontheshortwaves.com).

Bumper stickers like these displaying callsigns are more collectible than generic slogans like "Q97" or "Lite 105" alone.

valuable tips on how to preserve your collection. The club promotes local meetings and sponsors an annual get-together where collectors sell and swap materials. Visit www.anarc.org/decal/ for more info.

Getting Started

Decalcomania is certainly a good place to start if you're interested in learning more about broadcast collectibles. Spend some leisure time visiting local antique and consignment shops in search of hidden treasures. It's an enjoyable activity for the entire family. Your own grandparents probably have some hidden gems in the attic waiting to be rediscovered.

Look through old postcards, magazines, and other print materials for decalcomania and philately. Talk to your local coin and stamp dealer to learn more about various philatelic clubs and events. Next time you're at the post office, ask about commemorative stamps and first day covers. Of course, an Internet search and Web auction sites can reveal some interesting finds, too. Soon you'll be well on the way to collecting like a pro.

Don't forget to let us know what you find. For now, 73, Good DX, and Happy Hunting! ■

FCC Callsign Changes

New Call	Location	Freq	Old Call
	Pending		
KPTR	Cathedral City, CA	1340	KWXY
KXPD	Tigard, OR	1040	KLVP
WOCE	Ringgold, GA	101.9	WTUN
WWTJ	Tazewell, TN	105.9	WCTU
	Changes		
WMLB	Avondale Estates, GA	1690	WWAA
WWAA	East Point, GA	1160	WMLB
WJCP	North Vernon, IN	1460	WNVI
WTUV	Louisville, KY	620	WTMT
WVIE	Pikesville, MD	1370	WWLG
KBFL	Springfield, MO	1060	KTOZ
WMJQ	Ontario, NY	1330	New
WSRC	Fair Bluff, NC	1480	WZFB
KSZN	Milwaukie, OR	1010	KZNY
KCPX	Spanish Valley, UT	1490	New
WVVL	Elba, AL	101.1	WZTZ
KVMN	Cave City, AR	89.9	KZIG
KISL	Avalon, CA	88.7	KXLW
KGRP	Jenner, CA	106.3	New
KEBT	Lost Hills, CA	96.9	KLRM
WEHR-LP	Port St. Lucie, FL	100.1	New
KYUN	Hailey, ID	106.7	New
WFAV	Gilman, IL	103.7	New
WJCP-FM	Austin, IN	92.7	WJCP
WTUV-FM	Eminence, KY	105.7	WTSZ-FM
KRLQ	Hodge, LA	94.1	New
WMJT	McMillan, MI	96.7	New
WRGZ	Rogers City, MI	96.7	WVXA
KRXW	Roseau, MN	103.5	New
KBFL-FM	Buffalo, MO	99.9	KBFL
KZWV	Eldon, MO	101.9	New
KMTZ	Boulder, MT	107.7	New
KNHS	Hastings, NE	91.7	New
KPHD	Elko, NV	97.5	New
KYCM	Alamogordo, NM	89.9	New
KQRI	Belen, NM	90.7	KVLK
KQLP	Gallup, NM	101.5	New
KLNN	Questa, NM	103.7	New
KVLK	Socorro, NM	89.5	KQRI
WZNY	Old Forge, NY	94.1	New
WQRS	Salamanca, NY	98.3	WQRT
WRRQ	Windsor, NY	106.7	New
WMWX	Miamitown, OH	88.9	New
KBCW-FM	McAlester, OK	91.9	KBCW
KOBK	Baker City, OR	88.9	New
WJOW	Philipsburg, PA	105.9	WUBZ-FM
WMYL	Harrogate, TN	96.5	WXJB
WRVR	Memphis, TN	104.5	WRVR-FM
WOGY	Tiptonville, TN	97.3	New
WUKV	Union City, TN	88.9	WTNN
KQBZ	Coleman, TX	102.3	KXCT
KACB-LP	College Station, TX	96.9	New
KLUV	Dallas, TX	98.7	KLUV-FM
KAUU	Manti, UT	105.1	KNJQ
WFYE	Glade Spring, VA	102.7	New
KMNA	Mabton, WA	98.7	KLES
KLES	Prosser, WA	101.7	KMNA
WSPW-LP	Parkersburg, WV	97.9	New
WSBW	Sister Bay, WI	105.1	New
WBCV	Wausau, WI	107.9	WLRK
KLQQ	Clearmont, WY	104.7	New
KTAZ	Phoenix, AZ	11	KPHZ
WCWJ	Jacksonville, FL	17	WJWB
WYCW	Asheville, NC	62	WASV-TV
WQCW	Portsmouth, OH	30	WHCP

by Richard Fisher, KI6SN

Capitol Hill And FCC Actions Affecting Communications

ARRL Asks FCC To Protect 902- to 928-MHz Operations

The American Radio Relay League has asked the FCC to avoid making any changes within the 902- to 928-MHz allocation that might "adversely affect amateur radio operations there." The League expressed concern about "further deployment of unlicensed Part 15 devices that might increase the noise floor," according to the organization's *ARRL Letter*.

"Specifically, the needs of the Amateur Service in this proceeding are increased protection of weak-signal operations in the 902–903 MHz segment," the ARRL noted, specifying the 902.0- to 902.2-MHz and 903.0- to 903.2-MHz "weak-signal" segments.

An FCC Notice of Proposed Rule Making (NPRM) in WT Docket 06-49 sought input on encouraging the little-used Multilateration Location Monitoring Service (M-LMS), a terrestrial service for location of objects and tracking, while continuing to accommodate licensed and unlicensed uses of the 902- to 928-MHz band, the *ARRL Letter* said.

Federal radiolocation systems, industrial, scientific and medical devices, federal fixed and mobile systems, and the M-LMS take precedence over amateur radio in the band.

"This 'kitchen sink' of allocations is acceptable from ARRL's perspective, provided that the noise floor is regulated, in terms of aggregate noise levels from unlicensed devices," the ARRL said in its comments filed in late May. "The high power levels permitted in this band in particular bear careful watching, lest the allocated radio services, including federal systems, suffer decreased utility of the band."

The *ARRL Letter* pointed out that "given that only two M-LMS licensees operate these systems that exist only in six major U.S. cities and in parts of Florida, the League asked whether present FCC rules are the obstacle to M-LMS or whether it's been overtaken by time and GPS technology. The League urged the FCC to examine the 902–928 MHz band in its entirety.

"The Amateur Service also requires the continued use of the 903.2–928 MHz band for amateur voice, television and digital communications, coexisting with other licensed and unlicensed users of this spectrum," the League concluded.

In its comments, the League pointed out that "the NPRM does not propose to adopt, modify or delete any rules but only seeks information 'looking toward modifications in the licensing and use' of the 902–928 MHz band. The League described the band as 'a patchwork of overlays' and one that has 'orphan allocation status' in ITU Region 2, precluding amateur use of the band for communication outside the region."

Learn From Lessons Of Katrina And Rita, APCO Says

With the kickoff of the 2006 hurricane season in June, the Association of Public-Safety Communications Officials (APCO) International called upon emergency communicators to reflect on lessons learned following Hurricanes Katrina and Rita.

"In September 2005, APCO International testified before the Senate Committee on Commerce, Science and Transportation hearing on Hurricane Katrina response, specifically the communications issues highlighted by the storm," an APCO news release stated. "In his testimony, APCO International Acting President-Elect Willis Carter offered recommendations to improve emergency communications."

Suggestions included:

- Making significant improvements in local, regional, and national interoperability.
- Planning and training for disasters.
- Establishing common incident command structures at all levels of the emergency response effort.
- Ensuring that public safety communications networks are built and maintained to withstand worst-case scenarios.
- Mirroring telephone central offices supporting 9-1-1 tandems in locations sufficiently remote to allow for quick restoration of 9-1-1 services.

APCO International recommended that "communications centers be prepared for inoperable systems, loss of power, and security, personnel and supply needs. In addition, communications centers should focus on planning and training to include training on the National Incident Management System (NIMS), Incident Command System (ICS), and planning for system restoration, multi-agency response, and evacuation."

It also urged the public "to make all necessary preparations for the hurricane season including creating family evacuation plans and compiling emergency supply kits" and "reminds the public to call 9-1-1 for life threatening emergencies only—not for structural damage or power outages."

APCO International President Wanda McCarley said the organization will "continue to work with communications centers across the country to ensure the highest level of protection for our citizens," and has partnered with the National Emergency Number Association (NENA) on the Telecommunicator Emergency Response Taskforce (TERT), "which is an effort to create a national mutual aid plan for communications centers affected by natural or manmade disasters," APCO said.

Global Communications Conference Focuses On Recent Emergencies

The latest developments in amateur radio emergency communications "and cooperation with institutional partners in emergency response and disaster relief" were among the areas focused upon at the second Global Amateur Radio Emergency Communications (GAREC) conference recently held in Tampere, Finland.

According to the American Radio Relay League's *ARES E-Letter*, this year's conference was also held "to review progress

made on concepts developed during last year's conference and formulate additional proposals."

The GAREC conference was held in June in concert with the International Conference on Emergency Communi cations. "Holding the two events at the same time in the same location allows us to give high visibility to the important role of amateur radio in emergency communications," IARU International Coordinator for Emergency Communications Hans Zimmermann, F5VKP/HB9AQS, said.

"Many new experiences resulted from dramatic events over the past 12 months, new lessons have been learned, and new concepts have been developed," he added.

Zimmerman noted that the concurrent ICEC 2006 would review the application and implementation of the Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations, the *ARES E-Letter* said.

ARRL First Vice President Kay Craigie, N3KN, represented the league at the conference.

Harris Corp. Awarded Contract For Handheld Radios

A $169 million contract for Falcon III dual Vehicular Adapter Amplifier systems, including handheld radios certified by the National Security Agency, has been awarded to the Harris Corp., according to the online website of *Washington Technology* magazine.

The Army contract is "to provide radios and related systems that one day will assist the Army's move to the Joint Tactical Radio System." The AN/VRC-110 systems ultimately "can use the Joint Tactical Radio System Software Communications Architecture and a programmable encryption module for the JTRS," *Washington Technology* reported.

"The radio systems give the Army SINCGARS 50 Watt vehicular radio functionality that they rely on for long-range communications, and the portability of a handheld that is lighter and easier to carry in tactical, quick-dismount scenarios," the website quoted Dana Mehnert, president of Harris RF Communications Division.

The multi-band mobile radio systems include the power amplifier, handheld, and a handheld battery charger. "The system features 50-watt output in the VHF (30–90 MHz) band—the typical configuration for SINCGARS units in use today—to deliver the long-range communication links required on the battlefield," *Washington Technology* reported.

"The system offers two antenna ports with automatic switching for multi-mission capability, as well as built-in collocation filtering for dual installations. Operators need only to select the required net on the radio to switch between ground communications and ground-to-air or satellite communications," the report indicated.

Washington Technology can be accessed by visiting www.washingtontechnology.com/. ■

When Disaster Strikes...

REACT is Ready!

REACT Teams work with local, state, and national disaster response agencies. Often ***REACT*** plays a unique role in disaster relief because ***REACT*** is the only volunteer communications organization whose members are trained to use **all types of two-way communications** from CB to packet radio, Amateur radio to GMRS.

Fortunately, disasters don't happen every day. ***REACT*** Teams maintain their readiness and serve the public by monitoring emergency channels and by providing communications services for a variety of activities and community events.

Find out how **you** can be part of the ***REACT*** Team! Visit **www.reactintl.org** to find a Team in your area – or information on starting your own Team.

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5210 Auth Rd., Ste. 403 * Suitland, MD 20746

by Tom Swisher, WA8PYR, milcom65@yahoo.com

The Warthogs Of Idaho, Propagation Challenges, And Callsign Tips

Warthog? What's a Warthog? A very capable aircraft, that's what. Officially known as the Thunderbolt II, the A-10 (the Forward Air Control version is the OA-10) is more commonly known as the Warthog, or just plain Hog. The first U.S. Air Force aircraft designed specifically for close air support of ground troops, the A-10 was designed to respond to a request for help quickly, and also provide the capability of carrying a large weapons load. While it isn't particularly fast, it is highly maneuverable and can linger over a target area for a very long time. Also going by the nickname Tank Buster, the A-10 can be used against all ground targets and is highly effective against motorized and armored columns.

Designed around the 30-mm GAU-8/A seven-barrel Gatling gun, the A-10 is capable of carrying a vast assortment of weaponry, including Maverick and Sidewinder missiles, conventional and smart bombs, mine dispensing and cluster bombs, as well as an array of countermeasure weapons and devices. It's based at several locations around the United States.

Where's Gowen Field?

A note from reader Harvey in Boise, Idaho (which by the way, prompted our column subject this month) tells us that his local installation is Gowen Field, is a joint military/civilian airfield, and that much activity comes from A-10 Thunderbolt II and C-130 transports based there. Other activity comes from transient tanker aircraft, which Harvey believes are from Mountain Home AFB, located about 45 miles south in Mountain Home, Idaho.

Harvey notes that he uses ICOM R2 and R3 receivers, as well as ICOM IC2800 and Yaesu VX-5R amateur transceivers. Having done the usual band-search/small segment search and found nothing other than the tower frequency, he wonders what frequencies might be in use at Gowen.

Table 1. Frequencies For Gowen Field, Boise, ID

App/Dep North	126.9/351.85
App/Dep South	119.6/269.4
Local (Tower)	118.1/257.8
Local (S)	119.0
Ground	121.7/348.6
ATIS	123.9/290.4
Clnc Del	125.9/323.2
Emergency	121.5
Unicom	122.950
Air NG Ops	298.7
Army NG Ops	41.5

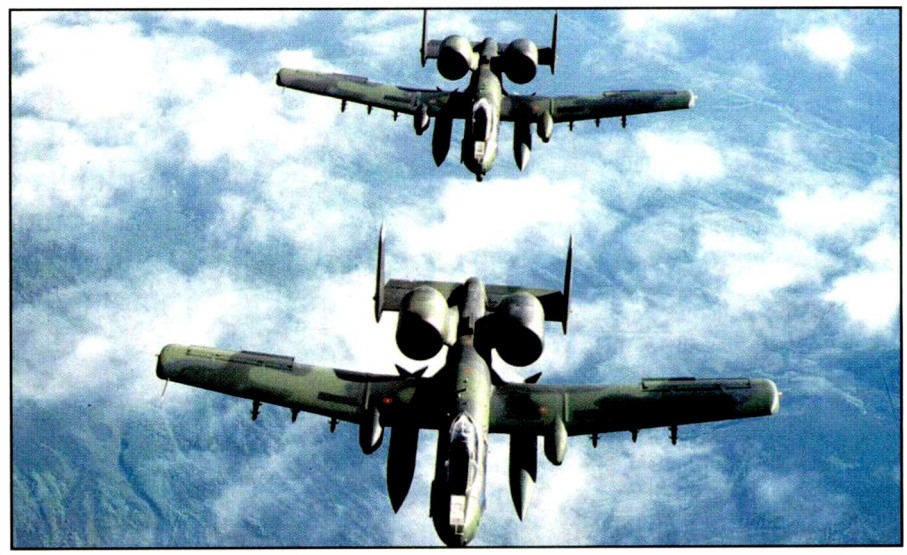
Well, Harvey, a search of MyAFD.com and AirNav.com gives the aviation information for Gowen Field shown in **Table 1**. Based at Gowen is the 124th Wing, which is composed of the 189th Airlift Squadron and the 190th Fighter Squadron. Other units at Gowen in support of the 190th Fighter Squadron and the 189th Airlift Squadron are:

124th Logistics Readiness Squadron
124th Maintenance Squadron
124th Maintenance Operations Flight
124th Medical Group
124th Mission Support Flight
124th Security Forces Squadron
124th Services Flight
124th Wing Staff
266th Range Squadron
124th Aerial Port Flight
124th Aircraft Maintenance Squadron
124th Aircraft Generation Squadron
124th Air Support Operations Squadron
124th Civil Engineer Squadron
124th Communications Flight

Since there are several supporting units at Gowen, portable and mobile radios are certainly in use for operations on the military base section of the field. As such, the VHF and UHF government/military bands are almost certainly in use at the base, so don't forget to search 163.000 to 174.000 (12.5-kHz steps) and 406.000 to 420.000 (12.5-kHz steps).

Also, don't forget to search the military aviation band between 225.000 and 380.000 MHz (25-kHz steps) for other frequencies in use at the base. When searching the military aviation band, it's best to do it in *small chunks* of no more than 25 MHz, and *no more than* 5 or 10 MHz at a time, if you have that kind of patience.

Table 2 gives a list of units around the United States flying the A-10. While this list is reasonably accurate, it is slated to



U.S. Air Force A-10 Thunderbolts. (Courtesy U.S. Air Force via AirForceLink)

Table 2. Units Flying The A-10 Warthog

354th Fighter Wing, Eielson AFB, AK
355th Wing, Davis-Monthan AFB, AZ
103rd Fighter Wing, Bradley Field, CT
190th Fighter Squadron, Boise, ID
926th Fighter Wing, NAS New Orleans, LA
104th Fighter Wing, Barnes Air Guard Station, MA
104th Fighter Squadron, Martin State Airport, MD
172nd Fighter Squadron, Battle Creek, MI
23rd Fighter Group, Pope AFB, NC
57th Wing, Nellis AFB, NV
111th Fighter Wing, Willow Grove NAS/JRB, PA

change as a result of the Base Realignment and Closure committee, which recommended that some A-10 units be realigned. You can lean more about the 124th Wing on the Internet by visiting www.idaho.ang.af.mil/index.html and checking out the Idaho Air National Guard information.

Low Band Skip

Last issue, we talked about the various bands in use for military and government communications. One thing that was mentioned only in passing is the interesting propagation characteristics of the VHF-Low (30 to 50 MHz) bands at different times of the year.

Usually occurring when the weather is cool and dry and often associated with cold fronts, "skip" is mainly a spring and summer phenomenon, but it can occur any time of the year. Low band operation is quite popular for radio amateur, and the 6-meter band from 50 to 54 MHz isn't known as "The Magic Band" for nothing.

With characteristics of *both* HF and VHF, propagation modes on the VHF-Low band include sporadic-*E* (*Es*), tropospheric ducting (tropo), meteor showers, and aurora. Most often the low bands behave like VHF, with range of about 20 miles or so. At the drop of a hat, however, *Es* or tropo kicks in, and you're hearing signals from 500 miles away. It can even affect signals on VHF-High, and to a limited extent UHF.

Skip is commonly associated with weather fronts, and also occurs fairly reliably around the time of the spring and winter solstices (June 21 and December 21). So keep your eyes on the weather (and the calendar), fire up the logging recorder, and keep those callsign resources handy. When a cold front comes through, you might just hear something interesting!

Skip's Identification Challenge

Skip can sometimes make station identification tricky, however. If you're at home in Pennsylvania trying to identify the local station you've been hearing on 36.5 MHz and skip kicks in, you may all of a sudden be hearing a station very clearly giving a callsign which doesn't quite jibe with what you've heard previously. Upon checking your handy-dandy callsign resource, you discover that you've been hearing Army helicopters flying over Fort Huachuca, Arizona, instead of Indiantown Gap, Pennsylvania!

An example of this can be experienced sometimes on 36.70 MHz. Used occasionally at Rickenbacker International Airport

A heavily armed U.S. Air Force A-10 Thunderbolt in flight. (Courtesy U.S. Air Force)

October 2006 Survey Questions

My radio shack includes this type of computer:
PC.....1
Mac.....2
Notebook.....3
None.....4

My computer is an integral part of my radio monitoring or ham hobby.
Yes.....5
No.....6

I regularly use my computer for uploading frequencies into my scanner or amateur transceiver.
Yes.....7
No.....8

I use my computer in my shack because:
It simplifies logging the stations I hear or contact.....9
It greatly expands the capabilities of my scanner.....10
The computer is actually part of my station; I use a "black box" radio...11

The main reason I don't have a computer in my shack is (mark all that are appropriate):
Too expensive.....12
Interference generated by the monitor or computer itself.....13
No room for a computer.....14
Don't need one; I'm fine with a pencil and paper.....15
My radio shack is a very basic and a computer just isn't necessary.....16

I can write my own software:
Yes.....17
No.....18

I use a quality surge protector on my computer:
Yes.....19
No.....20

I have a UPS (uninterruptible power supply) on my computer:
Yes.....21
No.....22

I've had my computer:
More than five years.....23
Three to five years.....24
Two years.....25
Less than a year.....26

Table 3. HF Global Communications System Frequencies

24-hour Primary:	8992, 11175
Back-ups/Additional:	4724, 6712, 6739, 13200, 15016
ALE Frequencies:	3137, 4721, 5708, 6721, 9025, 11226, 13215, 15043, 18003 and 23337

by units of the Ohio National Guard, this frequency can also be heard in occasional use by Iowa National Guard units, as noted by Michael Scheel on the Milcom list. Events like this can complicate identification of the unit using the frequency, especially if use is infrequent, thus making that unit-by-unit frequency or callsign list you've been compiling for your area a little trickier to complete.

Callsigns, Callsigns, Who's Got The Callsigns?

Speaking of callsigns, these interesting words can convey quite a bit of information. What's in a callsign, you ask? Hearing a certain callsign can alert you to special aircraft, special situations, or even possibly a world crisis. For example, you may be sitting in your little monitoring station, surfing the Internet while the scanner chirps merrily away in the corner. All of a sudden, you unexpectedly hear "Marine One" coming from the scanner, and the next thing you know, you're glued to that radio listening to El Presidente unexpectedly landing at the airport five miles away. This actually happened to me during the 2004 Presidential campaign, and it got my attention—quickly.

Callsigns can be simple, representing a particular aircraft, ship, or person; they can also be a bit more complex, indicating an Emergency Action Message, or something more routine. For instance, when monitoring the HF Global Communications System (typically 11175 kHz, but see **Table 3** for a more complete list), you'll often hear the callsigns SKYKING, MAINSAIL, and REACH. SKYKING is a general "attention all stations" callsign used when the control station at Andrews AFB is about to make a broadcast, usually in this format:

"SKYKING, SKYKING, do not answer. Alpha, november, charlie, one, seven, echo, mike, three, zulu."

The SKYKING callsign alerts all stations to copy the coded message that follows. This message could be about anything, including an Emergency Action Message order to (heaven forbid) flip a few missiles at somebody. MAINSAIL and REACH are a bit more benign. MAINSAIL is a call put out by an aircraft for any ground station on the net; REACH is a callsign used by Air Mobility Command transport aircraft and is generally followed by the mission number or the aircraft tail number.

"...and the next thing you know, you're glued to that radio listening to El Presidente unexpectedly landing at the airport five miles away."

Multiple units can also use the same callsigns. For example, a recent posting on the Milcom list indicates that SAM Command Operations at Andrews AFB has recently started using the callsign GRIFFIN. However, the USAF 194th Fighter Squadron, or the 43rd Operations Group, or other units may also use this callsign. And while they generally stay the same for many years, callsigns can sometimes change, in which case you could hear a unit using both callsigns while they change from one to the other.

There are various Web resources out there for looking up callsigns. A few good places to start include:

http://www.milaircomms.com/mil_callsigns.html
http://henney.com/chm/callsign.htm
http://home.att.net/~n4tze/militaryfreqs.htm

You can also do a Yahoo or Google search for "military callsigns" and come up with various listings. Keep in mind, however, that some listings out there on the Internet may be good, or may not. Like frequency listings, they can contain outdated information.

Pass Along Your Intel

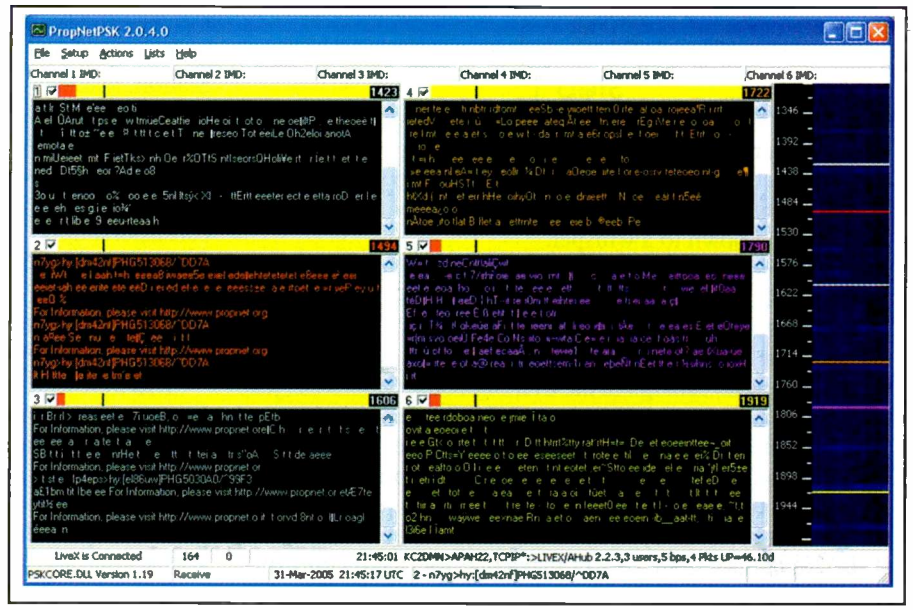
These certainly are unusual times, and we're still technically "at war." So keep your ears glued to the radio and let me know what you're hearing. See you again in December! ■

by Tomas Hood, NW7US, pc-prop-man@hfradio.org

YOU Can Be A Radio Pioneer With PropNET!

Have you ever considered becoming a research scientist? How about being a "radio pioneer?" That has a ring to it, doesn't it? It's one thing to be considered a shortwave radio listener, or perhaps a utility station monitoring operator, but it's much more prestigious and exciting to be a radio pioneer, breaking new ground, and participating with peers in the adventure of exploring the little-known world of radio propagation and space weather.

It's even more attractive when you realize that you could be a sought-for radio pioneer. It's true: you would be needed in the world of radio propagation research—today. And you don't have to be a rocket scientist to be this kind of explorer and pioneer. When you're not using your favorite receiver, and if you have a recently built computer (within the last five years), you could dedicate that equipment to the task of monitoring for radio signals from a network of participating stations for the purpose of radio signal propagation discovery.



A screen capture of the PropNetPSK software running with six concurrent channels. This shows how six different PropNET stations may be "captured" at the same time. It shows the waterfall with trace signals being decoded in each of the configured channels. (Source: PropNET PSK)

PropNET

An automated and well-organized beacon effort has been developed on 10 meters and above. You may have heard about BeaconNET, which uses amateur radio service HF bands and packet radio to send unconnected packets as beacons for the purpose of testing the current state of propagation. When BeaconNET added the amateur frequencies in the VHF, and added the PSK31 mode (PSK stands for phase shift keying), up to 1-1/4 meters, it became known as PropNET (http://propnet.org/). PropNET uses the Internet to gather beacon data using computers, and helps not only in discovery of openings, but has helped discover details about propagation modes.

PropNET is a modern way to study, in real time, ionospheric conditions and radio signal propagation on a given radio frequency between all of the participating stations. It runs in the background on a computer and uses an idle radio. PropNET uses APRS technology via either PSK-31, known as PropNET^31, or AX.25 (Packet), known as PropNET.25.

The concept is simple. Participants embed their six-cypher grid locator in each transmission. When another PropNET participant decodes that transmission, a symbol is placed on the receiver's computer screen. This symbol corresponds to the transmitting station's exact location on a map. If the band is "open," a symbol appears. If it is not, then no symbol appears. This is much like APRS, but for propagation openings. At predetermined intervals, each participating station's "captures" are uploaded to a central database, known as LiveX. The LiveX server then allows for an Internet interface, which includes up-to-the-hour maps.

This ad-hoc PSK-31 and AX.25 network of propagation enthusiasts probe the ether for previously unknown openings. Sometimes they stumble across long forgotten or yet to be officially discovered phenomena.

Compare the useful information that's conveyed in a typical PropNET transmission compared with that of a CW beacon, or a voice QSO that is in progress. PropNET is geometrically more powerful a tool than either of those methods of determining the quality of an opening.

The PropNET work is particularly significant because it's the first generation of propagation beacons for amateur radio's digital age. No other system comes close to what PropNET can do. Folks just need to start to think differently about propagation research.

Where You, The Listener, Come In

While PropNET requires a number of well-placed transmitting participants, it also needs as many receiving stations as possible. You don't need to be an amateur radio operator to be a participating receiving station in the PropNET effort, because PropNET has two components: "Casting" (transmitting) and "Catching" (receiving). Only licensed Amateurs may "Cast." However, there's nothing keeping a shortwave listener from tuning in and reporting what they "Catch"!

It couldn't be simpler: You simply connect a receiver by way of the headphones jack to their computer soundcard's Mic-in or Line-in connection. Then, after downloading PropNETPSK from http://home.earthlink.net/~propnetpsk/

propnetpsk/, you enter a six-cypher Maidenhead grid locator, instead of a callsign. Then, with the computer connected to the Internet and the radio tuned to one of the PropNET frequencies, any signals you catch will start showing up on the LiveX maps. That's all there is to it.

The PropNetPSK software is capable of receiving multiple signals (two to 16 of them!) at one time exclusively to decode properly formatted PropNetPSK beacon signals. Let's look at setting up your station on 10 meters.

Step 1

Set up your radio by tuning to 28.131 MHz, in upper sideband. Connect the radio's audio (headphones) to your computer's Line-in or Mic-in. Be sure that you start with the radio's volume turned down to a whisper.

Install PropNETPSK, then start the program. From the Setup menu, click Config. Click on the Identity tab. This brings you to the Configuration dialog box.

If you're a licensed amateur radio operator, type your current amateur radio callsign in the Call Sign box. Otherwise, just enter your Maidenhead grid locator (for example, I would enter CN87MQ, the six-cypher locator). Then, enter your Name, QTH (location), and other information. Don't worry about what you put into the CW ID box, unless you're an amateur radio operator (in which case, you'll need more than a receiver; check out the November issue of *CQ* magazine for details on using PropNETPSK as an amateur radio operator).

Select HY 10M in the Band drop down list. Click on the PHG Code button to calculate the PropNET ID code. Finally, enter your grid square. A grid square is an instrument of the Maidenhead Locator System (named after the town outside London where it was first conceived of in a meeting of European VHF managers in 1980). A grid square measures 1° latitude by 2° longitude and measures approximately 70 to 100 miles in the continental United States. A grid square is indicated by two letters (the field) and two numbers (the square), as in FN31, the grid square within which W1AW, ARRL's Maxim Memorial Station, resides.

Each sub-square is designated by the addition of two letters after the grid square, as in FN44IG. These more precise locators are used as part of the exchange in the 10-GHz contest. They measure 2.5 minutes latitude by 5 minutes longitude, roughly corresponding to three to four miles in the continental United States. PropNetPSK requires the six-character grid square.

Finding Your Grid Square

There are a number of ways to find your specific grid square. If you know your exact latitude and longitude, you can compute the grid square directly in the program by double clicking on the entry box in the Configuration dialog box. A new window will appear and allow you to enter your latitude and longitude and provide you with your grid square. If you don't know you latitude and longitude, and if you're close to an airport, go to AirNav http://www.airnav.com/, type in the airport name, and

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of Earth's geomagnetic field. High indices (Kp > 5 or Ap > 20) mean stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when transpolar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A-indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the Earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped Earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies, with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The "sunspot number" is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

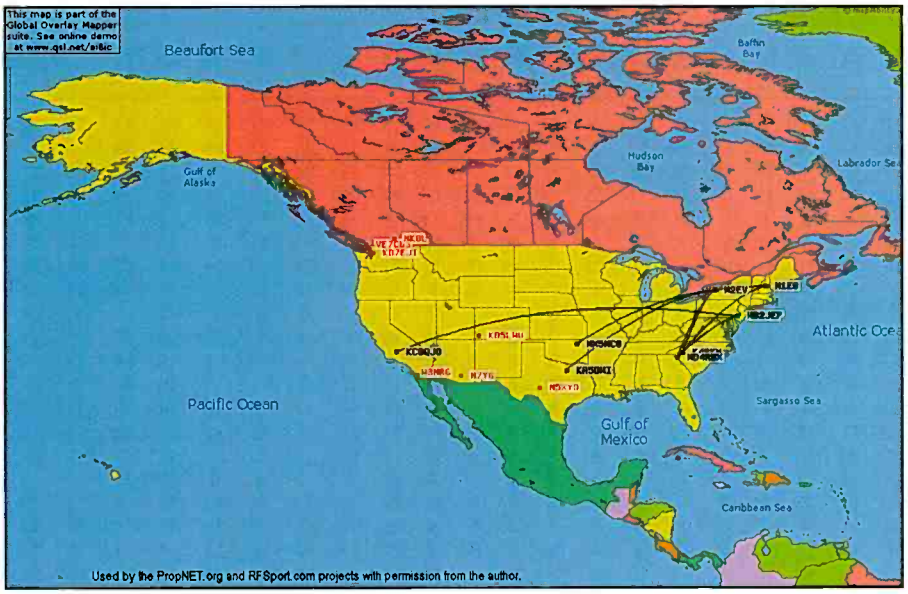
For more information, see http://prop.hfradio.org.

Optimum Working Frequencies (MHz) - For October 2006 - Flux = 72, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	19	17	14	12	11	11	10	10	9	9	9	9	9	12	16	18	20	21	21	21	21	21	21	20
NORTHERN SOUTH AMERICA	26	24	22	18	17	15	15	14	13	13	12	12	12	11	20	22	24	26	27	28	28	29	28	27
CENTRAL SOUTH AMERICA	26	24	20	17	16	15	14	13	13	12	12	12	12	14	22	24	25	26	27	27	27	28	28	27
SOUTHERN SOUTH AMERICA	28	26	24	20	19	17	16	15	14	14	13	13	12	12	17	22	25	26	27	28	29	29	29	29
WESTERN EUROPE	9	8	8	8	8	8	8	8	8	8	8	8	8	10	14	15	16	16	15	15	13	11	9	9
EASTERN EUROPE	8	8	8	8	8	9	9	8	8	8	8	8	8	8	12	13	12	12	11	11	9	8	8	8
EASTERN NORTH AMERICA	21	19	14	12	12	11	11	10	10	10	10	10	10	15	19	21	22	23	23	24	24	23	23	22
CENTRAL NORTH AMERICA	12	11	10	7	7	6	6	6	6	6	5	5	5	5	9	11	12	12	13	13	13	13	13	13
WESTERN NORTH AMERICA	6	6	6	5	3	3	3	3	3	3	3	2	2	2	2	5	6	6	6	7	7	7	7	7
SOUTHERN NORTH AMERICA	20	19	17	12	12	11	11	10	10	9	9	9	9	9	15	18	20	21	21	22	22	22	22	21
HAWAII	19	18	18	17	15	12	11	10	10	9	9	8	8	8	8	8	11	14	16	18	18	19	19	19
NORTHERN AFRICA	9	8	8	8	8	8	8	8	8	8	8	8	8	12	14	16	17	17	17	15	10	10	9	9
CENTRAL AFRICA	11	11	11	10	9	9	9	8	8	8	8	8	8	11	14	15	16	17	17	15	14	13	12	12
SOUTH AFRICA	18	17	12	12	11	11	10	10	10	10	9	9	9	15	18	20	21	22	22	22	22	22	21	20
MIDDLE EAST	8	8	8	8	8	9	9	8	8	8	8	8	8	8	13	14	15	14	10	10	9	9	9	8
JAPAN	18	18	17	17	15	13	10	9	9	9	9	8	8	8	8	8	8	8	8	8	13	15	17	18
CENTRAL ASIA	18	18	17	16	15	13	10	9	9	9	9	8	8	8	8	8	9	11	10	10	10	10	17	18
INDIA	12	12	12	12	11	9	9	8	8	8	8	8	8	8	8	8	8	9	10	11	11	11	12	12
THAILAND	18	17	17	16	15	13	10	9	9	9	8	8	8	8	8	8	11	13	12	11	11	11	10	14
AUSTRALIA	24	25	26	25	23	18	16	15	14	13	13	13	12	12	12	11	16	15	14	13	16	18	20	22
CHINA	17	17	17	16	15	12	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	12	15
SOUTH PACIFIC	27	28	27	26	23	19	18	16	15	15	14	13	13	12	12	12	14	14	16	19	22	23	25	26

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	21	19	16	15	14	13	12	12	11	11	10	10	12	18	21	22	23	24	25	25	25	24	24	23
NORTHERN SOUTH AMERICA	24	22	19	18	17	15	14	13	13	12	12	11	11	16	19	21	23	24	25	26	26	26	26	25
CENTRAL SOUTH AMERICA	25	22	20	18	17	16	15	14	13	13	12	12	15	21	22	24	25	26	27	27	28	28	28	27
SOUTHERN SOUTH AMERICA	27	25	23	21	19	18	16	15	15	14	13	13	12	17	22	24	25	26	27	28	28	29	29	28
WESTERN EUROPE	9	8	8	8	8	8	8	8	8	8	8	8	13	15	16	17	17	17	16	15	14	12	9	9
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	11	14	15	15	14	14	13	12	11	9	9	8
EASTERN NORTH AMERICA	14	12	9	9	8	8	8	7	7	7	7	7	8	13	15	16	17	17	17	17	17	17	16	16
CENTRAL NORTH AMERICA	7	6	5	4	4	3	3	3	3	3	3	3	3	5	6	7	7	8	8	8	8	8	8	7
WESTERN NORTH AMERICA	12	11	10	7	7	6	6	6	6	6	5	5	5	5	9	11	12	12	13	13	13	13	13	13
SOUTHERN NORTH AMERICA	14	13	10	9	8	8	8	7	7	7	7	6	6	9	12	14	14	15	15	16	16	16	15	15
HAWAII	21	20	19	17	13	12	11	11	10	10	10	9	9	9	9	9	13	17	19	21	22	22	22	22
NORTHERN AFRICA	11	10	10	9	9	9	8	8	8	8	8	8	14	16	17	18	18	19	19	19	14	12	12	11
CENTRAL AFRICA	12	10	10	9	9	9	8	8	8	8	8	8	14	16	17	18	18	19	19	17	15	14	13	13
SOUTH AFRICA	18	16	15	14	13	13	12	12	12	12	11	11	21	24	26	27	28	28	28	28	26	24	22	20
MIDDLE EAST	8	8	8	8	8	9	8	8	8	8	8	8	13	15	16	17	17	15	11	10	9	9	9	9
JAPAN	17	17	16	14	10	10	9	9	9	8	8	8	8	8	8	8	8	8	8	8	12	15	17	18
CENTRAL ASIA	17	16	15	13	10	9	9	9	9	8	8	8	8	8	8	11	11	11	10	10	10	10	17	18
INDIA	11	12	12	9	9	9	8	8	8	8	8	8	8	11	13	12	12	10	9	8	8	8	8	8
THAILAND	17	16	14	12	10	9	9	9	8	8	8	8	8	8	11	14	13	12	12	11	11	11	10	13
AUSTRALIA	24	25	25	22	16	15	15	14	13	13	12	12	12	12	11	17	15	15	14	14	16	19	21	23
CHINA	16	16	14	12	10	9	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	11	14
SOUTH PACIFIC	28	27	25	22	19	18	17	15	15	14	13	13	12	12	13	15	14	14	18	20	23	24	26	27

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	17	15	14	13	12	11	10	10	9	9	9	8	13	16	17	19	19	20	20	20	20	20	19	18
NORTHERN SOUTH AMERICA	22	20	18	17	15	14	13	12	12	11	11	10	13	16	18	20	21	22	23	23	23	23	23	23
CENTRAL SOUTH AMERICA	25	23	21	19	18	16	15	15	14	13	13	15	19	21	22	24	25	26	26	27	27	27	27	27
SOUTHERN SOUTH AMERICA	27	25	23	21	19	18	16	15	15	14	13	13	17	20	22	24	25	27	27	28	28	29	29	28
WESTERN EUROPE	8	8	8	8	8	7	7	7	7	7	10	14	15	16	17	17	17	17	16	15	14	11	9	9
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	14	16	16	16	16	16	15	14	13	11	9	9	9
EASTERN NORTH AMERICA	6	5	4	4	4	4	3	3	3	3	3	3	6	7	8	8	8	8	8	8	8	8	8	7
CENTRAL NORTH AMERICA	15	12	10	9	9	8	8	8	8	7	7	7	9	14	16	17	18	18	18	18	18	18	17	16
WESTERN NORTH AMERICA	21	19	14	12	12	11	11	10	10	10	10	10	10	15	19	21	22	23	24	24	24	24	23	22
SOUTHERN NORTH AMERICA	17	14	12	11	11	10	9	9	9	8	8	8	9	14	16	18	19	19	20	20	20	19	19	18
HAWAII	21	19	16	13	12	12	11	11	10	10	10	10	10	11	11	10	15	19	21	23	24	24	24	23
NORTHERN AFRICA	12	11	11	10	10	10	10	10	10	10	15	19	21	22	23	24	24	23	22	20	16	14	13	12
CENTRAL AFRICA	12	12	11	11	10	10	10	10	10	10	15	19	21	22	23	24	24	23	21	19	17	16	14	14
SOUTH AFRICA	19	17	16	15	14	14	14	13	13	12	14	21	24	26	28	28	28	28	28	28	26	24	22	20
MIDDLE EAST	10	10	9	9	9	8	8	8	8	8	12	15	17	18	18	19	19	19	16	13	12	11	11	11
JAPAN	15	13	10	10	9	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	10	14	16	17
CENTRAL ASIA	15	12	10	9	9	9	8	8	8	8	8	8	11	12	12	11	11	10	10	10	10	10	15	16
INDIA	8	8	8	9	9	8	8	8	8	8	8	11	12	12	12	12	12	12	11	11	10	9	8	8
THAILAND	13	10	9	9	9	9	8	8	8	8	8	8	14	15	15	14	13	12	12	11	11	11	10	10
AUSTRALIA	24	23	19	17	16	15	14	13	13	12	12	12	12	17	18	16	15	15	14	14	17	19	21	23
CHINA	14	10	10	9	9	9	8	8	8	8	8	8	10	10	9	9	9	8	8	8	8	8	8	13
SOUTH PACIFIC	27	25	22	20	19	17	16	15	14	14	13	13	12	17	16	15	14	16	20	22	24	26	27	28



The US map of 10-meter catches of PropNET stations, during a one-hour reporting period. Notice how few participants are represented. PropNET needs additional participants, so maybe you would like to be a radio pioneer and join this volunteer amateur research effort. (Source: http://propnet.findu.com/ and http://propnet.org/)

you can get a latitude and longitude for that. If you're not near an airport, you might check out the Internet for websites that have maps that allow you to enter your address and will then show your latitude and longitude.

Now, click on the Computer Comms tab and select your sound card. Then, choose the other settings per your specific computer hardware, and radio interface. If you want to send your reception data to the LiveX Host so others can see your results on a map, select the LiveExchange check box and complete those fields.

Explore the other tabs and set the options per your installation requirements and operation preferences. Finally, click on OK to finish the setup.

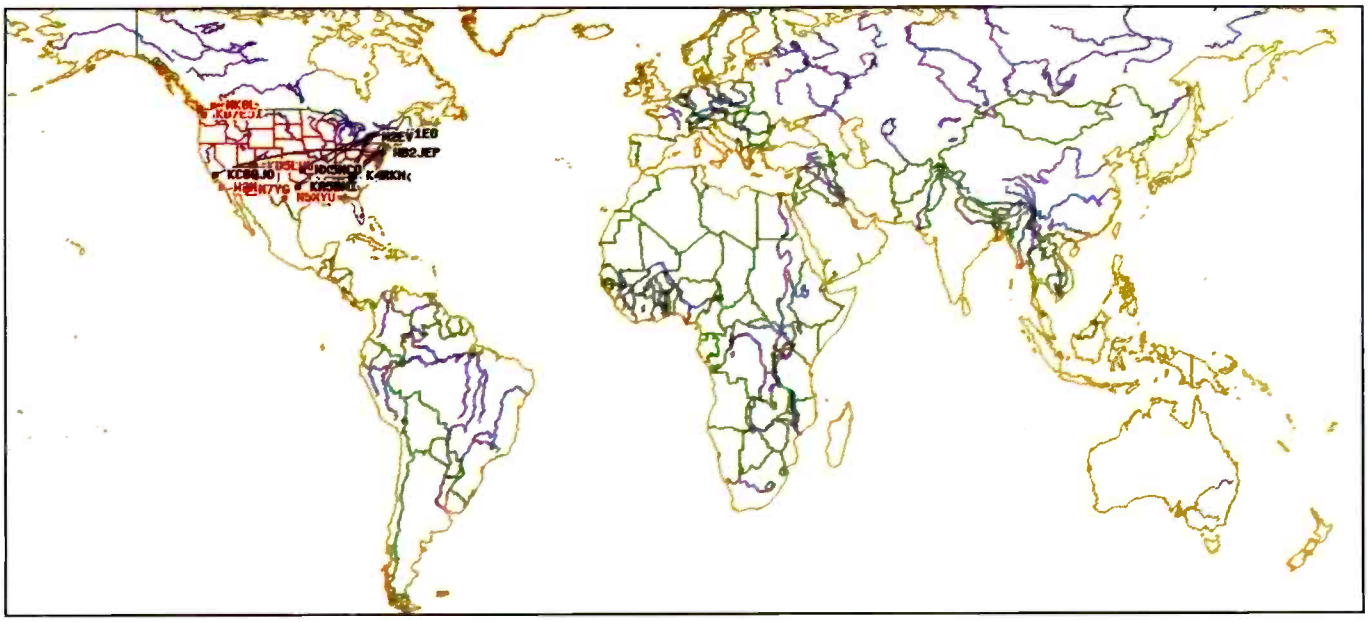
Next, you need to adjust your soundcard receive levels. Make sure that the sound out of your radio is low, and then start adjusting your soundcard record level for the Line-in or Mic-in so that you start seeing traces on the waterfall display. Once you have a reasonable display of signals, you should start seeing "caught" signals decoding in one of the decoding windows.

Read the help file, too. Visit the official PropNET website at http://propnet.org/. You might also join the group at http://groups.yahoo.com/group/PropNET-Online/ where we discuss the operation and other issues of PropNET.

HF Propagation For October

A change in propagation conditions in the Northern Hemisphere can be observed as we move away from the long sunlit days of summer into the longer hours of winter's darkness. However, the change in the length of daily darkness is not the only influence on the propagation of radio waves through the atmosphere. The amount and strength of radiation arriving and passing through our atmosphere varies from season to season, as well as from the solar cycle minimum to the solar cycle maximum.

During the Northern Hemisphere's winter months, the Earth is closer to the sun than during any other time of its orbit. This makes the daytime ionization more intense than that of summer daytimes. During the longer winter hours of darkness, the ionosphere has more time to lose its electrical charge. These conditions cause a wide daily variation in the maximum frequency that can be refracted by the wintertime ionosphere. Many radio enthusiasts celebrate the arrival of the winter shortwave season for these reasons.



The worldwide map of 10-meter catches of PropNET stations during a one-hour reporting period. (Source: http://propnet.findu.com/ and http://propnet.org/)

Frequency Grid							
Segment	Token	Dial Frequency in MHz			Modulation	Emmission	Notes
		ITU R1	ITU R2	ITU R3			
160M	MQ	.	.	.	.	.	.
80M	HQ	.	.	.	.	.	.
60M	HB	.	.	.	.	.	.
40M	HD	.	.	.	.	.	.
30M	HG	.	10.130.2	.	USB	PSK31	.
		.	10.142	.	USB	PSK31	.
20M	HK	.	14.097	.	USB	PSK31	.
17M	HQ	.	.	.	.	.	.
15M	HR	.	.	.	.	.	.
12M	HU	.	.	.	.	.	.
10M	HY	.	28.128	.	USB	AX.25	.
		.	28.131	.	USB	PSK31	.
6M	VB	.	50.291	.	USB	PSK31	.
		.	51.550	.	FM	PSK31	Experimental PSK-31 on FM Carrier
		.	50.620	.	FM	AX.25	.
4M	VQ	.	.	.	.	.	European Band / Frequency
2M	VK	144.800	144.390	??	FM	AX.25	APRS FREQUENCIES
		.	145.288	.	USB	PSK31	.
		.	145.550	.	FM	PSK31	Experimental PSK-31 on FM Carrier
		.	147.585	.	FM	AX.25	.
1.25M	VS	.	223.550	.	FM	PSK31	Experimental PSK-31 on FM Carrier
		.	223.700	.	FM	AX.25	.
70cm	UA	.	434.550	.	FM	PSK31	Experimental PSK-31 on FM Carrier
		.	441.000	.	FM	AX.25	.
33cm	UF	.	.	.	.	.	.
23cm	UI	.	.	.	.	.	.

PropNET frequencies used to study propagation.

PSK Offsets	
Area	Offset
Africa and Australia	1300 Hz
Aisa and Europe	1400 Hz
North America	1500 Hz
South America	1600 Hz

Signals below 120 meters are improving, with nighttime paths growing larger in the Northern Hemisphere. Seasonal static, which makes it difficult to hear weak DX signals, is starting to decrease as we move into winter. Expect a few DX openings during the hours of darkness and into the sunrise period. These openings will often be weak due to the relatively high signal absorption during the expected elevated geomagnetic storminess through the rest of this year. Look for openings from Europe and the south if you're listening in the eastern half of the United States, and from the south, the Far East, Australasia, and the South Pacific if you're in the western half of the country.

The best propagation aid is a set of sunrise and sunset curves, since DX signals tend to peak when it's local sunrise at the easterly end of the path in question. A good Internet website featuring a grayline map display is found at www.fourmilab.to/earthview/. Follow the link, "map of the Earth," showing the day and night regions.

Seventy-five through 120 meters will come alive in late October. Expect long-range DX on the low bands, starting close in right after sunset, and extending farther as the night develops. Signals here should peak from Europe and from a generally easterly direction around midnight. DX paths will move farther west through the night. By morning, openings from Asia should be common. For openings in a generally western direction, expect a peak just after sunrise. The band should remain open from the south throughout most of the night. Propagation in this band is quite similar to that expected on 41 meters, except that signals will be somewhat weaker on the average, noise levels will be a bit higher, and the period for band openings in a particular direction will be a bit shorter.

Forty-one meters should be the hottest DX band during the dark hours as the seasonal static levels are lower than they were during the summer. The band should be open first for European DX in the eastern United States during the late afternoon. Signals should increase in intensity as darkness approaches. During the hours of darkness, expect good DX openings from most areas of the world. Signals should peak from an easterly direction about midnight, and from a westerly direction just after sunrise. Excellent openings toward the south should be possible throughout most of the night.

Paths on 31 through 19 meters are becoming ever more reliable between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. The strongest openings occur for a few hours after sunrise and during the sunset hours.

Thirty-one and 25 meters will often remain open into many areas late into the night and will open early in the morning, especially when part of the propagation path moves through sunlit regions. However, these bands are crowded and signals are usually very strong and steady. Twenty-five meters is expected to be an excellent band for medium-distance (500 to 1,500 miles) reception during the day-

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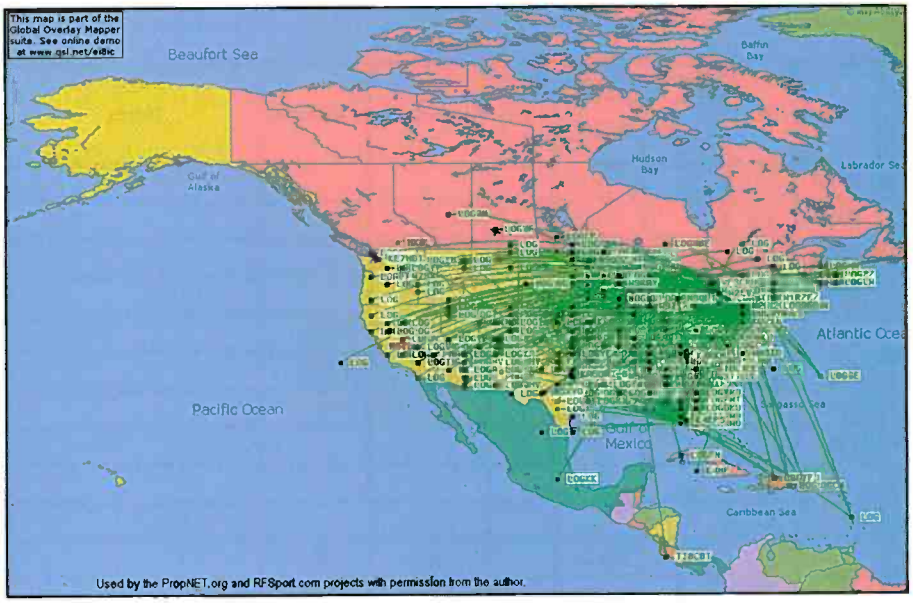
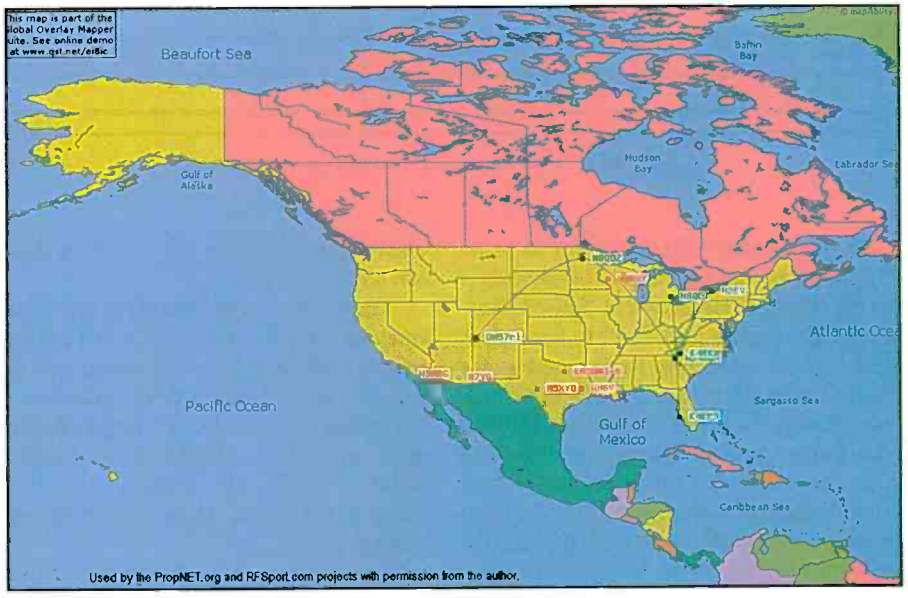


Six-meter activity, as captured over a 48-hour VHF contest in July 2006. Notice how active 6 meters can actually be, even at the end of the current solar cycle! This capture during the contest illustrates how valuable your participation, even as a monitoring station, can be. Of course, when mapping, 48 hours might be a bit too much of a slice to graph well. (Source: http://propnet.findu.com/ and http://propnet.org/)

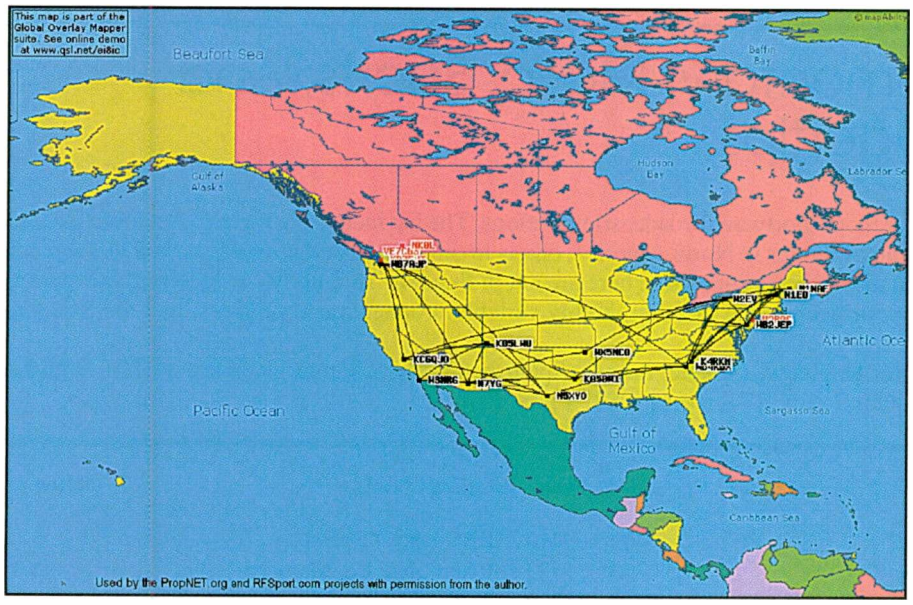
light hours. Longer-distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Thirty-one meters will provide medium-distance daytime reception ranging between 400 and 1,200 miles.

Twenty-two through 19 meters compete with 16 for the best daytime DX band during October. These bands will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Since the Southern Hemisphere has long daylight hours, DX paths on these bands from stations in the south will be common.

Sixteen through 13 meters will occasionally open through October when flux levels reach above 100. Paths from Europe and the South Pacific as well as



Six-meter activity, as captured over a 24-hour non-contest period, illustrating why you're needed as a regular participating research station. (Source: http://propnet.findu.com/ and http://propnet.org/)



Ten-meter activity, as captured over a 24-hour period. There's a lot more propagation on 10 meters than folks might expect during the lowest part of a solar cycle. The more participating stations dedicated to regular active reporting, the better. (Source: http://propnet.findu.com/ and http://propnet.org/)

from Asia, at least during days of higher solar flux levels, will be common, especially on 16 meters. Look for best conditions from Europe and the northeast before noon and from the rest of the world during the afternoon hours. Reception from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening.

VHF Conditions

Conditions during October should include moderate levels of trans-equatorial (TE) propagation, in which stations in the southern states and parts of the Caribbean will be able to work into the northern areas of South America during the late afternoon. During peak years of a solar cycle, October is one of the best times for TE activity, especially later in the month. Since we're in the decline of the current solar cycle's peak, these openings will be rarer than in previous years, but some exciting openings might occur.

While sporadic-*E* activity is sparse during October in the northern Temperate Zone (where much of the United States is located), there is some possibility of extended tropospheric conditions during October because of the changing weather patterns. Higher VHF is the best frequency range to watch for this.

Current Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for June 2006 is 37.6. The lowest daily sunspot value recorded was zero (0), on June 2 and June 3, and from June 22 through June 24. The highest daily sunspot count was 33 on June 7 and June 8. The 12-month running smoothed sunspot number centered on December 2005 is 23.0. A smoothed sunspot count of around 10 is expected for October 2006.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 80.1 for June 2006. The 12-month smoothed 10.7-centimeter flux centered on December 2006 is 85.4. The predicted smoothed 10.7-centimeter solar flux for October 2006 is 73, give or take about 14 points.

The observed monthly mean planetary A-Index (Ap) for June 2006 is 8. The 12-month smoothed Ap index centered on December 2005 is 10.4. Expect the overall geomagnetic activity to be varying greatly between quiet to active during most days in October, as we're at the start of the equinoctial season. There's even a chance for isolated periods of stormy activity.

Join The Fun!

You can join in with others in discussing space weather, propagation, and shortwave or VHF listening, at http://hfradio.org/forums/. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at http://prop.hfradio.org/. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information like the solar flux, Ap reading, and so forth, check out http://wap.hfradio.org/, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation that you've noticed. Do you have questions about propagation? Send them in. I look forward to hearing from you. Happy signal hunting! ■

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World News, Commentary, Music, Sports, And Drama At Your Fingertips

This listing is designed to help you hear more shortwave broadcasting stations. The list includes a variety of stations, including international broadcasters beaming programs to North America, others to other parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
0000	11805	Radio Brazil Central	PP
0000	7345	Radio Prague, Czech Republic	
0000	15230	Radio Havana Cuba	SS
0000	7440	Radio Ukraine Int.	
0000	7300	Voice of Turkey	TT
0030	4885	Radio Clube do Para, Brazil	PP
0100	3310	Radio Mosoj Chaski, Bolivia	SS
0100	11745	Voz Cristiana, Chile	PP
0100	11800	RAI, Italy	
0100	9655	VOIRI, Iran	SS
0100	13362	AFN/AFRTS, Guam	usb
0100	9745	HCJB, Ecuador	SS
0100	12055	Vatican Radio, via Russia	unid
0100	9690	Radio Romania Int.	
0100	12133.5	AFN/AFRTS, Florida	usb
0100	9665	Voice of Russia, via Moldova	
0100	6715	Voice of Vietnam, via Canada	
0100	6210	Radio Baluarte, Argentina	SS
0100	11710	VOA relay, Sri Lanka	
0130	6025	Radio Budapest, Hungary	
0130	9870	Radio Austria Int.	
0130	12040	Deutsche Welle, Germany, via Rwanda	GG
0130	7205	Radio Republica, USA via UK	SS
0130	6534	Rdif. Huancabamba, Peru	SS
0130	9860	Voice of Russia, via Vatican	RR
0130	6010	Radio Sweden, via Canada	
0130	9420	Voice of Greece	Greek
0200	11710	Radio Argentina al Exterior	
0200	9965	Public Radio of Armenia	Armenian
0200	11700	Radio Bulgaria	
0200	10330	All India Radio	HH
0200	15515	Radio Australia	
0200	4780	Radio Cultural Coatan, Guatemala	SS
0200	4052.5	Radio Verdad, Guatemala	SS
0200	3279	La Voz del Napo/Radio Maria, Ecuador	SS
0200	3320	Radio Sondergrense, South Africa	Afrikaans
0200	4775	Radio Tarma, Peru	SS
0200	7210	Radio Belarus	various
0230	7455	Radio Tirana, Albania	
0230	4790	Radio Vision, Peru	SS
0230	9775	Radio Farda, USA via Greece	Farsi
0230	4819	La Voz Evangelica, Honduras	SS
0300	11895	Radio Boa Vontade, Brazil	PP
0300	9410	BBC relay, Cyprus	
0300	9575	Radio Medi Un, Morocco	AA
0300	15720	Radio New Zealand Int.	
0300	5010	RTV Malagasy, Madagascar	Malagasy
0300	3240	Trans World Radio, Swaziland	Shona
0300	7200	Republic of Sudan Radio	AA
0300	9780	Republic of Yemen Radio	AA
0300	4976	Radio Uganda	
0300	6973	Galei Zahal, Israel	HH
0300	6005	Deutschland Radio, Germany	GG
0300	4810	XERTA, Mexico	SS
0330	11600	Radio Prague, Czech Republic	
0330	11590	Kol Israel	
0330	4800	Radio Buenas Nuevas, Guatemala	SS
0330	9704	Radio Ethiopia	Amharic
0330	6940	Radio Fana, Ethiopia	Amharic
0330	11675	Radio Kuwait	AA
0330	15215	Radio Taiwan Int, via Florida	
0330	11975	Adventist World Radio, via UAE	unid
0330	5975	Voice of Turkey	
0330	4965	The Voice - Africa, Zambia	
0330	4910	Radio Zambia	
0400	6010	La Voz de su Concencia, Colombia	SS
0400	11700	Radio France Int.	
0400	5880	Radio Ukraine Int.	
0400	9680	Voice of Russia	
0400	7275	RT Tunisienne, Tunisia	AA
0400	7120	BBC, via South Africa	
0400	9905	Radio Nile, via Madagascar	
0430	9970	RTBF, Belgium	FF
0430	11690	Radio Okapi, Congo, via South Africa	
0430	4770	Radio Nigeria	
0500	4777	Radio Gabon	FF
0500	5005	Radio Nacional, Equatorial Guinea	SS
0500	15419	Deutsche Welle, Germany, via Madagascar	
0500	7240	Channel Africa, South Africa	
0500	15420	BBC relay, Seychelles	
0530	6185	Radio Educacion, Mexico	SS
0530	9685	Channel Africa, South Africa	
0530	4835	RTV Malienne, Mali	FF
0600	6140	Radio Lider, Colombia	SS; irreg.
0600	4915	Radio Ghana	

UTC	Freq.	Station/Country	Notes
0600	6080	VOA relay, Sao Tome	
0600	4760	ELWA, Liberia	
0600	7125	RTV Guineenne, Guinea	FF
0700	3291	Voice of Guyana	
0700	6115	Radio Union, Peru	SS
0730	6010	Radio Mil, Mexico	SS
0800	9595	Radio Nikkei, Japan	JJ
0800	11565	KWHR, Hawaii	
0830	11870	KBLS, Alaska	CC
0830	12065	Radio Tikhy Okean, Russia	RR
0900	5025	Radio Rebelde, Cuba	SS
0900	6160	CKZN, Canada	
0900	5020	Solomon Is. Broadcasting Corp	
1000	7280	Voice of the Strait, China	CC
1000	9500	CPBS, China	CC
1000	2325	VL8T - ABC No. Terr. Service, Australia	
1000	7260	Radio Vanuatu	
1100	11735	Radio Trans Mundial, Brazil	PP
1100	9410	Fu Hsing Broadcasting Service, Taiwan	CC
1100	12085	Voice of Mongolia	
1100	3905	Radio New Ireland, PNG	
1100	4605	Radio Republik Indonesia, Serui	II
1200	9570	China Radio Int., via Cuba	CC
1200	9525	Voice of Indonesia	II
1200	6285	KCBS, North Korea	KK
1200	9515	Radio Romania Int	FF
1200	12055	Voice of Russia	unid
1200	9525	Radio Polonia, Poland	
1200	4890	NBC, Papua New Guinea	
1200	6100	Radio Rossii, Russia	RR
1230	12065	Bible Voice, via Russia	unid
1300	6160	VOA relay, Philippines	
1300	11750	BBC relay, Thailand	
1300	6150	Radio Singapore	
1300	6075	Kasmchatka Radio	RR
1330	9805	Radio Liberty, via No. Marianas	RR
1330	9920	Far East Broadcasting Co., Philippines	
1330	11685	Radio Thailand	unid
1330	13560	Radio Sweden, via Canada	
1400	7295	Radio Malaysia - Traxx FM	
1400	17725	Radio Jamahiriya/V of Africa, Libya, via France	
1400	9840	Voice of Vietnam	
1400	9975	Trans World Radio, Guam	
1400	15360	Trans World Radio, Swaziland	
1400	17890	BSKSA, Saudi Arabia	AA
1430	11690	Radio Jordan	
1500	13775	Radio Australia	
1600	13635	CVC International, Australia	
1600	11570	Radio Pakistan	
1600	11545	Voice of Korea, North Korea	
1700	15475	Africa No. One, Gabon	FF
1700	15515	Darfur Salaam (BBC to Sudan)	AA
1730	17810	United Nations Radio, via Ascension	
1800	17680	Voz Cristiana, Chile	SS
1830	17830	BBC relay, Ascension Is.	
1830	17895	VOA relay, Botswana	
1830	17780	RAI, Italy	II
1830	15630	Voice of Greece	Greek
1830	15660	Radio Jamahiriya, Libya, via France	AA
1900	15640	Kol Israel	
1900	13790	Deutsche Welle, Germany, via Portugal	AA
1900	15190	Radio Africa, Equatorial Guinea	
1900	15120	Voice of Nigeria	
1900	15110	Radio Exterior Espana, Spain	SS
1900	11740	BSKSA, Saudi Arabia	AA
1900	15130	Adventist World Radio via Germany	AA
1930	13630	China Radio Int, via Mali	PP
1930	13620	All India Radio	AA
1930	11695	VOIRI, Iran	AA
1930	13710	Bible Voice, via Germany	
1930	17765	Radio Canada Int.	FF
1930	11735	Radio Tanzania, Zanzibar	Swahili
1930	12085	Radio Damascus, Syria	FF
1930	15365	KBS World Radio, S. Korea, via UK	AA
1930	11880	Radio Nacional, Venezuela, via Cuba	SS
2000	11780	Radio Nacional Amazonia, Brazil	PP
2000	11695	Radio Budapest, Hungary	HH
2000	11995	Radio France Int, via Gabon	FF
2000	12050	Radio Cairo	AA
2000	15495	Radio Kuwait	AA
2000	11720	Radio Free Asia, USA, via No. Marianas	FF
2000	15560	RDP Int., Portugal	PP
2000	11720	VOA relay, Morocco	
2000	13765	Vatican Radio	
2000	15150	Voice of Indonesia	
2030	7250	Vatican Radio	AA
2100	11585	Kol Israel	HH
2100	7450	Radio Makedonias, Greece	Greek
2100	15140	Radio Sultanate of Oman	AA
2100	9910	Radio Free Asia, via Guam	CC
2100	9870	BSKSA, Saudi Arabia	AA
2200	15345	Radio Argentina al Exterior	SS
2200	17850	REE, Spain, via Costa Rica	SS
2200	6015	Radio Nederland, via UAE	DD
2200	5470	Radio Veritas, Liberia	
2200	11930	Radio Marti, USA	SS
2230	5030	Radio Burkina, Burkina Faso	FF
2230	9775	CPBS, China	CC
2230	12000	HCJB, Ecuador	SS
2230	17810	Radio Japan/NHK	Malay
2230	11895	Radio Japan/NHK, via French Guiana	JJ
2230	15555	RDP Int., Portugal	PP
2230	17740	VOA relay, Philippines	
2300	9700	Radio Bulgaria	BB
2300	11830	Radio Anhanguera, Brazil	PP
2300	11950	Radio Cairo, Egypt	
2300	13640	VOA relay, Northern Marianas	JJ
2300	9300	Radio Varna, Bulgaria	BB; Sun/Mon
2300	6030	Radio Marti, USA	SS
2300	15340	Voz Cristiana, Chile	SS
2300	12115	Rikisutvarpid, Iceland	Ice
2330	9925	Voice of Croatia, via Germany	
2330	9875	Radio Vilnius, Lithuania	
2330	9515	Radio Novas de Paz, Brazil	PP

by Harold Ort, N2RLL

New, Interesting, And Useful Communications Products

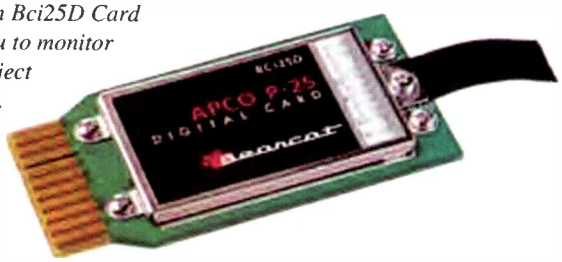
Uniden's APCO P-25 Digital Card

The Bci25D Card enables you to monitor APCO Project 25 Systems (a modulation process where voice comms are converted into digital communications; the conversion is similar to the technology used with digital mobile phones). When the card is installed into either the Uniden BC785D or BC250D, it converts digital voice comms into analog, allowing you to monitor conversations.

Uniden says, "Uniden's P-25 solution allows you to monitor conventional P-25 digital voice, trunked with analog control channel (3600 Baud) and P-25 digital voice and mixed-mode analog control channel (3600 Baud) with mixed analog and P-25 digital voice."

Uniden offers the simple installation/instruction manual online with illustrations for both scanners. You can obtain more information at www.scanner.uniden.com or by calling Uniden directly at 800-554-3988 from 7 a.m. to 5 p.m. CT Monday through Friday. No price was available at press time.

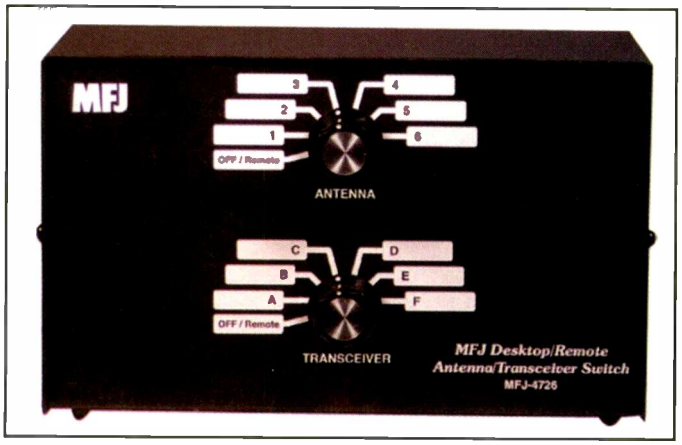
The Uniden Bci25D Card enables you to monitor APCO Project 25 Systems.



MFJ's New Antenna/Transceiver Switch

The new MFJ-4726, priced at $159.95, is a six-position antenna/transceiver switch that, when placed on your desk or out of the way under your desk or in another room, can be used as a remote control. You can select one of six antennas and one of six transceivers in any combination with just two easy-to-use rotary switches. Plug in an antenna tuner or SWR/wattmeter into its common ports, so it's always connected to the antenna and selected radio. All unused inputs are grounded on the MFJ-4726. When the rotary switches are in the OFF position, all inputs are grounded. This product is for indoor use only as it's not weather-protected.

For more information or to order, get a free catalog, or for your nearest dealer, contact the company at MFJ, 300 Industrial Park Road, Starkville, MS 39759; Phone: 800-647-1800; Web: www.mfjenterprises.com.

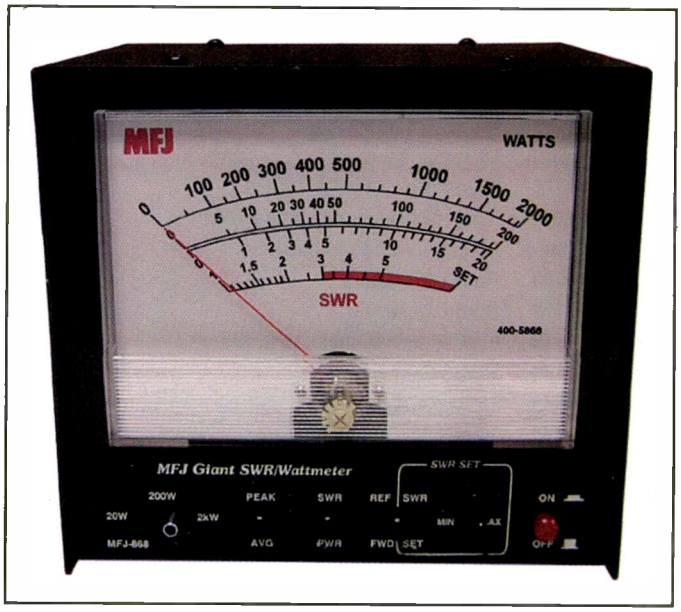


MFJ's new MFJ-4726 is a six-position antenna/transceiver switch that sells for $159.95.

MFJ: "World's Largest" HF SWR/wattmeter

Also new from MFJ Enterprises is the MFJ-868 HF SWR/wattmeter, which the company calls the "world's largest," and for good reason—it measures 6.5 inches diagonally across the meter scale! The meter needle position and motion gives users an accurate indication for what's going on quickly, without actually reading the scale, like your analog watch. MFJ's exclusive TrueActive peak reading circuit captures true peak or average forward and reflected power readings. It has 20/200/2000-watt ranges, and the MFJ Wattmeter PowerSaver circuit turns on the meter only when RF power is being measured.

The MFJ-868, which sells for $139.95, covers 1.8 to 30 MHz, uses a 9-volt battery or 12 Vdc (or 110 Vac with the optional MFJ-1312D, $15.95). It measures 5.5 x 7 x 5 inches (HWD)



MFJ says it's the world's largest HF SWR/wattmeter. Check out the size of the display!

and is protected by MFJ's No Matter What one-year limited warranty.

To order, get a free catalog, or for your nearest dealer, contact MFJ.

GAP's "Hear It" Speaker

There's more to GAP Antenna Products, Inc., than antennas and mounts. The company now offers a noise-eliminating speaker that incorporates the latest in digital signal processing technology. Designed by and imported from BHI in England, each product incorporates GAP engineering. The active DSP filtering and 16-MHz processor within the speaker work to eliminate noise and interference; flip a switch, it's on, and you can even control the level of processing. The new "Hear It" speaker has eight levels of filtering. Other features/specs include noise attenuation of 20 dB (average), an input sensitivity control, and audio output power (2.5W rms max.). The "Hear It" speaker requires 12–28 VDC at 500 mA (typical power consumption is a half-amp), weighs 1 pound, and is supplied with a fused power lead.

For more information, contact GAP Antenna Products, Inc. at 772-571-9922 or visit them online at www.gapantenna.com.

Getting Started With Ham Radio

The ARRL's newest book, *Getting Started With Ham Radio*, will tell you how to get on the air now! Described as "a guide to your first Amateur Radio station," it shows you how to select radios and antennas, explore operating modes (including voice, Morse code, and digital), and assemble your station.

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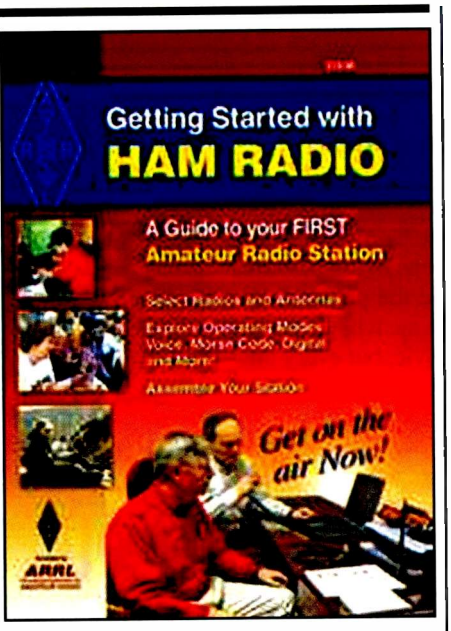
"Your First Radio," which offers advice on choosing a transceiver and power supply that fits your budget and operating style; "The Antenna—The Most Important Part of Your Station" with practical information to help you choose and install economical, effective antennas; "Propagation—The Science of How Signals Travel" with tips on getting the most from your station by understanding how HF and VHF signals travel; "Using Your Voice on the HF Bands," which offers advice on making your first voice contacts; "Code Conversations" to get you on the air using Morse code; and "The Digital Universe," which tells you how to set up a station for digital operating.



The ARRL's newest book, Getting Started With Ham Radio, *is chock full of must-read information for the new ham and is priced at $19.95.*

For more information on *Getting Started With Ham Radio* (ISBN: 0-87259-972-8) No. 9728, priced at $19.95, contact the American Radio Relay League at www.arrl.org or call them at 888-277-5289.

New 65-foot Hy-gain Aluminum Telescopic Mast

Hy-gain's new ATM-65 aluminum telescopic mast, priced at $189.95, is an 11-section, multi-purpose aluminum telescopic pole that can be used for vertical antennas or as a mast to hold up wires, G5RVs, or dipole antennas. It's appropriate for portable, temporary or permanent use when traveling, camping, etc. It could easily be bracketed to your camper for quick and easy set-ups.

The new ATM-65 includes one size of each slotted tube from Hy-gain and 10 hose clamps. The ATM-65 stands 65 feet fully extended, 6 feet collapsed without clamps. Guying is required if the mast is extended beyond 30 feet. The top section is .625 inch OD and the bottom section is 2 inches OD x .120 wall.

To order, get a free catalog, or for your nearest dealer, contact Hy-gain, 308 Industrial Park Road, Starkville, MS 39759; Phone: 800-973-6572; Fax: 662-323-6551; Web: www.hy-gain.com.

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by Kirk Kleinschmidt, NTØZ, kirk@cloudnet.com

Horizontal Loops—The Fact-Based Truth

Ever watch the classic Bill Murray movie *Groundhog Day*? The one where Murray's character keeps living the same day over and over again, well beyond the point of déjà vu? Well, the same thing keeps happening to me when it comes to loop antennas. It's not as severe as the movie, but every now and again I wonder whether I'm living the same day over and over again!

This particular scene—which has happened before in exactly the same setting—started at a Saturday morning ham breakfast. I had just moved to a new town in southeastern Minnesota and was a newcomer to the get-together. The topics? Eggs, bacon, and antennas, of course.

A couple of the guys were talking multiband HF antennas, which is a perennial favorite that also happens to be a subject rife with misconceptions, science fiction, and downright BS! I pretty much held my tongue until the two started dissing my secret weapon: the horizontal loop.

For reasons I can't imagine, these guys loved verticals and poo-pooed the horizontal loop, citing the usual "high angle of radiation" and "good for nothing except burning holes through overhead clouds" kinda talk that I've heard so many times before.

Considering the rocky, gravelly, sandy soil down here (and near total lack of water), I'm wondering how conventional vertical antennas—without elevated radials—work at all!

Now, I've babbled about horizontal loops before, and because of my erstwhile breakfast partners, I'm gonna do it again, for their sakes and yours. Conventional wisdom aside, horizontal loop antennas work amazingly well on all bands above their fundamental frequencies (unlike most other designs), are simple to erect, and forgiving in every way. Everyone I've ever known who has bothered to use one has been a believer, and a few have even scrapped their steerable beams after experimenting with decent-sized loops.

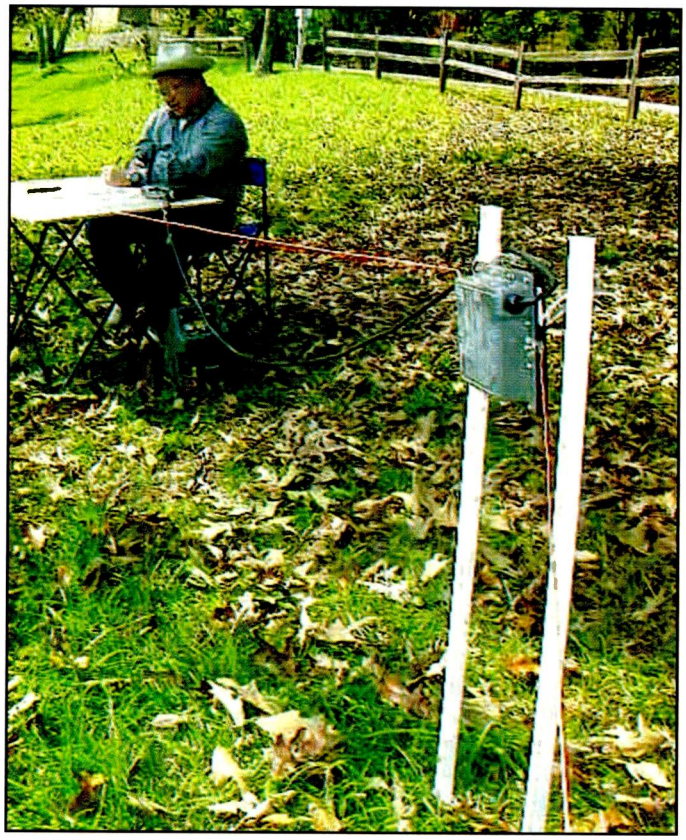
The bottom line is this: antenna performance is what ham radio is all about. Say what you will about one facet of the hobby or another. Or talk up one radio, gadget, or doo-hickey. But the whole works—high power or low—pretty much hangs on getting out a signal. And you can't do that unless you have a decent antenna. Contrary to popular belief, there's no extra merit in suffering with a crappy antenna!

Life At The Gulag Arms Estates

The other reason for my loop antenna angst is that I can't figure out how to put one up in my new QTH at Gulag Arms Estates...er...my new townhouse, which came complete with covenants and deed restrictions up the wazoo. The antenna I'm dying to put up the Breakfast Boys are trashing. Go figure!

Now, if you can afford to put up several tall towers and populate them with a bunch of awesome SteppIR Yagis, you might not be interested in a "lowly" loop. But if you're like most of us and have a limited budget that allows for only one decent HF antenna, read on!

Assuming you have to make do with one "do-everything" antenna, which one deserves your undivided attention? A dipole?



See what I mean about horizontal loops being decent performers even when mounted close to the ground? Shown here is Matt, WB6BWZ, running his tiny FT-817 into an SGC autocoupler that feeds a low, 80-foot-long horizontal loop. Talk about a low-profile antenna. This photo was taken at the North Georgia QRP Club's outing on October 12, 2002. You can read all about it at www.qsl.net/nogaqrp.

An end-fed wire. A quad loop? A vertical? An inverted Vee? Each of these venerable designs is worthy of mention and can be made to perform well (especially on one or two bands), but when it comes to making a single antenna perform well over a wide frequency range, the horizontal loop is The One.

Super Looper!

That's right! A horizontal loop—a quad loop lying on its side—is one of ham radio's best-kept secrets. If some Old Timer tries to convince you that a horizontal loop is a simple "cloud burner" that radiates straight up, give him a wink and hit him with the following tidbits:

• Horizontal loops are fabulous stateside antennas and beautiful DX performers. They can do it all, and that's also really their only potential weakness. Because these loops receive well in *every* direction, copying perfectly readable DX stations through a pile of super-strong domestic stations can be frustrating at times.

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• Horizontal loops tune up easily on all bands *at or above the fundamental frequency* and can be made to work well on frequencies below the design band in most cases. Dipoles and even vertical loops can't do that—and even if they could, the impedance matching required is much more complex.

• Loops are quiet (they suffer less from static and man-made noise), and they "hear" well compared to dipole - and vertical-type antennas. If fed with balanced lines they can also exhibit impressive immunity from locally generated noise, even noise from your shack computer.

• Horizontal loops kick the heck out of dipole-type antennas when mounted close to the ground (a real no-no for most antennas and an unfortunate reality for most of us).

A Chimp Could Build One

If you're following along, a horizontal loop is simply a full-wavelength loop that's "lying on its side," supported at various points some 15 to 60 feet above the ground. Mathematically, loops are circular, but erecting a horizontal loop that's perfectly circular is needlessly tedious. Four strategically placed supports give us a "square loop" (an ideal shape), while three supports provide a "triangle loop" (pretty much the limit in what you can get away with). A slightly rectangular shape is okay, but an elongated rectangular shape starts to lose its loop-like qualities.

The formula for designing a loop has been published in antenna books for years. It's 1005 divided by the frequency (in megahertz). That's 1005 / f. Here's a quick look at a few common loop sizes: 80 meters, 287 feet; 40 meters, 144 feet; 30 meters, 100 feet; 20 meters, 72 feet. I've included these sample lengths to give you a size reference. In practical terms, when it comes to building horizontal loops, all you have to do is put up as much wire as possible (keeping it as circular or as square as possible) and let your antenna tuner handle the impedance tweaking.

When I put up my last loop I had more than enough real estate for 40 meters, but not enough for 80. So I split the difference. My loop was resonant at 5 MHz. Consequently, it worked outrageously well on 40 meters and up, and very nicely on 80 and 160. Not bad for a single wire. It's definitely not a compromise!

So, to make a killer multiband antenna with a single wire, put up a horizontal loop sized to match your available space (shoot for a 40-meter loop size or larger, if possible, for best all-around performance), feed it with 50-ohm coax through a standard antenna tuner and operate with glee on all bands at or above the loop's resonant frequency. Feel free to feed the loop anywhere along its circumference, corner or side.

You can operate the loop on frequencies below the design frequency, but because of coax losses (SWR-related), performance usually decreases the lower you go in frequency (in relation to the resonant frequency of the loop).

If you're looking to enhance the operating flexibility of your horizontal loop and improve its performance on all frequencies, especially those below the design frequency, replace your conventional shack-mounted antenna tuner with an SGC autocoupler mounted at the loop's feed point. This will give you lightning-fast band changes and low SWR on the coax that runs from the autocoupler to your radio. These handy devices used to be somewhat pricey, but they're now coming into the "affordability zone." If you have the chance to pick one up, you won't regret it!

If you can't get your mitts on an autocoupler, try replacing your coax with 450-ohm open-wire line fed through a conventional tuner with a tuner-output balun (okay), a balanced tuner such as an old Johnson Matchbox (great, but hard to find), one of MFJ's new balanced tuners, or a balanced L-network tuner (great, but you have to build it).

Switching to an open-wire feeder will essentially negate the effects of high SWR values on the feed line and help you put out a greatly improved signal on bands below the antenna's design frequency.

With my pre-townhouse loop, I regularly worked European stations with 100 mW on 40 meters, worked 34 states and four DX countries on 160 meters in one night (100 W), and regularly destroyed pileups on 30-meter CW with ease while running 5 to 10 watts. Other hams have done the same and more.

However you slice it, however you feed it, a horizontal loop antenna is your best bet for an all-wire multiband HF antenna. In that light, then, go forth and square that circle!

Be An SWLL

The benefits of horizontal loops are available to SWLLs (shortwave loop listeners) who have the room to put them up. A few caveats do apply, however. If you're using an entry-level receiver, be sure to build or buy an attenuator, or at least have something on hand to *decrease* the received signal. Loops and other full-size antennas can easily overload a receiver's front end, resulting in images, birdies, distortion, and a host of other unwanted side effects.

As with any antenna, a good preselector or even a wide-range transmitting-type antenna tuner can help keep out unwanted signals while perking up the signals you want to hear. Although it's often overlooked, receivers and receive antennas require impedance matching for best performance!

See you again next month. Enjoy the great autumn weather! ■

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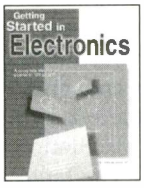

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by Peter J. Bertini, radioconnection@juno.com

Wrapping Up The Majestic 90 Restoration

It's been a long road, and it's time to wrap up the lose ends on our Majestic 90 restoration. For those of you just joining us, this mini-epic started in our April column. As you've seen so far, restoring an early AC operated set from the late 1920s can be a real challenge, both electrically and mechanically! Hopefully this short series has inspired some of you to take on similar challenges, and if it has, please share your experiences with us.

Aligning The Majestic 90 Radio

By the end of the 1920s there were at least four popular circuits in common use, not including crystal sets. The early inexpensive designs incorporated Armstrong's regenerative detector. These were simple battery-powered sets, using between one and three tubes, and ruled supreme until the mid-'20s, when technical advances and reduced costs made more advanced sets affordable for the average consumer. The reflex set used dual-function tube stages that amplified both audio and RF signals. While this reduced the tube count, it did so at the cost of circuit complexity, increased part counts, and the sets also had inherent limitations issues that limited performance.

While popular with homebrewers—those enterprising folks who would go to the local parts emporium and buy parts to build their own sets—few reflexes were commercially marketed. Although superhets were available in the mid-'20s, RCA's rigid lock on the patent rights limited competition and kept the TRF (tuned radio frequency) design alive for many years! The radio that featured AGC was Philco's model 95 in 1929.

A good TRF design can work surprisingly well. The amount of audio produced by the two push-pull #45 triode power tubes in the Majestic 90 is awesome!

How The Majestic 80 Works

The first four stages in the Majestic 90 are tuned RF amplifiers using #27 triode tubes. These stages are tuned to the desired frequency using the large tuning capacitor. Each stage represents a fair amount of gain, and the total in-line gain from the antenna and the input of the fifth #27 detector tube can be quite substantial.

Here are the problems inherent in these designs. Triodes have a large amount of capacitance (inter-electrode capacitance) between the plate and grid structures. This means unwanted feedback, and the need for neutralization to keep each from going into self-oscillation. (I'll explain how neutralization works in a bit.) The large amount of in-line gain, controlled by the volume knob, also requires large amounts of shielding and bypassing between stages to also prevent self-oscillation problems.

The volume control isn't in the audio path; instead it controls the cathode bias for the first three RF stages. This control is in series with a second rheostat (equalizer) that is mounted on the rear of the tuning capacitor shaft. As the resistance is increased, the stages are biased toward cutoff, reducing their gain, and hence the volume level. The purpose of the equalizer control is to provide constant sensitivity across the set's tuning range; this arrangement can be seen in the Majestic 90 schematic provided in the May issue.

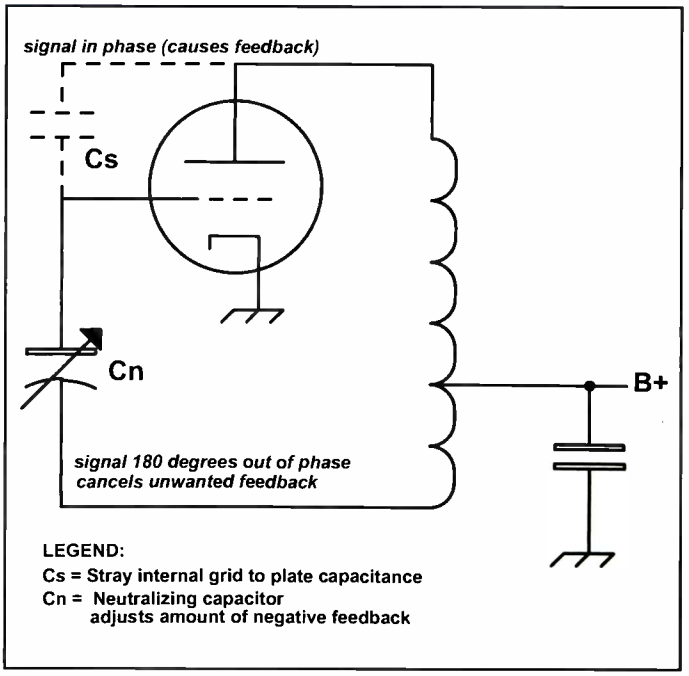

Figure 1. Neutralization circuit. Neutralization uses a small capacitance to feed a signal that is equal in amplitude, but 180 degrees out of phase, to the undesired in-phase coupling that exists between the grid and plate due to the stray inter-electrode capacitance of the tube elements. The feedback cancels and eliminates any in phase signals coupled back to the grid.

Neutralization

What is neutralization, and why do we need it? If you're an old time ham operator, you'll probably remember your first tube transmitter and the need to "neutralize" it whenever the output tube was changed. Since the four RF stages in the Majestic 90 will require neutralization during the alignment, I'm going to try to explain why neutralization is needed and how it works.

Remember the inter-electrode capacitance we mentioned earlier? The problem is generally most prevalent in triode tubes, since there are no additional grids (screen, suppressor) between the control grid and plate to "buffer" or isolate the two electrodes from each other. Even though the amount of capacitance between the two elements is small, it allows some of the output signals to feedback to the input in phase, meaning the stage can become regenerative or even self oscillate!

Now, let's look at a how the problem is controlled. **Figure 1** shows how neutralization is applied to the stage. Remember that the signal voltage appears across the tuned circuit, and the AC signal voltage will be 180 degrees out of phase at each end of

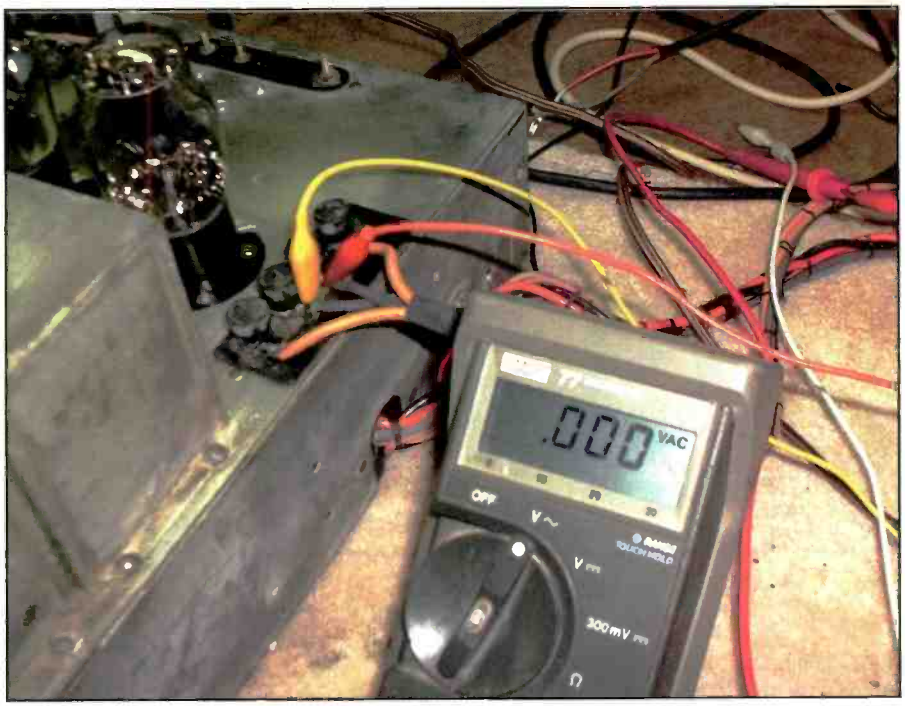

Photo A. A sensitive AC voltmeter is used to monitor the speaker audio during alignment.

the winding. *Neutralization works by sampling the output signal at the opposite end of the RF coil winding, where it is 180 degrees out of phase, and coupling it back to the grid to cancel out the in phase signal!* The feedback level is usually set by a small trimmer capacitor to permit precise nulling of the unwanted feedback. Petty neat!

First Steps

First, test all of the #27 tubes and cull out any weak or questionable tubes. Unless you demand new globe tubes, you'll find the ST shape versions are fairly cheap and commonly available. Once the set is neutralized and aligned, randomly swapping tubes risks the likelihood of upsetting the alignment or neutralization. Again, don't use weak tubes in the first four RF stages! Secondly, all of the tube shields must be installed. If one or two shields are missing, the set will be prone to uncontrollable self-oscillation.

Signal Levels For Alignment

Superhets have AGC busses for a convenient point to monitor the signal level during an alignment. A high-impedance digital meter or VTVM (vacuum tube voltmeter) will quickly respond to small signal changes that can be seen by monitoring the AGC (automatic gain control) voltage. Unfortunately, the only means available for aligning a TRF is by ear or by using an AC voltage meter to measure changes in audio level at the speaker voice coil as the stages are peaked. If you're fortunate enough to own a good AC VTVM use it (it's ideal for this purpose), otherwise use your digital meter or shop VTVM set to its the lowest AC scale.

We'll be dealing with low-level AC signals in the area of a few tenths of a volt. The meter is connected across the speaker voice coil. This point is accessible on the inside two speaker terminals on the receiver chassis (**Photo A.**) Keep clear of the two outside speaker terminals, which carry the B+ voltage across the speaker field coil. By the way, don't try doing the alignment by ear; the meter is much more responsive to small signal level changes.

The Signal Generator

While an AGC bus will respond to an unmodulated carrier, the signal generator used to align a TRF set *must* be modulated by an audio tone. No audio modulation means there'll be no measurable audio output. Hook up the generator output leads to the short antenna terminal and ground. Set the generator to about 1500 kHz and allow it to warm up. Next, the Majestic receiver can be turned on and allowed to warm up for several minutes. I'm going to assume that the factory neutralization hasn't been tampered with. Set the Majestic tuning dial to 1500 kHz; that was the highest frequency used for AM broadcasting when the radio was introduced and is the highest frequency the Majestic will tune.

Set the Majestic volume control to about one-quarter clockwise rotation, and set the antenna trimmer control to midrange. Increase the signal generator output while rocking its output frequency a few hundred kHz either side of 1500 kHz until the signal can be heard in the

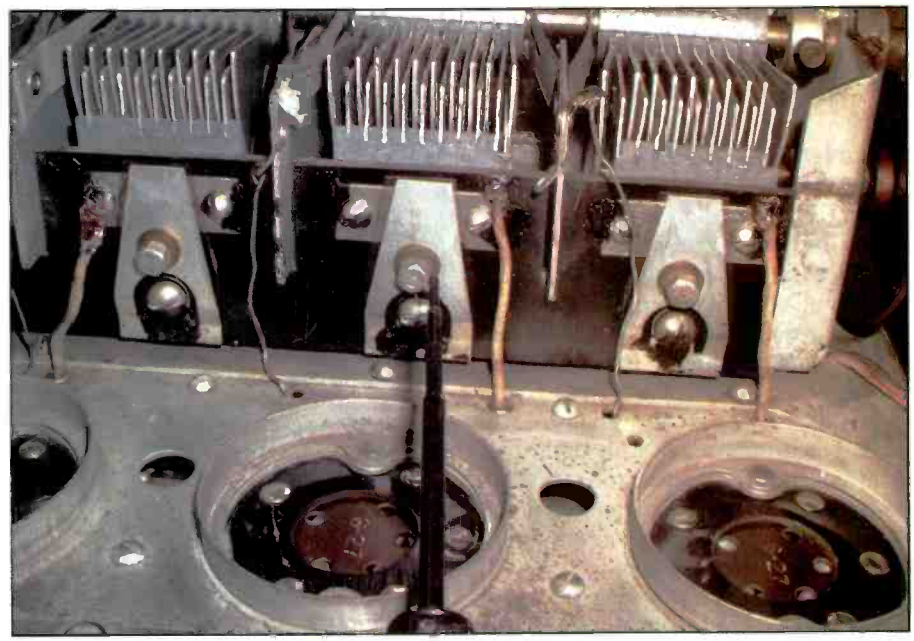

Photo B. A tuning tool is used as a pointer to show the trimmers used to peak the receiver at 1500 kHz during alignment.

Photo C. A 27 tube is prepped by cutting the pins so it can be used as a dummy tube for neutralizing the RF stages. The tube filament is disabled; this permits neutralizing (balancing out) the internal tube capacity to prevent unwanted feedback and self oscillation. Another possible method would require temporarily removing the B+ from the stage being neutralized, but this difficult to do in the Majestic 90.

speaker. Peak the antenna control for maximum volume, and decrease the volume level and signal generator level to keep the volume at a comfortable setting.

If the signal generator and dial reading don't coincide, gradually bring the receiver alignment back to 1500 kHz by incrementally adjusting each of the four trimmer capacitors (**Photo B**) as the signal generator is slowly brought to the desired 1500-kHz frequency. Carefully repeak each of the trimmers until no further improvement is noted.

Neutralization Steps

Once the set is aligned at 1500 kHz we can do the neutralization. A dud #27 tube is needed; select one with very low emissions or an open filament to make a neutralization dummy tube. Don't pick a dud that had internal shorts! Start by sawing off the two filament pins (**Photo C**). In theory, a tube with an open filament will work, but if there's any cathode-to-filament leakage it will cause problems (hum modulation) during the neutralization process. Cutting the filament pins eliminates this potential problem.

With the set still receiving the 1500-kHz signal generator signal, remove the last RF tube at the front of the chassis. Insert the dummy tube (as shown in the second position in **Photo D**.) Increase the

Photo D. The modified 27 dummy tube in use.

signal generator output until the signal is again audible. Carefully adjust the neutralization trimmer, accessible through the chassis hole to the left of the tube socket (**Photo E**) for minimum signal (null). The *null* occurs when the in and out of phase signal paths are fully canceling each other. Reinstall the last RF tube, and repeat the neutralization steps in sequence for each of the remaining three RF stages.

Final Alignment

Here's where we have to step back to our last column where we discussed the pot metal problem that affected the Majestic 90 tuning capacitors. Ideally, all of the rotor plates and stator plates will remain equidistant and perfectly parallel to each other. This is very important, and this is what Ed Engelken offered for advice on the subject:

> The capacity of a parallel plate capacitor is proportional to 1/d, where d is the spacing. If you do the math for the situation described above, you will see as the spacing becomes more asymmetric that the capacity increases. This happens because the decreased spacing increases the capacity more than the increased spacing on the other side reduces it.

My worst fears were realized! Any distortion of the parallel plates in a variable capacitor can only cause an increase in capacitance. This means that the repaired Majestic capacitor, with all of its distorted pot metal issues, probably wouldn't work as intended across the set's tuning range. And it didn't! Fortunately, the problem is correctable.

The first RF stage isn't a problem, since the set includes a unique antenna trimmer to bring the first stage into resonance at any of the dial settings. This was probably done to compensate for changes in tuning caused by loading differences due to different antennas. **Photo F** shows how this is done: a linkage is used to vary the depth of a non-ferrous copper cup over the input antenna coil. As the non-ferrous metal is brought into the coil's magnetic field, its inductance is reduced. This device has a fairly wide tuning range, and easily compensates for any tracking issues for the first section of the tuning

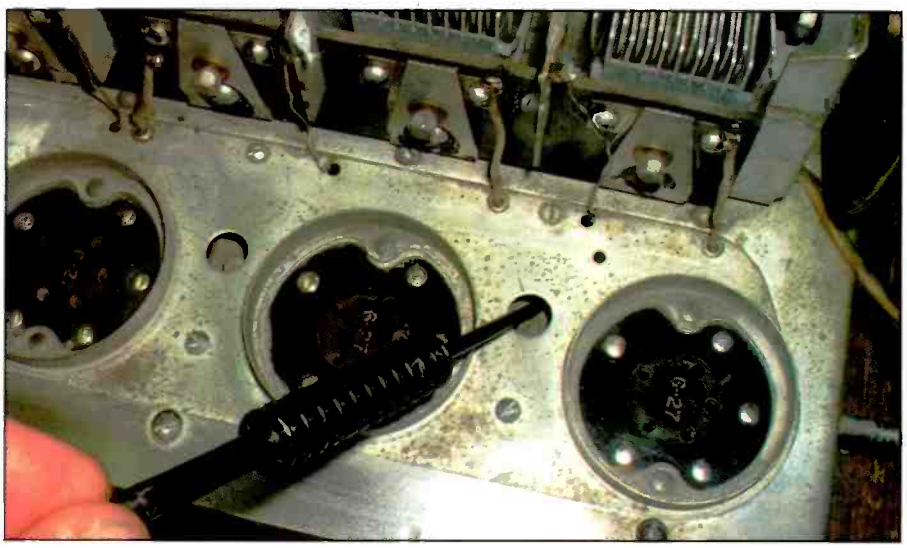

Photo E. The neutralization capacitor adjustments are accessible via holes on the top of the chassis. An alignment tool serves as a pointer to indicate one of those locations. From the front of the radio, each neutralizing cap is to the back of the associated RF tube. Tubes and shields were removed for clarity.

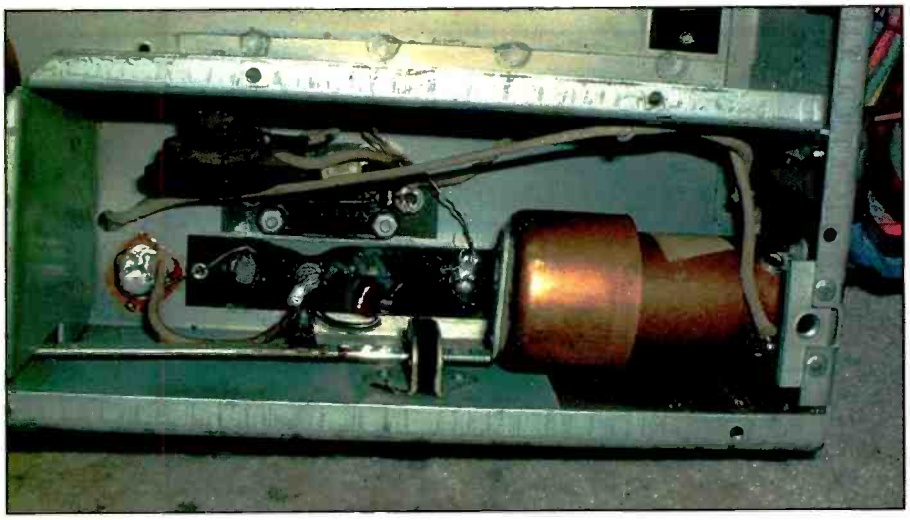

Photo F. A mechanical linkage allows the user to vary the inductance of the input stage slightly to compensate for different antenna loads and first stage tracking errors.

Photo G. Here's a good view of the flexible vanes on the rotor plates. These can be bent to correct for tracking errors across the tuning range. →

capacitor. It does need to be readjusted as the set is tuned across the band, however.

The remaining stages can be adjusted by bending vanes on the outer two rotor plates for each of the last four sections of the tuning capacitor. The first section doesn't have the adjustable vanes on the rotor, nor are they needed. **Photo G** gives a good view of the vanes.

Start by tuning the radio to about 1400 kHz so the first set of rotor vanes is meshed into the stator. Adjust the signal generator frequency and level until a signal is heard. Since we know the capacitor is high in value, the first vane sections will have to be bent outward to reduce the capacitance and bring the radio into frequency. Using small steps, carefully adjust each of the vanes until no further improvement is noted. Use an insulated rod to determine the peak when bending the plates. Once you're happy with the alignment at 1400 kHz, adjust the tuning so the next set of rotor vanes in sequence is meshed into the stator. This will occur near 1200 kHz. Repeat the mechanical alignment for these plates until the dial reading is correct for 1200 kHz.

There are five vanes, and the mechanical alignment points should fall near 1400, 1200, 900, 650, and 580 kHz respectively. These steps weren't needed at the factory, and it's fortunate that the adjustable vanes were provided for future use. Once these steps are completed, the set should have good sensitivity across its full tuning range.

A Scheduling Change

That's it for this month. But, please note there's a small change in our column scheduling! We'll be doing eight columns a year in *Pop'Comm*. This will allow us to do more specials as well as give us more time to continue with fresh material as we've done for almost *10* years!

Until next time, keep those soldering irons warm and old tubes glowing! ■

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Popular Communications
25 Newbridge Road, Hicksville, NY11801
Phone: 516-681-2922; Fax 516-681-2926
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by Ken Reiss, radioken@earthlink.net

Scanner Features: What You Think You Want, You Might Not Need. But Then Again...

Last month we talked about buying a handheld scanner, and now with the holiday season fast approaching many of you might be in that position soon. One of the things that always amazes me is how different scanner manufacturers emphasize different "features" of this scanner or that. Some of them are truly worth emphasis, but others are almost non-features.

A few years back, the top-of-the-line scanner wouldn't have had some of the features that we expect on entry models today. As time goes on, we've come to expect more standard features and it becomes harder to differentiate one model from another, both for the manufacturer and the buyer. It certainly can be confusing trying to sort through all the catalogs and literature, particularly when different manufacturers have different *names* for similar functions. If you're trying to upgrade your scanner, you might be wondering if you need a particular feature or not. With that in mind, let's take a look at some of the more common scanner doo-dads and what they do. Then you can decide if they're worth paying for or not.

First, The Basics

Volume and squelch are pretty much standard equipment, so there's not much to discuss there. Just in case Harold's reading closely, however, we'd better take a second to explain their function. Volume controls how much you annoy other members of the household, and squelch controls how much the radio annoys you. Set them both at a comfortable level, but not too high, and have fun.

Classes Of Scanners

It's useful to divide scanners into classes so that you can be sure you're making fair comparisons. At a minimum, I'd lump things into three groups: 1) portables (radios with their own power source, like batteries); 2) base/mobile (at one time these were separate); and 3) communications receivers (whose primary function isn't scanning, but receiving the best signal they can).

At one time, there were some pretty clear dividing lines for what was what. Even base and mobile scanners were easy to tell apart as the mobile ones had mounting brackets and a way to plug them into 12 VDC versus a base scanner that required AC power. These days, even the communications receivers can operate off of 12 volts. I'm not sure where you'd put an ICOM R-9000 in your car, but it can be done! Some portables like the AR-8200 fall more into the category of communications receiver than portable, but they *are* portable. While there's no hard and fast rule, it's useful to keep these categories in mind as you look at various models and prices.

Actually, an argument can be made that *price* is the real dividing criteria. You would expect a $500 scanner to perform better than a $100 scanner, and for the most part you'd be right. But even here, there are some nasty surprises.

While the price point probably does indicate how many features you'll get, and a general level of quality that you might expect, you might in fact find that you'd be happier with the $100 unit in our example as "a scanner." That's not to say that the communications receiver won't perform better as a receiver, but the $100 radio is probably built with more "scanning" functions in mind. Many enthusiasts have both for this reason.

The reason we look at this group of receivers is to get the performance specifications that only they can deliver. They're not really designed to be scanners, but rather dedicated receivers for, in some cases, commercial applications.

Channels And Banks

Most scanners you can buy today are programmable. That means you don't have to buy a $6 crystal every time you want to listen to a new channel. Hmmm...a 1,000-channel scanner at $6 each. Now there's evidence of progress (although I'm probably showing my age as many of you don't remember this problem)! Anyway, the feature of interest is how many channels the radio has. Probably more important than the number of channels is the number of *banks* that can be switched on and off as desired so that you can group services or geographical areas together as desired. A 1,000-channel scanner with only one bank would be nearly useless.

Also important, and related to banks, is the number of banks that can be scanned at once. As you go further into the communications receiver class (the more expensive scanners that we want for better performance), you're more likely to encounter some strange things related to banks.

Trunking

This is probably one of those questions that needs to be answered before you ever start looking at specific models. Do I need trunking capabilities and, if so, what type?

A full discussion of trunking is beyond the scope in this series, but I can almost hear Harold now: "You know you really ought to do an article on trunking systems since you mentioned it." I'm sure we'll explore this more fully soon. In the meantime, look back at last month's "ScanTech" column on buying a handheld for more detailed info. But just in case you missed it, here are the basics.

Trunking means that instead of a service (like a police district or fire dispatch) using a particular frequency, the frequencies available to the system are pooled and shared by a system that's

Trunking capability is probably the second decision you should make about a radio you intend to purchase—right after the handheld or base/mobile purchasing decision. This Uniden Trunktracker III represents the latest generation of trunking scanner, but does not cover digital or military air. There's always a tradeoff.

A communications receiver like this AR-8200 has military air and a host of features, but it won't trunk. Receivers with more advanced features can also be more complicated to operate and may lack some other features that may be important to you.

computer controlled. That means, unfortunately, that without a scanner which can follow the computer's instructions for what channel to go to and when, you'll only hear random bits of conversation.

That's not too bad late at night when only the police and fire services are operating. But during the day or during a special event when you're trying to follow a particular conversation, it's frustrating. During the day, many trunked systems support not only the public safety operations, but *all* city functions, such as trash collection, animal control, parking control, towing operations, EMS systems. You might be listening to an exciting multi-alarm fire dispatch and the next conversation you hear is about a stray cat stuck in a tree somewhere. It can be frustrating to listen to, to say the least.

What a trunking scanner does is follow the control information, just like the radios in use by the city officials, so that you can follow just the conversation or conversations you're interested in hearing. That makes life so much easier, and it makes scanning much more fun if you happen to live in or near a city that's trunked. If not, then you don't need to be concerned about a trunking scanner and can concentrate on other features that interest you.

Trunking is probably the way of the future for most of us, however. There are just too many advantages to the owner of such a system to ignore it. A slight pause may be in order, though, as the failsafe is reevaluated. Failsafe is what happens when the computer can't control the system, as in New Orleans after Katrina. There's a lot of pressure to put more users on radio systems post 9/11, and that will probably increase both trunking and digital traffic. If you're not affected by trunking comms in your area yet, you probably will be at some point. You might simply choose to wait until then when you would definitely need a trunking scanner. It might not be necessary to invest in one of these more expensive scanners right now.

The List

That should pretty well cover the basic info that you're sure to need, and it leads us right into a discussion of the additional features you might find listed on a scanner you're interested in or that you want to make sure it has. I've chosen to run the list alphabetically rather than try to set some arbitrary order of importance. We'll get a good start this month, but it's obvious that we won't get through them all. Keep reading and we'll continue the discussion soon, or as they say on TV, "Stay tuned, there's more!"

Attenuator

Many scanners are used in areas where there are a lot of very strong signals. This situation is ideal for a device called an attenuator. The idea is to reduce the incoming signal strength to a level that the radio can process more efficiently. Of course, if you're out in the sticks where all signals are *weak*, this is the last thing you'd want. But these days, radio signals are everywhere and "out in the sticks," from an RF point of view, is getting harder and harder to find.

The most important thing to remember about attenuators is that "off" is most desirable, if possible, but at the very least, less attenuation is better for overall performance and sensitivity. Off, or sometimes marked 0 dB, means that all of the signal coming from your antenna is passed through to the radio for processing. The "on" position is also indicated as minus dB, frequently -6 or -10 dB. That minus number means that you're reducing the signal strength fed to the receiver. A -6 means that about 1/4 of the original signal is passed, -10 means that only 1/10 (if it really is -10) is passed to the receiver. In many cases, that's still plenty to hear a good signal without overloading your receiver.

Attenuators come in three varieties, but they all do the same thing.

The first variety is external and plugs in between the antenna and the radio. Some are even switchable, on and off, or sometimes you can select the amount of attenuation you'd like applied. Of course, most of the time you'll want the minimum that will eliminate the problem signals so that you're not reducing your radio's overall sensitivity.

The second kind is a bit more desirable. It's built into the receiver and actuated with some sort of switch. These are more convenient and are generally found only on better scanners and some communications receivers. With it built in, attenuation is there when you need it.

The disadvantage of these first two types of attenuators is that they apply to *every* signal that arrives at the antenna.

Your radio's performance is impacted across its entire range, even though you may only have strong signal problems on one or two channels. That's where the third, and most desirable attenuator type comes in. These are not only built into the radio, but built into the operation of the radio so that you can turn attenuation on or off on a per channel basis. Very few receivers have this capability, but it's becoming a bit more commonplace on some of the higher-end units.

Autostore

Autostore isn't your wife (or you!) shopping as if on autopilot! It's a function that you'll either use a lot or hate—there doesn't seem to be much middle ground. When you're searching for new frequencies, using the scanner's search function, autostore will put anything it finds into memories for you. On some radios you can designate which banks are used, while on others a predetermined bank or banks are used. Generally, once the banks fill up with the findings, the search operation is stopped.

Some radios are sophisticated enough to figure out that they've already stored a frequency and won't store it again if subsequent activity is found on the same channel. Others, however, don't do this, and it doesn't take very many passes through an interference area or the paging channels to fill up lots of memories. If you travel a lot to different cities, you might find this a handy feature. If you pretty much stick close to home for scanning, you can probably let this one pass.

Band Plan

In order to find correct frequencies and be in the correct mode, all scanners have a plan built in for how the frequency spectrum is allocated. For instance, if the receiver covers the air band, the scanner has to know that the AM mode is used from 108 to 137 MHz. That plan is pretty much cast in stone for most receivers. Some receivers will allow you to override the mode so that you can listen to AM traffic in the 400-MHz range, for instance, but many do not.

The radio also has to know what the valid frequencies are, or provide for constant tuning. The frequency 154.8495 is not a valid channel. However, 154.845 is, and most scanners will also allow you to program in 154.850, even though the next actual channel that could be allocated currently is 154.8525. All this information makes up the radio's Band Plan.

Most of the time, the manufacturer's plan is perfectly adequate for the frequencies that you'll listen to, providing the radio was built with that particular country in mind. They do change as you go around the world, and sometimes the change is drastic. As a good example, in Europe, AM broadcast stations are spaced 9 kHz apart, rather than the 10 kHz used here in North America. So starting at 530 kHz, the next channel in Europe is 539, but 540 in North America. By the time you work your way to the top of the broadcast band, it can be a severe difference. I realize that most of our scanners don't cover this range, but similar things happen in some ranges of the public safety band.

If you have an older scanner, the AM mode probably stops at 136 MHz, the upper limit of the aircraft band up until a few years ago. The FCC authorized an additional 1 MHz of frequency space for aviation services. If your radio can override the default mode, you're still in luck, but if not, you can't receive that upper 1 MHz in the correct mode, meaning you probably won't hear anything there. On high-end receivers, the band plan itself is programmable. That means that if you take that receiver to another country, or if the allocations change, you can modify the default. In all cases, those radios with programmable band plans also have the ability to override what's programmed in there anyway, so you might not have to reprogram the plan.

This can be a worthwhile feature when things change, or if you travel a lot. However, for most of us, it's a minor consideration, particularly if the radio supports override. What makes this important right now is that many of the current generation of radios are still using old band plans.

To stick with the example above, 154.845 is one channel and the next one is 154.860, 15 kHz apart. The FCC has approved split channels for much of the spectrum. Right now there isn't a lot of this happening, but eventually we'll see more of it, so that 154.8525 will become a real channel. Many receivers will still hear traffic there on one of the adjacent frequencies if it's strong enough, but things could get interesting as these split channels begin to fill up.

If you need a new radio right now and this is a concern, you'll be limited to some of the newer high-end receivers. But that will change as time goes by and those channels become more widely used. For now, just be aware that this may be an issue at some point, and pick your radio based on other criteria.

Rare on a handheld, the band scope feature shows signals that are near where the receiver is tuned. This illustration represents signals 5 MHz on either side (10 total) of 155.650—really too wide of a scan to be of much use. Every spike indicates a transmitter on a higher or lower frequency of the "center," represented by the arrow just below the frequency display.

Band Scope

Several recent handhelds have offered a feature called a band scope. Essentially, what this provides a visual representation of activity on either side of the currently tuned frequency. The radio sweeps constantly from some lower frequency to some higher frequency and makes a graph of signal strength that it might find along the way.

The problem is that most radios that feature a band scope are handhelds, and the display isn't big enough to really do this process justice. Another issue is that many radios don't cover enough distance from the low to high range to be truly useful, or they take so long to do it that by

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm.*

Our frequency this month will be **154.875**. Have a listen and let me know what you hear! E-mail or snail mail is just fine, just be sure you put the frequency in the subject line or on the envelope so it gets routed to the right place! Good listening!

the time you've seen the display and tuned to that frequency, the signal is long gone. I suppose if you were tuning around a busy area, or if you were using the radio to look for interference, this sort of mini-spectrum analyzer might be of some use, but for day-to-day monitoring, I've found that I simply don't bother.

I know others out there will disagree with me and say that they find it extremely useful. Great! If you think this might be an important feature for you, my advice is to get your hands on a radio that has it and see how it works before you spend any money. You'll probably be glad you did. And if you happen to decide on a radio that has one, have fun with it.

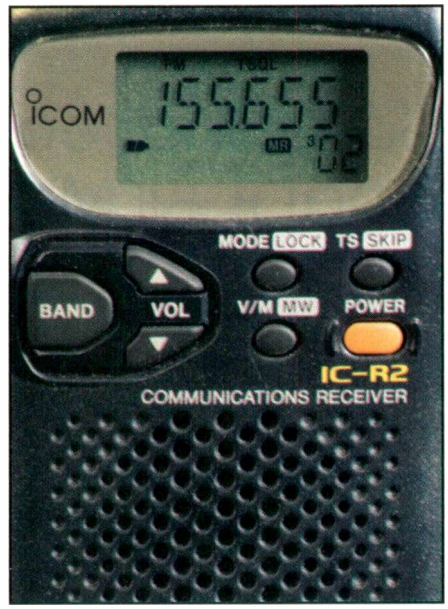
Battery Saver

Battery saver functions apply more to ham radios than scanners, but we are starting to see a few scanners with the function built in, so it's included here. Essentially, a battery saver shuts off circuitry that isn't being used so that the batteries will last longer. On a radio that's monitoring a single frequency, that's fairly easy to do. Turn the receiver on and check for activity. If you find some, then leave the receiver on, but if you don't, turn it back off for a fraction of a second. If you repeat this often enough, and for a large enough chunk of time in the rest mode, you can in fact extend the battery life for quite some time.

On scanners it's a bit more difficult. For one thing, we tend to listen to channels that are busy more often, so the radio doesn't get as much resting time, even if you're only on one channel, like the ham transceiver. However, if you're scanning, the approach of turning the receiver off is contrary to finding the next bit of activity as fast as you can. So you wind up missing more, or not saving the battery much. This is another feature that won't make much of an impact on your buying decision, unless you often use the radio to monitor a single channel.

Channel Count

If you've been scanning for any length of time, you've probably noticed that some frequencies don't get a lot of activity, while others are busy all the time. Or if you're into searching and come across a bunch of channels that you want to investigate, being able to track activity can be a handy thing. Channel count does what it sounds like—it counts the activity on each channel. You can let it run while you're not around and see which channels are active without hearing anything. That can be a big timesaver all by itself. But you can also go through and check the count of activity on your normal scanning channels, too, identifying those that aren't seeing much traffic. You can then replace them with something a bit more interesting.



The diminutive controls of a small receiver like the ICOM R-2 can be challenging to operate if you don't use it all the time. On the other hand, when you need an ultra portable receiver, it's a great radio to have. Now if only it would trunk!

Having said all that, if you're really interested in this type of feature, I'd be looking seriously at a radio that can be computer controlled. The computer control systems can do all this and more, including record the audio if you want, log the signal strength, time of the activity, etc. It really makes for a much more complete "unattended" scanning environment. Of course, if you just want channel count to track activity on your normal channels, that's great too.

More To Come

Well, that's about all the features we can squeeze into this month, so we'll continue the "dictionary of features" next time! Meanwhile, why not tell us what affects your scanner buying decisions. Have you bought a new scanner recently? You can reach me via e-mail at radioken@earthlink.net or via the regular mail at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126.

See you again next month! ■

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by Joe Cooper, carm_popcomm@hotmail.com

Digital Sampling Technology: What It All Means To You

Over the past few months, I've outlined the history of digital sampling as it relates to digital signal processing (DSP) technology used in much of today's technology. While it may be hard to believe, your digital cell phone, CD player, personal computer, and software-defined radio all owe their existence to the invention of telegraphy. That's right—today's digital revolution actually began with the electrical transmission of Morse code signals in the early 19th Century.

I also showed in the recent series of columns that by the beginning of the 20th Century analog technology was seen by the engineering community as having reached its practical limits and was declared obsolete by the early 1930s. This is not that surprising as scientists, mathematicians, and engineers had been working hard throughout the 1920s to perfect a new digital method of communication.

The problem with analog is simple: it contains too much noise to be truly useful in professional communications. However, analog technology is easy to create and easy to manufacture, as illustrated by Edison's wax cylinder phonograph or crystal radio sets. Understandably, early amateur radio experimenters used inexpensive off-the-shelf analog components, such as telephone microphones and headsets, to create their first radios.

Because of the novelty of the new forms of media, the public generally overlooked the static and electrical noise that they heard in their headphones and loud speakers. In fact, our own hobby of radio monitoring began with people in the 1920s making a game of "digging out" radio signals that were "buried" in that static and noise. The reward for that game came when people began to log their "captured" stations and received confirmation of their reception in the form of letters or QSL cards.

While this was fun for the public, it was anathema to radio engineers and scientists who were trying to build profitable communications systems for the business community. Scientist Claude Shannon best articulated that goal when he published *A Mathematical Theory of Communication* in the late 1940s. According to Shannon, "The fundamental problem of communication is that of reproducing at one point either exactly or approximately a message selected at another point." But no form of analog communication achieved "exact or approximate" communication because all analog forms introduce noise into a signal.

While a great deal of effort has gone into reducing noise in analog systems, it's always a case of rapidly diminishing returns where increasingly expensive equipment produces little or no effect upon the problem. This is where digital technology shows its true value, because it can deliver "exact or approximate" reproduction. More importantly, digital transmission provides the following ideal characteristics:

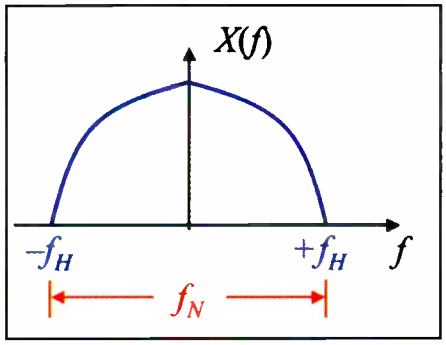
- The quality of the received signal is equal to the state of the original signal.
- The quality of the received signal is independent of transmission media.
- The method of transmission is completely compatible with different media and intelligence (video, audio, and data).
- The technology involved is low cost.
- New features can be easily embedded in the new medium.

British engineer and scientist Alec Harley Reeves first theorized those characteristics of digital communications in 1937, and they formed the basis of today's digital revolution. And thanks to the genius of other scientists and engineers, such as Harry Nyquist, Claude Shannon, and Edwin H. Armstrong, the actual technology needed to make the digital revolution work became a reality.

Digital Sampling Today

The true foundation for the digital revolution lies in the process of digital sampling. Digital sampling is a process where an analog (or continuous) signal is measured at regular intervals and those measurements are converted into digital information. This process is much the same as that used in motion pictures. There are, however, certain rules that apply for successful sampling. For instance, if too few or too many samples are taken, then what is know as sampling distortions occur. Again using the motion picture example, the phenomenon of wheels or other moving objects appearing to be going backward when a movie is projected is a visual representation of a digital sampling error.

Back in the 1920s, Harry Nyquist discovered how to prevent such sampling distortions from happening. For digital sampling to be successful, he found, one should limit the bandwidth of the signal and use a sampling frequency that is twice the bandwidth. If that formula is not followed, the result is aliasing, where different components of the sampled signals become indistinguishable from each other. Aliasing causes audio signals to sound harsh or distorted, video images to have jagged edges or moiré (interference) patterns, and radio signals to have false signals and birdies.



Here's a graphical representation of the Nyquist sampling theorem, where X(f) represents 1/2 the bandwidth fn. If X(f) balances with fn, then perfect reproduction can be achieved from a sample. However, if there is any disturbance of that balance, distortion results. The goal of the person designing a sampling device, as well as the person who operates it, is to maintain that balance as much as possible.

In this column, I'll outline the problems that can be encountered in digital sampling technology and how these have been overcome. I'll also look at how digital signals are converted back into analog form so they can be used and understood by the human eye and ear. This information is critically important for anyone using today's digital radios and accessories, including personal computers. While your radio or computer manages many of the issues involved in digital sampling automatically, you need to be able to know if your equipment is working properly.

The other issue you need to understand is that while the promise of digital technology is better reproduction of a signal, the reality can be very different. Badly engineered digital sampling can produce very bad results, often sounding or looking much worse than analog sources. Likewise, a poorly managed digital device (a radio, sound card, or video card) can result in the same thing.

As in the case of any new technology, new skills and knowledge are needed to get the most benefit from it. There will be a learning curve and time required to master the new information being provided. However, I hope that my explanations will help you to make the best use of this amazing new radio technology.

Problems In Digital Sampling

Digital sampling is the measurement of a signal at regular time intervals, with those measurements then converted into digital information. While that may appear straightforward, actually many errors can occur in the sampling process, resulting in less than accurate reproduction of a signal.

These errors mainly occur when a digital sampling device strays from ideal of Nyquist's sampling theorem in either its operation or design. Again, that theorem outlines two main criteria for sampling success: bandwidth and sampling rate. If there is a notable divergence from the ideal in either of these two critera, you'll have sampling errors, called distortions.

There are six main types of distortion that can affect digital sampling:aliasing; integration effect; jitter; noise; slew rate; quantinization; and non-linearity.

There are several minor types of distortion as well, but these can generally be controlled with either hardware or software solutions. The six main types are much more difficult to manage as they are often the result of poor design or bad component choice. More importantly, these distortions can be a result of improper settings or poorly operated equipment. Here's where the equipment operator's skill and understanding can play an important role in keeping errors from occurring. Knowing the characteristics of each problem can help the operator diagnose and eliminate the problem. So let's look at each one and see how they are experienced.

Aliasing

Aliasing is one of the most common errors found in digital sampling and occurs because a particular frequency in a signal can produce multiple sampling data due to harmonics contained in that signal. This generally occurs when sampling captures information that's outside the ideal bandwidth stated in the Nyquist sampling theorem.

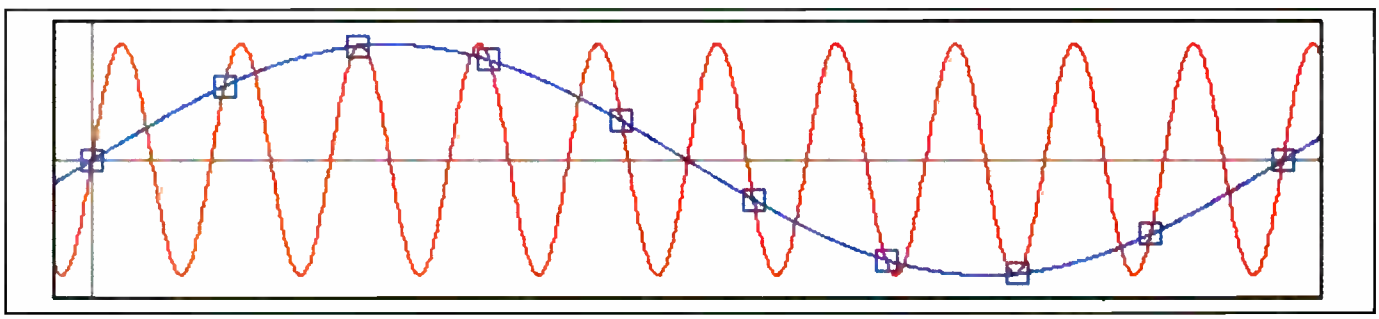
In practice, it's very difficult to achieve a precise bandwidth when sampling a signal. So rather than obtaining a single pure sample, you can end up with samples outside the desired bandwidth. When that sample is then converted back into analog form, the information outside the bandwidth is imposed upon the primary sample, causing noise.

The solution to this problem is to use a hardware or software filtering method called "anti-aliasing" to sharpen the bandwidth. In some cases these filters can be analog devices used on the input signal (such as from an antenna) before it is sampled, or DSP can be used to remove aliasing from a sampled signal.

Integration effect

This refers to the amount of time involved in the digital sample and is analogous the shutter speed of a camera and. As with a camera, setting the wrong shutter speed can result in a bad picture. In the case of a digital sample, you can have either too much or too little information. The effect can be seen in the digital or analog output, where there is noticeable distortion.

The problem can be traced to the sample and hold circuit of the sampling device where the values of the capacitors used are insufficient to match the speed required for the sample. The general solu-



An illustration of the phenomenon of aliasing in digital sampling. Shown here is a common problem: A low (blue) frequency is being sampled and the sampling produces a second higher (red) frequency as an artifact of the sampling process. This is the equivalent of wheels seeming to turn backwards in motion pictures, which is also a form of aliasing in that medium. In the case of digital sampling, aliasing can be controlled through the use of filters and other anti-aliasing strategies.

tion to this problem is to reduce the sample rate to one that the sample and hold circuit can properly manage.

Jitter

Jitter refers to an unwanted variation in the timing used in digital sampling, resulting in inconsistent timing pulses. We've all seen jitter in video signals, where the image is no longer in sync and has significant distortion. An equivalent of this jitter can be found in audio cards and DSP circuits, too, with equally disturbing distortion, generally heard as phasing. Jitter is caused by clock errors occurring during the sample, generally due to rapid variations in a signal. These variations produce phase perturbation that disrupts the timing pulse. Part of the problem is that only small disruptions of a few hertz are needed to create jitter.

The common method of preventing jitter is to use buffers to store the data to eliminate any timing errors. This is done through re-synchronizing the signal while it's held in the buffer and then releasing it when the synchronization is complete.

Noise

While digital information itself contains no noise, the natural presence of noise within electronic circuits can affect that digital information. Often circuit noise can knock out or distort a data bit, which results in the distortion, or even destruction, of the information found in that signal. So, ironically, digital circuits must be designed to have lower noise levels than analog circuits in order to work properly.

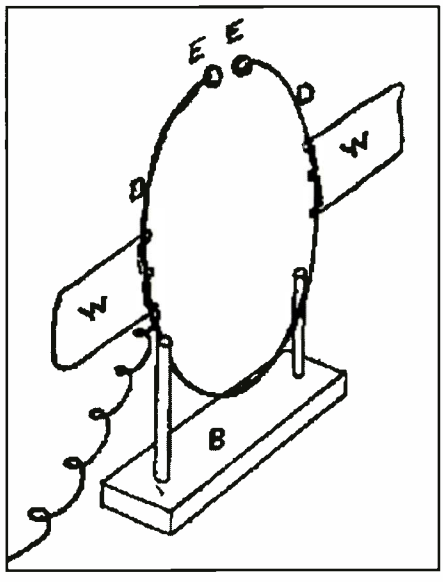
Such noise reduction designs are necessarily expensive, but the most economical approach is to build error detecting and correcting devices into the circuit. These check the data integrity of the signal and when errors occur, the information is sent again until it is correct.

In any event, no matter how much noise is present in a circuit, none is ever directly transmitted in the digital signal. That's a significant improvement over analog circuits, where any introduced noise is automatically added to the signal.

Slew rate

A slew rate error occurs when attempting to change a digital signal back to analog form. It's much the same as integration effect, except that it reflects the circuit's inability to release the digital signal either fast enough or slow enough into the analog converter circuit.

The general effect is to cause noticeable distortion in the analog signal called saturation, which is similar to over- or under-driving a conventional analog audio amplifier. The solution is to build in a limiting circuit into the digital to analog circuit so extreme peaks and troughs in the digital signal can be controlled.



This picture illustrates the receiver portion of the device Heinrich Hertz used in 1888 to demonstrate the existence of radio waves. When a radio wave strikes the metal loop, an electrical current is generated in the loop causing an electrical spark to jump across the gap. That's what happens in radio antennas today, except conventional radio receivers are used to tune to the specific frequency of one signal, amplify it, and then detect it. This approach is being replaced by digital sampling devices that directly sample all the electrical activity found on an antenna over very wide bands of frequencies. Soon the antenna will become the most important component of a radio monitoring station and conventional radios will become obsolete.

Quantinization

In order for an analog signal to be converted into a digital form, it must be first quantinized. This is a process of approximating a continuous range of values (or a very large set of possible discrete values) by a relatively small set of discrete symbols or integer values. This reduces the size of the information that's contained in an analog signal down to a manageable amount.

The benefit of this process can be seen in the large amount of information stored in digital formats, such as MP3 for audio or JPEG for video. Without the data compression available through quantinization, digital audio and video files would be huge. Likewise, moving un-quantinized sample data through the circuits of a DSP or software-defined radio (SDR) would place a significant amount of over-head on them. However, if the quantinization process is not precise, the resulting analog output can contain distortion errors.

In general, errors in quantinization are due to circuit noise distorting the digital signal more than any problems in the process itself. Therefore, any reduction or control of circuit noise will reduce or eliminate the problem.

Non-linearity

These are non-specific errors caused by a failure to map the input voltages to the output voltages. Like the errors found in quantinization, non-linearity errors are due to circuit noise distorting the digital signal.

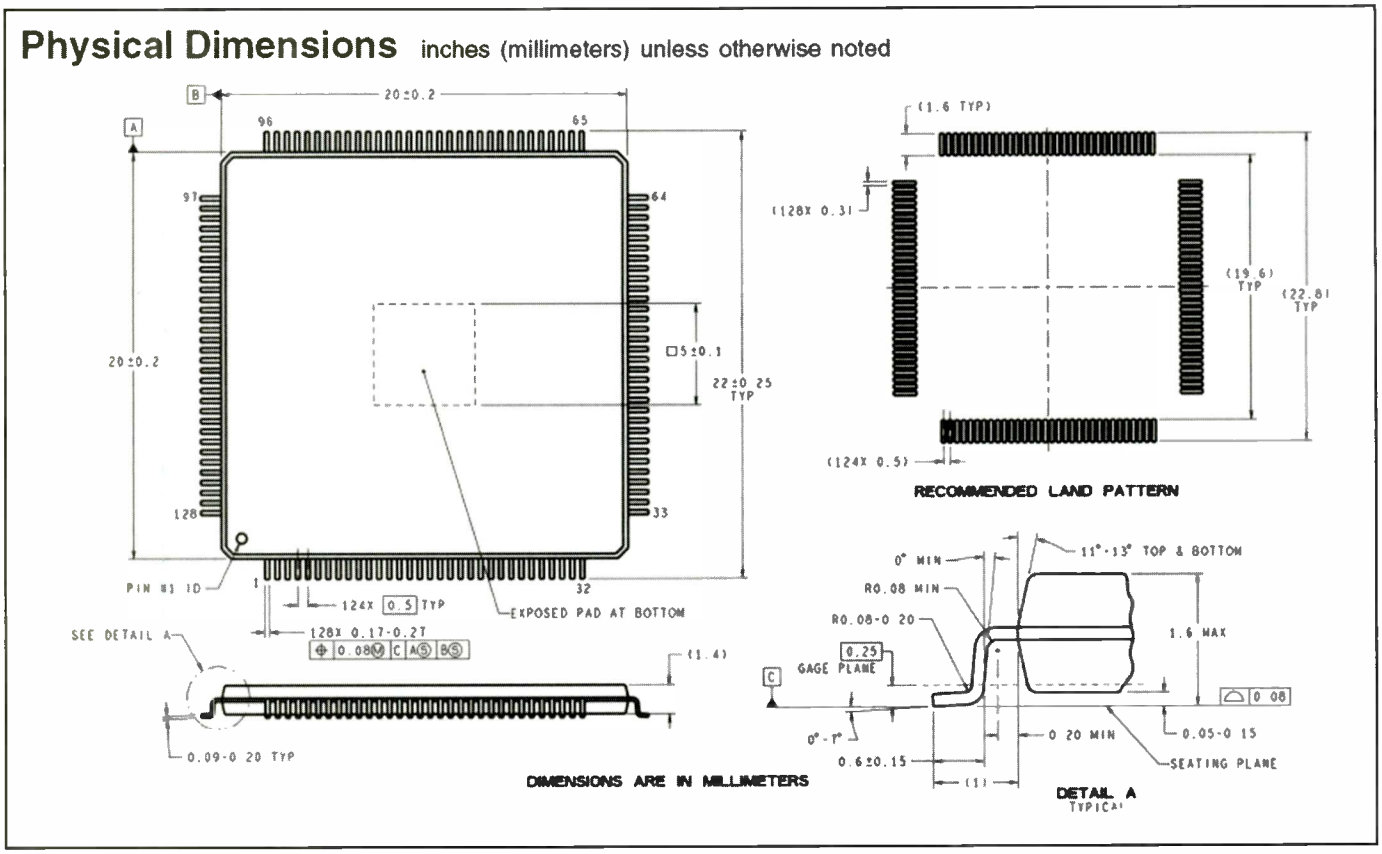
Again, hardening the digital circuit through good design and the use of quality components, or the inclusion of error correction circuitry, will generally fix the problem.

Additional Sampling Issues

The digital revolution we're now experiencing has actually taken place over a long period. It took 60 years of research and development to go from British scientist Alec Reeves outlining his theory of digital communications to the release of the Ten-Tec RX-320 software defined radio. The bottom line of the entire digital revolution has been the need for a proper technology to support it; vacuum tube and even transistor devices were simply not fast enough to sample and store large amounts of information properly.

While extraordinary projects like SIGSALY during World War II (see the June 2006 column) clearly demonstrated that digital sampling worked using vacuum tubes, it was simply too expensive to be practical. So from 1945 until the 1970s DSP and digital sampling was something that could only be created in a university laboratory by using a mainframe computer. That all changed after 1980, when increasingly sophisticated integrated circuits became available. These chips allowed for the development of the first compact disk (CD) players in 1983, which really brought digital sampling to the attention of the general public.

In the 1990s completely programmable computers on a chip became available, enabling the development of sampling devices that could sample into the radio frequency range. While limited to



Welcome to the future of radio. Here's National Semiconductor's ADC081000, the device that will soon replace conventional radios. It's an ultra-high-speed digital sampling chip that's completely self contained and capable of sampling RF frequencies between 0 to 1.6 GHz. It eliminates the need for any tuning circuits and actually provides better sensitivity than a conventional radio. It runs on less than 2 volts and uses 1.4 watts of power. There are even faster and more powerful digital sampling chips now under development. (Diagram courtesy National Semiconductor)

sampling up to 10 MHz, these chips were inexpensive and led to the development of the first DSP and software-defined radios, such as the RX-320. Today we're seeing the development of a whole new generation of digital devices that have a sampling bandwidth of up to 1.6 GHz and eliminate the need for RF tuning circuitry of any kind. You simply hook up an antenna to the device and sample whatever signal is present on the antenna.

One such device is National Semiconductor'sADC081000 chip (www.national.com/pf/AD/ADC081000.html), which comes operational on an evaluation board and costs only $1,000 and draws only 1.4 watts at 1.9 volts. While this product is not designed for the consumer market, it's definitely within the reach of the serious amateur who has the skill and technical background to use it.

Ironically, though, these sampling devices actually take radio back to the original form used by Dr. Heinrich Hertz when he discovered radio waves. His equipment consisted basically of a circular ring with a gap over which a spark was produced when radio waves passed through it. The observed phenomenon, radio waves causes the movement of electrical currents in an antenna as they pass through it, is all that's needed to receive a radio signal. Indeed, you could have a simple radio made up of nothing more than a detector and a set of headphones.

As common sense dictates, however, all you would hear over such a radio would be a jumble of signals. Remember, the only reason radio receivers have been employed has been to select a single signal out of a frequency range, amplify it, detect it and then place it into either a loudspeaker or headphones.

But today's high-speed digital sampling devices have rendered all conven-

In Memoriam—Eugene E. Collins

On June 9, 2006, Eugene Collins, KA2IWJ, of Tonawanda, New York, passed away. Gene was the president of RAWNY, the Radio Association of Western New York (W2PE), and editor of the club's newsletter *QSO*. (RAWNY was formed in 1917 and is believed to be the second oldest amateur radio group in the United States. The club station operates from *USS Little Rock* at the Buffalo and Erie County Naval & Military Park in downtown Buffalo, New York.)

Gene was extremely active in the club for many years as well as his own community. Through his generosity of spirit, he earned the respect of many people, myself included. He is survived by his wife Ruth (Kline); his sons Daniel, James, and Timothy; his brothers Philip and Stephen; and five grandchildren and several nieces and nephews.

Thanks, Gene, for inviting me to speak on radio topics at several RAWNY meetings and sponsoring me as an honorary member of the club. He will be missed.

tional radio receivers obsolete. From now on, a state-of-the-art radio monitoring station will consist of three things: a high-performance antenna, a digital sampling device connected to that antenna, and a computer program to select and detect signals within the sampled RF data. Conventional radios will be replaced by small, efficient sampling devices simply because they will no longer be able to compete with the new technology. Anyone who's used the new generation of sampling-based radios, such as those found in SDRs, has already discovered their improved selectivity, sensitivity, and audio fidelity.

These new radios also offer increasingly broad frequency ranges, access to a wide range of modes to demodulate, and integration into personal computers. The benefit of this change to the radio monitoring community is that it will open up a new age of affordable experimentation, as people will be able to build new highly efficient antenna configurations to capture fainter signals than ever before.

Rather than heralding the end of radio monitoring, the new digital sampling technology will open up new opportunities for experimentation and design. How the radio monitoring community comes to use this new technology to best advantage will depend entirely upon our willingness to learn how to use it.

That step is entirely up to you.

Coming Next Month

Next month I'll look at how sampling devices convert digital information back into analog form. This is a very critical step in the process, as any errors or problems will result in a distorted analog signal. I'll also look at more of the current digital sampling devices on the market, particularly those suitable for the amateur and consumer market.

You can e-mail me with any questions at carm_popcomm@hotmail.com. I can't answer general questions on computers, but will be more than happy to help you with any issues raised in the columns.

As I write this column it's still early summer, and we've yet to have any major storms, and there are even some indications that we may not have a repeat of last years Katrina disaster. I hope this prediction comes true, but if it doesn't please send a donation to the American Red Cross (www.redcross.org/donate/donate.html) to help your fellow Americans. There are many other organizations that you can contribute to, so please use them if you wish but do not give into "charity fatigue." As always, if you have a job, a family around you, and are living in a stable neighborhood, then frankly show your thanks for that wonderful good luck by sharing of that with someone less fortunate, and do so regularly.

Let us also not forget our troops overseas who continue to need our visible support, particularly as fighting in the Middle East and Afghanistan now seems destined to move into other parts of the world as unrest spreads. Please refer to the U.S. Department of Defense's official webpage, "Defend America." There's a section, found at www.defendamerica.mil/support_troops.html, with an amazingly wide range of practical and useful ways that you can directly help.

If you're fortunate enough to live in the United States of America, please remember to give thanks for your personal blessings by remembering to pass on that blessing to others through regular acts of selfless sharing. ■

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Tuning In *(from page 4)*

on the rails!), but I usually cringe when just walking *across* the NJ Transit tracks. If railfans are going to be an accepted part of the rail landscape, it makes sense to have designated areas set aside for railfan hobbyists—perhaps scenic spots, parks, cow pastures, bike trails, overpasses and other safe havens where their kids and grandkids can join them and learn a healthy respect for all that steel. Just not in rail yards, mingling with official track personnel, okay? We're all taught from a very early age that train tracks are dangerous. Period. Watching, taking notes and photos from a safe distance is perfectly reasonable, but scouting around private rail company property is another matter, regardless of how much hobby experience is under your belt.

If you're a railfan, remember that the cops and rail employees are simply doing their jobs. They're just human, and it isn't their job to distinguish between the railfan with 40 years of railfanning "experience" and the doofus with a bomb in the camera bag. (Just how does one distinguish between a *terrorist* wearing a baseball cap, carrying a camera bag and scanner strapped to his belt and a railfan with the same gear? If the answer is that the ordinary railfan is cool because he's "registered" with the Citizens United For Rail Security, that's just not good enough.

Personally, deep down I'm a railfan, but there just aren't enough hours in the day for everything. And you can bet your new scanner I'm not going to be found on the tracks or in a rail yard. Nevertheless, I still remember the old black coal-burning locomotive pulling the boxcars and coal cars on the FJ&G (Fonda, Johnstown, and Gloversville) line behind the house, and the time the *engineer* came to Dad's garage and I learned *he* was the engineer I was waving to every day. (I was still too young to understand why he didn't actually bring the train down our driveway to see Dad!)

Yes, I got a Lionel train one Christmas, which is how many railfans got started in a lifelong love of trains. Mine is sitting in a box in Mom's attic. The track was a little rusted the last time I checked, and the cars are probably all cob-webbed together. Maybe I'll take some time to check out that dusty box and ask Mom to tell me again about how we'd sit for hours and wave at the trains when life was a lot simpler. I'll bring the scanner along, but there's no train close enough to hear. I'll also show Mom my new ID, but too bad it won't help me renew next year at New Jersey's DMV. ■

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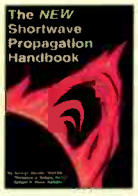

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by John Kasupski, KC2HMZ, kc2hmz@wzrd.com

Monitoring The DHS, Time Signals, And More

By now most of us are all-too familiar with the events that transpired on September 11, 2001, when four commercial airliners hijacked by terrorists crashed into the World Trade center, the Pentagon, and a field in Pennsylvania, killing nearly 3,000 people in a few hours. The effects of these acts were far-reaching, and the results continue even as I write this column. However, one major effect that the attacks of 9/11 had was the establishment of the United States Department of Homeland Security (DHS), the largest reorganization of the U.S. government in over 50 years, since the Department of Defense, or DOD, was created in 1949.

The initial roots of the DHS sprouted on September 20, 2001, when President Bush announced the establishment of an Office of Homeland Security (OHS), with former Pennsylvania Governor Tom Ridge taking up the duties of OHS director on October 8 of that year. DHS is a cabinet-level department of the federal government that was created from 22 existing federal agencies in response to the terrorist attacks of 9/11, established on November 25, 2002, and activated on January 24, 2003, with the OHS being merged into the new department and Ridge being named secretary.

However, most of the new department's component agencies were not transferred into the new DHS until March 1, 2003.

Among the component agencies that make up the current DHS are several that are familiar to shortwave utility station enthusiasts as favorite listening targets. For example, in last month's column, we examined FEMA and the Coast Guard with an eye on the HF activities of these two agencies as they pertain to hurricanes and disaster response. The frequencies we published last month for FEMA should be retained in your records because, should another act of terrorism create a situation that overwhelms local authorities, FEMA would be the agency responsible for coordinating the federal response.

Day-to-Day Monitoring

Fortunately, it doesn't take an act of terrorism or a major disaster of some kind to get some of the DHS agencies to produce some radio traffic for us to listen to, and that's largely because of Immigration and Customs Enforcement (ICE), the largest investigative arm of DHS and responsible for protecting public safety by targeting the people, money, and materials that support criminal activities.

ICE is made up of three former agencies that were moved, entirely or in part, into ICE based upon their law enforcement functions, namely the Customs Service, Immigration and Naturalization Service, and the Federal Protective Service. By virtue of this last agency having been rolled into ICE, ICE is also responsible for protecting federal buildings in the United States. However, that's largely a matter of interest for VHF/UHF scanner listeners who might eavesdrop on security operations at one of the more than 8,800 federal facilities that ICE protects. Our focus here is on HF communications, and without question, the activities that produce the most traffic on HF are those related to counter-narcotic or drug interdiction operations aimed at preventing illegal drugs from entering the United States.

Table 1. Drug Interdiction (Counter-Narcotic) Operations Frequencies

All frequencies in kHz; modes include USB, ALE, ANDVT, others.

DEA/U.S. Customs

4491	7657	14686	18666
5277	9497	14690	19131
5732	11076	18171	23675
5841			

Note: 5277 is night primary, 19131 is daytime primary

Customs COTHEN (Customs Over-The-Horizon Enforcement Network)

5732	10242	15867	23214
7527	11494	18594	25350
8912	13907	20890	

Other

3037	4739	6723	8024
4162.5	5293	6735	8025.5
4164	5335	6750	8308
4524	6236	6835	8971
4735			

Note: The above frequencies have been logged with U.S. Navy traffic related to counter-narcotic operations in the past.

U.S. Coast Guard

5696 8983 (Safety-Of-Flight Channels)

These activities are nothing new. I can recall logging HF communications of Customs, Drug Enforcement Administration (DEA), Coast Guard, and U.S. Navy during drug interdiction missions back in the late 1990s (anybody else out there still remember ORANGE GUARD, LORD NELSON, and GREYHOUND?), and they weren't new then, either. Today's technology makes it a bit harder to get a handle on what's really happening during these missions because, for obvious reasons, much of the voice communications are conducted in secure digital voice modes, such as ANDVT or PARKHILL. ANDVT stands for Advanced Narrowband Digital Voice Terminal and sounds like a hissing sound when heard through a normal receiver; PARKHILL basically sounds like Donald Duck. When you encounter either of these, you've found a frequency that's worth a listen to see if the folks using it will eventually come up in clear voice. If and when they do, you can hear some very interesting conversations.

Still, there *is* clear-voice communication to be heard by those who are patient enough to wait long enough to catch it, and there is also an extensive ALE (automatic link establishment) net-

work for digital monitoring enthusiasts to focus on.

Table 1 lists some popular target frequencies for those interested in monitoring counter-narcotic and other operations of this nature. One point to keep in mind is that sometimes you can listen to these frequencies for days and hear nothing, and then all of a sudden the airwaves crackle to life with comms. Another thing to keep in mind is that if you're listening to voice communications, you may have to be patient to catch clear voice, as opposed to an encrypted voice using ANDVT or PARKHILL.

Sometimes Joint Operations

Still one more point worth mentioning is that counter-narcotic operations are often joint operations participated in by more than one agency, and often even by participants from more than one nation. For example, the U.S. Navy's "Partnership of the Americas" is a program designed to enhance maritime security and strengthen ties through operations and exercises with Caribbean and Latin American partner nations, and counter-narcotic operations are a big part of the activities conducted. The Coast Guard, DEA, and ICE, as well as the Navy and Air Force assets can all be involved simultaneously.

It's, therefore, often most productive to avoid zeroing exclusively on, say, the COTHEN (Customs Over The Horizon Radio Network) frequencies. Rather, tune around and try to keep track of as many of these frequencies as you can. You never know when one or more of them will become active, or which ones they will be, or what cross-section of the United States or other nations will be involved in an operation.

Remember, just because you hear a station on (for example) a Coast Guard frequency, it doesn't necessarily mean you're hearing a Coast Guard station—it could also be DEA, Customs, Navy, or someone else. So don't jump to conclusions when trying to identify the stations you hear.

What's generally happening during these operations is that The Good Guys (USCG, USN, DEA, ICE) are on the lookout for suspicious activities that may be the work of The Bad Guys (drug smugglers trying to make it to U.S. soil with their cargo of illegal stuff with which the minds and bodies of people in the United States will ultimately be poisoned if The Bad Guys succeed). When a suspicious vessel is spotted, The Good Guys will attempt to intercept and stop them, and inspect the vessel for the presence of contraband.

Photo A. Mac McCormick, KF4LMT, of Savannah, Georgia, snapped this photo of a USCG MH-58 at a recent airshow.

This undertaking is not for the faint of heart—drug smugglers are a dangerous lot—but fortunately, it's not easy for smugglers to get off a good shot at a Coast Guard helicopter (ever try to get off a good shot with a rifle while standing in a boat that's bouncing across the surface of the water at top speed?). Also, these days the Coast Guard employs Sikorsky MH-68 helicopters (see **Photo A**) armed with a 7.62-mm machine gun and a .50 caliber sniper rifle. The 7.62 is used to fire warning shots across the bow of suspect vessels in an effort to convince them to stop. Should this prove unsuccessful, the sniper rifle is brought into play to disable the vessel's engine (half-inch holes through the engine block have proven highly effective for this purpose), forcing it to stop.

Should the vessel happen to come to a halt within the territorial waters of another nation, The Good Guys will stand by until a statement of non-objection is obtained from the government of the nation in whose waters the incident transpires. The Good Guys will then board and search the vessel, confiscating any illegal drugs, and placing The Bad Guys under arrest. If the stop occurs in U.S. or international waters, no consultation with another government is needed, and The Good Guys can proceed with their work without the short wait (less than an hour in most cases) that's required to secure a statement of non-objection from another nation's government.

In either case, if the vessel refused to stop to begin with, there was probably a good reason, so chances are that you can chalk up another load of contraband that you don't have to worry about some creep on a street corner subsequently offering to one of your friends, or maybe even your children. (As the father of two, getting to hear it myself, live, through the magic of radio, just makes it that much more satisfying).

Goodbye To AFN Sports Play-By-Play

The DOD has announced that the American Forces Network (AFN) will stop broadcasting play-by-play sports by the time you read this column. According to the Navy News Service, the decision was based on surveys of servicemen and civilian DOD employees stationed overseas, which revealed that AFN's audiences prefer to watch sports on television rather than listening to them on the radio, and that most listeners would tune out when radio sports coverage came on. The article noted that while AFN radio sports broadcasts were broadly listened to as recently as 10 years ago, the expansion of AFN television coverage since then has resulted in AFN-TV carrying nearly 80 events a week.

The article, which also appeared in the *Air Force Print News*, stated that the

September 9 NASCAR Nextel Cup race from Richmond International Speedway was scheduled to be the final AFN radio sports broadcast.

Personally, I'll miss AFN Radio broadcasts of the World Series. I've used radio to tune in during the World Series in the past when away from home and unable to bring along a television set to watch the games. Now, I'll just have to hope that the signals on the AM broadcast band are propagating well during the games. I guess that's the good part about the fact that the games are all played at night!

Does Anybody Really Know What Time It Is?

The ancient Chinese philosopher Confucius is reported to have observed, "Man with one watch knows what time it is; Man with two is never sure." Now, since Confucius lived around 551 to 479 B.C., it occurs to me that his life span predates the invention of wristwatches, casting doubt on the accuracy of this quote being attributed to him. Nevertheless, the quote, regardless of who really said it, does illustrate a commonly encountered quandary regarding the accuracy of our timepieces.

Make no mistake, we have clocks everywhere. There are six of them on my desk right now. I have a small digital clock on my desk, plus there's a time display on each of the two computers here in my shack, one on my general coverage receiver, one on my pager, and one on my cell phone.

Not surprisingly, the only two of the six currently displaying the same time as I write this are the displays on the two computers, which use a free software utility to synchronize the computer clocks to the National Institute of Standards and Technology (NIST) servers on the Internet. Since the NIST provides the official time in the United States, I know that my computers remain within a few hundredths of a second of the correct time. The other devices on my desk are a few minutes off, mainly because I'm not that concerned about it since I'm not doing anything here that requires extremely accurate timekeeping, and I'm too lazy to regularly synchronize them all with the correct time provided by NIST.

It is nonetheless very helpful to have the correct time, or at least something reasonably close to it, at our disposal in our shacks. We could, of course, go out and buy one of those nifty "atomic clocks" that automatically set themselves using a low-frequency radio signal broadcast by station WWVB, which is operated by the NIST and located at the same site as the more well-known WWV, near Fort Collins, Colorado. There are wall clocks, clock radios, and wristwatches now available at reasonable prices, which synchronize themselves to WWVB.

WWVB also is used for high-level applications, such as performing frequency calibrations or synchronizing network time, but most people who use WWVB are those who own the consumer products that set themselves to WWVB's signal, and many people who use these devices don't even realize they're using WWVB.

For those of us active in shortwave radio, and particularly those of us into utility stations, there are additional time standards available just by firing up our receivers and tuning to the proper frequency. There are three stations right here in North America that we can use for this purpose. In addition to WWV, the NIST also operates WWVH, which is located on the Island of Kauai, Hawaii, on a 30-acre site near Kekaha at Kokole Point. Another North American radio station that transmits precise time signals is CHU, operated by Canada's Institute for National Measurement and located in Ottawa, Ontario. Like WWV and WWVH, CHU transmits continuously, and on multiple frequencies, as shown in **Table 2**.

Table 2. Time Stations Locations And Frequencies

WWV (Fort Collins, CO):	2500.0, 5000.0, 10000.0, 15000.0, 20000.0
WWVH (Kauai, Hawaii):	2500.0, 5000.0, 10000.0, 15000.0)
CHU (Ottawa, Canada):	3330.0, 7335.0, 14670.0

All three stations transmit voice announcements that include the station identification. Furthermore, since WWV and WWVH co-inhabit four frequencies, the voice announcements transmitted on WWV use a synthesized male voice, while WWVH uses a synthesized female voice, to enable users to differentiate between the two.

Time Signal DX

For the DX fanatics, there are several time stations overseas you can target as well. One that's often a tough catch in the United States is BPM, operated by China's National Time Service Center. What makes it a tough catch is that it broadcasts alternately on 2500.0, 5000.0, 10000.0, and 15000.0 kHz, so its signal is often buried under WWV and/or WWVH. Nonetheless, BPM has been logged by North American listeners in the past, so it's not an impossible feat to add this one to your logbook.

Some other overseas time stations you might want to listen for include LOL, Argentina (10000.0); ATA, India (10000.0); HLA, South Korea (5000.0); BSF, Taiwan (5000.0 and 15000.0), YVTO, Venezuela (5000.0); RID, Russia (5004.0, 1004.0, 15004.0); and RWM, Russia (4996.0, 9996.0, and 14996.0).

For the sake of thoroughness, I should also mention two formerly popular time stations that you won't hear anymore, namely VNG, Australia, and HD210A, Ecuador. Sadly, these once-notable stations have been decommissioned.

There is, of course, at least one other use for these stations besides finding out what time it really is. Since these stations generally broadcast continuously and are scattered around a wide geographical area, they can be used to help determine current propagation conditions, not unlike the way hams use beacon stations to find band openings.

Here in the northeastern United States where I live, I use WWV and WWVH along with CHU most often for this purpose. For example, although my reception of CHU tends to be one short hop since I live in relatively close (for shortwave purposes) proximity to CHU, WWVH is located quite some distance from here. On those occasions when I can hear WWVH pop up beneath WWV, I know there's a band opening to that region of the world, which brings me to my next topic for this month: beacon stations.

The International Beacon Project

The International Beacon Project is a cooperative endeavor of the Northern California DX Foundation (NCDXF) and the International Amateur Radio Union (IARU). Together, these

two organizations have constructed a worldwide network of HF radio beacons operating on 14100.0, 18110.0, 21150.0, 24930.0, and 28200.0 kHz. Designed, built, and operated by volunteers, the NCDXF/IARU Beacon Network helps hams and other HF radio users determine current propagation conditions.

The basic premise of the beacon network is simple. How often have you fired up your receiver, tuned across a particular section of the RF spectrum, heard nothing, and concluded that "the band is dead"? It's probably happened to you more than once, especially recently as we're at or near the bottom of the current sunspot cycle.

But poor propagation is only one possible explanation for dead bands. Another reason you might not be hearing anything is simply that nobody is transmitting. The beacon network addresses this possibility by ensuring that signals are always on the air from specific locations around the world. Even if the band really *is* dead, the beacon stations continue to operate, so that if a band opening does occur, you can spend about three minutes listening for the beacons, and find out where a band opening is or where to listen for a band opening to a specific part of the world.

If you're good at copying CW (Morse code), all you have to do is listen on the beacon frequencies I just gave you, copy the callsigns of the various beacons, and you know where the band is open. However, not everyone can copy CW at 22 words per minute, and even if you can, you might not be receiving a strong enough signal from a particular beacon station to be able to copy the call. This is especially true since the beacon stations all transmit 100 watts into a vertical antenna—even a weak signal might indicate a band opening with excellent conditions for reception of higher-powered stations. Therefore, even if you can't copy CW at all, since the beacon stations transmit at known times, it's possible to know which beacon you're hearing without being able to copy the callsign. Check out **Table 3** for a list of beacon stations and their locations.

The format used by the beacon network is the same for all the beacon stations. Each station transmits the same one-minute message: callsign at 100 watts, then four 1-second dashes at power levels descending from 100 watts to 10 watts to 1 watt to 100 milliwatts, and then back to 100 watts to sign off. Thus, the more dashes you hear per beacon, the more open the band is to that particular part of the world. When the beacon station completes a transmission on one band, it goes silent and switches to the next higher band.

Table 4 shows the current beacon transmission schedule in effect as this month's column was written. Also provided in the table is the URL for the official current beacon schedule on the NCDXF/IARU Beacon Project website. On this webpage there's a button you can click that will let you sign up to receive e-mail notification of when the schedule page changes.

If you plan to use the beacon stations, I recommend that you consider signing up to be notified of changes. Local conditions can cause beacon stations to drop out of the network temporarily, perhaps due to construction at the site or a storm damaging the station antennas, for example. The schedule page keeps track of such things, so that if the page changes because of such an occurrence, you can be notified by e-mail to update your schedule.

Needless to say, in order for this method of finding band openings to work to best advantage, you need to have the correct time. Now you know why I spent some time talking about time stations before jumping into talking about the beacon network!

Of course, this being the Technology Era, there are perhaps more elegant solutions to the need for having the correct time, and for tracking which beacons you can and cannot hear. There are countless programs available on the Internet, many of which are free, that will synchronize your computer's clock to the correct time. There are also numerous computer programs and at least one stand-alone station accessory to help beacon listeners figure out which beacon is sending on which frequency at any given time. Computer programs are available for several different computers and operating systems, including Windows PCs, Macintosh, Palm, Pocket PC, Psion PDA, Linuz/Unix machines, and OS/2. The beacon schedule in **Table 4** can also be downloaded from the Web in .PDF or Microsoft Excel format suitable for printing.

As this month's column goes to press, there's a proposal for an automated beacon monitoring network to collect reception data from the beacon project and

Table 3. NCDXF/IARU Beacon Station Locations

Slot	DX Entity	Call	Location	Latitude	Longitude	Grid Sq
1	United Nations	4U1UN	New York City	40° 45' N	73° 58' W	FN3Øas
2	Canada	VE8AT	Eureka, Nunavut	79° 59' N	85° 57' W	EQ79ax
3	United States	W6WX	Mt. Umunhum	37° 09' N	121° 54' W	CM97bd
4	Hawaii	KH6WO	Laie	21° 38' N	157° 55' W	BL11ap
5	New Zealand	ZL6B	Masterton	41° 03' S	175° 36' E	RE78tw
6	Australia	VK6RBP	Rolystone	32° 06' S	116° 03' E	OF87av
7	Japan	JA2IGY	Mt. Asama	34° 27' N	136° 47' E	PM84jk
8	Russia	RR9O	Novosibirsk	54° 59' N	82° 54' E	NO14kx
9	Hong Kong	VR2B	Hong Kong	22° 16' N	114° 09' E	OL72bg
10	Sri Lanka	4S7B	Colombo	6° 6' N	80° 13' E	NJ06cc
11	South Africa	ZS6DN	Pretoria	25° 54' S	28° 16' E	KG44dc
12	Kenya	5Z4B	Kiambu	1° 01' S	37° 03' E	KI88mx
13	Israel	4X6TU	Tel Aviv	32° 03' N	34° 46' E	KM72jb
14	Finland	OH2B	Lohja	60° 19' N	24° 50' E	KP2Ø
15	Madeira	CS3B	Santo da Serra	32° 43' N	16° 48' W	IM12or
16	Argentina	LU4AA	Buenos Aires	34° 37' S	58° 21' W	GFØ5tj
17	Peru	OA4B	Lima	12° 04' S	76° 57' W	FH17mw
18	Venezuela	YV5B	Caracas	10° 25' N	66° 51' W	FK6Ønj

Table 4. Current Beacon Transmission Schedule

Times are listed under the beacon frequencies in the column heads.

Call	Location	14.100	18.110	21.150	24.930	28.200
4U1UN	United Nations	00:00	00:10	00:20	00:30	00:40
VE8AT	Canada	00:10	00:20	00:30	00:40	00:50
W6WX	United States	00:20	00:30	00:40	00:50	01:00
KH6WO	Hawaii	00:30	00:40	00:50	01:00	01:10
ZL6B	New Zealand	00:40	00:50	01:00	01:10	01:20
VK6RBP	Australia	00:50	01:00	01:10	01:20	01:30
JA2IGY	Japan	01:00	01:10	01:20	01:30	01:40
RR9O	Russia	01:10	01:20	01:30	01:40	01:50
VR2B	Hong Kong	01:20	01:30	01:40	01:50	02:00
4S7B	Sri Lanka	01:30	01:40	01:50	02:00	02:10
ZS6DN	South Africa	01:40	01:50	02:00	02:10	02:20
5Z4B	Kenya	01:50	02:00	02:10	02:20	02:30
4X6TU	Israel	02:00	02:10	02:20	02:30	02:40
OH2B	Finland	02:10	02:20	02:30	02:40	02:50
CS3B	Madeira	02:20	02:30	02:40	02:50	00:00
LU4AA	Argentina	02:30	02:40	02:50	00:00	00:10
OA4B	Peru	02:40	02:50	00:00	00:10	00:20
YV5B	Venezuela	02:50	00:00	00:10	00:20	00:30

Note: Subject to change, check http://www.ncdxf.org/Beacon/BeaconSchedule.html for the latest current schedule. There is also a button on this page you can click on to sign up for e-mail notification when the schedule changes.

post the data to the Web in graphic format. According to this plan, automated beacon monitoring stations will use software-controlled radios to monitor the 18 beacons on five bands once every 15 minutes. The software will produce waterfall plots from each block that will be pasted together, resulting in a 24-hour reception strip for each beacon for each band, which will then be uploaded to an Internet server for display by band, by station, and so forth.

For those who might be interested in participating, there's an open mailing list that's been set up for discussion and comments. Send a message to abeacon-subscribe@yahoogroups.com to join the group and participate in the discussion.

An Advisory Concerning Internet Forums

At this point, I feel it necessary to digress a bit and share with you a warning regarding the use of online forums, such as the aforementioned Yahoo groups. You see, earlier this year, I was one of the many former members of WUN who moved to the UDXF group on Yahoo after the WUN club was discontinued (see my column in the August 2006 issue of *Pop'Comm*).

Well, no sooner did I do so, then I started receiving a deluge of unwanted e-mail, which ran the full gamut from commercial advertisements to illegal "phishing" schemes. To make matters worse, when my Internet Service Provider's server-level anti-spam applications got wise to the spammers and started returning the offending garbage to its source, the bounces caused my Yahoo account to be turned off. This happened three times, and after the third time, I decided not to turn it back on again.

Unfortunately, you can't simply read the archives of UDXF, or the Automatic Beacon Monitoring Project, from the Web without joining the Yahoo group, so you're forced to either risk the privacy of your e-mail address or avoid the Yahoo groups entirely. I'd prefer not to start getting angry e-mails from readers who subscribed to a Yahoo group or other online forum because they read about it in this column, only to be immediately deluged with junk e-mails, so I'm adding this advisory to my column for this month.

It should be noted that hundreds of people seem to use the Yahoo groups without any problems. On the other hand, I and others have had nothing but problems, and in fact, I've now unsubscribed from the UDXF list and have no intention of going anywhere near any of the other Yahoo groups ever again!

Also, it goes without saying that the unintended consequences that may result from joining Yahoo groups (or, for that matter, any other kind of message forum) are usually not the fault of the moderators of the individual groups or forums you may subscribe to. However, when you disclose your e-mail address (or any other personal information) to be filed away on a server that's publicly accessible and gets millions of hits a day, you should be aware that some undesirable results may occur, although such problems are certainly not guaranteed. It's simply a case of *caveat emptor*: let the buyer (or in this case, the subscriber or Internet surfer) beware. Read the privacy policies carefully before you provide any personal information to any website, and understand that while the majority of users don't seem to run into any problems, your mileage may vary.

One Picture Is Worth A Thousand Words?

Like most of the regular columnists in this magazine, I encourage readers to send in their contributions—not in the form of cash (though I'll happily accept donations to help keep my shack updated with the latest and greatest in consumer electronics technology!), but rather logs, shack photos, suggestions for topics to be covered in future issues, etc.

Shortly after my first column was submitted for publication in the August issue,

the editor pointed out that while we always ask readers to send in photos of themselves in their shacks, we rarely show our columnists' mugs in the pages of the magazine, and he suggested that I might include a shack photo of my own.

Now, if I were photogenic, I'd be in television rather than radio, and at the time a shack photo didn't even exist here, but since then I've had a friend of mine take one (well, actually she took several, and I picked what I felt was the best one for inclusion here), and it appears here on these pages under the hopefully nondescript alias of **Photo B**. Take a good look at it, and you can see that my desk is kind of messy (and that was *after* I cleaned it up a bit for the photo session!). I deliberately did not scrub and sanitize my shack for a reason, and that's because I seriously doubt that most of us have an operating position that looks like the ones we usually see—not a scrap of paper or empty coffee cup in sight, looking like a pristine radio station that hasn't been inhabited by humans for weeks until it was dusted and vacuumed seconds before the picture was taken.

Photo B. I wouldn't have subjected you to this if Harold hadn't asked for it. Here, next to my modest collection of radio equipment, is where each month's column is born. (Photo by Rebecca Brady, KC2IRK)

Who has a shack like that? Probably very few of us. More than likely, most of us have sticky notes posted all over the place, an empty coffee cup or two on the desk, a stack of back issues of *Pop'Comm* somewhere nearby, several scraps of note paper on which we hastily scribble frequencies and callsigns and sundry other information, maybe even a rat's nest of wires somewhere (hopefully) off to one side where it usually doesn't get in our way. That's what I've got, and that's what Photo B shows, along with your "Utility Communications Digest" columnist, a man blessed (?) with a face that's made for radio.

The point of all this is that if you've been hesitant to send in a shack photo because your shack actually looks like it's used and lived in, you can put those concerns aside now. I'm sure we'd all love to have professional-looking setups like those we sometimes see in print or on the Internet, with two dozen radios and nary a wire in sight, but the fact is that many of us simply squeeze our equipment in wherever we can find room for it. It might not look like much, but we nevertheless like to spend as much time there as we can, enjoying our wonderful hobby and trying to remember to remove yesterday morning's coffee mug before bringing in the fresh one from this morning. Whatever you have, be proud to be a part of the hobby, and do send us a photo to share with your fellow utility monitoring enthusiasts.

In my case, the desk you see in the photo is shoehorned into the corner of a small bedroom. There's another table off to one side of the desk that you can't see in the photo and which has some more stuff on it, including another computer that I use for surfing the Internet, chatting on IRC (Internet Relay Chat), and other stuff. The bulk of my radio-related work, including the writing of this column, gets done on the computer you can see in the photo.

The radios shown include two RadioShack PRO-2045 scanners, a Uniden BCT-8 scanner, an old Regency INF-10 scanner, a RadioShack HTX-212 2-meter ham transceiver, a Kenwood TS-50 HF ham transceiver, a RadioShack DX-394 general coverage receiver, a couple of Motorola commercial transceivers that have been reprogrammed for ham radio use (one is VHF, the other UHF), an ICOM 2GXAT 2-meter ham handheld, a Kenwood TH-78a dualband ham handheld, RadioShack PRO-35, PRO-50, and PRO-94 portable scanners, and several accessories and power supplies.

Not shown in the photo (because they're on the other table that you can't see because the bedroom isn't large enough to stand far enough back to get everything in the picture) are another computer, a Realistic DX-300 receiver, a Sangean ATS-803A portable receiver, a couple of Bearcat 210 scanners (oldies but goodies, made in 1977 by Electra in Cumberland, Indiana, before Uniden bought the Bearcat name from them), a RadioShack PRO-79 portable scanner, and a Yaesu FT-50 dualband ham transceiver. You also can't see the three batteries under the desk that are used to provide emergency power when the local utility company has a snafu that causes the power grid to go dead, but rest assured that they are there. Can't let a little thing like a power failure force us off the air, especially when you're active as an emergency communicator with the local ARES/RACES group, as I am.

The *Pop'Comm* IRC Channel Is Ready

As I promised in my August column, I have created a #popcomm channel on one of the IRC networks. Well, actually, it's on two networks, but the point is that it's now open and available for use by any readers who want to engage in real-time, multi-user chat with other readers (or perhaps even with this columnist). Since this column is about radio, it's beyond the scope of this magazine to familiarize you

with how to use IRC, but if you need help getting started, point your browser at http://www.irchelp.org/irchelp/irctutorial.html for an excellent tutorial on how to use Internet Relay Chat (IRC).

The home of the #popcomm channel is the IRC-GLOBAL network, which you can access by instructing your computer's IRC client program to connect to irc.proxemic.net using any port in the range 6661-6669 (or +6697 if your IRC client supports encrypted SSL connections).

Alternatively, you can also connect to the zIRC network, using irc.zirc.org and a port range of 6660-6669 with +7001 for SSL connections. This is mainly for the benefit of the users on zIRC who already hang out on that network due to the presence of #monitor and other radio-related channels there. The #popcomm channel on zIRC is linked by relay to the same channel on IRC-GLOBAL, so you can chat with users on either network.

Once you connect to one of the networks that has the #popcomm channel (zIRC or IRC-GLOBAL, your choice), just join the #popcomm channel and have fun chatting with whoever's there, or just lurk and observe. However, don't bother trying to chat with lexicon or InfoEgg on IRC-GLOBAL, or with ExoMON or InfoMON on zIRC, as they are IRC "bots" that perform various functions (ExoMON is the relay/channel management bot on zIRC and InfoMON is an InfoBot; their counterparts on IRC-GLOBAL are lexicon and InfoEgg, respectively). Type !help and !info in the channel for information on the features available through these bots.

Feel free to also join the other radio-related channels, #monitor, #satcom, #milcom, #airband, on either network. These are also linked by relay to the other network (as well as to the same channels on IRCNet, DalNet, and StarChat, for that matter). In these channels (#monitor is the most heavily populated; you'll usually find several other radio hobbyists to chat with, most of whom are utility enthusiasts since that's the primary focus of #monitor), folks share real-time logging and monitoring news and information with one another as well as just chat about the radio hobby. There could be half a dozen users there or a hundred, but everyone can still see what everyone else types, even on a different IRC network entirely, if the channels are linked.

Reader Logs

We'll wrap up with your logs. Many thanks to those who submitted this month, and I hope to be back here next month with *your* shack photos as well as your loggings!

FREQ: Station, location, summary of traffic heard in MODE at 0000Z. (Monitor/sometimes Location)

2252.0: Link-11 data transmission at 0353. (MC)

3065.0: Link-11 data transmission at 0054. (MC)

4021.5: B1Z171 (1-171st AVN) clg R26327 (UH-60L # 91-26327) in ALE USB at 0108. (MC)

4372.0: 0YC and 8YZ in Link-11 coordination net at 2241. (MC)

4469.0: SOUTHEAST CAP 43 net control opening CAP net with various Florida CAP stations checking in at 0002. (MC)

4585.0: SAND LAPPER 4, SAND LAPPER 431, SAND LAPPER 552, MIDDLE EAST 34 in South Carolina CAP Net at 0002 (MC); KITTYHAWK 423, KITTYHAWK 4, and MIDDLE EAST 34 in CAP Net at 1223. (MC)

4703.0: Link-11 data transmission at 0055. (MC)

4739.0: ALPHA, MIKE, KILO, and PAPA USN vessels in Link-11 coordination net at 0004. (MC)

4772.0: Link-11 data transmission at 0052. (MC)

4790.0: R26327 (UH-60L # 91-26327) clg B1Z171 (1-171st AVN) in ALE USB at 0046 (MC); R26331 (UH-60L # 91-26331) clg B1Z171 in ALE USB at 1532 (MC); T1Z111 (1-111th AVN, FL NG) clg R24631 (UH-60A) in ALE USB at 2221. (MC)

4991.0: NK1 (FBI, Newark NJ) clg QT1 (FBI, Quantico VA) in ALE USB at 0902. (MC)

5171.0: Link-11 data transmission at 0246. (MC)

5302.5: R23558 (UH-60A # 81-23558) clg 147 (Poss. 147th Command Aviation Bn, WI-NG) in ALE USB at 0205. (MC)

5320.0: USCGC BELUGA (WPB 87325) wkg SECTOR EASTERN SHORE to pass information on several vessels at 2239. (MC)

5335.0: INDIA FOXTROT, ALPHA, DELTA, ROMEO, and MIKE USN vessels in Link-11 coordination net at 0046. (MC)

5446.5: AFRTS w/Paul Harvey newscast in USB at 0626. (GV)

5566.5: UnIDed fisherman in EE talking about crew size in USB at 0622. (GV)

5708.0: 170032 (C-5B # 87-0032) clg ICZ (Sigonella HF-GCS) in ALE USB at 0241. (MC)

5732.0: CG 1706 (HC-130, CGAS Clearwater) airborne with 8 SOB for training requests guard from CAMSLANT at 2359. (MC)

5778.5: R26329 (UH-60L) clg B1Z111 (1-111th AVN, FL NG) in ALE USB at 1343. (MC)

5778.5: R23694 (UH-60A) clg T1Z111 (1-111th AVN, Florida NG) in ALE USB at 0146. (MC)

5833.5: G24627 (UH-60A) clg STPOPS (Army Aviation Support Facility, St. Paul, MN) in ALE USB at 0231 (MC); G24426 (UH-60A # 85-24426) clg STPOPS in ALE USB at 0159. (MC)

6519.0: WLO High Seas forecast in USB at 0601. (GV)

6694.0: Z8 & S3 USN vessels in Link-11 coordination net at 0033. (MC)

6719.4: Link-11 data transmission at 2202. (MC)

6760.0: Link-11 data transmission at 0004. (MC)

6911.5: B1Z171 (1-171st AVN) clg R26327 (UH-60L # 91-26327) in ALE USB at 0153. (MC)

6985.0: R26154 (UH-60A # 89-26154) clg T12 (12th Aviation Bn, Davison AAF) in ALE USB at 0051 (MC); R26258 (UH-60L) clg T12 in ALE USB at 2256. (MC)

7650.0: R26135 (UH-60A # 89-26135) clg T2Z135 (2-135th AVN CO-NG, Buckley ANGB) in ALE USB at 0402 (MC); R26125 (UH-60A) clg T1Z137 (1-137th AVN Ohio NG, Rickenbacker ANGB) in ALE USB at 1635 (MC); T1Z137 clg R26046 (UH-60A) in ALE USB at 2102. (MC)

7718.5: G24525 (UH-60A # 86-24525) clg STPOPS (AASF St. Paul Airport, MN) in ALE USB at 0241. (MC)

8065.0: R26606 (UH-60L) clg 171OPS (1-171st AVN) in ALE USB at 0020. (MC)

8171.5: R23547 (UH-60A) clg T2Z238 (2-238th AVN IN-NG, Shelbyville, IN) in ALE USB at 1329. (MC)

8176.0: VMC Charleville S. Australia maritime weather broadcast in USB at 0633. (GV)

8636.0: HLW, Seoul, South Korea with beacon in CW monitored at 1851Z. (CG)

8776.0: OUTPLAY radio check with unid station at 2355. (MC)

8828.0: Auckland, NZ VOLMET just finishing bcst in USB heard at 0556. (GV)

8912.0: PANTHER instructs 60A to RTB. TOI is reported to have run aground somewhere near their homeplate at 2351. (MC)

8971.0: RED TALON 712 (P-3C) clg FIDDLE at 1709 (MC); TIGER 21 (P-3C) wkg GOLDENHAWK reporting they are coming back with a live missile and requesting instructions at 2246. (MC)

8983.0: CG 2134 (HU-25, ATC Mobile) departing en route Key West requests guard from CAMSLANT at 1349. (MC)

9007.0: CANFORCE 2407 (CC-130) p/p via TRENTON MILITARY at 2059. (MC)

9025.0: RUBY 37 (KC-10A, 305 AMW) p/p via Puerto Rico HF-GCS to TACC to check on their receiver status at 0058. (MC)

9031.0: UnIDed British accent saying different city locations are blue—this is information hotel—in USB at 0537. (GV) *(Undoubtedly ARCHITECT, the UK Royal Air Force, with color-coded airfield conditions.—jk)*

9130.0: UNID YL/EE with 5-ltr grps. USB at 2345Z. (CG)

11175.0: SODA 51 (KC-135, 151 ARS/134 ARW) p/p to SODA CONTROL at 1343 (MC); REACH 370 p/p via HF-GCS to Meteo for WX at McChord AFB monitored at 2342. (MC)

11205.0: SHARK 13 ops normal report to SMASHER at 1918. (MC)

11220.0: Puerto Rico & Andrews HF-GCS wkg DIVISION for data transmissions at 0119. (MC)

11232.0: NATO 041 (E-3 AWACS) p/p via TRENTON MILITARY to CFB Goose Bay informing them they are diverting there for safety inspection due to two lightning strikes at 0011 (MC); KING 21 (HC-130P) p/p via TRENTON MILITARY to ANGEL OPS at 2054 (MC); CANFORCE 2338 (Aircraft 130343) wkg TRENTON MILITARY for relay to AOC Winnipeg and Wing Ops their departure message from Greenwood monitored at 2057. (MC)

11265.0: SENTRY 60 (E-3 AWACS) p/p via TRENTON MILITARY to Radar Maintenance at Tinker AFB at 1646. (MC)

11342.0: San Francisco Radio wrkg NORTHWEST-15 with fuel report in USB at 0639. (GV)

11494.0: CG 1706 (HC-130, CGAS Clearwater) p/p via SERVICE CENTER to Clearwater Air in USB at 2319. (MC)

12133.5: AFRTN weak but readable in USB at 0305. (GV)

12581.5: XSV, Tianjin, China with beacon in SITOR and CW at 1414Z. (CG)

12788.0: NMN (USCG CAMSLANT Chesapeake) w/Perfect Paul WX in USB at 0340. (GV)

13257.0: SENTRY 60 (E-3 AWACS) p/p via TRENTON MILITARY to RAYMOND 24 at Tinker AFB at 0014. (MC)

13270.0: New York and Gander VOLMET in USB at 0320. (GV)

13927.1: KING 84 (HC-130) p/p via AFA6PF to KING OPS at 1756 (MC); DOOM 91 (B-52H, 96 BS/2 BW) p/p via AFA2MH Georgia at 1909 (MC); REACH 6018 morale p/p via USAF MARS at 2018. (MC)

15016.0: Puerto Rico HF-GCS wkg AX 860 (C-40A, VR-59). QSY 8992 kHz at 0017 (MC); Andrews HF-GCS with a SKYKING Foxtrot in USB at 1838. (JK)

15025.0: Puerto Rico HF-GCS clg OMNI 40170 with no answer at 1748. (MC)

16914.0: KSM fast CW in long xmission of news in EE in CW at 2334. (GV)

17946.0: SAN FRANCISCO ARINC working United 801 in USB at 0043. (GV)

This month's contributors were Mark Cleary (MC), Charleston, SC; Chris Gay (CG), Lexington, KY; John Kasupski (JK) Tonawanda, NY; and Glenn Valenta (GV), Colorado (via IRC). ■

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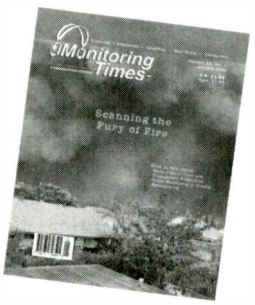

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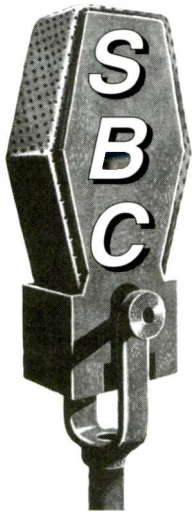
by Shannon Huniwell, melodyfm@dreamscape.com

A Busload Of Buffalo Broadcast History



When a *Pop' Comm* subscriber started telling me about some bus ride he'd taken in the 1950s, I had no idea how it even remotely related to radio. Even so, I politely looked interested in his odd saga.

Heaven knows, over the years I'd gotten lots of practice listening to my Dad's radio ramblings. Most of the time, he'd take a good half-hour to come to the point, throwing in obscure facts and sidetracks along the way. And then every seemingly goofy detail fell into focus for a fascinating AM or FM conclusion.

It was my guess that the *Pop' Comm* reader's tale might spawn similar results. So, to get started, we'll need to picture him boarding a Greyhound bus in front of some now long-forgotten small town drug store somewhere northeast of Buffalo, New York.

No Funny Business, Unnecessary Noise, Or Portable Radios!

Reportedly, the first leg of the trip ended abruptly when the driver firmly applied the brakes about three miles out of town. Described as a short, chubby man who talked more like a drill sergeant than the friendly, helpful company representative he was supposed to be, the guy stood with his hands on his hips and faced the sundry assortment of passengers.

"Okay, listen up and hear me clearly," he ordered, authoritatively tipping his official bus driver hat visor slightly upwards. "Consider me the captain of this ship! I'm in command for the duration and my job is to get this bus to its various destinations today with minimal incidents. Preferably zero *problemos*. Capiche? Bottom line, no shenanigans or excessive noise will be tolerated on board my Greyhound. Any clown who thinks otherwise will be forcibly removed from this vehicle! No holds barred and no questions asked. Do I make my self clear?" he bellowed before returning to his seat and easing the bus back into the roadway.

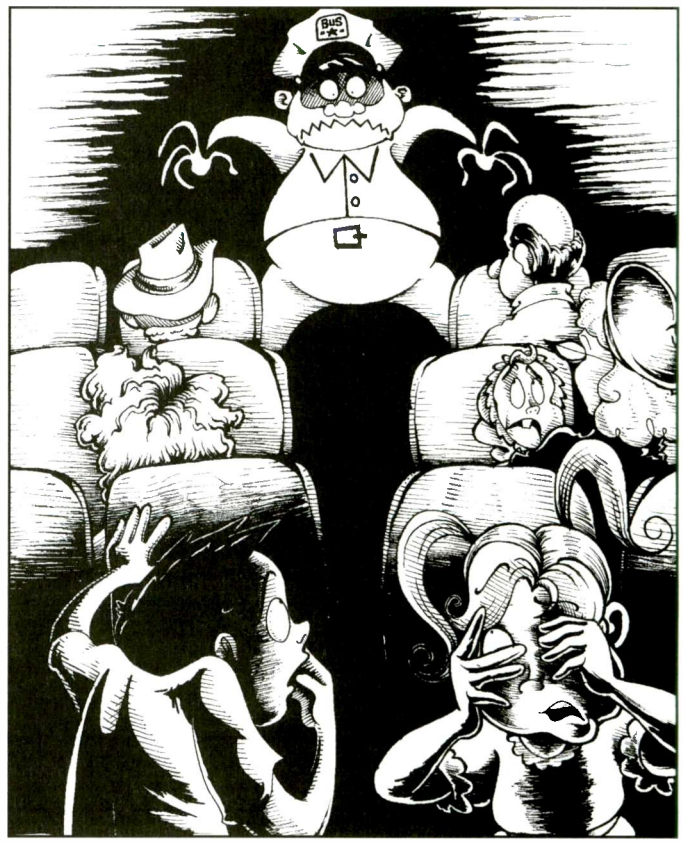
Our source says it wasn't more than a mile later when the airbrakes were again heavily activated and the bus pulled onto the shoulder. Reflected across the huge, squeaky clean, rectangular rear view mirror was the driver's icy stare.

"Hey clown," yelled the operator. "What's in that brown bag?"

"Uh, what bag?" nervously asked a 60-ish fellow who appeared to be a bit down on his luck and a little high on liquid refreshments.

"I warned you people," announced the driver as he rose and paced down the aisle towards the unkempt passenger. "If there's one thing I hate it's alcoholic beverages on my bus."

He thrust his hand between the man's threadbare coat and the seatback, and successfully confiscated the booze bag. "Cheap, cheap wine!" he accused while victoriously holding



"No shenanigans or excessive noise will be tolerated on board my Greyhound!" the driver shouted.

the contraband aloft as a warning to the others onboard. "Mister, either this disgusting stuff goes, or you go!" Everyone watched in suspense as the operator headed towards the front, opened the door, slowly unscrewed the bottle cap, and began tipping the bottleneck towards the patchy ground.

"No don't! I'll get off!" the inebriated rider pleaded.

Wide-eyed passengers silently witnessed the driver toss the bottle into the weeds and watched the pathetic old guy who'd begun sobbing stumbling around for it. He was kneeling in the tall grass when the driver yelled, "Let that be a lesson to you!" slammed the folding doors, and accelerated onto the highway.

According to our story contributor, the next four or five miles were eerily quiet, except for the diesel engine's drone.

Then out of his duffel bag, our then-teenage narrator inconspicuously slid his prize possession—a new 1958 Admiral transistor radio. Making sure the earphone had been securely plugged in, our kiddo fired up the solid-state AM and began dialing for something lively. He remembers locking onto a favorite tune somewhere in mid band, 1080 kilocycles to be exact. Shielding the radio in a *LIFE* magazine, he was able to get a better read on the station's signal against the bus window. Great RF and AF gain was especially evident when the radio slipped from this perch, yanking the earphone plug from its jack. Instantly, the remaining seconds of a top-40 hit could be heard

throughout the entire bus, as was the lyric line from the station's jingle, "You'll be bombed when you try the new *W-I-N-E*. Ten-eighty *WINE*. It goes to your head!"

Brakes screeched. Scared passengers pointed to the offender, giving him up like some Red Communist spy. The driver bellowed, "So, we have another funny man to keep us amused on Route 78. Apparently you didn't get the message that I hate wine on my bus. I detest the actual addictive substance as well as that inane, sophomoric radio station foolishly labeling itself W-I-N-E!"

In a no-contest compromise, our source surrendered his Admiral to the captain, and couldn't retrieve it until he arrived at his stop in Syracuse. With the radio's return, he received a brief lecture on the dangers of certain kinds of "popular" music and "the base culture of alcohol associated with overly rhythmatic musical selections." All these years later, he wanted to let me know that he's not a drinker, but has had a lifelong addiction to radio. His ultimate point was to request that I research the W-I-N-E that momentarily poured from his late 1950s transistor set and forever altered his curiosity about the long-ago Buffalo area daytimer.

Not Much In That Old WINE Bottle

As it turns out, even in terms of frequently changing Eisenhower-era radio, W-I-N-E was a very short drink. Its entire Western New York tenure ran less than two years. But that's getting way ahead of the station's actual beginning. To get there, we'd have to take our broadcast history bus back to 1946 when Thaddeus Podbielniak and Edwin R. Sanders asked the FCC for the okay to found a 1-kW AM in the Buffalo suburb of Kenmore. FCC approval came on April 17, 1947, authorizing the duo to construct a non-directional, daylight-only facility at 1080 kilocycles.

Jan Lowry of *Broadcast Pro-File* uncovered background on Podbielniak (a longtime ham with the callsign W2KX, who liked to be called Ted "Podd") and Sanders, and found that they "both had been associated with John Hopkins University." The pair divvied up jobs and decided Podd would serve as general manager while Sanders could be technical director. Among their first executive decisions was the naming of their new station, WNYB and then switching the letters to WXRA shortly before the Buffalo-area 1080 debuted on January 24, 1948. It's plausible to presume that, for reasons related to wanting the new AM to have space-age overtones, the second set of calls signified "X-Ray." Ironically, not long after the WNYB moniker got dumped, Podd and Sanders officially named their partnership The Western New York Broadcasting Company.

When a telltale black and white, 9 x 12 envelope arrived with *Broadcast Pro-File*'s Castaic, California, return address, I could hardly wait to discover what Jan had unearthed about the obscure AM that, quite honestly, I'd never heard of prior to the aforementioned bus story. His files are always rich in the brand of official FCC-authorized facilities and ownership information, and are great for snapping together puzzle pieces like those associated with this 1080 jigsaw.

Although WXRA held a presence in the Buffalo ether for nearly a decade, not much of its format detail remains. A local history piece, "When Kenmore Was On The Air," in the *Tonawanda News* simply describes WXRA's fare as some "news, music, and paid programming." The article did recall that, for a time, "Kenmore's radio station offered Yankee games in the afternoon;

When the transistor radio slipped from the young bus rider's hands and had its earphone plug yanked out, a jingle for W-I-N-E went blaring through the bus.

featured Art 'The Yodeling Cowboy' Young, [several disc jockeys spinning sundry types of tunes]; and on Sundays, Reverend John Greening of the Randall Baptist Church."

Also testing out the fledgling WXRA airwaves was George "Hound Dog" Lorenz, who some credit with being the true "father of rock and roll radio." In the late 1940s, before Allen Freed, the legendary Cleveland and New York DJ (said to have coined the music term "rock 'n' roll") had gained much traction, Lorenz was already on WXRA playing occasional rhythm and blues, or "race music" as it then termed, to his mostly white audience. According to Lorenz's May 30, 1972, obituary (presumably from the *Buffalo Evening News*), WXRA management had been more than a bit concerned that the "Hound Dog" was leaning too far into this musical direction. "He played 'race music' once too often [on WXRA]," the newspaper reported, "and soon he was on his way to WJJL 1440 in Niagara Falls."

From 1955 to 1958, Lorenz took what he'd learned at the little WXRA, daytimer WJJL, as well as from a couple of years in Cleveland radio, and returned to Buffalo's airwaves. There, he crystallized his sound on 50-kW flamethrower, WKBW, and became a regional pop icon. We'll later see, though, that Lorenz would again be associated with the 1080 spot where he got his start.

Seeing Through Some Changes At "X-RAy"

It isn't uncommon for owners of a small "rim shot" radio station (one that's located in a community on the rim of a larger

city) to desire a facility officially licensed to that major metropolis. In any event, something motivated Podd and Sanders to ask for FCC approval to drop the Kenmore ID and announce WXRA as a Buffalo station. Permission was granted in 1952. Even with this "on paper" upgrade, however, the original studio/transmitter site at 1515 Niagara Falls Boulevard in Kenmore continued to host WXRA. An odd footnote to this quest for a bigger identity shows up in mid-1950s editions of the *Radio Daily* publication, *Radio Annual.* The book labels the facility as a dual community-of-license (Buffalo-Kenmore) operation.

New Owners, *Another* New City Of License, And New WINE

Interestingly, the original copy of WXRA's final sign-off still exists and recently showed up on eBay. The mimeograph reads:

AM SIGN-OFF - WXRA now concludes broadcasting activities for another day. Located in Kenmore, New York [strangely, no mention of the Buffalo Identity!], WXRA is owned and operated by the Western New York Broadcasting Company, Incorporated, with offices and studios on Niagara Boulevard, north of Sheridan Drive. WXRA operates on a frequency of ten-hundred 80 kilocycles, with a carrier power of one thousand watts, by authority of the Federal Communications Commission. Until tomorrow morning at 7:30, this is (name of announcer) bidding you very a pleasant good evening.

Technically, that October 14, 1957, swan song was inaccurate in that WXRA was not slated to return the next morning. In fact, someone at the station had taken the liberty of adding a sort of obituary to the WXRA copy, stating, "Thus endeth broadcasting activities of WXRA," but scribbled a cautionary "DO NOT READ" beside it. And, a series of advertisements in the October 14th *Buffalo Evening News* warned folks NOT to listen to WXRA anymore. Any person who tried, warned one ad, would "hear about new WINE," and run the risk of getting "bombed."

The promotional caution resulted from Mr. Podbielniak having sold the station and FM sister for $150,000. The majority purchaser of WXRA and its corporate parent, The Western New York Broadcasting Company, was one John W. Kluge. Initially via the buying, selling, and program improvement of under-performing medium market stations, this mogul assembled a media empire, named Metromedia, that would later focus upon AM/FM/TV broadcast properties in major cities. In the 1980s, when Rupert Murdoch built the FOX Network, significant portions of Kluge's old holdings (such as WNEW-TV 5 New York) served as cornerstones.

Kluge had instructed his associates to come up with a new and catchier name for WXRA, something that'd make for easy recognition, fun promotions, and its own cartoon character mascot. The results included a beret-topped, skinny Frenchman who appeared to be devoted to the fruit of the vine. As a supposed connoisseur (and, according to some of the ads in which he was depicted, an over-indulger) of French wine, he invited everyone with Buffalo's 1080-kilocycle signal to consume the electronic beverage, W-I-N-E. Kluge got the FCC to nix the WXRA calls in favor of WINE.

On October 15, 1957, "The New WINE" popped its cork. Related debut publicity showed the WINE mascot promising that his station would "go to your head." Captions under his sometimes drunken image indicated that WINE offered "musical selections that are a reflection of public taste," as well as transmitting "news as it happens!" This "new taste in town," however, concentrated on tune weaving and was formatted so that a WINE listener would "never be more than 5 minutes from music."

What type of music? *Broadcast Pro-File*'s research cut through the generalized descriptions and found one late '50s WINE program synopsis that stated, "Negro-programmed outlet." The reference related to rhythm & blues records, and probably didn't even reflect just how integrated One-Oh-Eight WINE's weekly playlist and mass appeal news coverage actually was.

Good old reverse psychology was used in this advertisement by the new owners of the old WXRA with the hope of getting Buffalo-area listeners to sample the station's replacement.

WINE operated a Volkswagen microbus remote broadcast vehicle crowned with loudspeakers and festooned with the little mascot hoisting his joy juice. None of the slogans under the character's picture hinted as to the station's particular musical bend.

Rebottling WINE?

Had he been real, WINE's celebrated imbiber would have certainly raised a toast to the FCC in 1959. That year, Commission personnel sent Kluge authorizations to change WINE's city of license to Amherst, an affluent suburb of Buffalo, and move its studio/transmitter venue to 89 LaSalle Avenue, in an industrial section of Buffalo. One could make a good argument that the modifications

were meant to rebottle WINE in order to yield some fast fomenting finances.

Don't Want WINE? Just Whistle For Gordon

Within a few months, Kluge sold WINE (for $287,500) to fellow radio maven, Gordon McLendon, who also loved installing call letters that spelled something and then coming up with a targeted format aimed at quickly attracting lots of ears. This Texan's AM creations included, KABL, for cable car, in San Francisco; K-ADS all-classified advertising around Los Angeles; and XTRA, a Mexican facility he leased and turned into a Southern Californian all-news (as in "Extra, Extra! Read all about it!") operation.

In April 1960, McLendon emptied WINE and filled its 1080 k.c. with a 1000 watts of "whistle," or WYSL. This gentle suggestion of happy whistling in the wind was to match the "good music" or "beautiful music" fare with which McLendon had planned to sooth Western New York's (and a smidgen of neighboring Ontario's) mature radio audience.

We know that at least one Buffalo listener didn't think much of the idea. Remember George "Hound Dog" Lorenz? After often playing whatever records he pleased, he was rather uncer-emoniously asked to exit WXRA, but later wound up as a Western New York radio leader at WKBW. Well, by the late '50s, "KB-Radio" decided it'd be best for its DJs, including "Hound Dog," to follow a tight, program director-approved playlist. He did not agree, and so found himself out of WKBW, and back at the 1080 spot—WINE.

The Buffalo Evening News noted that Lorenz tried to purchase WINE in 1960, but lost out to the McLendon Corp. "Hound Dog" didn't give up his dream of station ownership, though, and secured (in 1964) an FCC construction permit for Buffalo's last open FM channel. With that CP, he founded WBLK-FM and programmed it to his heart's content, as well as to the delight of R&B buffs.

Meanwhile, McLendon's victory, which was also "Hound Dog's" failed attempt to snag the 1080 in Amherst, turned out to be but a brief step in McLendon's larger scheme of pulling Buffalo market share. That is to say, from WYSL's earliest days, the Texas radioman was negotiating with the owners of 250-watt WBNY 1400 Buffalo. He sealed the deal to acquire that smaller, but fulltime facility, not long before Christmas 1961. As soon as WBNY was his, McLendon took the 1080 WYSL calls and format and installed them on 1400, where the station ID could be announced as Buffalo. In a concurrent effort, McLendon spun-off the Amherst (former WYSL, WINE, or WXRA)1080 sunrise-to-sunset signal and its Buffalo-based studio/transmitter site at 89 LaSalle Avenue.

There's The Unidentified Flying Object On 1080!

Dynamic Broadcasting of New York paid $230,000 for the erstwhile WYSL, formerly WINE, and originally WXRA. No doubt some of the folks who were experimenting with the 1961 transistor radios Santa had recently brought them were among the first to notice another new call on 1080: WUFO. These fun letters were instantly recognizable, as most people in the United States or Canada were caught up in the Sputnik-era flying saucer phenomenon.

WINE's beret-topped mascot suggested his new station's sound would be simply intoxicating! It's hard to imagine that a connection between radio and being stinking drunk would make for an appealing bit of broadcast publicity. Even so, WINE gave it a try in the hopes of attracting any kind of attention from curious listeners.

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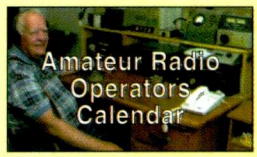

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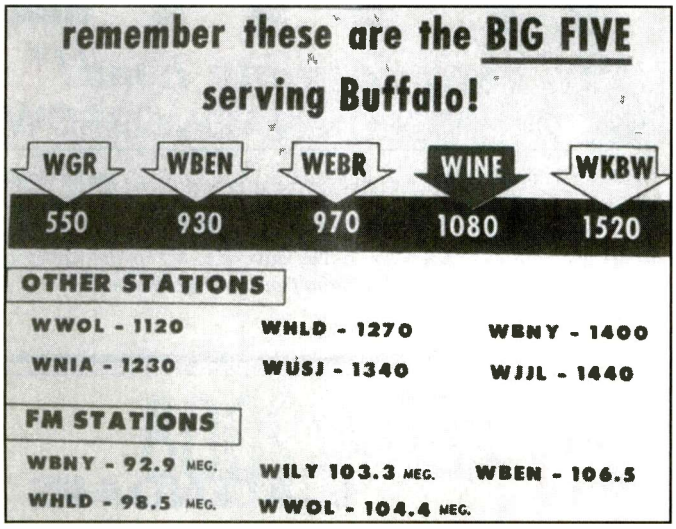
A fleet of Ford convertibles and WINE officials pose for the camera in a 1958 shot of the WINE headquarters.



The 1000-watt, daytime-only WINE was a lot less of a radio fixture than the bigger, fulltime AM outlets (such as 50,000-watt WKBW) it compared itself to in this 1958 flyer. WINE hoped the mere association with the big guns, however, might cause Buffalo-area listeners to think of WINE as at least equal to the other top row stations. Note WILY in the FM section—it was WINE's sister and was known by many names before becoming the current WEDG-FM, The Edge, in Buffalo.

Arguably, the name's appeal was universal and could have been useful to position any format. Dynamic decided to abduct a specialized focus for its new broadcast property that'd nicely serve the Buffalo African-American community. And, for decades WUFO has remained faithful to that worthy commitment. Little WUFO would be still recognizable today to Kennedy-era radio listeners.

Meantime, Buffalo's old WYSL and WINE are long gone. And even WUFO's biggest competitor, giant WKBW across town, has flip-flopped through several formats and a call change.

Ye Olde WXRA-FM And Its Many Descendants

Our broadcast bus ride wouldn't be complete without picking up "FM passengers" headed from the present WEDG-FM Buffalo 103.3 MHz, all the way back to a flash-in-the-pan WXRA-FM Kenmore 103.3 of 1949. As per the popular practice of pairing a daytime AM with a sister FM that could continue broadcasting after dark, WXRA's owners took (as better than nothing) one of the many then-empty FM frequencies.

WXRA-FM's first (1949) authorization specified 4.2 kW, but it never actually went airborne. Its founders switched the calls to WXRC-FM before firing-up their new frequency modulation gear in early 1950. Inaugural power was readjusted to 4.6 kW, and programming consisted of simulcasting WXRA during the day and (assumedly) easy listening records past sunset. Though no physical change took place, in 1952, WXRC-FM received an FCC grant to switch its city of license to Buffalo. WXRC-FM tagged along in the 1957 sale of its AM sister and then had its identity changed to WILY-FM. By the fall of 1958, WILY-FM was recast as WINE-FM and its effective radiated power got pushed down to 4.2 kW.

Around this time, WINE-FM's city of license went from Buffalo to Amherst. When Gordon McLendon bought WINE/WINE-FM in 1960, his new FM acquisition became WYSL-FM. Interestingly, McLendon ran a Top-40 format on the facility, one of the earliest FMs with "contemporary" programming not associated with a sister station's simulcast. WYSL-FM got nudged up to 4.9 kW in 1961. Its antenna radiated from 225 feet above the area's average terrain, but that wasn't high enough for the Class "B" 103.3 to rest unchanged. WYSL-FM became WIFE-FM and got headquartered in Buffalo's Statler-Hilton hotel.

Are you still keeping score? Good, let's accelerate. WIFE-FM's ID flipped from Amherst back to Buffalo in 1962, just in time for the station to be recast (again) as WYSL-FM and simulcast its "beautiful music" AM mate. A couple of years later, WYSL-FM received the FCC nod to ascend to 49 kW at 340 feet above average terrain from a new transmitter site. In 1966, about half of WYSL-FM's output included "telephone talk programs," highly unusual for an FM prior to the 1990s. Rock music coincided with a 1970 call change to WPHD-FM. A tower site move (to WYSL AM's locale) in 1972 was followed by a sale from McLendon interests two years later.

Though several new owners came and went, the WPHD calls stayed in place until fall of 1989 when the 103.3 outlet got renamed WUFX-FM. This identity remained through the mid-1990s with the arrival of an alternative music-formatted rocker with a suggested "edge" appropriate for the new WEDG-FM handle. Studios had been shifted throughout the various ownership regimes. Currently, Citadel Broadcasting owns WEDG-FM, which broadcasts from 50 East Casey Drive in Buffalo.

And Thus Endeth Our Ride...

And that's where our bus comes to a stop this time around. See you again next month for another installment of broadcast history at *Pop'Comm*! ■

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by Gerry L. Dexter, gdex@genevaonline.com

Mark Your Calendar—Radio St. Helena Tests On SW On November 4!

Here's some really good news for a change. It looks like those great Radio St. Helena special test broadcasts are coming back! DXer Robert Kipp has been spearheading project "Revive SH Day," aimed at providing equipment to Radio St. Helena to replace what became unavailable to them a couple of years ago. As these words go down we can tell you that a transmitter, antenna, tower and other needed items are on their way to the island. Mr. Kipp will be going to St. Helena to oversee construction. The magic day is set for November 4.

As in the past, the station will use 1 kW on 11092.5 USB. The exact schedule isn't set yet, but you can check www.sthelena.se/radioproject closer to the date.

A second broadcast is planned for November 5 from around 0800 for Japan and New Zealand. Even though the project is quite far along there's still the matter of paying the bills. DXers are being asked to help out. You can do just that by going to the above website and clicking on "donations." So do what you can to help and don't forget to listen for the special on November 4!

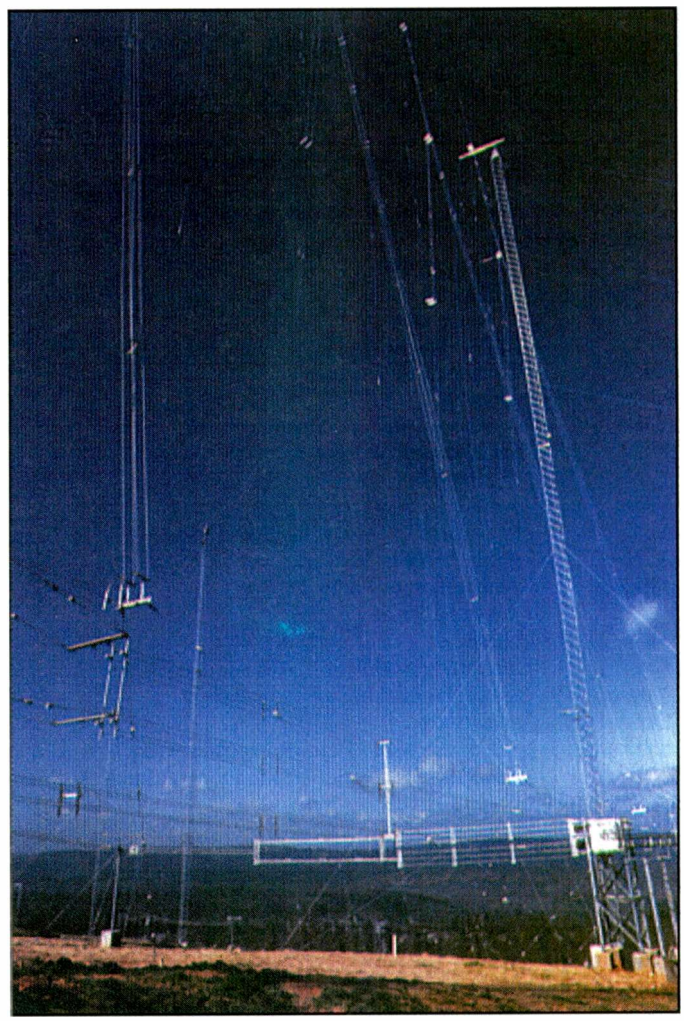
Radio Finland Nearly "Finnished!"

It's time to get out the black border again. We have to report on another shortwave broadcaster's "pre-obituary." This time it's YLE/Radio Finland International getting ready to cash in its chips. Come the end of this year they'll no longer broadcast on shortwave, but will focus instead on serving Finns abroad via other means, especially the oh-so-cool broadcasting via the Web. Have you noticed how many of these give-ups occur in tired old Europe? So now YLE is about to be "Finnished!" Truly a sad and unfortunate state of affairs!

Radio TV Algerienne has again appeared on shortwave—another case of a government broadcaster abandoning its own in-country facilities in favor of hired or exchanged time elsewhere. This time it's via the Rampisham and Wooferton transmitters in the UK. At the moment, anyway, these broadcasts are airing from 0400 to 0600 on 7260 (Rampisham) and 9540 (Wooferton). Also at 1900 to 2000 9765 (R) and 11810 (W), 2000 to 2100 on 9765 (R) and 12025 (W) and 2100 to 2200 on 7150 (R) and 9710 (W). These broadcasts appear to be relays of one of Algeria's national networks. We suggest you act quickly in checking this schedule as it's likely to change when the new B-06 changes go into effect the end of October.

Yet another opposition broadcaster has taken the air. This new semi-station (no, it's not housed in a tractor-trailer) is the Voice of Oromia Independence beaming to Ethiopia from 1500 to 1530 strictly on Saturdays using 15650 likely via Julich, Germany. No contact information is available yet.

You may have noted back in late spring that Montenegro, part of the old Yugoslavia, voted for independence from Serbia. This created still another name change for what used to be Radio Yugoslavia. The station now calls itself International Radio Serbia, though its current shortwave activity appears to be at a minimal level.



Part of the WEWN antenna system, facing Australia, New Zealand and the rest of the Pacific. (Thanks Charles Maxant, WV)

Changes have also taken place in Latvia. Krebs TV, which owns the shortwave relay on 9290 and carries independent programming on its 100-kW transmitter at Ulbroka has been purchased by another party who plans to install a 10-kW SW transmitter at the site. That's because operational costs for the 100-kW unit have soared, making program time too expensive for most users. Time on the new 10-kW unit can be offered at a more reasonable rate, albeit with reduced coverage. The high-power transmitter will be kept available for those who want to pay the higher tab. As it is, those broadcasts rarely made it beyond ESTland. (That's GIG-speak for the Eastern Time zone.)

HCJB's second-100-kW transmitter in Australia is now on the air using 15400 from 0900 to 1300 and 2230 to 0100 on 15525—not with a very extensive schedule so far.

Help Wanted

Month after month the "Global Information Guide" offers you more logs than any other monthly SW publication! (422* shortwave broadcast station loggings were processed this month!) Why not join the fun and get your name on the list of "GIG" reporters? (See the column text for tips on proper format.) Send your logs to your editor at 213 Forest St., Lake Geneva, WI 53147. Or e-mail them to gdex@genevaonline.com or, if you have problems getting through, to Editor Harold Ort at popularcom@aol.com. Our deadline is the 25th of each month.

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

Reader Logs

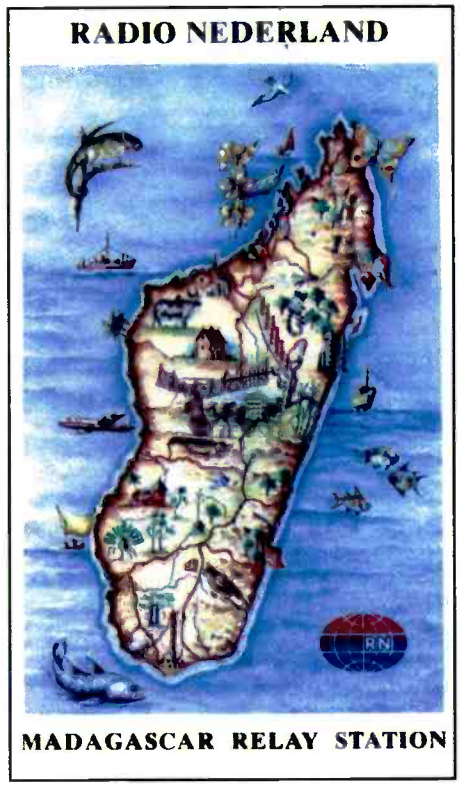
Remember, your shortwave broadcast station logs are always welcome. Just please be sure to double or triple space items, list them by country, and include your last name and state abbreviation after each log. Also much wanted are spare QSLs you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And don't forget that photo of you at your listening post!

A Guide To "GIG-Speak"

Here's a partial list of abbreviations used in the "Global Information Guide."

*	— (before or after a time) time the station came on or left the air
(l)	— (after a frequency) lower sideband
(p)	— presumed
(t)	— tentative
(u)	— (after a frequency) upper sideband
v	— variable time or frequency
//	— in parallel
AA	— Arabic
ABC	— Australian Broadcasting Corporation
AFN	— Armed Forces Network
AFRTS	— Armed Forces Radio TV Service
AIR	— All India Radio
Alt	— alternate
AM	— amplitude modulation, AM band
Anmt(s)	— announcement(s)
Anncr	— announcer
AWR	— Adventist World RadioBC broadcast(er)
BSKSA	— Broadcasting Service of Kingdom of Saudi Arabia
CA	— Central America
CC	— Chinese
Co-chan	— co-channel (same frequency)
comml(s)	— commercial(s)
CP	— Bolivia, Bolivian
CRI	— China Radio International
DD	— Dutch
DJ	— disc jockey
DS	— domestic service
DW	— Deutsche Welle/Voice of Germany
EE	— English
ECNA	— East Coast of North America
f/by	— followed by
FEBA	— Far East Broadcasting Association
FEBC	— Far East Broadcasting Company
FF	— French
freq.	— frequency
GBC	— Ghana Broadcasting Corp
GG	— German
GMT	— Greenwich Mean Time (UTC)
HH	— Hebrew, Hungarian, Hindi
HOA	— Horn of Africa
ID	— station identification
II	— Italian, Indonesian
Int/Intl	— international
Irr.	— irregular use
IRRS	— Italian Radio Relay Service
IS	— interval signal
JJ	— Japanese
KK	— Korean
LSB	— lower sideband
LV	— La Voz, La Voix (the voice)
MW	— mediumwave (AM band)
NBC	— National Broadcasting Corporation (Papua New Guinea)
OA	— Peru/ Peruvian
OC or O/C	— open carrier
PBS	— People's Broadcasting Station
PP	— Portuguese
PSA	— public service announcement
QQ	— Quechua
QRM	— man-made interference
QRN	— noise (static)
QSL	— verification
RCI	— Radio Canada International
Rdf.	— Radiodifusora, Radiodiffusion
REE	— Radio Exterior de Espana
RFA	— Radio Free Asia
RFE/RL	— Radio Free Europe/Radio liberty
RNZI	— Radio New Zealand International
RR	— Russian
RRI	— Radio Republik Indonesia
RTBF	— RTV Belge de la Communate Françoise
Relay	— transmitter site owned/operated by the broadcaster or privately operated for that broadcaster
relay	— transmitter site rented or time exchanged.
SA	— South America
SEA	— Southeast Asia
SCI	— Song of the Coconut Islands (transition melody used by Indonesian stations)
s/off	— sign off
s/on	— sign on
SIBC	— Solomon Is. Broadcasting corp.
sked	— schedule
SLBC	— Sri Lanka Broadcasting Corporation
SS	— Spanish
SSB	— single sideband
SWL	— shortwave listener
TC	— time check
TOH	— top of the hour
TT	— Turkish
TWR	— Trans World Radio
Unid	— unidentified
USB	— upper sideband
UTC	— Coordinated Universal Time (as GMT)
UTE, ute	— utility station
Vern	— vernacular (local) language
via	— same as "relay"
VOA	— Voice of America
VOIRI	— Voice of Islamic Republic of Iran
WCNA	— West Coast of North America
ZBC	— Zimbabwe Broadcasting Corporation

More of the WEWN antenna system, aimed at Europe, western America, and the Pacific. (Thanks Charles Maxant, WV)



Isn't it nice to get a QSL specifically designed for a relay site? This one for Radio Nederland's Madagascar site went to Joe Wood in Tennessee.

So let's set sail. All times are in UTC and those double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is specified the broadcast is assumed to have been in English (EE).

ALASKA—KNLS, 11870 monitored at 0840 with hymns and religious programming. (Linonis, PA)

ALBANIA—Radio Tirana, 6115//7455 at 0244 with talk mentioning Albania, ID a 0248, music, another ID and off heard at 0300. (Burrow, WA)

ARMENIA—Public Radio of Armenia, 9965 in Armenian to South America at 0203. (DeGennaro, NY) 0214 in Armenian and later SS. (Taylor, WI)

ARGENTINA—Radio Nacional, 6060 in SSheard at 0923. (DeGennaro, NY) 0057 and 15345 in SS at 2035. (Charlton, ON) 11710 RAE (t) in EE at 0223 with DX program at 0235. (Burrow, WA) 15345 in SS at 1835. (Maxant, WV) 2210. (MacKenzie, CA) 2247. (Brossell, WI)

ASCENSION IS.—BBC Relay, 15400 at 2213 with comments on the E.U. (MacKenzie, CA) 17830 heard at 1844. (Charlton, ON)

United Nations Radio, 17810 at 1730 sign on with mention of date, ID and into news and features. (D'Angelo, PA)

AUSTRALIA—Radio Australia, 5995-Brandon in Pidgin at 0944, 6020-Shepparton, in Pidgin at 0947, 6080-Shepparton heard at 0951, 9580-Shepparton at 1227 and 9590-Shepparton at 1229. (DeGennaro, NY) 12080-Shepparton at 0420, //13670, 15240 and 15515. 15415-Shepparton at 2215, //17785. And 15515 at 2218, also 17785 at 2227, //13630, 15230, 15240, 15515. (MacKenzie, CA) 13775 at 1535, 15515 at 0410 and 17850 at 2335. (Maxant, WV) 15160 at 0507, //15240. Also 17785 at 2345. (Wood, TN) 15515 at 2132 and 17715 at 0006. (Chandler, ON)

CVC International, 13635 ending "Chat Back" program at 1658, IDs, program notes and music. (Burrow, WA) Also 13650 at 1332 on epidemics in Asia. (Brossell, WI)

AUSTRIA—Radio Austria Int., 9870 in possible PP at 0040. (Linonis, PA) 0045 in EE. (Maxant, WV) 0148 in EE to ECNA. (DeGennaro, NY)

BELGIUM—RTBF, 9970 at 0433 with pop music, EE and FF anncrs. (Wood, TN)

BOTSWANA—VOA Relay, 4930 with news at 0333. (Brossell, WI) 17895 heard at 1846 asking for phone calls. (Charlton, ON)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 at 0112 with religious talk in QQ, rustic vocals, talk by man and woman in QQ and SS. Off at 0132. (D'Angelo, PA)

Radio Maliku, Uyuni, (p) 4796.4 at 0950 with possible ID, CP music, SS anmts. Poor with CODAR QRM. (Alexander, PA)

BRAZIL—Radio Tupi, Curitiba, 6060 with PP religious programming at 0800. Weak, //9565. (Alexander, PA)

Radio Boa Vontade (t) 11895.2 with PP religious programming monitored at 0310. (D'Angelo, PA)

Radio Transmundial, Santa Maria, 11735 in PP at 1048 with man/woman talk, ID, more talk. (MacKenzie, CA)

Radio Caiari, Porto Velho, 4785 with men talking in PP heard at 0937. (DeGennaro, NY)

Radio Difusora Acreana, Rio Branco, 4885 with music and talk in PP at 0942. (DeGennaro, NY)

Radio Brazil Central, Goiania, 11815 at 0015 with PP talk, futbol, ad string at 0018 and ID. (D'Angelo, PA)

Radio Anhanguera, Goiania, 11830 with PP church service at 2305. (Brossell, WI)

Radio Nacional Amazonia, 6180 at 0952 with call-in show in PP. Also 11780 at 0125 with music and anncr. (DeGennaro, NY) 11780 in PP at 0240. (Taylor, WI) 2019. (Charlton, ON)

BULGARIA—Radio Bulgaria, 7400 with Bulgarian folk music at 0345. (Brossell, WI) 9700 at 2305. (Weronka, NC) 9700 in FF at 0117, 11500 in SS at 0113 and 11700 in EE at 0212. (DeGennaro, NY)

BURKINA FASO—Radio Burkina, 5030 at 0529 sign on with national anthem and into FF talk. Local folk music. Poor level, mixing with Gene Scott. (Alexander, PA) 2237 with FF anmts and high-life music. (Brossell, WI)

CANADA—Radio Canada Int., 17765 in FF at 1935. (Charlton, ON)

CKZN, St. John's, 6160 at 0352 with classical music on *Northern Lights* program, sev-

In Times Past...

And now for a bit of fun. We'll give you a blast from the past here each month; perhaps a logging or station tidbit from the *Pop'Comm* shortwave history book. Here's a blast from the past...

AZORES—Emissora Regional de Acores, Ponta Delgada, 4845 in Portuguese at 2210 on December 27, 1957, running a mere 1 kW. (Dexter-IA)

Another cool card—this from Argentina's RAE. Joe Wood says it took him 10 years to snare a reply from them.

eral IDs and a pgm from Radio Nederland at 0406. (D'Angelo, PA) 0944 with sports news. (DeGennaro, NY)

CHILE—Voz Cristiana, 5960 in SS at 0941, 6070 in SS at 0955 and 11745 in PP at 0119. (DeGennaro, NY) 11680 in SS at 0035. (Maxant, WV) 11680 in SS at 2225. (MacKenzie, CA) 17680 in SS at 1840. (Charlton, ON)

CHINA—China Radio Int., 5955 in CC at 1230. (Barton, AZ) 6020 via Albania at 0415. (Linonis, PA) 7285 via Albania at 2057, 9570 via Cuba at 1224 and 13630 via Mali in PP at 1942. (DeGennaro, NY) 11610-Xi'an at 1021 in EE. (Taylor, WI) 11695 via Albania in FF at 1909 and 13740 via Cuba at 1537. (Charlton, ON)

CPBS, 6165 in CC at 1210 and 9170 in CC at 1220. (Brossell, WI) 9500-Shijiazhuang, in CC at 1010. (DeGennaro, NY) 9775 in CC at 2327. (Mackenzie, CA)

Voice of the Strait, Fuzhou, 7280 in CC at 1013. (DeGennaro, NY) 11590 in CC at 1215. (Brossell, WI)

China Music Jammer, 9455 at 1718, //9580. (MacKenzie, CA)

COLOMBIA—Marfil Estereo, Puerto Lleras, 5910 in SS with music at 0938. (DeGennaro, NY)

La Voz de su Concencia, Pueto Lleras, 6010 in SS at 0951. (DeGennaro, NY)

Radio Lider, Bogota, 6139.8 at 0600 with ID, news, romantic SS ballads and many IDs. (Alexander, PA)

CONGO (Dem. Rep.)—Radio Okapi, 11690 via Ascension at 0438 with vern. talk, FF talk, occasional "Okapi" jingles and some local folk music. Closed at 0559. (Alexander, PA)

COSTA RICA—University Network, 13750 at 1935 with Gene Scott. (Charlton, ON)

Radio Exterior de Espana Relay, 17850 in SS at 2214, //9765 (CR), 11815 (CR) and 15110. (MacKenzie, CA)

CROATIA—Voice of Croatia, 7285 via Germany in Croatian at 0043. (Charlton, ON) 9925 via Germany in Croatian at 0425. (DeGennaro, NY) 2345 with ID and music. (Maxant, WV)

CUBA—Radio Havana Cuba, 11760 in FF at 2016. (Charlton, ON) 11760//11805 1430 and 15230 at 1600. (Barton, AZ) 15230 in SS at 0059. (DeGennaro, NY)

Radio Rebelde, 5025 at 0935 with coming events in SS. (DeGennaro, NY)

CYPRUS—BBC Relay, 9410 via Cyprus with program on Montenegro at 0318. (Brossell, WI)

CZECH REPUBLIC—Radio Prague, 7345 at 0003 with local weather and news, //9440. (Wood, TN) 0030 on medical care. (Linonis, PA) 0101 and 17485 in Czech at 1748. (Charlton, ON) 7345 at 2245. (Weronka, NC) 9445 at 0330 with IS, IDs. (Burrow, WA) 11600 at 2130 with interview with a Canadian tourist. (Maxant, WV)

ECUADOR—HCJB, 9745 in SS at 0128. (DeGennaro, NY) 12000 in SS at 2240 and 12040 in GG at 2238. (MacKenzie, CA)

La Voz del Napo/Radio Maria, Tena, 3280 with soft rock and easy listening music in SS at 0502. (Wood, TN)

EGYPT—Egyptian Radio/Radio Cairo, 7270 at 0311 with music, time pips, news. Off at 0328. (Burrow, WA) 7270 at 2054 in AA, 11755 in SS at 0121 and 12050 in AA at 1931. (DeGennaro, NY) 9990 in EE at 2135. (MacKenzie, CA) 9990 in EE at 2207 and 12050 in AA at 2024. (Charlton, ON) 9990 in EE at 2130 and 12050 in AA at 1810. (Maxant, WV) 11950 at 0005 with AA lessons. (Wood, TN) 2320. (Weronka) 12050 in AA at 2016. (Brossell, WI)

ENGLAND—BBC, 13745-Rampisham, in RR to Europe at 1949. (DeGennaro, NY) 15390 at 2145 with call-in show taking complaints. Send e-mail and they'll phone you. (Maxant, WV) 15515-Wooferton with Darfur Salaam service for Sudan at 1710 in AA with flutes and talk segments to 1729 close. Not via Cyprus as reports originally said. (D'Angelo, PA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005, 2245 in SS with African high-life music. Three-minute NA at 2258 closing. (Alexander, PA) Off at 2301. (D'Angelo, PA)

Radio East Africa, 15190 at 0800 with U.S.-produced religious programming. "People's Gospel Hour" at 0811. (Alexander, PA)

ETHIOPIA—Radio Ethiopia, 9704.2 at 0324 with HOA music, woman in Amharic, man with news at 0330. (D'Angelo, PA)

Radio Fana, 6210 at 0327 with HOA music and anmts in presumed Amharic. (Brossell, WI)

FRANCE—Radio France Int., 11700 with news at 0405. (Maxant, WV) 11705 in FF at 1913, 11995 via Gabon in FF at 2023 and 15300 in FF heard at 1823. (Charlton, ON)

11995 via Gabon in FF at 2014. (Brossell, WI)

GABON—Radio Gabon, 4777 at 0458 sign on in FF with anmts, NA, FF talk at 0500 and ID 0501. (Alexander, PA)

Africa Number One, 9580 in FF at 2240. (MacKenzie, CA) 15475 in FF at 1627. (Burrow, WA) 1720 with sports event. (Wood, TN) 1805 with music. (Maxant, WV) 1832. (Charlton, ON)

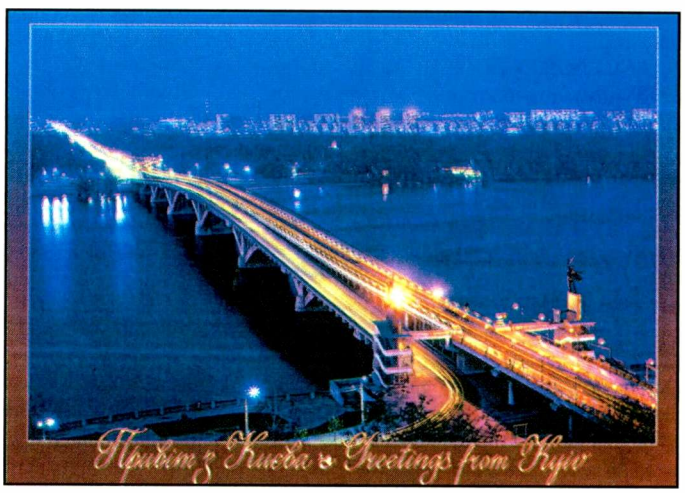
GERMANY—Deutsche Welle, 7105-Wertachtal in RR at 0312. (Taylor, WI) 9630 about the EU at 0515. (Maxant, WV) 9695 with news at 0010, 11865 at 2136, 15205 at 2028, 15620 at 1923, all in EE. (Charlton, ON) 11865 at 2235. (Weronka, NC) 12040 via Rwanda in GG at 0130 and 13790 in AA at 1953. (DeGennaro, NY) 13780 at 2130. (Barton, AZ) 15640 via Petropavlovsk in GG at 2253, //9775 via Rwanda and 11865 via Portugal. (MacKenzie, CA)

Bible Voice via Germany, 13710 with religious message at 1953. (Brossell, WI)

GHANA—Ghana Broadcasting Corp, 4915 at 0611 with music and news. (Taylor, WI) 2253 with local vocals and drums, ID and news heard at 2300. (D'Angelo, PA)

GREECE—Voice of Greece, 7475 in Greek to Europe at 2104 and 15650 in Greek at 0044. (DeGennaro, NY) 15630 in Greek at 1835. (Charlton, ON)

RS Makedonias, 7450 in Greek at 2100. (DeGennaro, NY)



Radio Ukraine International sent this eye-catching photo-card to Rich D'Angelo, Pennsylvania.

GUAM—AFN/AFRTS, 13362u with live sports coverage at 0109. (DeGennaro, NY)

GUATEMALA—Radio Verdad, Chiquimula, 4052.5 heard at 0226 with inspirational vocals and man with SS religious talk. (D'Angelo, PA)

Radio Buenos Nuevas, San Sebastian, 4800 with songs and talks in SS at 0331. (Brossell, WI)

Radio Cultural Coatan, San Sebastian, 4780 at 0153 with man hosting pgm of rustic vocals and nice marimba music. IDs at 0158 and 0234. (D'Angelo, PA) 0201 with campo-style music. (Taylor, WI) 1118 with Guatemalan folk music. (Barton, AZ)

GUYANA—Voice of Guyana, 3291 at 0245 with pop vocals, oldie hits, IDs in between. (D'Angelo, PA)

HAWAII—KWHR, 11565 with religious program at 0755. (Maxant, WV)

HUNGARY—Radio Budapest, 6025 in II at 0139. (Weronka, NC) 2214 on human and constitutional rights in Hungary. (Brossell, WI) 11695 in presumed HH at 2006. (Brossell, WI) 2015 in HH. (Charlton, ON)

INDIA—All India Radio, 9445 at 2200. (Weronka, NC) 10330-Bangaluru in HH at 0336. (Brossell, WI) 11620 at 1915 and. (Maxant, WV) 10330-Bangaluru in HH at 0205, 11620-Delhi in HH at 0200 and 13620-Bangaluru in AA at 1938. (DeGennaro, NY)

INDONESIA—Voice of Indonesia, 9525 in II at 1210. (Brossell, WI)

IRAN—Voice of Islamic Republic of Iran, 9655 in SS at 0108, 9905 in SS at 0156 and 9935 in AA at 0200. (DeGennaro, NY) 11695 in AA at 1931. (Charlton, ON)

ISRAEL—Kol Israel, 9345 in HH at 0315 and 11590 in EE at 2004. (Brossell, WI) 11585 in HH at 2141. (MacKenzie, CA) 11590 in EE at 0330. (Burrow, WA) 11590 at 0340. (Maxant, WV) 15650 in EE at 1916. (Charlton, ON)

ITALY—RAI Int., 9780 with bird IS and into II at 2020. Also 11800 in II at 2305. (Brossell, WI) 9840 in II at 0141, 11765 via Ascension in II at 0145 and 11800 in FF at 0128. (DeGennaro, NY) 11800 in EE at 0100. (Linonis, PA) 2310 with news in EE. (Maxant, WV) 17780 in II at 1841. (Charlton, ON)

JAPAN—Radio Japan/NHK, 6120 via Canada with EE news at 1003, 11935 via Bonaire in EE at 0137. (DeGennaro, NY) 6145 (*via Canada—gld*) with Japanese songs at 0011. Also 15355 via Gabon in EE at 1754. (Charlton, ON) 9535 in EE/JJ at 1720, 9560 in JJ at 2105, 9650 via UAE in JJ at 2116, 11895 via French Guiana in JJ at 2245, 13650 in Thai at 2315, 15265 via Bonaire in JJ at 2320 and 17810 in Malay at 2238. (MacKenzie, CA)

Radio Nikkei, 9595 in JJ at 2112. (MacKenzie, CA)

KUWAIT—Radio Kuwait, 9855 in AA at 2257. (Brossell, WI) 9855 heard at 2340, 15495 at 2038 and 15505 at 1837, all in AA. (Charlton, ON) 11675 in AA at 0345. (Maxant, WV) 15495 in AA with Koran at 0211. (D'Angelo, PA) 2320 in AA. (MacKenzie, CA) 2008 in AA and 15505 in AA at 2011. (DeGennaro, NY)

A stylish reply from Radio Tirana, sent to Rich D'Angelo.

LIBERIA—Star Radio, 9525 via Ascension Is. at 0740 with drums, religious talk. (Maxant, WV) 11965 in vernacular at 2130. (Charlton, ON)

LIBYA—Radio Jamahiriya/V of Africa, 7320 in AA at 2337 and 15660 in AA at 1836 (Charlton, ON) (*both via France—gld*) 17725 via France with EE program at 1400 with high-life music, many IDs, features on human rights and local geography, news. //17850. (Alexander, PA)

LITHUANIA—Radio Vilnius, 9875 at 2354 with EE features and off at 2359. (Wood, TN) 2340 announcing itself as the biggest English service in the Baltic. Also 11690 in EE at 0027. (Maxant, WV)

MADAGASCAR—RTV Malagasy, 5010 at 0300 with ID and high-life music. (Brossell, WI)

Deutsche Welle relay, 15410 at 0517 with various features in EE. (Wood, TN)

MALAYSIA—Radio Malaysia, 7270 carrying Wai FM at 0457 to probable news at top of the hour and ID at 0508. (Taylor, WI)

Radio Malaysia, 7275 carrying Traxx FM at 1603 with news, promo anmts, ID at 1604 and into music. (Burrow, WA)

MEXICO—Radio Educacion, 6185 in SS heard at 1008. (DeGennaro, NY) 0413 in SS conversation and ID. (MacKenzie, CA)

MOLDOVA—Voice of Russia, 9665 in EE at 0111. (DeGennaro, NY)

MOROCCO—Radio Marocaine, 15345 in AA at 2035. (Chandler, ON)

Radio Medi-Un, 9575 with songs in AA at 0325. (Brossell, WI)

VOA Relay, 11720 in FF at 2000. (Chandler, ON)

NETHERLANDS—Radio Nederland, 6015 in DD at 2212. (Brossell, WI) 9700 in EE at 0715, 9845 at 2350 and 11655 at 1845. (Maxant, WV) 9845 at 0015, 11655 via Madagascar at 1912 and 17810 in DD heard at 1937. (Charlton, ON)

NEW ZEALAND—Radio New Zealand, 6095 at 0958 with an interview, ID and news. Also 15720 at 2018. (DeGennaro, NY) 7145 at 1433. (Barton, WA) 1610 with "National Radio" ID and into music of New Caledonia. (Burrow, WA) 15720 with comedy show at 0230. (Maxant, WV) 0313 with "Dateline Pacific," ID at 0330. (D'Angelo, PA) 2040 with ID. (Chandler, ON)

NIGERIA—Voice of Nigeria, 15120 at 0508 with news, IDs, "talking drums" IS and news at 0600. (Alexander, PA) 1700 with ID, time check, program notes and news. (Burrow, WA) 1925 with a discussion and ID. (Maxant, WV) 1926 with ID. (Charlton, ON)

Radio Nigeria, Kaduna, 4770 at 0427 with open carrier, drums, choral anthem, ID and vocals. (D'Angelo, PA)

NORTH KOREA—Voice of Korea, 6185 at 1300 with IS, ID in CC and CC talk. (Brossell, WI) 9990//11545 at 1611 with news. (Burrow, WA)

KCBS, 6285 in KK heard at 1218. (Brossell, WI)

NORTHERN MARIANAS—Voice of America Relay, 13640 in JJ at 2305. (MacKenzie, CA)

OMAN—Radio Sultanate of Oman, 9760 in AA at 0110 with talk about Islam and mullahs. (Linonis, PA) 15140 at 1402 sign on with EE news in progress, ID and techno-pop. News again at 1423. (Alexander, PA) 2147 with discussion in AA. Big Ben-like bells at 2200 f/by a gong, ID and news. (D'Angelo, PA)

OPPOSITION—Moj Them, 15260 at 0200 open with fanfare, opening anmts and man/woman with news. Off at 0256. (D'Angelo, PA)

Radio Nile, 9905 via Madagascar at 0409 with IDs as "Radio Nile" and "Mambo Badu" by man and woman annors in African-accented EE and talks about Sudan. (Wood, TN) 0415 with political talk, mentions of Sudan and Uganda. Closed at 0500. (Barton, AZ)

Radio Free Asia, 9910 via Guam in CC at 2129 and 15585 in CC at 2305.

(MacKenzie, CA) 11720 in FF at 2009. (Brossell, WI)

Radio Free Europe, 7175 via Germany at 0330 in RR and 9635 via Morocco in unid Slavic language heard at 0327. (Brossell, WI)

Radio Liberty, 9805 via Northern Marianas in RR at 1347. (Brossell, WI)

Radio Republica, 7110 via Rampisham in SS at 0319 and 7205 via Rampisham in SS at 0158 to 0200 close. In both cases the Cuban jammer was barely audible. (Taylor, WI)

SW Radio Africa, 3230 via Madagascar in heavily-accented EE at 0340 with many mentions of Zimbabwe and website as radioafrica.com. (Brossell, WI)

PAKISTAN—Radio Pakistan (t) 7445 at 0045 with talk about sports. Severe fading.

(Linonis, PA) 11570 at 1556 with IS, time pips and start of program but too weak to copy. (Burrow, WA)

PERU—Radio Vision, Chiclayo, 4790 (t) at 0015 with SS religious programming and some music. (Alexander, PA) 0240 with long SS talks and some OA vocals. Finally an ID heard at 0349. Poor with CODAR QRM. (D'Angelo, PA)

Radio Huancabamba, Huancabamba, 6536.4 at 0150 with SS talks, anmts, ID. Off abruptly at 0203. (Alexander, PA)

Radio Union, Lima, 6114.9 at 0730 with SS ID, anmts, pops, some OA music. (Alexander, PA)

PHILIPPINES—FEBC Int., 9920 with ID "This is the international voice of the Far East Broadcasting Company" at 1357. (Brossell, WI)

VOA Relay, 6160 in CC at 1310 and 12040 badly hit by the Chinese Music Jammer at 1304. (Brossell, WI) 15290 in EE at 2203 and 17740 at 2238. (MacKenzie, CA)

PIRATES—MAC Shortwave, 6950 at 0000 with rock incl. several Elvis numbers. Off at 0115 and then IS and ID for Northwood's Radio. (Linonis, PA) 0026 and 0110 with various rock numbers and IDs. (Wood, TN) 0035 and 0112 with rock, dead air in between. Muffled DJ was difficult to understand. QSL via machshortwave@yahoo.com. (Hassig, IL) 2336 and 0240 with rock, periodic IDs and URL. (D'Angelo, PA)

WMPR, 6925 at 2344 with continuous techno/dance pgm and occasional IDs. No address noted. Also at 0028 with dance stuff and less audio compression than usual. (Hassig, IL)

Undercover Radio, 6925u at 0530 with story of a bionic man who is part of a machine. At first I thought this was KIPM. (Hassig, IL)

Radio First Termer, 6955u heard at 0045 with various rock selections. (D'Angelo, PA)

Mystery Radio (Euro) 6220.3 at 0430 with continuous rock and ID jingle at 0320. (D'Angelo, PA)

Laser Hot Hits (Euro) 6275 at 0505 with Beatles, ID, Merlin address, 60s things. (Alexander, PA)

Northwoods Radio, 6950u at 0115 to 0200 with loon IS, ID, Native American and blues tunes. Off at 0200 with ID in Morse code. (Linonis, PA)

WBNY-6950 at 0059 and 1351. Some classical music, into raunchy parody of the Macarena, some foreign selections, website given but not copied. Belfast address for reports. (Hassig, IL)

Radio Stickman Shortwave, 6925u at 0021 with oldies rock and some Three Stooges audio mixed in. Last two minutes were digital noise, perhaps SSTV. No address heard. (Zeller, OH)

The Crystal Ship, 6876.2 at 0057 with classical music, then into their normal hard rock fare and "Voice of the Blue States Republic." Announcer is "The Poet." (Zeller, OH)

Weekend Music Radio (t) 6925u heard at 0106 with heavy metal, talk of pirating in the 1980s, and Merlin mail drop. (Hassig, IL)

Captain Morgan, 6925 at 0034 with oldies rock, a Jeopardy sketch, Pink Panther movie audio and Twilight Zone TV audio mixed in. Used their usual "Pirate Zone" slogan but no address given. (Zeller, OH) 0043 with well-done mix of music and comedy. Mentions of QSLs by posting at FRN.net. (Wood, TN)

KIPM, 6925u at 0130 with a radio play by Alan Maxwell. (Linonis, PA) 0128 with "The Adversary," repeat of a previous story about a man who thinks he's a deity. (Hassig, IL)

Pirate Radio Boston, 6950 at 0200 with Program 2, "Hugh Hefner Sucks." Address as P.O. Box 146, Stoneham, MA 02180. (Linonis, PA)

PORTUGAL—RDP Int., 9715 in PP at 0120, 15295 with PP to Brazil at 0055 and 15560 with sports in PP at 2014. (DeGennaro, NY) 15555 in PP at 2249. (Brossell, WI)

ROMANIA—Radio Romania Int., 9515 in FF to Europe at 1220, 9690 in EE to ECNA at 0114 and 11970 to ECNA at 0135. (DeGennaro, NY) 11940 at 2140. (Maxant, WV) 2315. (Weronka, NC)

RUSSIA—Voice of Russia, 9665 at 0200. (Weronka, NC) 9860 via Vatican in RR at 0146, 9725-Armavir in RR at 0123, 9880-Armavir in RR at 0152, 9830-Armavir in SS at 0135 and 12070-Moscow in RR at 0117. (DeGennaro, NY) 9880 at 0406 and 11675 at 1740. (Wood, TN) 9880 at 0415. (Maxant, WV) 12055-Chita in an Asian language at 1205. (Brossell, WI)

Radio Rossii, 6100 in RR monitored at 1240. (Barton, AZ)

Radio Tikhy Okean, 12065 in RR at 0836. (Taylor, WI)

Kamchatka Radio, 6075 in RR at 1305. (Brossell, WI)

Bible Voice via Russia, 12065 in an Asian language at 1215. (Brossell, WI)

RWANDA—Deutsche Welle Relay, 9695 at 0012, //9825. (Wood, TN) 17860 in AA at 1846. (Charlton, ON)

SAO TOME—VOA Relay, 6080 with "Music Mix" program at 0613. (Wood, TN) 15410 at 1948. (Brossell, WI) 15730 in FF. (Charlton, ON)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 9870 in AA at 2126. (MacKenzie, CA) 11740 in AA at 1915. (Charlton, ON)

SEYCHELLES—BBC Relay, 15420 at 0522 with headlines and pgm of pipe organ music. (Wood, TN)

SINGAPORE—Radio Singapore, 6120 at 1120 with woman hosting music pgm in local language. (Barton, AZ) 6150 at 1553 with interview, music break, pgm notes, schedule, ID and off at 1600. (Burrow, WA)

SOUTH AFRICA—Channel Africa, 7240 at 0506. (Burrow, WA) 0525. (Maxant, WV) 9685 at 0535. (Maxant WV) 15325 at 1745. (Charlton, ON)

BBC Relay, 7120 monitored at 0415. (MacKenzie, CA)

SOUTH KOREA—KBS World Radio, 15365 via England in AA heard at 1946. (Brossell, WI)

SPAIN—Radio Exterior de Espana, 9620 in SS at 0054, 15110 in SS at 1957 and 15385 in EE at 0050. (DeGennaro, NY) 15385 in EE at 0007. (Wood, TN) 0010. (Maxant, WV) 17850 with soccer in SS heard at 1844. (Charlton, ON)

SRI LANKA—Radio Sri Lanka, 15745 with religious talk at 1910. (Maxant, WV)

SUDAN—Radio Omdurman, 7200 at 0258 in AA with man talking, 4 time pips on the hour, fanfare, ID and apparent news. (Taylor, WI)

SWAZILAND—Trans World Radio, 3240 at 0324 with religious talk in listed Shona. Apparent language change at 0330 and an EE ID at 0345 sign off. (D'Angelo, PA)

SWEDEN—Radio Sweden Int., 13560 via Canada with interview of a Swedish chef at 1356. (Charlton, ON)

SYRIA—Radio Damascus, 12085 in FF to Europe at 1935. (DeGennaro, NY)

TAIWAN—Radio Taiwan Int., 15215 with DX program mailbag at 0331. (Burrow, WA) 15600 via Florida with "Musical Chairs" pgm at 2240. (MacKenzie, CA)

Fu Hsing Broadcasting Service, (t) 9410-Taoyuan, in Mandarin at 1120. (Taylor, WI)

THAILAND—Radio Thailand, 11685 in an Asian language at 1333. (Brossell, WI)

BBC Relay, 11750 heard at 1320. (Brossell, WI)

TURKEY—Voice of Turkey, 7215 in TT at 2048. (DeGennaro, NY) 7300 in TT at 0010. (Charlton, ON) 9785 in EE at 1845. (Maxant, WV) 9830 with letters program at 2225. (Weronka, NC)

TUNISIA—RT Tunisienne, 7275 with Koran at 0342. (Brossell, WI)

This Month's Book Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

Our book winner this month is **Rick Barton** of Phoenix, Arizona, who receives a copy of the 2007 edition of *Passport to World Band Radio* from Universal Radio. If you still aren't on their list to receive Universal's great catalog of neat radio things each time it's released, it's high time you remedied that situation. Call Universal at 614-866-4267 or e-mail them at dx@universal-radio.com or you can drop a note to them at 6830 Americana Parkway, Reynoldsburg, OH 43068.

UKRAINE—Radio Ukraine Int., 5880 with "Ukraine Diary" at 0415. (Brossell, WI) 7440 at 0003. (Wood, TN) 0021 (Charlton, ON) 7490 to Western Europe at 2108. (DeGennaro, NY)

UNITED ARAB EMIRATES—Adventist World Radio via Dhabbaya, 11975.1 at 0351 with religious talk in unid language, ID by man during apparent closing and carrier off at 0359. (D'Angelo, PA)

UNITED STATES—AFN/AFRTS, 12133.5u-Key West heard at 0113. (DeGennaro, NY)

WEWN, 5810, now here at 0230. No longer on 5035. (Alexander, PA) 9885 at 0710 over Radio New Zealand. I advised them of the conflict and they agreed to move. (Maxant, WV) (*Excellent! We need much more listener involvement like this.—gld*)

VATICAN—Vatican Radio, 6205 via Russia at 1314 in unid Asian language. 13675 opening broadcast to Africa at 2000. (Brossell, WI) 7250 in AA at 2052 and 12055 via Chita, Russia in Malay or II at 0120. (DeGennaro, NY) 11625 at 2008. (Charlton, ON)

VENEZUELA—Radio Nacional, 11880 via Cuba in SS heard at 1930. (Maxant, WV)

VIETNAM—Voice of Vietnam, 6175 at 0107. (Charlton, ON) (*via Canada—gld*) 9730 at 1602 with news, local music, ID, more news and another ID. (Burrow, WA) 9840 at 1400 with schedule and address, into presumed VV. (Barton, AZ)

YEMEN—Republic of Yemen Radio, 9779.5 at 0256 with open carrier to 0259 when woman opened with AA ID and freq. Anmts, then into talks and Middle Eastern music. Heavy QRM from HCJB-9780 in GG. (D'Angelo, PA)

ZAMBIA—The Voice-Africa, 4965 with EE sermon at 0334. (Brossell, WI)

ZANZIBAR—Radio Tanzania-Zanzibar, 11735 heard at 1800 with time pips, EE news, into unid language at 1810. (Alexander, PA) 1802 with news, ID for "Spice FM" and into unid language. (Burrow, WI) 2011 in Swahili. (Brossell, WI)

And, once again, order is restored. Thanks beyond measure to the following who faced up to the propagation gods and put their results on display this time: Rick Barton, Phoenix, AZ; Charles Maxant, Hinton and Barboursville, WV; Stewart MacKenzie, Huntington Beach, CA; Jack Linonis, Hermitage, PA; George Zeller, Cleveland, OH; Robert Charlton, Windsor, ON; Joe Wood, Greenback, TN; Arnold Zeck, Bayberry, NY; William Hassig, Mt. Prospect, IL; Dave Weronka, Benson, NC; Robert Brossell, Pewaukee, WI: Bruce Burrow, Snoqualmie, WA; Brian Alexander, Mechanicsburg, PA; Rich D'Angelo, Wyomissing, PA; Ciro DeGennaro, Feura Bush, NY; and Mark Taylor, Madison, WI. Thanks to each one of you!

Until next month—good listening! ■

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by Bill Price, N3AVY

Let's Go Camping

Back when Norm and I lived in New England we had spent most of our summer weekends working on "the bus," which was to Norm what Alaska was to Seward, and we thought we deserved a vacation. We had different ideas of what a vacation would be. I had visions of Norm taking his overworked bus mechanic—me—for a week at a nice waterfront resort somewhere as the season drew to a close; Norm's plans involved spending less money.

There's nothing wrong with a nice little campsite in a state park with tile showers and a lake nearby. "But Old Man," he said to me, "those places cost 20 bucks a night for a campsite." A friend has a nice patch of woods a hundred miles north of here, and it's *free*! That was a word I soon learned to take as a warning sign.

"It's on a lake. We can fish right from the campsite. You can even take your guns; we'll be so far away from anyone that you can shoot up all the tin cans you want and no one will even hear you."

He did find a way to my heart there. I am an inveterate plinker. It doesn't matter if it's a big revolver or a little .22 pistol, I can just shoot for hours. And where we lived, it was hard to find a place to shoot. He had me, and he knew it.

We would also set up my Ten-Tec CW rig running off 12 volts and throw a wire over some branches. Ham radio, guns, and camping. And food. Norm's station wagon was a safe place to keep a cooler filled with food—simple food like steaks, eggs, eggs, steaks, and maybe some coffee.

After driving for a long way, we came to a lake that we could drive right up to the edge of. "This must be the place," Norm announced, confidently. I had seen the same directions scribbled on envelopes, and I was not nearly so sure. It looked nice, though.

Norm's "tent" was a really big blue rip-stop nylon tarp, and he "pitched" it by putting a big dead branch in the middle to hold the center up like a circus tent, then tied off a lot of the grommets around the edges to nearby trees. If any rain came straight down, or if monkeys came leaping down from the sky, his "tent" would protect us. I tried to get him to pitch it in such a way that it had sides, and a front, and a back, but it really couldn't be done. It was nothing more than a tarp, no matter what we did.

We were not only far away from the nearest store, or hospital, or other signs of civilization, we soon found we were pretty much out of range of any 2-meter FM ham activity, too. Even the scanner I brought along was straining to pick up anything at all, and the thought of sleeping on a cot, in the middle of some really isolated woods, without so much as a tent wall between me and the lions, tigers, and bears (oh my!) was more than I could handle. We slept in the safety, if not the comfort, of the station wagon.

We had forgotten that this "campsite" did not come equipped with a picnic table, and of course, we had no table or chairs with us. When we sat on the ground and leaned against a tree, we got covered with pinesap and bugs crawled on us. Our options were to sit in the car, or walk around.

"Norm's "tent" was a really big blue rip-stop nylon tarp, and he "pitched" it by putting a big dead branch in the middle to hold the center up like a circus tent then tied off a lot of the grommets around the edges to nearby trees."

We set up the propane stove on the hood of the car and cooked some steak and some eggs, which made for a nice supper. We ate sitting in the front seat of the station wagon, listening to the scanner strain for a signal. This was *not* fun.

As soon as dusk was upon us, so were the black flies. They signaled the end of outdoor activity, except that we had no other kind of activity, other than sitting in the car, which we did, once again.

With the food in the front seat and the windows rolled up enough to keep out bugs and bears, we slept poorly. We didn't seem to notice that the ground was closer to the bottom of the car doors when we got up either. Breakfast was more steak and eggs, and by this time, I didn't like them any more. I didn't want to go on a hike, I didn't want to set up my CW rig on the hood of the car and stand there like a fool (and an uncomfortable fool at that), and I didn't want to spend the day sitting in the front seat of the Chevy wagon. I wanted to go home.

By now we noticed that the station wagon was sitting a lot lower than before. This was it, I told Norm. It was time to go home, and don't make me get my guns out to get us underway.

I have to give Norm credit for having a winch, but he loses points for not having it fastened to the car or having a proper electrical hookup. The wire that would have been our HF antenna was a direct connection from battery to winch, and the winch was held to a tree by a short cable, while a longer cable pulled the wagon out of its ruts ever so slowly. The wire was too small, and it got very hot, and we burned our hands on it, but that was to be expected, I guess.

Norm was mad at me for cutting down the ropes that held the tarp instead of untying them. I admit I had actually thought about slashing the whole thing to shreds, but I will never admit here in writing that I realized that we were really, really far away from everyone and I could have shot him and left him there and the forest critters would have eaten the body and I could have made up a really good story about how he got lost and I was taking the car back to town to get help and I couldn't remember where we had been and by the time they found his skeleton even those really smart forensics people on TV wouldn't have found the bullet.

But instead, we got to a town somewhere and had a really good meal and I waited in the men's room until I was sure that Norm had paid the bill.

In less than a year, I will officially qualify for a senior's discount at those buffet places, and Norm will try to get me to get him a discount, too, when we go together. I don't mind. Just so we don't camp out. ■

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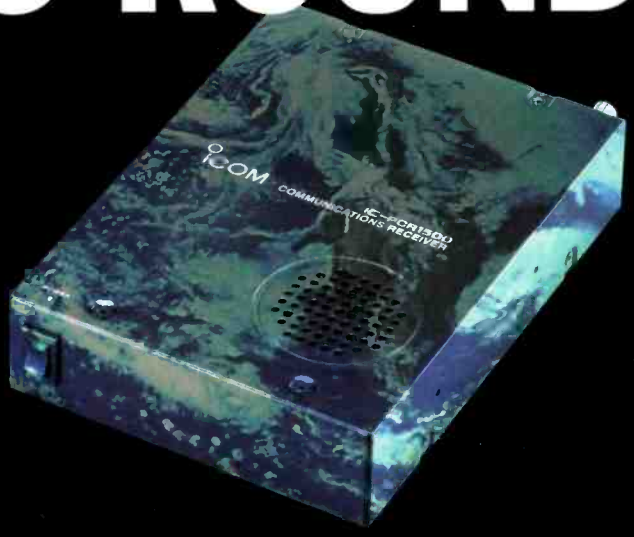

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