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BEAMING IN

AN EDITORIAL

BY TOM KNEITEL, K2AES

I'll admit it. When I got started in communications I was immediately intimidated by my lack of ability to understand, or communicate in, even the most rudimentary lingo being tossed around. Terms such as "QRM" and "73" really threw me for a while, but eventually I realized that in order to be listed among the true believers, I'd have to get the knack of being comfortable with using communications shorthand lingo.

During the exchange of certain types of traffic, I suppose that I make modest use of all of these odd numbers, coded letters, words and phrases. Other operators like it and it gives them a feeling of reassurance that I'm not an outsider trying to infiltrate the communications fraternity. Of course, each area of communications has its own unique buzzwords, and anybody who hopes to freely move within the ranks of SWL's, Hams, CB'ers, etc. is going to have to sort out the differences in their lingo. For instance, asking a Ham for his or her *handle* gets you a totally different response than posing the exact same question on a CB channel.

When I bought a boat, it was the same thing all over again. Until then, I had thought a *deck* was something used for playing poker, and *port* was what my Uncle Leo used to drink too much of whenever he came for dinner. One must still sort out different lingos; checking the *galley* means something totally different to a boat owner than it does to someone on the staff of a magazine. Yup, along the line, I also had to suffer while learning a lot of inside publishing lingo— words like *folio*, *signature*, *pica*, *widow*, *spine*, and *logo*.

Now let me tell you that the knack of proficiently tossing around any of the insiders' lingo relating to a given area isn't easy. You've got to pay your dues to really be a part of something, otherwise you come off looking the fool to those you're trying to impress. Makes no difference if you're attempting to sprinkle insiders' buzzwords on radio folks, or those in boating, publishing, advertising, motion pictures, photography, music recording, medicine, law, aviation, farming, or whatever. If you've never worked in a diner, walking in and demanding "Adam and Eve on a raft, 86 it" isn't going to impress anybody. If anything, the fry cook may come out from the kitchen to look at you kinda funny.

Best bet, until you've been around long enough to get to know any specialty words, is to simply avoid using them. In a pinch you can always fall back and rely upon simple English. Better to ask the radio hobbyist to

tell you about "those postcards the stations send out" than to blow it altogether by asking to see "your QRM cards."

What has long been bugging me is the national news media's fumbling and bumbling attempt to be hip when discussing certain aspects of communications. Newspapers and radio and TV stations seem to use the term "Ham" to refer to all persons operating any type of communications equipment from their home. To the news media, there is apparently little or no difference between an SWL, a CB'er, or a licensed Ham. This is quite probably the case because the general public doesn't know the difference either and can hardly be expected to get into a snit over something that would probably be perceived as a fine point of semantics.

So, we continue to read and hear about the "Ham" that is causing interference on all of his neighbors' TV sets, even though the photo that accompanies the story clearly displays a 27 MHz CB station! And then there's the "Ham" who turned up recently in one of the national news services because he located a stolen car from a description he heard over his police scanner. Last year I read about the first "Ham" to hear the new "Radio Marti."

A few months ago some idiot ("Captain Midnight") set up a microwave TV transmitter to overpower HBO's uplink signal and flash a protest message across the screens of folks who were trying to watch a movie. I was watching that film and the first thing that crossed my mind was how the next day's headlines would be ranting hysterically about the "Ham" who broke in on the HBO movie.

Luckily for "Hams," it looks as though they got off the hook because I suspect the news media has discovered yet another word to misuse. Every network news program reported on the event, and promptly dubbed the person a *hacker*. To my way of thinking, that would seem to imply that a personal computer was somehow used to knock HBO's movie off the satellite, although nobody attempted to explain how such a feat might be accomplished with a personal computer!

Certainly the culprit was a "pirate broadcaster" or a "bootleg broadcaster," but hardly a hacker, I think, in the most formal interpretation of the word. I suppose the fact that since the sanctity of HBO's signal security was breached by unauthorized persons, and since equipment used was close enough to what a hacker uses, the word seemed suitable. To my mind, that would make a telephone wiretapper eligible to be referred to as a hacker, as would a person

who used a speech unscrambler on a scanner. You should be able to see the threat to the good name of hacking, a pastime thought to be a rather honorable calling by its devotees.

A sleazy trick by the news media, I thought, to shift the emphasis away from the illegal broadcasting aspect of the incident and attempt to dump it on the doorstep of the computer people. Maybe they're afraid that by calling HBO's "Captain Midnight" some sort of broadcast pirate they'd be inspiring copycat operators to break in on regular network TV programming to complain about certain shows or to make political statements.

All I know is that every time the news media has used the term "Ham" operator to describe non-Ham communications activity, be it good or bad, I get lots of mail from outraged Hams. The HBO incident brought in letters from hackers who felt they're getting a bad rap.

As I said, maybe they shouldn't have tried to be so hip and apply a word that they just didn't know how to use. Hackers seem to have enough problems without the networks making things worse. With all due respect to hackers, I was pleasantly surprised to learn that "Captain Midnight" wasn't a fellow "Ham."

Starting Number Five

Don't look now, but this issue marks the start of *POP'COMM's* fifth year of publication. All things considered, it hardly seems like that many years have passed. It certainly continues to be both interesting and exciting, and the future holds many plans and much promise.

There's no denying that *POP'COMM's* readers are about the most enthusiastic group of folks it's ever been my pleasure to hear from. Even those who address their letters to "Terrible Tommy" and say awful things to and about me are far more creative than those who wrote similar letters to me at other magazines.

Our pledge is to continue to bring you a vital and informative publication, containing a wide spectrum of viewpoints and features—and in the unique *POP'COMM* style that others have tried (but never quite succeeded) to duplicate.

Speaking on behalf of all of us here at *POP'COMM*, I want to say that we look forward to the enjoyment of preparing forthcoming issues. We hope that you will find them, individually and collectively, to be an integral part of your participation in communications. PC

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A recently rediscovered private cache of 4,115 historic Silver Dollars from our nation's colonial period has now been authenticated and certified.

The specifications for this special public sale are as follows:

Historical Data:

England ignored the colonists' requests for Silver coins, so the enterprising Americans turned to the Spanish Piece of Eight as a primary means of exchange. These legendary Silver Dollars (bearing the denomination 8 Reales) were struck at the famed Mexico City Mint, the first mint in the Americas, and then shipped to the 13 colonies.

The high precious metal content of these Silver coins made them an immediate favorite with the Americans, and they remained extremely popular *even after our nation began to mint its own currency*. Remarkably, these Silver Dollars continued to be a legal coin in the United States until 1857.

Coin Description:

The obverse of each coin bears the profile of Charles III, King of Spain, and the year in which it was minted. The reverse bears the crown and shield of the Spanish Empire, the 8 Reales denomination, and the Mexico City mintmark.

Each coin was minted between 1772-1821, and each measures 39.5mm in diameter (slightly larger than the U.S. Silver Dollar that it inspired).

Metal Content:

Each one of these Silver Dollars contains 27.67 grams (427 grains) of .900 Fine Silver.

Restrictions:

This special release of America's First Silver Dollar is restricted to private citizens only -- No dealer orders will be accepted. A limit of

ten coins per order will be strictly enforced, and all orders are subject to acceptance by The Washington Mint.

Sale Prices:

Each Silver Dollar in this release is priced at \$80.00 plus \$2.50 for postage, handling, and insurance. (Total: \$82.50)

Special Discounts:

The following discount prices apply for customers placing quantity orders:

Three Silver Dollars for \$225.00
plus \$5.00 (Total: \$230.00)

Five Silver Dollars for \$345.00
plus \$5.00 (Total: \$350.00)

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plus \$5.00 (Total: \$675.00)

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No lottery mechanisms will be utilized for this sale. Orders will be filled on a strict FIRST-COME, FIRST-SERVED basis according to the POSTMARK date of mail orders and the TIME AND DATE of telephone orders. The Washington Mint, one of America's foremost private mints, fully guarantees satisfaction with a 30-day, money-back policy. Certification of Authenticity will accompany each Silver Dollar in this release.

Check and money order customers should send their orders directly to:

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MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.

Big Top Scanning

In the June issue Mailbag column you presented some circus frequencies. Since I'm a circus/scanner fanatic, I thought that I'd pass along some additional information. You mentioned the frequency for Circus World in Florida, however, just as your POP'COMM's June issue was reaching subscribers the facility was unexpectedly sold (for \$18-million) and promptly shut down while its new owners revamp it as a baseball theme amusement park. The best way to keep track of the schedules and activities of circuses, so you'll know when and where to bring your scanner, is through *The Circus Report*, a weekly publication that all of the circus people read. Aside from stories and personal information about circus performers, it also runs most of the road schedules. Did I correctly sense from the June issue that you, too, are a circus fan?

Barry Yergan
Daytona, FL

You forgot to say where to get *The Circus Report*. It can be obtained for \$25 per year from Don Marcks, 525 Oak Street, El Cerrito, CA 94530-3699. You did guess correctly, I have always been fascinated by shows in the big top. My favorite show is the Clyde Beatty-Cole Brothers Circus. Captain Fred, the man in charge of the elephants there, is an old friend of mine. The mention of circus communications in June brought in a considerable amount of mail from readers who take scanners to circuses!—Editor

Something to (Old) Crow About

Someone mentioned that there is an organization called "The Crows" that is made up of spies, wiretappers, and bugging technicians. How can I contact this group?

Peter Shapiro
Newbury Park, CA

The closest guess I can make from your description is still quite a way from what you seem to have heard. There is an "Association of Old Crows," which is an organization of persons connected with or interested in electronic warfare/defense. The group publishes a fine monthly journal publication called the *Journal of Electronic Defense*. While many of the AOC's members are defense contractors or military personnel on active duty, it could well be that the AOC's ranks may have a couple of the types you describe. The organization is located at 2300 Ninth Street South (Suite 300), Arlington, VA 22204. Membership (including



the publication) is \$15 per year. Non-U.S. citizens require recommendations from two AOC members. I'm a member of the AOC (#08649130) and can recommend it highly. Could the AOC be the group you're seeking?—Editor.

Birthday Thoughts

I've been a devoted POP'COMM reader ever since your first issue in September 1982. Guess that means you're heading into your fifth year. I vividly recall your early days when several wags writing in radio club publications were making facetious comments about POP'COMM's probable inability to survive past the first few issues since that same fate befell previous attempts at putting out national monthly monitoring magazines. Such reports were unnerving; I suppose it was a good thing you never saw any of those barbs and just kept right on going anyway. Don't ever stop!

Robert Dresner,
APO New York

Yes, this issue begins POP'COMM's fifth year. And, as a matter of fact, we did see a few of the "barbs" you mentioned. Having been a part of the DX club scene for several decades, I'm aware that at least some areas of the DX community traditionally dislike, or fear, or are suspicious of national publications. Nothing to get overly worked up about. It's become such a Pavlovian response that the lack of such a reaction would probably be an indication that the new magazine was perceived as being too insignificant to be worthy of such paranoia.

The most hysterical reaction to our then-fledgling magazine was written by the editor/publisher of a direct mail DX publication called "Review of International Broadcasting." Apparently in shock at the appearance of a magazine he felt would have a negative impact on his own periodical, writing in the club publication *FRENDX* (put out by The North American Shortwave Association) back in late 1982, he rolled out the heavy ar-

tillery. First, he told about a fictitious "distribution screwup," then went on to quote "an anonymous reviewer" who "decries POP'COMM's passe gee-whiz approach to radio and thinks that it will not succeed without taking a more mature approach." He then went on to observe that it was a good thing that he, himself, looked through the October '82 issue on the newsstand before buying it because it had "far less interest to the DX'er." Finally, he summed up his critique by accusing POP'COMM of "the old bait and switch routine." It was when that appeared that we felt that we might be heading in the right direction with the magazine!

However, even as late as November of '84 there was still some amount of panic being reported. At that time, "The Messenger" (publication of the Canadian International DX Club) commented on the start of our sister publication, "Modern Electronics" by gleefully noting that the new publication was probably being started because "the publishers of CQ who control Popular Communications may not be entirely satisfied with the latter." The revelation went on to credit, er . . . ah . . . the same observer who two years earlier was cluing in his *FRENDX* readers about how we were heading down the road to a certain dead end! Two years later we were still on the scene and even had the unmitigated gall to plug the chap's DX publication. Guess it probably overloaded the poor guy's circuits—nyuk, nyuk!

Along the way, there has been no shortage of similarly malicious tidbits in several DX club publications. They've come from assorted sources and they're about any number of individuals, other clubs, publications, manufacturers; virtually everybody and everything is fair game. At least a couple of times I've read joyful accounts about how I'm on the verge of being sacked.

Readers react in several ways to such information, and some do get upset. When the *CIDXC* piece appeared, new SWL (and *CIDXC* member) Rodney Johnson, Jr., of Denver, wrote to us to say, "I wasn't amused. Wake me when it's over." Old timers have mostly become hardened to the petty sniping and onanistic ego trips that tend to show up in some club publications. It's become a tiresome old game; "Popular Electronics" was even talking about it back in the 1960's!

Take it all with a chuckle and (unless you're on a low-sodium diet) a couple of grains of salt. Also realize that not every club is willing to permit its publication to be used in this manner. Your good wishes are appreciated; let's all hope that we never acquire a sufficiently "mature approach" to permit the hopes and desires of some of the "well meaning" critics on the communications scene to come true!—Editor. **PC**

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REGENCY HX1200

Digital programmable 45 channel hand-held Scanner. Frequency coverage 30-50MHz, 118-136MHz, 144-174MHz, 406-420MHz, 440-512MHz. Covers public service bands plus Aircraft. Has priority, search, lockout, scan plus much more. Package includes HX1200, AC charger/adaptor, ni-cad battery, carry case, rubber antenna and 90 day factory warranty. **\$216.99** (6.50 shipping) (3 year extended warranty only \$35.00, 2 year \$25.00)



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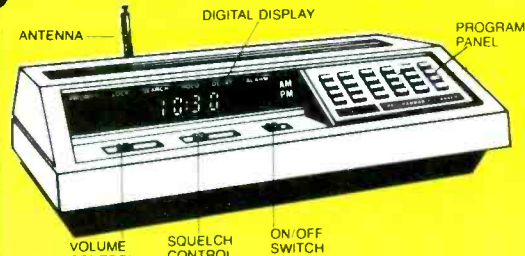
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home or on the road. It is double conversion, super heterodyne used to receive the narrow band FM communications in the amateur, public safety and business bands: 30-50, 144-174, and 440-512 MHz. Size 10 3/4" W x 2-7/8" H x 8-3/8" D.

Sophisticated microprocess-controlled circuitry eliminates the need for crystals, instead, the frequency for each channel is programmed through the numbered keyboard similar to the one used on a telephone. A "beep" acknowledges contact each time a key is touched. The Z30 scans approximately 15 channels per second.

Any combination of two to thirty channels can be scanned automatically, or the unit can be set on manual for continuous monitoring of any one channel. In addition, the search function locates unknown frequencies within a band.

Other features include scan delay, priority and a bright/dim switch to control the brightness of the 9-digit Vacuum-Fluorescent display. The Z30 can be operated on either 120 VAC or 12 VDC. Includes one year warranty from Regency Electronics (optional 3 yr extended warranty only \$35, gives you a total of 4 yrs complete warranty or 2 yr extended warranty only \$25, gives you a total of 3 yrs complete warranty.)

Regency® HX2000

\$159.99 (Plus \$7.00 Shipping each)

Digital Programmable 20 Channel Hand-Held Scanner with raised button keyboard for easy programming of the following frequency ranges: 118-136 MHz, 138-174 MHz, 406-512 MHz, 800-950 MHz (NOTE: This is the only hand-held portable scanner which will receive the 800-950 MHz range plus high band, air, and UHF). Features include priority, scan delay, memory backup, dual scan speed, channel lockout, jacks for external antenna and earphone, 90 day factory warranty, keyboard lockswitch, sidelit liquid crystal display for night use, program AM or FM mode, search or scan, size is 3" x 7" x 1 1/2". Complete HX-2000 package includes Ni-Cad rechargeable batteries, wall charger adapter, protective carry case, and rubber antenna. All for the low price of only \$159.99 plus \$7.00 shipping each. (Optional extended warranty: 3 years \$35; or 2 years \$25.)



Bearcat 100 XL

\$199.99 (6.50 shipping) Handheld digital programmable, no crystal portable scanner. 16 channels, search feature, plus more! Frequency range: 30-50, 118-174, 406-512 MHz. Included in the package is a flexible rubber antenna, earphone, battery charger/AC adapter, 6 AA Ni-Cad rechargeable batteries and a heavy duty carry case. All for the low price of:

\$199.99 (6.50 shipping)
(3 year extended warranty only \$35.00, 2 year \$25.00)

REGENCY RH-256 B PROGRAMMABLE TRANSCEIVER

RH-256B Transceiver, 16 channel 12 VDC 2-way Radio fully programmable in transmit and receive mode. Includes built-in CTCSS tones for encode/decode, time-out timer, scan delay, 25 watts transmit power, priority, plus more. Frequency spread as shipped 152-158 MHz. Package includes mobile mike, bracket, mobile antenna, and all cables and instructions for installation. **Special package deal only: \$399.99** (7.75 shipping) (2 year extended warranty \$48.00 — 3 year \$69.00)

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(* Add \$) per scanner, and \$3.00* for all accessories ordered at same time. C.O.D. shipments will be charged an additional \$3.00 per package. Full insurance is included in shipping charges. All orders are shipped by United Parcel Service. Shipping charges are for continental USA only. Outside of continental USA, ask for shipping charge per scanner.

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Most orders Shipped Same Day Received!



\$179.99 (Plus \$7.00 Shipping each)

Digital programmable 20 channel scanner operates as a Base or Mobile unit or can be used as a portable with rechargeable Ni-Cad batteries included. MX4000 covers the following frequency ranges: 30-50 MHz, 118-174 MHz, 406-512 MHz, 800-950 MHz. Features compact size of 5 1/2" x 2 1/2" x 7 1/2", memory backup, scan delay, priority, dual scan speed, channel lockout, jacks for earphone and external antenna, keyboard lockswitch, one year factory warranty. Sidelit liquid crystal display for night use, program AM or FM mode, search or scan, reset button. Complete MX 4000 package includes telescopic antenna, mobile mounting bracket, mobile power cord, rechargeable Ni-Cad batteries, wall charger adapter. All for the low price of \$179.99 plus \$7.00 shipping each. (Optional extended warranty: 3 years \$35; 2 year \$25.) Optional cigarette lighter Plug #4000MPC \$4.99.

CIRCLE 4 ON READER SERVICE CARD

Get To Know Your U.S. Senators

While it is impossible to have a monthly column like this be up to the minute with fast changing events (that's what newspapers and newsletters are for), it is fairly safe to say that by the time you read this the battle over the Electronic Communications Privacy Act will have shifted from the U.S. House to the Senate. The House Subcommittee passed the amended bill just days before this was written. It is unlikely to be stopped in either the full Judiciary Committee or on by the full House. So the Senate becomes what will probably be our last chance. Oh, I know . . . this proposed law may be unconstitutional. But who has the resources to fight the battle up to the Supreme Court? The cellular lobby does. We simply don't. That makes the Senate, where the weight of voter letters, not attorney fees, can often turn the tide so important. Let your Senators know your views before it is too late.

As yet, I have not seen the amended bill as passed by the House Judiciary Subcommittee. Early reports are that it is in many ways worse than the original proposal! For instance, it will apparently ban scanning frequencies assigned to conventional mobile telephone as well as cellular. That means that it will be illegal to use the full capabilities of the millions of scanners already in use. Will we all need a chart next to our scanners to make sure we don't stray into forbidden territory by mistake? This is unenforceable legislation! Unenforceable legislation—especially legislation that makes potential criminals out of millions of law abiding citizens—is bad legislation.

The Great Frequency Spectrum Ambush

As if we didn't have enough trouble with the cellular phone lobby trying to take away our right to freely use scanners, now they want to expand their "private" radio spectrum still further. Forget for a moment what this does to the practicality of legislating cellular frequencies out of scanners. (Do they expect new regulations every few years to protect their moving frequency allocations?) What really fascinates me is the basic hypocrisy of these companies. First they try to legislate reality by having your U.S. Senators and Representatives vote to declare their assigned frequencies private—even though they are widely dispersed ordinary FM radio transmissions that can be received on a \$60 TV set. Then they declare that they need even more radio spectrum to expand the cellular service—even though the entire idea of cellular they sold us was that more frequencies wouldn't be needed!

For those of you not familiar with how cellular phones work, here are the basics: A "cell" is a limited range circle of transmission and reception with several frequency "pairs" capable of handling phone calls simultaneously. While it would be possible to have a single cell cover an entire city, the cell range is limited by transmit power and antennas so that its range is restricted. The idea is that these same frequencies can then be used again elsewhere in the city for a different group of phone conversations. As the cellular phone user travels from one cell to the next a series of automatic commands changes his mobile phone transmit and receive frequencies to a vacant frequency pair on the new cell site. The land line phone connection moves to the new cell also and most users cannot detect the automatic cell site shift. And so it goes from cell site to cell site, eventually re-using the same frequencies of the first cell site again, but at a distance that does not cause interference between the two sites with different conversations on the same frequencies.

That is the cornerstone of the cellular idea. It was supposed to be the solution to the impossible problem of taking away more and more radio spectrum from business, public safety, and other users

Here's a list of the people who can make the difference. Write to them at the United States Senate, Washington, DC 20510.

State	Senator	State	Senator
AL	Denton, Jeremiah	MT	Baucus, Max
AL	Heflin, Howell	MT	Melcher, John
AK	Murkowski, Frank H.	NE	Exon, J. James
AK	Stevens, Ted	NE	Zorinsky, Edward
AZ	DeConcini, Dennis	NV	Hecht, Chic
AZ	Goldwater, Barry	NV	Laxalt, Paul
AR	Bumpers, Dale	NH	Humphrey, Gordon J.
AR	Pryor, David	NH	Rudman, Warren
CA	Cranston, Alan	NJ	Bradley, Bill
CA	Wilson, Pete	NJ	Lautenberg, Frank R.
CO	Armstrong, William L.	NM	Bingaman, Jeff
CO	Hart, Gary	NM	Domenici, Pete V.
CT	Dodd, Christopher J.	NY	D'Amato, Alfonse M.
CT	Weicker, Lowell P., Jr.	NY	Moynihan, Daniel Patrick
DE	Biden, Joseph R., Jr.	NC	East, John P.
DE	Roth, William V., Jr.	NC	Helms, Jesse
FL	Chiles, Lawton	ND	Andrews, Mark
FL	Hawkins, Paula	ND	Burdick, Quentin N.
GA	Mattingly, Mack	OH	Glenn, John
GA	Nunn, Sam	OH	Metzenbaum, Howard M.
HI	Inouye, Daniel K.	OK	Boren, David L.
HI	Matsunaga, Spark M.	OK	Nickles, Don
ID	McClure, James A.	OR	Hatfield, Mark O.
ID	Symms, Steven D.	OR	Packwood, Bob
IL	Dixon, Alan J.	PA	Heinz, John
IL	Simon, Paul	PA	Specter, Arlen
IN	Lugar, Richard G.	RI	Chafee, John H.
IN	Quayle, Dan	RI	Pell, Claiborne
IA	Grassley, Charles E.	SC	Hollings, Ernest F.
IA	Harkin, Tom	SC	Thurmond, Strom
KS	Dole, Robert	SD	Abdnor, James
KS	Kassebaum, Nancy Landon	SD	Pressler, Larry
KY	Ford, Wendell, H.	TN	Gore, Albert, Jr.
KY	McConnell, Mitch	TN	Sasser, Jim
LA	Johnston, J. Bennett	TX	Bentsen, Lloyd
LA	Long, Russell B.	TX	Gramm, Phil
ME	Cohen, William S.	UT	Garn, Jake
ME	Mitchell, George J.	UT	Hatch, Orrin G.
MD	Mathias, Charles McC., Jr.	VT	Leahy, Patrick J.
MD	Sarbanes, Paul S.	VT	Stafford, Robert T.
MA	Kennedy, Edward M.	VA	Trible, Paul S., Jr.
MA	Kerry, John F.	VA	Warner, John W.
MI	Levin, Carl	WA	Evans, Daniel J.
MI	Riegle, Donald W., Jr.	WA	Gorton, Slade
MN	Boschwitz, Rudolph	WV	Byrd, Robert C.
MN	Durenberger, David	WV	Rockefeller, John D.
MS	Cochran, Thad	WI	Kasten, Bob
MS	Stennis, John C.	WI	Proxmire, William
MO	Danforth, John C.	WY	Simpson, Alan K.
MO	Eagleton, Thomas F.	WY	Wallop, Malcolm

to satisfy the needs of the mobile telephone market. As more and more users came onto cellular systems, the cells would simply be made smaller and smaller, allowing the same frequency pairs to be re-used more often. There would be no need to grab more valuable spectrum from public safety, business and other radio users. It sounds like a great idea, doesn't it? But now we have those very same people who first proposed the idea telling us that it is impractical! Read on in disbelief . . .

The cellular phone industry is now saying that it costs too much to divide those cell sites! It's "financially impractical," so "give us

(Continued on page 73)

NEW! Lower Price Scanners

Communications Electronics™, the world's largest distributor of radio scanners, introduces new lower prices to celebrate our 15th anniversary.

Regency® MX7000-GP

List price \$699.95/CE price \$469.95
10-Band, 20 Channel • Crystalless • AC/DC
Frequency range: 25-550 MHz, continuous coverage and 800 MHz, to 1.3 GHz, continuous coverage. The Regency MX7000 scanner lets you monitor Military, Space Satellites, Government, Railroad, Justice Department, State Department, Fish & Game, Immigration, Marine, Police and Fire Departments, Broadcast Studio Transmitter Links, Aeronautical AM band, Aero Navigation, Paramedics, Amateur Radio, plus thousands of other radio frequencies most scanners can't pick up. The Regency MX7000 is the perfect scanner to receive the exciting 1.2 GHz, amateur radio band.

Regency® Z60-GP

List price \$299.95/CE price \$179.95/SPECIAL
8-Band, 60 Channel • No-crystal scanner
Bands: 30-50, 88-108, 118-136, 144-174, 440-512 MHz. The Regency Z60 covers all the public service bands plus aircraft and FM music for a total of eight bands. The Z60 also features an alarm clock and priority control as well as AC/DC operation. Order today.

Regency® Z45-GP

List price \$259.95/CE price \$159.95/SPECIAL
7-Band, 45 Channel • No-crystal scanner
Bands: 30-50, 118-136, 144-174, 440-512 MHz. The Regency Z45 is very similar to the Z60 model listed above however it does not have the commercial FM broadcast band. The Z45, now at a special price from Communications Electronics.

Regency® RH250B-GP

List price \$659.00/CE price \$329.95/SPECIAL
10 Channel • 25 Watt Transceiver • Priority
The Regency RH250B is a ten-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to ten frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH250 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A 60 Watt VHF 150-162 MHz, version called the RH600B is available for \$454.95. A UHF 15 watt version of this radio called the RU150B is also available and covers 450-482 MHz, but the cost is \$449.95.

NEW! Bearcat® 50XL-GP

List price \$199.95/CE price \$114.95/SPECIAL
10-Band, 10 Channel • Handheld scanner
Bands: 29-54, 136-174, 406-512 MHz. The Uniden Bearcat 50XL is an economical, hand-held scanner with 10 channels covering ten frequency bands. It features a keyboard lock switch to prevent accidental entry and more. Also order part # BP50 which is a rechargeable battery pack for \$14.95, a plug-in wall charger, part # AD100 for \$14.95, a carrying case part # VC001 for \$14.95 and also order optional cigarette lighter cable part # PS001 for \$14.95.



NEW! Scanner Frequency Listings

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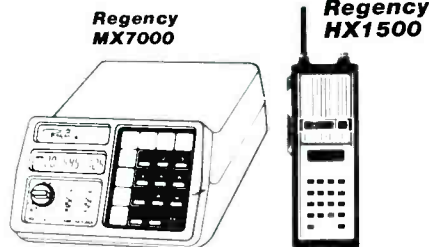
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We Visit:

W1AW – Amateur Radio's “Dream Station”

Here's A Station Well Worth Seeing

BY CHARLES R. BENDER, W1WPR
Chief Operator, W1AW

One of this country's most fascinating and historic radio facilities, W1AW, the American Radio Relay League's Headquarters-station in Newington, Connecticut, is celebrating its 50th anniversary in 1988. With this important historical milestone just around the corner, a review of W1AW, then and now, is most appropriate.

Here is an Amateur Radio station that transmits 26 one-hour code practice sessions each week for listeners who are learning Morse code or improving their proficiency at it. Each of these transmissions is made simultaneously on at least six HF frequencies, on 6 and 2 meters, and on the Oscar 10 Amateur Radio satellite when it is in range. Another 26 transmissions each week, on CW, 60 wpm (words-per-minute) Baudot, 110-baud ASCII and AMTOR FEC mode, and 14 transmissions on voice, are bulletins containing the latest news from the FCC and elsewhere pertaining to Hamdom in general, news of special interest to Canadian amateurs, a propagation forecast, updated weekly, that is one of the best in its field, and daily updates on the positions of the various amateur and weather bureau satellites. Specialized transmissions include a weekly DX bulletin giving the latest information on where and when to find the rare countries, a weekly transmission on Baudot reporting the latest news from Region II of the International Amateur Radio Union, and a bi-weekly listing of up-to-date Keplerian elements for the amateur and weather satellites. How did this all start?

Hiram Percy Maxim (“HPM”) was the co-founder and President of the ARRL. Like his father and brother, HPM was a noted inventor. Probably, his most famous invention was the Maxim Silencer. He was also very prominent in the development of the automobile, and is generally credited with being responsible for the steering wheel moving from the right to the left side of the car. If his company, the Pope Manufacturing Company of Hartford, had not lost out in a patent infringement case, Hartford, not Detroit, could well have become the automobile manufacturing center of the country!

Although not the first amateur, HPM became interested in radio because of his teenage son. Mr. Maxim then went on to help found the ARRL. He was also instrumental in founding the International Amateur Ra-



The original W1AW in 1938, with Hal Bubb, W1JTD, operating and George Hart, W3AMR, reading the meters.

dio Union, and represented the amateur's interests in Washington many times.

In February 1936, HPM unexpectedly passed away. Then tragedy struck again. A devastating flood hit the northeast in mid-March, and Hartford was one of its principal victims. The then-ARRL HQ station, W1MK, located at Brainard Field in Hartford, was completely inundated by the flood waters. As though a thick coating of silt over the station and everything in it were not enough, several tanks of heavy road or fuel oil broke and got into the building, leaving everything in a gooey mess. The only things saved were those light enough to be carried away by the operator, such as the log books and other records.

In May, The ARRL Board of Directors decided to erect a new Headquarters station at a site to be authorized subsequently. The sum of \$7000 was appropriated from the surplus of the League, with any unexpended remainder to be restored to surplus.

In the meantime, W1MK schedules were being kept by station W1INF at the ARRL Headquarters building in West Hartford. ARRL applied to the FCC for, and received, Mr. Maxim's personal call, W1AW, to be used at the Headquarters station as a permanent memorial to HPM. On February 17,

1937, the first anniversary of HPM's death, W1AW made its inaugural appearance on the air as a part of an operating activity called the Maxim Memorial Relay.

Plans began in earnest for the construction of the “dream” station. In late summer, 1937, a seven-acre site in then relatively open country in Newington (now a densely populated Hartford suburb) was purchased as the home for the new installation. This location was just four miles south of the ARRL Headquarters offices in West Hartford. Plans for the building were put out to bid, and after the Board approved, the President authorized the work to proceed. The land was bought with a rhombic antenna aimed to the west in mind. Five 65-foot western red cedar poles were purchased in Washington State and shipped, via the Panama Canal, to Newington. These were installed in late 1937, before the onset of winter. (Four of the original five poles are still in use.) Actual ground breaking took place in December 1937. “When completed, the station will have four completely separate transmitters, with full amateur power capability for each amateur band, and provision for radiotelephone and radiotelegraph work included for each. It will be a station of which any member may well be proud,” an-



Chief Operator Chuck Bender, W1WPR (foreground), and station operator Jeff Bauer, WA1MBK, at the controls of the state-of-the-art W1AW.



The "Antenna Farm" at W1AW (ARRL Headquarters). W1AW's booming signal is heard worldwide.

nounced March 1938 QST, the monthly journal published by the ARRL.

At its 1938 meeting, the Board appropriated an additional \$11,000 to complete the cost of the structure and equipment. Pictures of the new W1AW building, the antenna farm, and new equipment under construction began to grace the pages of QST.

Finally, on the afternoon of July 9, 1938, the big moment arrived. Chief Operator Hal Bubb, W1JTD, observed by ARRL officials and leading local amateurs, called CQ on 3520 kHz and was promptly answered by W2LC on Long Island. In all, 19 contacts were made during the inaugural operation.

According to a description which appeared in QST, the new station was "sort of an amateur's dream." There was a one-kilowatt transmitter for each amateur band from 160 to 10 meters. Each was designed for break-in operation on CW. For phone operation there was a common modulator which could be switched manually to any of the transmitters. The receiver was an HRO-5, a real classic of its day. The HRO and a Boehme tape keying head were probably the only two pieces of commercially built equipment in the station.

If all this seems spartan for a "dream" station, remember that Amateur Radio in 1938 was vastly different than it is at present. Almost all the equipment was home built, although commercially manufactured receivers were beginning to appear. Low power was the order of the day, with most amateur transmitters in the 50-watt or less range, and CW-only. Kilowatt transmitters, especially on phone, were extremely scarce, and worth traveling miles to observe and operate.

The antenna farm was equally impressive. The piece de resistance was the rhom-

bic antenna, 350 feet on each side of the diamond, 55 feet up, and aimed due west. It was untermated, so it gave excellent bi-directional coverage. A two-length Hertz was used on 40 meters, a half-wave Hertz on 80, and another half-wave Hertz on 160. The rhombic, while designed for 20 meters, was equally at home 10, 40, or 80 meters.

Two regular operators were assigned the job of maintaining W1AW and keeping all the regular schedules. In addition to overseeing the CW and voice bulletin transmissions, the operators kept many traffic schedules, both in nets and with individual stations, and contacted as many other amateurs as possible as time permitted. Initially, bulletin transmissions were sent twice each evening, simultaneously on 1800.5, 3825, 7150 and 14254 kHz at 8:30 and midnight on CW, and followed by voice transmissions on 1808, 3950 and 14240 kHz. There was no voice transmission on 40 meters, as that band was exclusively allocated to CW.

One more big event followed, to launch W1AW on its lengthy career. On September 2, 1938, which would have been HPM's 69th birthday, the formal dedication was held. ARRL President Eugene C. Woodruff, W8CMP, unveiled the Maxim Memorial Tablet in the presence of a large number of League members, all ARRL officers and Headquarters staff, and dignitaries from the Town of Newington and State of Connecticut. The ceremonies were carried live on the CBS Radio Network.

Operations continued and, as time went on, more bands and modes of transmission found their way into the schedule. The next major event was the New England Hurricane in September 1938. The emergency generators had not yet been installed at W1AW, so a number of the crew put some



equipment in the back of a pickup truck and went to a Connecticut State Police Barracks where they handled traffic for the duration of the emergency.

W1AW was quite active in the events surrounding the entry of the U.S. into World War II. Although regular amateur operation was shut down by the FCC, the message first went out via W1AW at 9:59 P.M. EST on December 7, 1941; since many amateurs did not get the word, W1AW was authorized to contact these stations and explain the situation. W1AW then continued to transmit bulletins, many of them recruiting amateurs, and their equipment, for the war effort. Finally, on January 10, 1942, the station made its final transmission and

ABBREVIATED W1AW SCHEDULE

(Times are in Eastern Time.)

Slow Code Practice 5-15 wpm	Mon, Wed, Fri at 9 am and 7 pm. Tues, Thurs, Sat, Sun at 4 pm and 10 pm.
Fast Code Practice 35 & above	Mon, Wed, Fri at 4 pm and 10 pm. Tues, Thurs, Sat, Sun at 7 pm; Tues, Thurs at 9 am.
CW Bulletins 18 wpm	Daily at 5, 8 and 11 PM; Mon thru Fri at 10 am.
Teleprinter Bulletins Baudot/ASCII AMTOR as time permits	Daily at 6, 9 and 12 PM; Mon thru Fri at 11 am.
Voice Bulletins	Daily at 9:30 pm and 12:30 am.

Code Practice and CW bulletin frequencies:
1.818, 3.580, 7.08, 14.07, 21.08, 28.08 and 147.555 MHz.

Teleprinter bulletin frequencies:
3.625, 7.095, 14.095, 21.095, 28.095 and 147.555 MHz.

Voice bulletin frequencies:
1.89, 3.99, 7.29, 14.29, 21.39, 28.59 and 147.555 MHz.

For a complete W1AW schedule, please send a self-addressed stamped envelope to W1AW, 225 Main Street, Newington, CT 06111.

left the air for the duration, with the final log entry, "73 until we meet again!"

And we did meet again! The station was cleaned up, overhauled and rarin' to go. On October 31, 1945, the first postwar bulletin was sent. Although probably no one realized it at the time, the halcyon days of Amateur Radio were about to end and a period of change in regulations, equipment, and operating practices, was to begin.

One of the harbingers of this change was the increasing availability of commercially manufactured transmitters, and the use of war surplus equipment. The typical amateur station soon included phone and was in the 150-watt class.

By May 1946, enough of the bands had been returned to amateur use to allow the postwar resumption of what has probably been W1AW's greatest service to the amateur fraternity, the ARRL Code Proficiency Program. The code-practice transmissions resumed with one hour per evening of text from 15 to 35 wpm. In 1951, the FCC created the Novice license, with a code speed requirement of 5 wpm, so the W1AW program was changed to emphasize the lower speeds. The old 15 to 35 wpm schedule was reduced to three evenings per week, and the other four were devoted to 5 to 15 wpm. As interest in the lower speeds increased, a nightly half hour of 5, 7 1/2 and 10 wpm was added to the schedule. Later, this half hour was expanded to an hour and, finally, the present schedule of four hours each weekday and three hours a day on

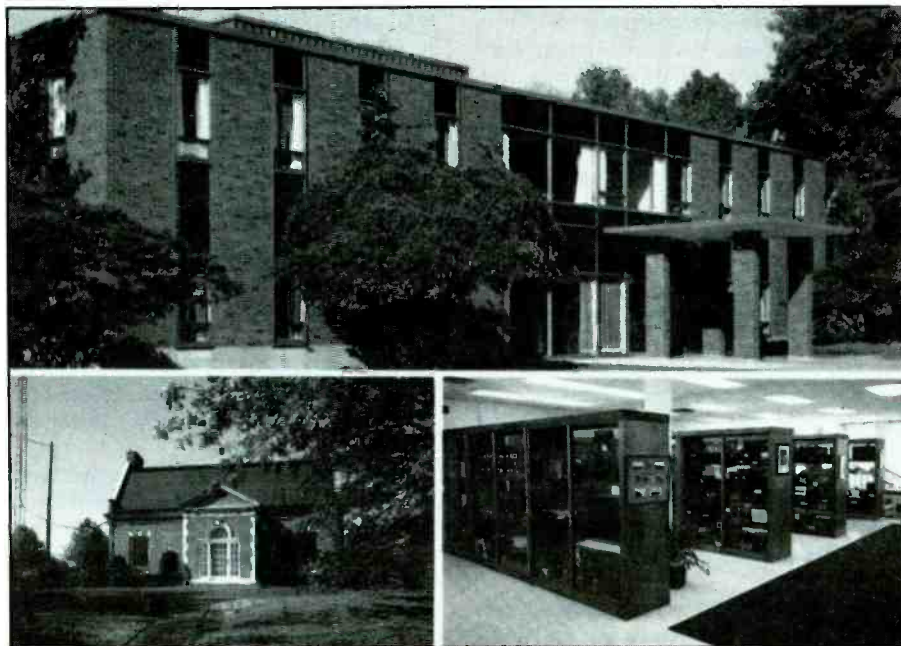
weekends evolved. An additional feature of the program is the Qualifying Run. This consists of special text sent at 10, 15, 20, 25, 30, 35 and, four times a year, 40 wpm. A listener submitting solid copy for one minute will receive a Code Proficiency Certificate from ARRL HQ. After the initial certificate, an endorsement sticker is available for each additional higher speed. Two Qualifying Runs are sent each month.

In the early 1950s, what was probably the most important technological breakthrough ever, or at least since CW supplanted spark, began to revolutionize Amateur Radio. Single sideband, SSB, was on its way to becoming the standard mode for voice transmission. In addition to providing a very significant improvement in equipment efficiency, the popularity of SSB had much to do with the development of the transceiver and the linear amplifier in amateur operations. The typical ham station now includes a transceiver in the 200-watt range and a large percentage are equipped with amplifiers. W1AW began SSB operation by making contacts with others using the mode. As its popularity increased, SSB bulletin transmissions began, first on one or two bands and finally on all bands.

In August 1955, the emergency preparedness of W1AW was sorely tested when severe flash flooding hit the northeast. With the entire HQ staff pitching in to help, W1AW was on the air over 20 hours a day for ten days, first handling emergency traffic and later health and welfare messages.

Another new mode was radioteletype. RTTY was initially permitted on the 11-meter band only (then an amateur allocation). But when the FCC authorized RTTY operation on all HF bands, W1AW was ready to begin an RTTY bulletin program. At first, 850-Hz shift was used, but it was changed to 170-Hz as that shift became the standard. Much later, when enhanced digital modes ASCII and AMTOR were authorized by the FCC in 1980 and 1983 respectively, they were immediately included in the W1AW teleprinter program. Incidentally, W1AW was the eastern end of the first amateur coast-to-coast RTTY contact.

An inspiring incident of this era was the opening of the 7200-7300 kHz portion of the 40-meter band to phone operation, to take effect at 3 a.m. EST on February 20, 1953. At 2:59, there was not a sound to be



Amateur Radio in a Nutshell

Amateur Radio, also known as Ham Radio, is a hobby and a service. Hams, who must be licensed by their governments (in our case, the Federal Communications Commission—FCC), operate two-way radio stations from their homes and cars, talking with other Hams across town or across the world. Amateurs may communicate only with other amateurs. Special sets of radio frequencies, or bands, allocated by international treaty, are set aside for use only by Amateur Radio operators.

One hallmark of Amateur Radio through the years has been technical advancement. Hams pioneered long-distance use of the shortwave (HF) bands, and today have expanded the range of formerly "local" VHF bands through the use of automatic relay stations called "repeaters," and even satellites, to enhance their transmissions.

While Amateur Radio is primarily a hobby for personal enjoyment, it is transformed into a highly trained public service resource in times of emergency. Hams are well known for being ready, willing and able to help their neighbors during disasters.

Just about anyone can be a Ham. There are no age restrictions. Indeed, there are no limits; many handicapped people find a door to the world in Amateur Radio. There are "celebrities" who are Hams, but most are just plain folks who like making friends globally.

Ham Radio is playing a major role in the

computer age. Ham Radio and computers are a little—but not quite—like the old song about love and marriage: you can have one without the other, but having both is a lot more fun!

Personal computers have found their way into more and more Amateur Radio stations as the number of Ham-related uses go up. Computers can be used on the air, to "talk" with other computer-equipped hams, or they can be used in the shack to keep track of logging, to control equipment and antennas, and to track the various Amateur Radio satellites.

The popularity of personal computers has been directly responsible for a big surge in the use of radioteletype, RTTY, on the Ham bands. Stations transmitting RTTY (Primarily 45.45-baud Baudot, but 110-baud ASCII and 100-baud AMTOR, FEC mode, are also used) type their messages to each other on computer keyboards and read incoming messages on their monitor screens. The conversation can also be printed out, providing a permanent record of the contact. Computers also send and receive Morse code, and many Hams use ASCII to exchange programs and other information. Amateur Radio has taken a bold step in the direction of error-free digital communication in the implementation of Packet Radio technology, a burgeoning medium among Amateur Radio enthusiasts. The ultimate goal is a high-speed amateur Packet Radio network capable of automatically sending keyboard data, speech and images to other amateurs anywhere in the world. Stay tuned!

heard. Then, at 3:00 on the dot, bedlam! There must have been 5,000 stations, W1AW included, from all over the country all calling CQ at the same time! Later, W1AW also participated in the "bandwarming" for the new 10.1 and 24 MHz bands, in 1982 and 1985 respectively. These are two of the new bands allocated to the Amateur Radio Service as a result of the 1979 World Administrative Radio Conference.

Another interesting event was the initial pass of the first OSCAR, Orbital Satellite Carrying Amateur Radio, over the Connecticut area on December 12, 1961. Several members of the HQ staff joined the W1AW crew to listen for the satellite. As the appointed moment approached, you could have heard the proverbial pin drop. Then OSCAR came into range and its cheery "HI" was heard for the first time. There have been ten additional OSCARs over the years, with more in the planning stage.

During the early 1960s, the new ARRL Headquarters Building was erected in Newington, right in the middle of the W1AW antenna farm. After its completion, it was decided that W1AW should be completely remodeled. A new approach to simultaneous transmissions was installed—a common exciter, operating at 3 MHz, driving a string of transverters which converted the 3 MHz to each of the various operating frequencies. This was followed by a driver and kilowatt amplifier for each band. The driver/amplifiers were designed and built by

Bill Orr, W6SAI, and the ARRL HQ lab built the rest of the equipment. Additionally, a visitors operating position was set up, and the W1AW tape-generated CW system was updated. Instead of Wheatstone tape, regular 5-hole teletype tape and a commercial Teletype-to-Morse converter was used.

As newer OSCAR satellites carried transponders for amateur use, W1AW installed equipment to utilize this new mode. Hundreds of contacts were made, and are still being made, through the OSCAR series of satellites and, later, the Soviet Union's RS satellites.

Further, W1AW has entered the computer era with a Heath H89 system. The code practice transmissions are now counter generated, followed by the Baudot, ASCII and AMTOR transmissions. For CW, speeds of 5 to 70 wpm are available.

The high point in recent years was reached in December 1983, when W1AW contacted Astronaut Owen Garriott, W5LFL, in the Space Shuttle Columbia. All the local TV stations, as well as some of the radio stations and national news services, had reporters present. We sweated out the minutes until Columbia would be in range. Then we heard W5LFL and immediately called him. When he responded, "W1AW, this is W5LFL" there was spontaneous applause from the onlookers. A several-minute-long contact was made, and then W5LFL left us to talk with U.S. Senator Barry Goldwater, K7UGA, in Washington,

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CIRCLE 24 ON READER SERVICE CARD

Amateur Licenses

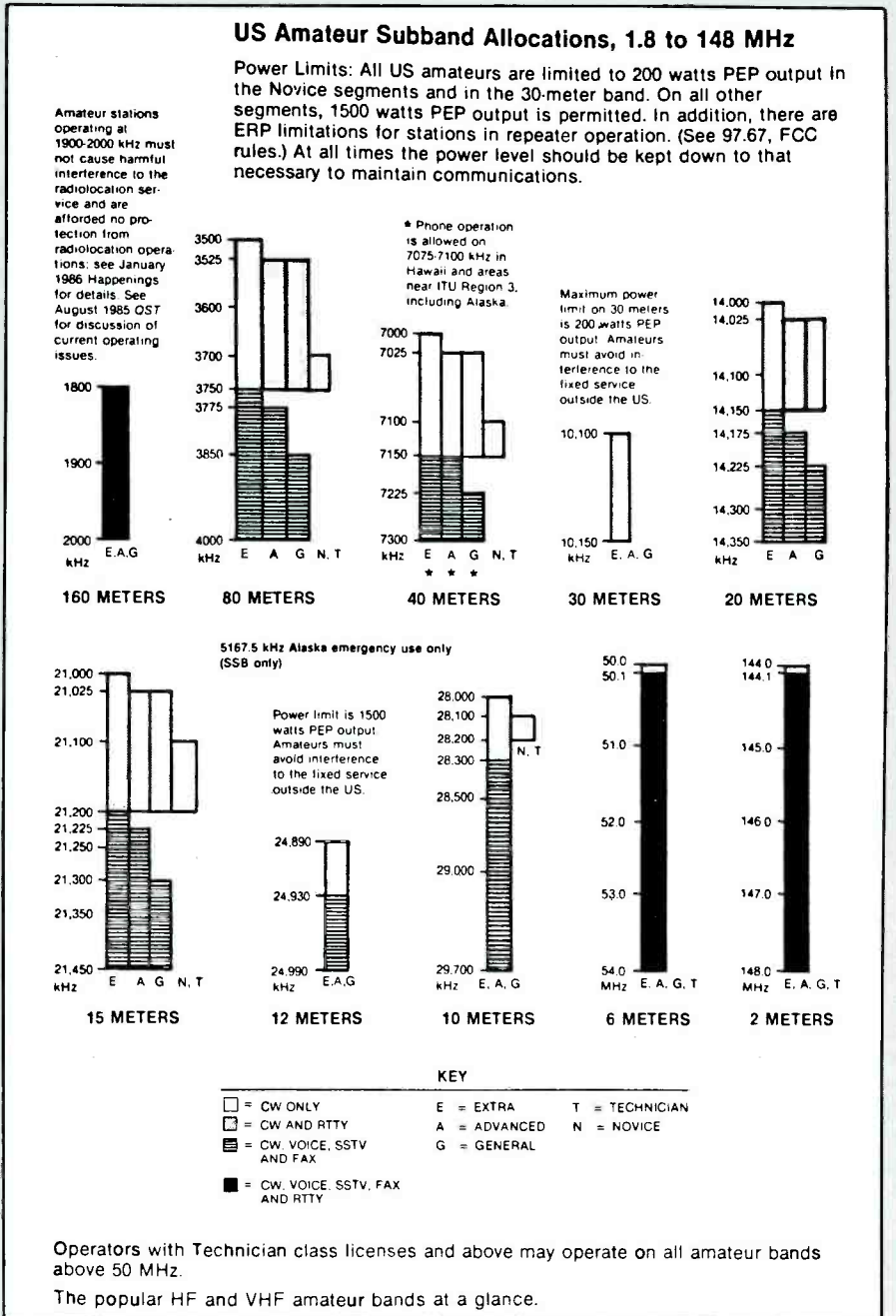
There are five kinds, or levels, of amateur license. They vary in degree of knowledge required and frequency privileges granted. The higher the class of license, the more comprehensive the examination and the greater the corresponding frequency privileges (frequency space and modes of operation).

At the first level is the Novice license, the introductory license issued by the FCC to those who have demonstrated the ability to properly adjust and safely operate an Amateur Radio transmitter. Anybody (except an agent of a foreign government) is eligible to qualify for a Novice license. There is no age requirement. An applicant must show a basic proficiency in Morse code (at 5 words per minute), an understanding of some very basic radio fundamentals, and knowledge of a few rules and regulations. Essentially, a little study and some common sense are all that is required to pass the Novice exam.

With a Novice license in hand, an amateur has more freedom to develop the operating and technical skills necessary to upgrade to a higher class of license, with additional privileges. (Novices are restricted to Morse code operation.) Don't be misled by the restrictions placed on Novice operators—with a modest station and low power, you will be able to communicate with other amateur stations in the exotic reaches of the world. Novices are able to provide public service with emergency communications and message handling, and are able to enhance international good will just like operators with higher license classes. The Novice population is the reservoir from which tomorrow's top-notch operators will be drawn. Ultimately, most Novices want to earn greater operating privileges, and accordingly they prepare for a higher-class license—the gateway to more frequencies and modes. [Note: The ARRL has proposed a Novice enhancement plan that would allow voice privileges for Novices on 28 MHz, 220 MHz and certain other VHF bands. This proposal is under active consideration by the FCC.]

The next step up is the Technician license. To obtain the Technician license, a Novice need only pass a more comprehensive theory exam with a few additional rules and regulations. No additional code exam is required to upgrade from Novice to Technician. The Technician license carries more frequency privileges in the region of VHF (very-high frequencies) and the much-desired privilege of using a microphone for communications!

The thrill of talking with another amateur on the other side of the globe is a powerful incentive to upgrade to the General class license (the next step up from Technician), which only involves passing a 13-wpm Morse code exam. The General class license conveys voice privileges in the high-frequency (HF) region, which typically is capable of carrying signals over great distances. The General class license is by far the most popular license of the bunch. As you progress and mature in Amateur Radio, you will develop more specialized interests in exciting areas such as amateur television and satellite communications. And you'll want even more privileges. Enter the



Advanced and Amateur Extra licenses. To obtain one of these, you must be prepared to face exams on the more technical aspects of Amateur Radio—and for the Amateur Extra license, the top of the line, you face an expert's code test at 20 words per minute.

All licenses are issued for a 10-year term, and are renewable at the end of that time.

To qualify for each higher-class license, you must pass the theory exam for each level up through that point. For example, if you want to go from Novice directly to Amateur Extra, you take the Technician/General and the Advanced theory exam before you take the Amateur Extra test. (You can just take the

20-wpm code test, however, without passing the 13-wpm General class code test.)

If you have any questions about preparing for or taking any amateur exam, help is available from ARRL HQ. Send an SASE to the Club Services Dept., ARRL HQ, 225 Main St., Newington, CT 06111, for the name of a local ARRL instructor or club that sponsors classes. The only book you should need to pass the Novice exam is the ARRL's *Tune In The World With Ham Radio*. It contains an explanation of the basic theory, rules, and regulations you'll need to know to pass the written exam, and includes a tape cassette that teaches the Morse code letter by letter.

DC. W1AW also received great attention from the news media earlier that year during the U.S. invasion of Grenada, when the only information source was the ham radio

transmissions of one of the medical students. Notable W1AW activities of recent vintage include its participation in the communications and relief efforts following the

devastating Mexican earthquake. Closer to home, W1AW was staffed and ready for action during Hurricane Gloria, and the station operated on emergency generator

The American Radio Relay League — ARRL

Boasting a robust membership of over 140,000, the ARRL (founded in 1914) is on the move today more than ever with the services that every Amateur Radio operator wants and needs—leading the fight to preserve and expand amateur frequencies, advancing technology and providing strong representation for every member. It has often been said that there would be no Amateur Radio as we know it today had it not been for the League. Through ARRL, Hams have a strong, effective voice with regulatory agencies and government bodies nationally and internationally. The League's famous library of amateur publications, headed by the annual *ARRL Handbook for the Radio Amateur*, the all-time best-selling technical publication, is recognized worldwide for its authoritative leadership. Each day, a dedicated and expert staff at ARRL HQ in Newington, Connecticut, handles thousands of letters and countless telephone calls from all over to help the individual member with technical, operating, legal and regulatory questions. But the real strength of the League is its volunteer coast-to-coast Field Organization. Thousands of members support important League programs by volunteering their time, energy and talent in performing vital roles in support of the League's objectives.

For more information on Amateur Radio and the ARRL, including a referral to a local Amateur Radio club, write the American Radio Relay League, 225 Main Street, Newington, CT 06111.

power for over 48 hours following the storm. And as part of Connecticut's 350th birthday party, W1AW made 3600 special-event contacts with other radio amateurs to commemorate this milestone. Rest assured that many exciting activities will be on the agenda as W1AW's 50th anniversary fast approaches.

Today, W1AW is active from 8 a.m. to 1 a.m. (Eastern Time) Monday through Friday and from 3:30 p.m. to 1 a.m. on Saturday and Sunday. The visitors operating positions are available between 1 and 4 p.m. weekdays and otherwise when time is available between scheduled transmissions. Any licensed amateur is welcome to operate W1AW during these off times; if you want to operate, however, be sure to have a copy of your Amateur Radio license with you. Equipment is available from 160 meters through 1296 MHz, on CW, Phone, Baudot, ASCII and AMTOR. The code-practice and bulletin station consists of three Alpha 77DX amplifiers, which put out 1500 watts each on 20, 40 and 80 meters, along with 600-watt output amplifiers on 15 and 10 meters. Lower power stations are available for 160, 6 and 2 meters, and there is a complete satellite station.

The present antenna farm is also quite impressive. The rhombic and 80-meter dipole first erected in 1936 are still in use. A 120-foot tower supports two 4-element 20-meter Yagis, one at 60 feet and the other

at 120. The top beam is rotatable, while the lower one is fixed at 285° to maximize U.S. coverage. The beams are operated in phase for code-practice transmissions and bulletins, but each one may be fed separately for general operation. At the 90-foot level, there is a 2-element 40-meter Yagi, also aimed at 285°. The top of the tower supports the center of a 160-meter inverted V and a four-bay vertical dipole array for 2-meters. In addition, there are three 60-foot towers. One supports a five-element 10-meter beam and a six-element 6-meter beam and another holds a five-element 15-meter beam. The third is for the satellite station, and sports circularly polarized Yagis for 2 meters and 70 cm, and an "H" Yagi array for 1269 MHz. A general purpose dipole, used primarily on 40 or 30 meters, completes the antenna set-up.

There are four operating positions set up for use by visiting amateurs. One features a Collins KWM380 transceiver with a Henry 2K linear amplifier. A second uses a Ken-

wood TS-820 with a Collins 30L1 linear amplifier, a HAL DS3100-ASR for Baudot and ASCII and keyboard CW, and an AEA AMT-1 AMTOR Terminal Unit. A third position, for low power operation, is an ICOM IC-751. Finally, there is the VHF/UHF and satellite station. This consists of ICOM transceivers for 6 and 2 meters and 435 and 1269 MHz, along with a Tempo 2000 amplifier for 2 meters and an ARCO amplifier for 435 MHz. A video monitor displays the locations of the various satellites and provides azimuth and elevation bearings when they are in range.

What's next? Who knows? Changes come rapidly in the electronics field. Perhaps our next major mode of transmission is now in its infancy, or hasn't even been invented yet. Either way, you can be sure that it will ultimately be on the air from W1AW. Today's Amateur Radio technology is just as exciting and vital as the electronics in your VCR, compact disc player or stereo TV! **PC**



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Today's hand-held programmable scanners are highly sensitive and sophisticated receivers (the Bearcat BC-100XL and the Regency HX-1000/1200 are among a growing number of quality units), but their range is often severely limited by the short "rubber ducky" antennas with which they are supplied.

TIP: To increase the range of your hand-held scanner, install an extendable full-length antenna with a standard BNC base. This simple operation will noticeably increase your receiving distance.


CIRCLE 22 ON READER SERVICE CARD

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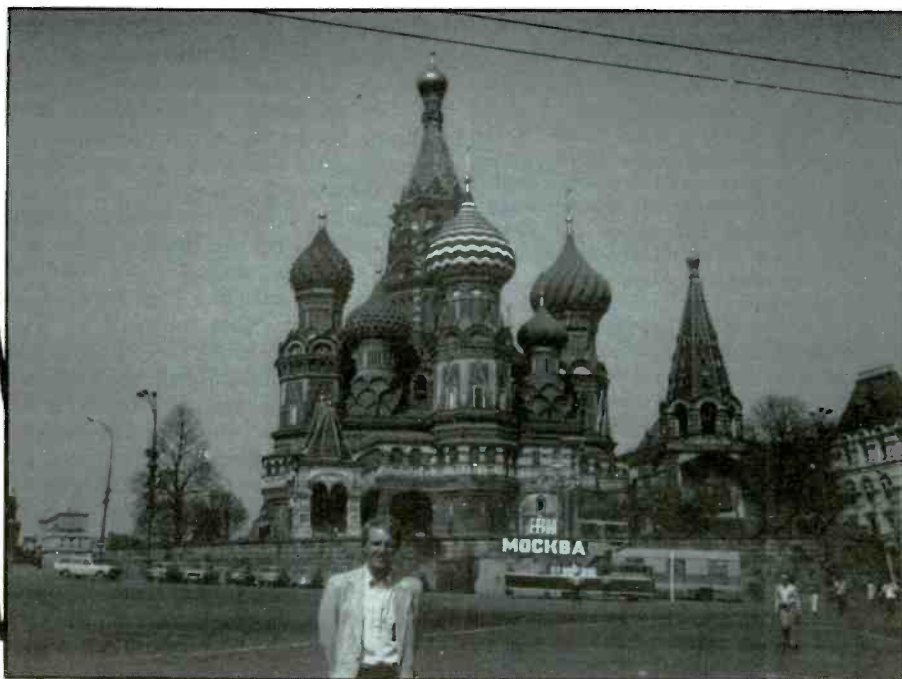
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Harry Helms in front of St. Basil's Cathedral, Red Square, Moscow.

DXing From The USSR

*Made Especially Eventful
By The Chernobyl Nuclear Accident*

BY HARRY HELMS, KR2H

As I sleepily left the Finnair jet at Moscow's Sheremetyevo Airport, I thought of Tom Kneitel's reaction when I told him I planned to pack along a portable shortwave radio during my visit to the Soviet Union. "I guess I'll be able to reach you via Box 88 in Moscow," POP'COMM's editor told me, "and be sure to let me know what your new UA1 prefix ham call is!"

We had a good laugh about it at the time. Now, as I made my way toward passport and customs inspection, it didn't seem quite so funny. Now I really was on *their* turf, where *their* rules applied.

What would the reaction of Soviet customs officials be to my radio? How would (or could) I explain it? Somehow, I felt the truth—that I planned to snoop for radio signals that the Soviet government doesn't want anyone to hear—wouldn't go over very well. My uneasiness only increased at passport control, where a uniformed soldier examined my passport and visa for what seemed like an eternity before letting me pass on to customs inspection.

The baggage claim and customs area pre-

sented some unexpected images. For example, there was one sign with the Pepsi-Cola logo and "Welcome to Moscow" beneath it. (Kiosks selling Pepsi-Cola are all over Moscow.) Other familiar advertising signs were for American Express ("We're here if you need us," it read) and Camel cigarettes.

Customs inspection in the USSR has to be among the most relentless anywhere. As I waited in line, I watched as all bags were opened, many emptied, and all written materials subjected to a plodding examination. (I suspect, however, their intense attention is largely due to the opportunity to take a look at Western cars, clothes, and other goodies in magazines.) The supervisor of the inspector in whose line I waited hovered nearby and, as a result, he was conducting an excruciatingly detailed inspection of everyone and everything.

Just as my turn came, however, luck smiled on me. The supervisor walked away, and the harried inspector was in the mood for a break. My bags remained closed (although they passed through an X-ray ma-

chine), and the only questions concerned how much currency I had with me and whether any of it was in rubles. With a surprisingly cheery "welcome to the USSR," the inspector waved me through. I—and my radio—had made it! I would be able to experience DXing from Moscow, Leningrad, and Kiev.

Although I wasn't aware of it at that time, customs was to be one of the *easier* moments of my trip.

Touring the USSR is vastly different from touring a Western nation. All tourism is conducted through Intourist, a Soviet government agency responsible for all visits by Westerners. Intourist doesn't operate the way other tourist agencies do; you don't call and ask them to make your hotel or airplane reservations for you. For starters, individual Western visitors (unless they're VIPs) are distinctly unwelcome. Instead, Intourist handles visitors in groups, and all aspects of the group visit—itinerary, schedules, hotel, meal times, and even menus—are determined solely by Intourist. (The only situations I can compare this to is being back at

summer camp or in military basic training!)

Intourist tries to keep Western visitors inside a cocoon in which the opportunities to meet Swedes or West Germans are much greater than those to meet Russians. After clearing customs, you're hustled off to an Intourist bus, with your Intourist guide, to be taken to an Intourist hotel (which only houses Westerners). To insure your "security," doormen and guards (including uniformed soliders!) keep non-guests out of the hotel. Further, most new hotels are located away from the center and major thoroughfares of Soviet cities. All meals are in the hotel, and each group has its own tables; only other Westerners are seated in the rest of the restaurant. Every hotel has stores and bars which accept only Western currency. Each morning, an Intourist bus picks up the group for the day's schedule and deposits everyone back at the hotel that evening. When attractions are visited, visitors are escorted to the front of the line and "processed" as a group. This segregation even extends to airports and Aeroflot planes, which have separate waiting areas and sections for Western visitors. (Westerners also board most planes separately.) Fortunately, the system isn't air-tight; free time is allowed some evenings and one can (as I did) plead illness to get out of a scheduled activity to go exploring (or DXing) on one's own.

The first surprise came at the Intourist bus, where I noted that its radio covered LW, AM, the Soviet FM band (66-73 MHz)

and the 49-meter band (5900-6300 kHz). Our hotel in Moscow turned out to be the "Kosmos," a 25-story French-built hotel that opened for the 1980 Olympics. It was 1830 UTC when I settled into my room and I was feeling the effects of jet lag; however, I decided to do a quick band scan before going to bed.

The first thing that hit me is the jamming found on such bands as 25, 31, and 49 meters. Not only are the jammers loud, but it seems as if there's one every 5 kHz on most SW broadcasting bands! The only clear frequencies seemed to be those carrying a Soviet home service (such as "Mayak") or a Radio Moscow external service. I did spot Radio Liberty on 15290 kHz at a good, listenable level above a jammer. Fortunately, I also noted the BBC in the clear and loud on 15070 kHz, so I was assured of contact with the outside world. Iran had a powerful signal on 15084 kHz in Moscow and in other cities; there was some jamming at times but Iran was easily atop the noise.

One revelation was tuning the 26000-28000 kHz range. In the U.S. and Canada, this range is packed with CB signals. In Moscow, one hears nothing!

Tuning LW found strong signals from Soviet home services on 173, 200, and 263 kHz. A mystery, however, was a powerful signal on 453 kHz. This was nothing but an open carrier and was the strongest signal on the entire LW band—even exceeding the 2000 KW signal on 263 kHz! It was always

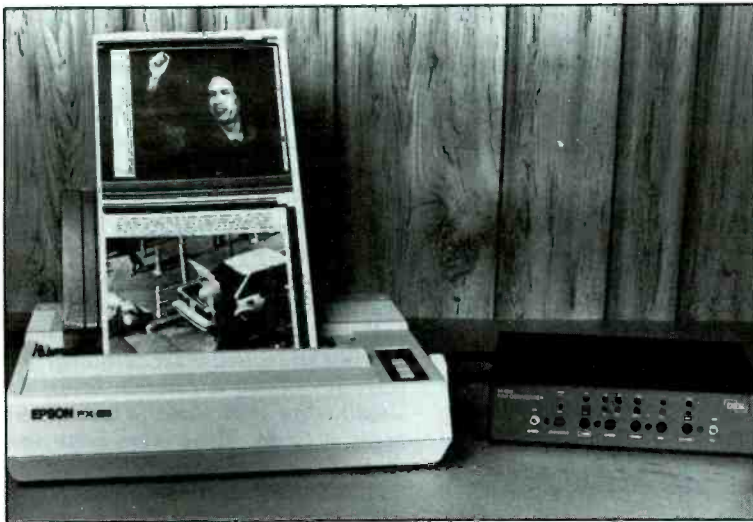
present, day or night, when I listened to Moscow and was again heard at a reduced level when I was in Leningrad. I never heard anything at all in the way of modulation. It didn't seem to be a spurious response in my radio, so I have no idea whatsoever as to what it was.

The AM and FM bands were dull, with the AM band jammed in a similar manner to SW. The only interesting station was on 680 kHz, where "BP," a beacon, was heard. It transmitted an open carrier and identified twice on the minute in CW. My radio didn't cover the Soviet FM band; instead, 88 to 108 MHz was filled with TV audio and the "buzz" of video!

The next day I awoke around 0330. I was pleased to discover that the Voice of America relay in Great Britain put excellent, un-jammed signals into Moscow at that time on 7200 kHz. Reception was equally good in Kiev and Leningrad. One surprise was that other VOA frequencies in English were heavily jammed; for example, the parallel 7170 kHz was obliterated by a particularly noisy jammer, yet 7200 kHz was always armchair quality. I can't figure out if they were merely forgetful or if the Politburo wants at least one clear VOA frequency they can listen to before leaving for work!

Outside of the VOA, jamming is greatly diminished in the morning. Perhaps this is because there is little to be heard at those hours on most frequencies outside of USSR home services and various Asian stations.

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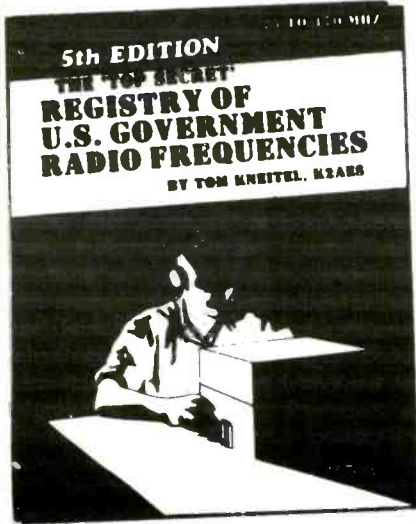
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CIRCLE 29 ON READER SERVICE CARD

Since I didn't take along the *World Radio TV Handbook*, I couldn't readily identify them. Nor did I keep notes about everything I heard. I refrained from explicitly writing down my loggings, since there is a customs inspection on leaving the Soviet Union which can be more thorough than the incoming one. Instead, I "encoded" my loggings in two copies of *Sky and Telescope* magazine so they looked as if I were merely calculating the positions of various asteroids and the path of Halley's Comet!

The only unusual morning logging was made on those mornings when I awoke before 0300 and managed to find some time signals on 7065 kHz. These signals consisted of a pulse each second, with no indication (longer pulse, etc.) of the minute. I heard no identification, and the signals left the air promptly at 0300. Signals were good in Moscow and Kiev, with reception somewhat better in Kiev. I can't find a listing for this station anywhere and would appreciate help from readers.

Speaking of time signals, I'm convinced that RWM is nowhere near Moscow. Despite trying every time I listened, I couldn't hear anything from the station on 4996, 9996, or 14996 kHz. In fact, the best reception of time signals (other than the 7065 kHz puzzle) was from MSF in Great Britain on 10000 kHz!

One major disappointment was the lack of interesting action on the utility bands. Try as I might, I couldn't run across any frequencies used by the Soviet Air Force or Red Army. Nor did I hear one single-letter CW beacon! In fact, western Europe was dominant on the utility bands. Stations such as GYA in Britain, SAG in Sweden, and CTU4 in Portugal were loud with their CW marker transmissions.

One interesting excursion was to the massive GUM "department store" in Red Square across from the Kremlin and Lenin's Tomb. GUM is actually a series of stalls and booths inside what appears to be an ornate, abandoned railway station. It was here that I got to see the type of communications equipment available to Muscovites. Everything was priced in rubles, with the official exchange rate being one ruble equal to \$1.40. The typical Russian makes less than 250 rubles per month. Thus, it was a shock to see a garden variety cassette recorder, similar to those you can find for less than \$50 in the U.S., for sale at over 100 rubles in GUM. Portable shortwave radios are on sale in GUM at 150 rubles. These are AM only (no BFO) and reminded me of the cheapie portables offered by Allied Radio and Lafayette Radio in the mid-1960s. I doubt if you could sell them at \$50 here. Interestingly, wavelengths are indicated in meters rather than frequencies in kHz. A 30 watt stereo record player (no radio, tape player, etc.) with matching speaker costs 500 rubles. You could find a better unit in a typical stateside discount house for under \$150. GUM isn't exactly a paradise for consumer electronics!

However, the latest Western electronics goodies are on sale quite legally in Moscow and other cities at what are called "Beryozka" shops. Inside them you can find Japanese electronic goods (including some of the better portable SW radios you see advertised each month in *POP'COMM!*), French wines, American cigarettes, German shavers, Swiss chocolates, and other Western products along with a wide selection of Soviet goods such as vodka, furs, and hand-painted boxes. All prices are in rubles, but such stores only accept Western currency or credit cards in payment. (Yes, they have the logos for Visa, Mastercard, and American Express over the cash register just like in the United States and Canada!)

Prices for the Western goods, such as the portable shortwave radios, are no bargain; most seemed to be full U.S. list price plus a bonus of about 30%. But all seemed better buys, in rubles, than comparable Soviet goods. Anyone with Western currency can patronize a "Beryozka." This explains why Westerners find themselves constantly stopped and asked if they want to change dollars for rubles; this is illegal to do, however. Taxi drivers seem to participate heavily in this sort of activity. On my last night in Moscow, I took a taxi back from Red Square to my hotel. After learning I was an American, the driver offered to swap two rubles for a dollar. Needing no more rubles, I refused. The driver persisted, and by the end of my trip was offering me four rubles for a dollar! The fare for my ride was three rubles, and I felt so sorry for the guy I gave him three dollars instead. I don't think I'll soon forget the look of joy on his face! Everyone in my Intourist group has similar stories.

Frankly, Moscow was forboding to me. The city has a certain grimness and militarism to it, and this is heightened by the scores of soldiers and other uniformed personnel one sees everywhere. I saw wedding parties celebrate by placing flowers on the grave of the unknown soldier at the Kremlin, and war memorials that are "guarded" by schoolchildren carrying real rifles. On the street, I saw numerous people wearing military decorations on their civilian clothes. Pacifists certainly don't appear to be in the mainstream of Soviet society!

The lot of the average person seems, to Western eyes, to be difficult. I had the opportunity to wander into stores near the Kosmos and found other consumer goods, such as clothing and shoes, to be just as shoddy and overpriced as the electronic items at GUM. There were some strange disparities in available goods; shoes would be available in very small or very large sizes but not in the size ranges most people wear. I never saw a calculator for sale, although slide rules were. Food stores had tables piled high with potatoes, carrots, turnips, cabbages, and similar items but fruits and vegetables such as tomatoes were nowhere around. The cuts of meat were few and mostly fat. (I hope I don't sound too cruel, but they reminded me of the scraps we nor-



mally give to dogs!) Long lines outside stores were a frequent sight, indicating some hard-to-get items were then in stock. It struck me that the undeniable grandeur and impressiveness of the Kremlin, Red Square, the Moscow subway, and the Exhibition of Economic Achievements were attempts at somehow compensating private deprivation with public splendor.

We left Moscow on April 27. Our destination was a city to the south that I immediately liked better than Moscow. It was set in the middle of gentle farmland that reminded me of Kansas or Nebraska. The city was more handsome than Moscow; stripped of its banners and portraits of Lenin, the city could fit into Austria or Germany and not look a bit out of place. The weather was sunny and warm with low humidity; the only comparison I could make was to San Diego in spring!

I was in Kiev. When we arrived at the airport via Aeroflot, we had no way of knowing that the previous day had marked the start of a disastrous accident at the Chernobyl nuclear power plant. Chernobyl is about 70 miles from Kiev.

My shortwave receiver was very soon to become *much* more than a source of diversion.

My initial favorable impression of Kiev didn't extend to our hotel, the Rus, although it was apparently the finest hotel in Kiev. The description I kept in my travel journal says it best: "The Rus Hotel should be made into a memorial for Brezhnev. All the ills of that era—poor planning, bad execution, sloppy work practices, indifferent at-

titudes, etc.—are all combined here. This place is only about six years old but already looks sixty; it reminds me of some seedy hotel in Mexico. In the bathroom, there is a constant puddle of water under the sink and there's no shower curtain (although there are hooks and a bar for a curtain). The beds are so bad we call this place 'Camp Lenin,' since the beds are little more than bunks . . . it was designed by people who didn't know what they were doing and run by people who know even less." At least we only had to spend our nights there!

Fortunately, the people of Kiev proved to be just as sunny and warm as the city itself. Our Intourist guide for the city tour was from Kiev, and she quickly disarmed us with her candor and humor. Early in the tour, we passed a research facility for computers and cybernetics. She proudly announced Kiev was the leading area in the USSR for research into such areas, although, she added, ". . . the United States is ten times ahead of us in such fields." You could hear jaws drop on the bus. The city tour confirmed the initial favorable impression. The obligatory war monuments dealt less with war glories, as in Moscow, but more on the horrors. The shops had a wider variety of foods, and the River Dneiper was traveled by many boats, including cruise ships.

Average citizens were not shy about approaching us in parks and on the street. Not all were out to trade rubles; many wanted to practice their English or were simply curious about those strange creatures called Americans. There was no hostility or even mention of politics; the most difficult moments came when I tried to explain American football! I wound up swapping T-shirts and rock music cassettes for Russian souvenirs and even gave my address to a few. Hopefully, I'll hear from some of them.

The good feelings continued Monday night, as we were treated to banquet at which—what else—Chicken Kiev was served. There were also endless bottles of Russian champagne (which wasn't bad) along with "pepper vodka," which has to be among the most lethal concoctions legally available anywhere! I wound up seriously asking one of our Intourist guides why anyone would live in Moscow when they could live in Kiev. A native of Kiev, she seemed very pleased that I had asked the question.

Everything came apart the next morning, April 29, when I tuned in VOA at 0300 on 7200 kHz. It was then I learned that some sort of major accident, possibly a meltdown, had happened at Chernobyl and that large amounts of radiation had been released. Further, the VOA reported, the accident was still in progress and the reactor was believed to be out of control. From that moment forward, my SWling was devoted to finding clear frequencies for the latest information about what was happening.

As I listened to the reports, I remembered one unusual scene as we arrived at the Kiev airport on Sunday. As we taxied toward the passenger terminal, I saw several hundred

troops in formation near another terminal which seemed to be used for cargo planes. Planes were being unloaded near them, and it seemed as if the troops had just arrived. I thought nothing about it at the time, chalking up their presence to training or perhaps participation in Kiev's May Day parade. Now I wondered if they had anything to do with the accident's aftermath.

As our group gathered for breakfast, I spread the news about what I heard from VOA. It turns out some others already knew. One of our group had been called earlier that morning by Cable News Network; he replied, quite honestly, that he was unaware of any accident. Another call was a bit more ominous. A woman had been called by her husband in New York. The call was normal until her husband asked her if she had heard about the nuclear accident near Kiev. Suddenly, she could no longer hear her husband, although the connection did not seem to be broken. Hoping he could hear her, she told him everyone was fine and not to mention again what he had been talking about. At that point, the connection was restored and the call continued normally, if guardedly.

An Intourist representative got wind of our conversations and sought to reassure us. We were given the then-current TASS version: a minor accident, some leakage of radiation, and the situation was under control. Further, we were told that a consular official and military attache from the U.S. embassy in Moscow had visited the Chernobyl site and had determined that there was no danger.

That latter statement, of course, turned out to be totally false.

Kiev certainly didn't have the appearance of a city facing any sort of danger. Judging from the people we met, I'm convinced most had not even heard the TASS report. Our tour of the city, including a visit to the Monastery of the Caves and a "Pioneer Palace" for children, proceeded normally. But none of our group seem satisfied by the explanation we had been given that morning. Arriving back at our hotel, I immediately tuned to the BBC on 15070 kHz for the latest. It confirmed our suspicions. The BBC reported that the USSR had asked Western nations for advice on handling the situation and that a meltdown may have occurred. No mention whatsoever about the two phantom American officials visiting the facility. At dinner, the conversation was devoted exclusively to Chernobyl.

We were scheduled to leave Kiev the next day, April 30, and I waited for the VOA news at 0300. VOA carried the early, incorrect reports that as many as 2000 had been killed and that a second reactor may have experienced a meltdown. The VOA also reported Kiev was now closed to journalists and Western diplomats and that the U.S. State Department had issued a travel advisory for Kiev. At breakfast, the first signs of panic began to break out among a few persons in our group. They rushed around the

table, advising everyone to avoid the water and milk. The rest of us realized that if we were zapped it happened long ago and avoiding the water now wouldn't make much difference. Even if we weren't panicking, we were mad as hell that Soviet authorities allowed us to fly to Kiev when they were aware of the situation.

Intourist had more reassuring news for us. A large group of Japanese tourists were also staying at our hotel, the story went, and they always take Geiger counters with them since they are so "radiation conscious" due to Hiroshima and Nagasaki. Their Geiger counters tell them there is nothing to worry about. We met this news with sullen silence and stares. As we correctly guessed, this story turned out to be another lie.

Our route north to the airport was normal, although it seemed as if there were numerous military transport trucks also heading north. The scene at the Kiev airport terminal was calm, with no unusual activity of any sort. We boarded our flight, and by 1500 that afternoon were in our hotel in Leningrad.

I found in Leningrad that the VOA's 15205 kHz relay from Britain put in good signals around 1530 over an ineffectual jammer. VOA had the latest news, as it was then known, about Chernobyl. Although we were clear of the immediate danger area, the question everyone had was what we were or were not exposed to in Kiev. Unfortunately, VOA couldn't help us figure that out, at all.

I now had time to do some SWLing for re-

laxation. I noted Kuwait with an excellent signal on 11675 kHz from 1800 onwards with English news at 1830. Turning around afterwards, I found a five-digit German numbers station on 7435 kHz at 1845; signal was excellent.

The next day was May 1, and I hoped to see Leningrad during the Soviet holiday. Unfortunately, the tour was abruptly cancelled and we were all going back to New York a few days early. We were never told who cancelled the tour—Intourist, Finnair, or the American sponsors—nor were we consulted on the matter. We were ordered home and that was that. That morning I did my final SWLing from the USSR. In addition to the VOA on 7200 kHz, I also noted the BBC in the clear on 9580 kHz after 0500; this is their Cyprus relay.

Clearing customs at the Leningrad airport was the final hurdle. It was just as demanding as the incoming inspection—in my case, even more so. My bags were searched and the inspector found my shortwave radio. He spent some time examining it, even going so far as to press some of the keys used to enter frequencies. He finally put it back in its case, remarking "nice radio!" to me. I got the feeling that if he had met me on the street he would have tried to buy it. At last, we were all aboard the Finnair jet and airborne. When the pilot announced the plane had entered Finnish airspace, the passenger cabin rocked with applause.

Since Helsinki airport was on strike, we landed at Turku and flew to New York the next day. At Turku, the media circus was in

full swing, including reporters from a New York tabloid and one of the New York television stations. They had been sent to bring back stories on the terror of the survivors of the Great Atomic Disaster, and they did their best. The TV crew literally instructed everyone on how to panic, and they orchestrated events for many of the group all the way back to New York. (For example, one of the scenes aired showed members of our group breaking into the applause upon landing back in New York. They were specifically instructed to applaud upon landing if they wanted to be on TV that night!)

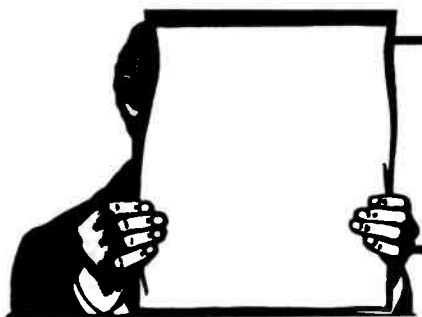
I tried to escape the media circus but discovered that listing my occupation as "editor and writer" on the tour application was a mistake. I was interviewed in my hotel room by a TV crew from the Finnish Broadcasting Co., and spent much time on the phone with the Helsinki office of the Associated Press. We were also checked for radioactive contamination by Finnish personnel, and it turned out we all received higher than normal exposures although we were told that there was no need for concern.

The next day we returned to New York and the scene was repeated. Personnel from the Brookhaven National Laboratories again checked us for contamination, and again there were indications of minor exposure. The entire group was herded in for a press conference, and I achieved a minor measure of fame when I was interviewed by a reporter from New York's WNBC-TV. I was tempted to give them the story they really wanted—"It was horrible! Bizarre glowing genetic mutations were attacking the populace! Oh, the screams of the children!"—but I refrained and gave a sedate, normal interview. At last, the scene ended and we all made our way home.

Since my return, many Soviet spokesmen have complained bitterly about Western coverage of Chernobyl. My only reaction is that they would have received better, more accurate coverage if they had been more honest and candid themselves. I am still angry at having been sent to Kiev unaware of the Chernobyl situation and at being told bald-faced lies in Kiev concerning the U.S. diplomats and Japanese with their Geiger counters. The Soviets would do well to remember "the boy who cried wolf" and what can happen when you finally try to tell the truth after telling numerous lies.

In one sense, my SWLing from the USSR was a bit of a disappointment since I didn't find any "juicy" information on restricted Soviet frequencies. In another sense, it was a major success. My experience again points out the amazing ability of shortwave radio to span barriers and link the world together in a large information chain. I will never again travel outside of a Western nation without a shortwave radio as part of my baggage, and I can't imagine any prudent person not doing the same.

Am I glad I went to the USSR? Yes, and my feelings toward Kiev haven't changed one bit. Would I ever go back? Not on your life!



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Firefighter Awarded for Frozen Pond Rescue

Sean King had just left the Laurel Volunteer Rescue Squad one cold January afternoon when he heard a call on the scanner in his automobile. The ice on Willow Lake had broken and a boy was trapped underneath the ice layer.

King sped to the lake, located near Washington, D.C. in suburban Prince George's County, Maryland. The 32-year-old firefighter, on leave from his full-time fireman job because of injuries sustained while fighting a fire several years ago, arrived at the pond just after ambulance and paramedic units. He waded into the pond, according to accounts of the incident in the *Prince*



SCAN PUBLIC SERVICE AWARD

George's Journal and the *Laurel* (MD) *Leader*, breaking the ice with his fists and elbows, until the near-freezing water was up to his neck.

He was just a few feet from 11-year-old Michael Fabyanic of Fort Meade, MD who had fallen through the ice after trying to retrieve a football. King could no longer break the ice, but he was able to throw Michael a rope.

At first, Michael grabbed the rope, lost his grip and fell back into the water. He came

back up and was able to hold on to the rope as King dragged the boy toward him.

Other rescuers were able to pull King and the boy safely to shore. Both were treated for hypothermia.

Michael said that he thought the ice was "three or four feet thick." The ice "kept get-

ting thinner, but from where I was, I couldn't see," he told the *Journal*. "It looked thick. I didn't want to die," he continued. "I was scared to death. Everytime I grabbed a hold of the ice, I kept slipping."

King received the county fire department's "Gold Medal of Valor" and was named one of two "Firefighters of the Year" in Prince George's County. Firefighter Gordon B. Thorne also received that honor.

Actually, King wasn't on duty at the time of this incident, according to the *Leader*. He was at the headquarters of the Laurel Volunteer Rescue Squad, having coffee with friends before he got into his car and heard the call for help.

He is on leave from his full-time job as a firefighter at Dulles International Airport, and is also on leave as a volunteer with the rescue squad. He still helps out with support services at the squad's headquarters, according to the *Leader*.

King is recovering from burns he suffered while fighting a fire at the Laurel Square apartments in late 1983.

King also received honors from the Mayor and City Council of Laurel, a resolution from the State Senate of Maryland, and even a letter from President Reagan.

For his heroic rescue, firefighter King receives the SCAN Public Service Award, which includes a special commendation plaque and a \$100 cash prize. Judy L. McClain of Laurel, who heard the incident on her scanner, will also receive a commendation plaque for making the nomination.

Congratulations to both of you. **SCAN**

Best Appearing

Bernard Peters of Auburndale, Wisconsin, is all set for the *Information Age* with this computerized scanning setup.

Bernard uses a Bearcat 210 scanner, RCA seven-bank Stratoworld with 100-foot antenna, Realistic DX-300 with a home-made multiband antenna, and Midland citizens band unit with a Starduster antenna. Since this photo was taken, a JIL SX-200 scanner was added.



The computer is a Commodore 64 with an MFJ-1228 RTTY/CW interface. The front of the computer platform flips up for storage of printer paper, the computer and data cassette when not in use.

SCAN PHOTO CONTEST WINNERS

Bernard mentions that he is a charter member of SCAN and has received Popular Communications since its first issue. He's been scanning since 1977.

Best Equipped

Our winner in this category this month is Joseph P. Simonis of Sherwood, Ohio.

As this photo shows, Joseph uses a Uniden Bearcat 100XL handheld scanner, and a Bearcat 210. He also has a Sony ICF-5500W AM/FM/PSB receiver, ICF-2001 shortwave receiver, ICOM IC-R70 communications receiver and a Kenwood R-11 radio.

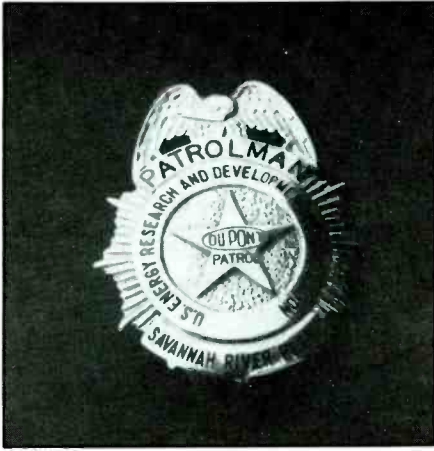
Joseph reports that he also has a GE cassette recorder, LED clock and external speaker from Radio Shack. He says that he spends a lot of time with the handheld scan-



ner listening to police calls and enjoys the coverage of the aircraft bands.

Congratulations, Joseph!

Winners of the SCAN Photo Contest receive the BMI "NiteLogger" tape recorder activator. Plugged into a cassette recorder and a scanner, it provides a complete record of all communications with no "dead time" on the tape. To enter the photo contest, send a sharp black & white print to SCAN Photo Contest, P.O. Box 414, Western Springs, Illinois 60558. Don't forget to provide a complete description of your equipment in the photo and some information about your scanning interests. **SCAN**



The former security department at the Savannah River Plant (badge shown here) was replaced by a tougher agency.



Monitoring The:

Dept. of Energy's Nuclear Network!

Recent World Events Have Focused New Interest On These Stations.

BY TOM KNEITEL, K2AES, EDITOR

The U.S. Department of Energy facility bears the innocuous sounding name of The Savannah River Plant. Located in the midst of pines and swamps on the Georgia-South Carolina border, the name and location conjures up images of the antebellum South and constructing picturesque side-wheel river steamboats.

The image, however, is quickly shattered when you find that this 300-square mile federal reservation on State Route 125 is a maze of laboratories and nuclear reactors that produces tritium and plutonium for nuclear weapons. Moreover, because of fears that it might be the target of terrorists, it is protected by a security force of more than 650 high-trained commando-like employees, many former members of the U.S. Army's Special Forces. Members of the private security force (they are actually employees of The Wackenhut Corp., a Florida-based security firm) are told to keep the exact details of their work secret. Backed by automatic weapons, helicopters, and armored personnel carriers, the security force trains with regularly scheduled "war games," fending off simulated terrorist attacks.

Many of the (approximately) 12,000 people at Savannah River are employees of the DuPont Corp., the contractor that operates the facility for the Department of Energy (DOE). DuPont's own guards once provided security, however in 1983, that force was replaced by Wackenhut's elite forces.

The scene is not too different at the Pantex Plant situated near Amarillo, Texas. While the name might lead you to believe that ladies' undergarments are being produced there, what they're actually doing is putting together components produced at other DOE facilities around the nation; facilities with nondescript names such as the Fernald Plant, the Hanford Reservation, and the Paducah Plant. The components are being assembled into nuclear weapons.

At Pantex, operated by a contractor called Mason and Hanger, security forces are on constant alert and are trained to handle all situations ranging from anti-war and anti-nuclear protest gatherings to point-blank terrorist assaults. Watchtowers, armored vehicles, landmines, automatic weapons, electronic surveillance, and a large, well-trained and super-tough security force

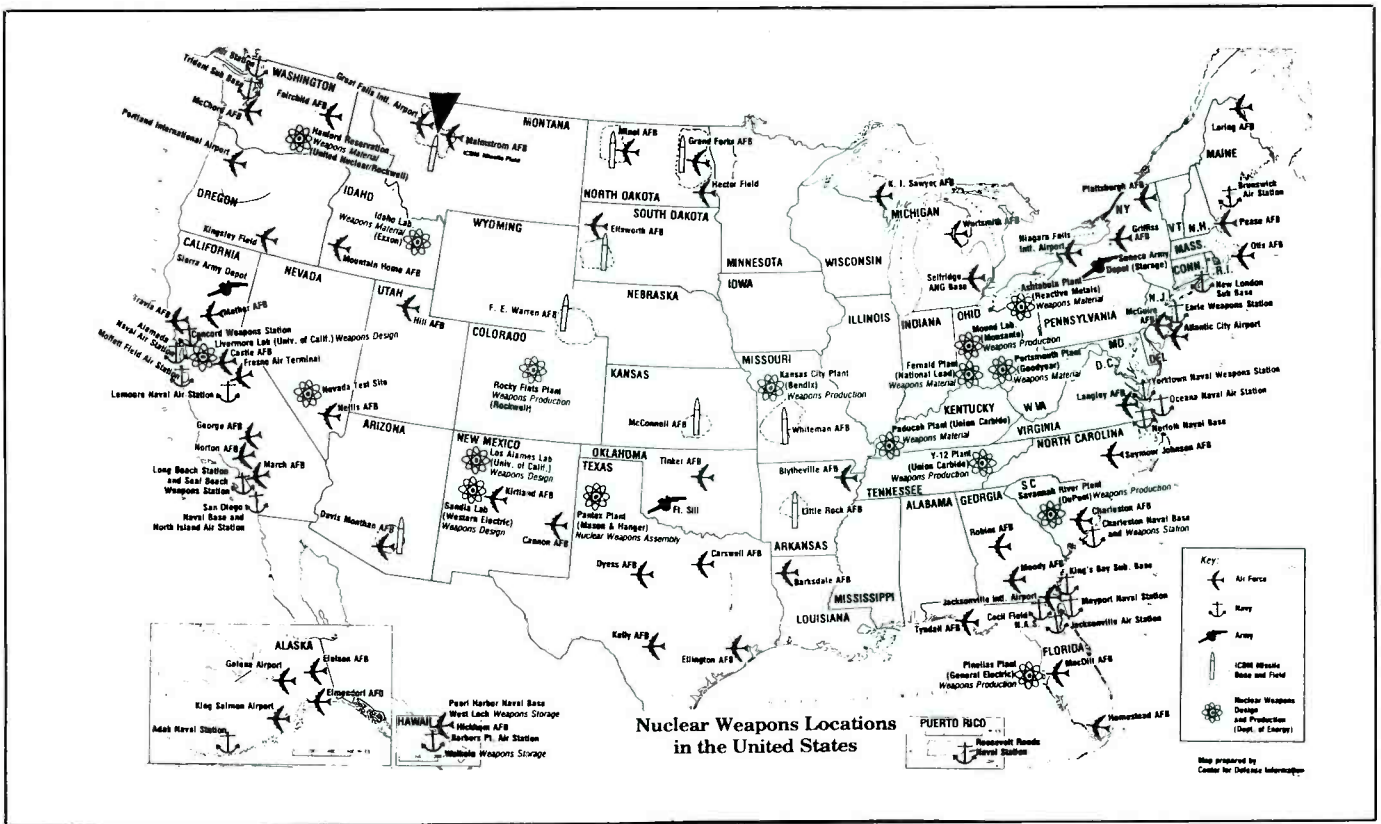
provide maximum protection for this DOE installation that is strictly off-limits to the casual visitor.

Fact is, to get inside any of the DOE's nuclear facilities you've got to pass some very watchful eyes, made all the more alert by heightened tensions due to international terrorist activity and also the Soviet nuclear reactor disaster at Chernobyl (five DOE nuclear reactors don't have containment vessels, either).

One clue to how seriously the security measures at all DOE nuclear facilities are taken is that, despite Washington's budget consciousness, about \$40-million is spent annually on security measures at the Savannah River Plant for security. Wackenhut also provides security for the Nevada Test Site, where nuclear weapons are put through their paces.

DOE Participation

Many members of the public are quite surprised to learn that all of these activities aren't within the domain of the Department of Defense, but are handled by the DOE, an agency perhaps showing a higher profile in



the areas of research, development, and demonstration programs involving fossil fuels—coal, petroleum, and natural gas.

The DOE, however, also directs nuclear weapons research for the government, as well as nuclear development, testing, production, and the surveillance program. The DOE produces the special nuclear materials used for weapons, provides classification and declassification of sensitive nuclear weapons information, departmental intelligence information, test ban treaty verification, and arms control activities.

Furthermore, the DOE runs research and development programs associated with fission energy. This includes programs relating to civilian and naval nuclear reactors, uranium enrichment and assessment, and other related activities. These projects are executed by DOE Headquarters, by field and project offices, and by contractors.

Communications Activities

DOE activities and facilities extend to all areas of the nation. Moreover, the transportation of nuclear weapons and other radioactive materials place the agency's activities on the nation's highways and rails. The DOE also has a fleet of helicopters and fixed-wing aircraft that is active on a number of communications frequencies.

Linking all of these activities together is an extensive and highly complex network that has thusfar been given only sketchy and somewhat superficial and piecemeal treatment in available directories. These communications facilities, as we shall see, incorporate high-frequency (HF) point-to-point and aeronautical activities as well as VHF/UHF operations for security, fire, mainte-

DOE Contractor-Operated Field Installations		
Installation	Operated by	Used for
Fernald Plant	National Lead	Weapons materials
Hanford Reservation	United Nuclear; Rockwell	Weapons materials
Idaho Nat'l. Engineering Lab	Exxon	Weapons materials
Kansas City Plant	Bendix	Weapons production
Lawrence Radiation Lab	Univ. of California	Weapons designing
Los Alamos Science Lab	Univ. of California	Weapons designing
Mound Laboratory	Monsanto	Weapons production
Paducah Plant	Union Carbide	Weapons materials
Pantex Plant	Mason and Hanger	Weapons assembly (nuclear)
Pinellas Plant	General Electric	Weapons production
Rocky Flats Plant	Rockwell International	Weapons production
Sandia Labs	Western Electric	Weapons designing
Savannah River Plant	E.I. DuPont	Weapons production
Y-12 Plant	Union Carbide	Weapons production

nance, administrative and other activities on-site at DOE facilities.

By collecting and assembling various bits of information from a number of sources, it has been possible to assemble a far more comprehensive and detailed picture of overall DOE communications activities than had been previously attempted. Part of this information was extracted from public records that the government later withdrew from public access.

A Closer Look

At first glance, one can see that an amazing array of frequencies are deployed throughout the HF spectrum. These frequencies range from 2 to 23 MHz. This indicates the importance of these communications circuits. In addition to landline communications, radio communications can be conducted with minimal chance of adjacent or co-channel interference, atmospheric noise, and negative influences of factors af-

fecting signal propagation. So, channels, as well as those held in reserve for backup use, would be available at any time for exchanging traffic with any other station(s) in the network, be it at a fixed site, mobile, or in the air.

While some frequencies are reserved for the exclusive use of the DOE's activities, other frequencies upon which DOE stations are authorized are intended for coordination with other federal agencies such as the Department of Commerce. DOE activities on 6982.5 kHz are intended for coordination with NASA communications. The Federal Emergency Management (FEMA) HF networks (generally referred to as CDNARS, the Civil Defense National Radio System) accommodate specific DOE stations on the following frequencies (indicated with their FEMA channel designators):

- 2361.5 kHz Foxtrot 07
- 2446.5 kHz Foxtrot 09

U.S. Department of Energy Aircraft Roster

N7EG	MBB 80-106S	N612	Bell 206-L3
N8PN	Bell 206-L3	N618DE	Bell 206-L1
N10EG	Cessna Citation 550	N620	Bell 206-B
N20EG	Beech King 100A	N3302T	Cessna 305-A
N29AF	Douglas DC-9-15F	N5015H	Bell 206-B
N30EG	Convair 580	N5015K	Bell 206-B
N50EG	MBB 80-105S	N5015T	Bell 206-B
N70EG	MBB 80-105S	N6391	Beech King 200-B
N80EG	Beech Bonanza 50E	N6733R	Beech King 200-C
N90EG	Beech 18 C-45H	N7806M	Fairchild 27 FH-227
N116SR	MBB BK-117	N16912	Bell 206-B
N117SR	MBB BK-117	N16913	Bell 206-B
N222DE	Bell 222U	N16916	Bell 206-B
N444DE	Bell 222UT	N35062	Dehavilland DHC-6
N510HP	Aerospat 350D Astar	N57133	Rockwell 690-A
N520HP	Aerospat 350D Astar	N72348	Dehavilland DHC-6

2659.5 kHz Foxtrot 10
3380.5 kHz Foxtrot 12
3389.5 kHz Foxtrot 13
5212.5 kHz Foxtrot 15
5692.5 kHz Foxtrot 18
6109.5 kHz Foxtrot 21
7349.5 kHz Foxtrot 25
10494.5 kHz Foxtrot 28
11802.5 kHz Foxtrot 31

In the instance of any type of emergency situation at a given nuclear facility, it would be imperative to establish instant communications with other DOE facilities, FEMA, etc. For on-site communications with FEMA, 167.975 MHz is used.

Although not indicated specifically in all

instances in our listings, DOE plants and facilities may also have operating capabilities within the regular local area law enforcement or fire communications networks, even though their primary security or fire operations may be on separate channels. As an example, Brookhaven National Laboratories' Fire Department operates on 164.225 MHz, but they can also coordinate with surrounding area fire agencies on 46.40 and 46.46 MHz.

VHF communications are in FM mode (except between 118 and 136 MHz; those are in AM). HF communications are normally SSB, although ASCII-mode comput-

er communications have been noted on 3336.5 kHz in addition to SSB.

In Transit

The Nuclear Transport Safeguard Network was established to provide communications with DOE vehicles used to transport nuclear materials. Vehicles can contact one another or various DOE facilities to report problems, delays, route changes, arrival times, to coordinate escort arrangements, and for security purposes. Speech scrambling and non-voice (data) transmissions have been reported in the NTSN, as in-transit vehicles are required to check-in with base stations at least once an hour. DOE vehicles have been noted ID'ing as "Lobo."

The most often reported NTSN frequencies are 3336.5, 5752.5, 7701.5, and 11556.5 kHz, known as Channels 1, 3, 5, and 8. Indeed, the other frequencies authorized for the NTSN may, by now, have fallen into total disuse as the NTSN anticipates relocating to the 30 to 50 MHz VHF low-band using meteor burst communications technology.

It's apparent that the DOE's low-profile communications network plays a far more active, important, and interesting role than has thusfar been thought by monitors. There has been no attempt here to enumerate each and every DOE communications activity in existence, only those of highest interest to HF/VHF monitors. Those in the immediate areas of any of the DOE's laboratories and plants will undoubtedly be able to tune in on scanner frequencies for the on-site communications activities.

Argonne Research & Development Labs., Lemont, IL

Nuclear Transport Safeguard Network: KSJ87 3336.5 kHz

HF Point-to-Point Network:

KSJ87 2446.5 2610.5 2625.5 3389.5 4480.5 4598.5 4604.5 4776.5 5212.5 5377.5 5379.5 6804.5 7349.5 7355.5 7429.5 7465.5 7723.5 7767.5 8054.5 9359.5 10494.5 10555.5 10871.5 11126.5 12233.5 13803.5 15454.5 16065.5 18417.5 19791.5 20405.5 23533.5 25432.5 kHz

Aeronautical Communications:

KYW8 2622.5 8963.5 11397.5 13261.5 17902.5 kHz

KZH6 2287.5 6982.5 7840.5 9115.5 kHz

On site operations: 27.575 27.585 27.595 27.615 27.625 27.635 27.645 40.47 42.50 154.25 154.265 154.68 155.34 155.475 164.30 164.325 164.375 164.75 411.20 418.075 MHz

Brookhaven National Labs, Upton, NY

Nuclear Transport Safeguard Network: KBA63 3336.5 kHz

HF Point-to-Point Network:

KBA63 2610.5 4480.5 4598.5 4604.5 4776.5 5377.5 5379.5 6804.5 7355.5 7429.5 7723.5 7767.5 9359.5 10871.5 kHz

Aeronautical Communications:

KGE275 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5 kHz

KZH7 2287.5 6982.5 7840.5 9115.5 11126.5 13803.5 16065.5 kHz

On site operations: 46.40 46.46 155.28 155.325 164.225 164.275 164.325 164.375 167.825 167.85 167.875 167.975 168.45 171.20 171.95 411.60 413.85 MHz

Fermi National Accelerator Lab., Batavia, IL

On site operations: 154.07 154.10 164.30 164.325 164.35 164.725 167.925 168.45 169.60 408.60 410.80 MHz

Fernald Plant, OH

HF Point-to-Point Network:

KRR41 2610.5 4480.5 5377.5 6804.5 7429.5 kHz

On site operations: 27.575 164.275 164.375 167.825 171.95 MHz.

Grand Forks AFB, ND

Aeronautical Communications (DOE):

KMR8 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5 kHz

WF12 2287.5 4480.5 6982.5 7840.5 9115.5 kHz

Hanford Reservation, Richland, WA

Nuclear Transport Safeguard Network: KAY20 11556.5 kHz

HF Point-to-Point Network:

KAY20 4480.5 4604.5 4946.5 5379.5 6930.5 7429.5 7465.5 7690.5 8054.5 10555.5 10871.5 11126.5 12020.5 12233.5 13803.5 14400.5 15454.5 16065.5 18417.5 19791.5 20405.5 23533.5 25432.5 kHz

Aeronautical Communications:

WLM9 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5 kHz

WLN2 2287.2 6982.5 7840.5 9115.5 kHz

On site operations: 27.700 164.00 164.275 164.325 164.375 164.40 165.80 167.825 168.45 170.575 171.20 172.50 173.025 173.10 406.225 407.175 410.35 411.15 411.20 413.825 413.95 416.075 416.40 416.50 MHz

Hickam AFB, HI

HF Point-to-Point Network:

KAD71 4912.5 7429.5 8054.5 10924.5 12233.0 16060.5 19705.0 25432.5 kHz

Aeronautical Communications (DOE):

KLM4 2622.5 4601.5 7701.5 11397.5 13261.5 17902.5 kHz 315.1 MHz

On site operations: 141.68 150.45 163.075 410.0 MHz

Idaho National Engineering Lab., Idaho Falls, ID

Nuclear Transport Safeguard Network: KRF264 3336.5 5309.5 5752.5 5948.5 7701.5 8015.0 9919.5 11556.5 14657.0 17398.5 kHz

HF Point-to-Point Network:

KBW48 2625.5 4480.5 4604.5 5379.5 7429.5 7690.5 8054.5 10555.5 10871.5 11126.5 12020.5 12233.5 13803.5 14400.5 15454.5 16060.5 18417.5 19791.5 20405.5 23533.5 25432.5 kHz

Aeronautical Communications:

KYX6 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5 kHz

WF13 2287.5 6982.5 7840.5 9115.5 kHz

On site operations: 40.47 162.225 163.175 163.325 163.46 163.75 163.835 164.175 164.25 164.325 164.375 164.40 164.525

164.575 164.70 164.775 164.9625 165.7125 166.225 166.325
 167.825 167.85 167.925 167.975 171.20 171.2625 171.425 171.95
 406.225 406.275 406.85 406.825 410.35 411.20 413.80 413.85
 413.95 MHz

Kansas City Plant, Kansas City, MO

Nuclear Transport Safeguard Network: KRF265 3336.5 5309.5
 5752.5 5948.5 7701.5 8015.0 9919.5 11556.5 14657.0 17398.5
 kHz

HF Point-to-Point Network:

KAS22 2625.5 4480.5 4604.5 4946.5 5379.5 6930.5 7465.5
 10871.5 11126.5 12020.5 14400.5 15454.5 16065.6 18417.5
 kHz

Aeronautical Communications:

KYY8 2622.5 6646.5 8963.5 11397.5 13261.5 17902.5 kHz
 KYZ4 2287.5 6982.5 7840.5 9115.5 kHz
 On site communications: 41.67 164.225 164.375 167.85 168.45
 171.95 410.35 411.20 413.85 416.30 416.40 MHz

Lawrence Radiation Lab., Livermore, CA

Nuclear Transport Safeguard Network: KMU77 11556.6 kHz

HF Point-to-Point Network:

KMU77 2446.5 2625.5 3380.5 4480.5 4604.5 4946.5 5379.5
 5962.5 6930.5 7429.5 7465.5 7690.5 8054.5 10555.5 10871.5
 11126.5 12020.5 12233.5 13803.5 14400.5 15454.5 16065.5
 18417.5 19791.5 20405.5 23533.5 25432.5 kHz

Aeronautical Communications:

KYW6 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
 kHz
 WF15 2287.5 6982.5 7840.5 9115.5 kHz
 On site communications: 41.67 154.845 155.40 162.225 163.375
 164.225 164.275 164.325 164.375 164.475 164.70 164.975 168.00
 170.025 171.20 171.925173.00 410.35 410.80 411.15 411.60
 416.40 416.45 416.60 416.65 416.75 MHz

Los Alamos Science Lab., NM

Nuclear Transport Safeguard Network: KRF268 3336.5 5752.5
 7701.5 11556.5 kHz

HF Point-to-Point Network:

KL187 2625.5 4480.5 4604.5 4946.5 5212.5 5379.5 6930.5
 7429.57465.5 7690.5 8054.5 10555.5 10875.5 11126.5 11802.5
 12020.5 12233.5 13803.5 14400.5 15454.5 16065.5 18417.5
 19791.5 20405.5 23533.5 25432.5 kHz

Aeronautical Communications:

KFP863 3397.5 kHz KGO39 257.0 315.1 MHz
 KYS3 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
 kHz
 KZH4 6982.5 7840.5 9115.5 kHz 122.8 MHz
 On site communications: 27.575 32.02 34.14 40.47 139.77
 140.68 142.23 148.47 162.61 163.375 164.10 164.225 164.275
 164.325 164.35 164.375 164.40 164.425 164.45 164.50 165.2625
 166.225 166.235 166.825 167.825 167.85 167.875 167.975 168.45
 170.725 171.20 171.2625 171.325 171.385 171.525 171.625
 172.30 406.225 406.375 406.75 407.175 408.125 408.175 416.05
 MHz

Mound Laboratory, Miamisburg, OH

Nuclear Transport Safeguard Network: KBA62 3336.5 11556.5
 kHz

HF Point to Point Network:

KBA62 2610.5 2625.5 4480.5 4598.5 4604.5 4776.5 4946.5
 5377.5 5379.5 6804.5 6930.5 7355.5 7429.5 7465.5 7723.5 7767.5
 9359.5 10871.5 11126.5 12020.5 13803.5 14400.5 15454.5 16065.5
 18417.5 20405.5 kHz

Aeronautical Communications

KYY7 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
 kHz
 KYZ3 2287.5 6982.5 7840.5 9115.5 kHz
 On site communications: 40.47 164.225 164.325 167.875 171.20
 171.95 410.35 411.20 413.80 416.20 416.35 467.45 MHz

Nevada Test Site, NV

Nuclear Transport Safeguard Network: KBW49 3336.5 11556.5
 kHz

HF Point to Point Network:

KBW49 2625.5 4480.5 4604.5 4946.5 5379.5 6730.5 7429.5
 7465.5 7690.5 8054.5 10555.5 10871.5 11126.5 12020.5 12233.5
 13803.5 14400.5 15454.5 16065.5 18417.5 19791.5 20405.5
 23533.5 25432.5 kHz

Aeronautical Communications:

KYS6 2287.5 2622.5 4669.5 6646.5 6982.5 7840.5 8963.4
 9115.5 11397.5 13261.5 17902.5 kHz
 On site communications: 34.99 36.05 40.47 41.03 139.77 162.10
 162.225 162.475 163.00 164.025 164.10 164.175 164.225 164.275
 164.375 164.40 164.475 164.525 164.675 164.70 164.775 164.9625
 165.2625 166.225 166.275 167.825 167.925 169.00 169.075
 169.275 169.85 170.40 171.235 171.3875 171.95 172.725 173.00
 173.5125 173.6625 173.7125 406.30 406.425 406.50 406.625
 406.9125 408.10 408.55 409.2125 410.05 411.60 412.35 412.65
 413.80 416.025 416.25 416.50 416.925 419.55 MHz

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Paducah Plant, Paducah, KY

HF Point to Point Network:

KKR39 2610.5 4480.5 5377.5 6804.5 7429.5 kHz
On site communications: 27.575 27.585 44.62 164.225 164.25
164.325 164.375 164.75 166.275 167.825 407.05 MHz

Pantex Plant, Amarillo, TX

Nuclear Transport Safeguard Network: KRF269 3336.6 5752.5
7701.5 11556.5 kHz

HF Point to Point Network:

KLE39 2625.5 4480.5 4604.5 4946.5 5379.5 6930.5 7465.5
10871.5 11126.5 12020.5 14400.5 15454.5 16065.5 18417.5
kHz

Aeronautical Communications:

KYY5 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
kHz

KZH3 2287.5 6982.5 7840.5 9115.5 kHz

On site communications: 30.37 40.47 41.61 41.67 46.61 164.225
164.275 164.35 164.40 164.375 167.825 167.85 168.45 171.20
171.95 409.20 411.025 416.30 MHz

Pinellas Plant, St. Petersburg, FL

Nuclear Transport Safeguard Network: KIV25 3336.5 kHz

HF Point to Point Network:

KIV25 2610.5 4480.5 4598.5 4604.5 4776.5 4946.5 5377.5
5379.5 6804.5 6930.5 7355.5 7429.5 7465.5 7723.5 7767.5 9359.5
10871.5 11126.5 13803.5 15454.5 16060.5 18417.5 20405.5
kHz

Aeronautical Communications:

KYY7 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
kHz

KYZ5 2287.5 6982.5 7840.5 9115.5 kHz

On site communications: 40.47 164.225 164.35 461.75 466.50
466.75 MHz

Rocky Flats Plant, Estes Park, CO

Nuclear Transport Safeguard Network: KGO45 11556.5 kHz

HF Point to Point Network:

KGO45 2625.5 4480.5 4604.5 4946.5 5212.5 5379.5 6930.5
7465.5 10494.5 10871.5 11126.5 12020.5 14400.5 15454.5 16065.5
18417.5 kHz

Aeronautical Communications:

KYT9 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
kHz

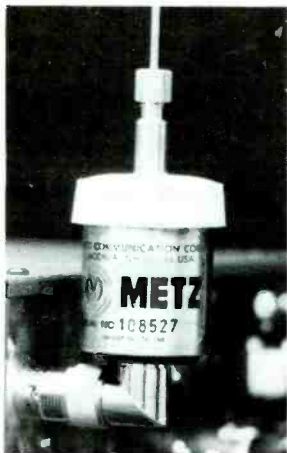
KZH5 2287.5 6982.5 7840.5 9115.5 kHz

On site communications: 27.575 40.47 43.18 154.905 164.225

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164.235 164.40 167.825 167.85 167.875 167.925 168.45 171.20
171.95 409.20 409.30 410.35 411.025 412.825 416.30 417.20
419.175 464.625 MHz

Sandia Labs., Albuquerque, NM

Nuclear Transport Safety Network: KRF263 3336.5 5309.5
5752.5 5948.5 7701.5 8015.0 9919.5 11556.5 14657.0 17398.5
kHz

HF Point to Point Network:

KMF43 13803.5 kHz

Aeronautical Communications:

KFP862 3397.5

KMK5 4601.5 6646.5 8963.4 11397.5 13261.3 17902.5 kHz
257.0 292.1 351.1 370.0 384.0 384.8 MHz

KNN2 2287.5 4480.5 6982.5 7840.5 9115.5 kHz

KYR3 2622.5 4669.5 6646.5 8963.4 11397.5 13261.5 17902.5
kHz

WLN6 122.85 MHz

On site communications: 27.575 27.585 27.675 138.61 139.03
139.77 140.6125 141.42 141.68 141.70 142.23 143.41 143.91
162.59 162.595 162.805 163.00 163.79 164.00 164.125 164.25
164.30 164.35 164.375 164.425 164.725 164.935 164.9625 164.975
164.985 165.0125 165.2625 165.325 165.80 166.125 166.20
166.225 167.175 167.925 167.975 170.025 170.075 170.125
171.20 171.215 171.225 171.40 171.95 173.05 173.19 173.195
409.20 409.30 410.35 410.80 411.025 411.20 412.70 412.75
MHz

Savannah River Plant, SC

Nuclear Transport Safety Network: KRF267 3336.5 5309.5
5752.5 5948.5 7701.5 8015.0 9919.5 11556.5 14657.0 17398.5
kHz

HF Point to Point Network:

KAL22 2610.5 3380.5 4480.5 4598.5 4604.5 4669.5 4776.5
5212.5 5377.5 5379.5 6109.5 6804.5 7349.5 7355.5 7429.5 7465.5
7767.5 9359.5 10494.5 10871.5 11126.5 13803.5 16065.5 18417.5
20405.5 kHz

Aeronautical Communications:

KYX5 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
kHz

KMK4 123.05 MHz

WLM8 2287.5 6982.5 7840.5 9115.5 kHz

On site communications: 27.565 27.575 27.585 27.605 27.635
27.655 40.47 159.45 163.605 163.61 163.75 163.79 163.795
163.80 163.80 163.82 163.84 163.86 163.88 163.90 163.92 163.94
163.9625 163.9875 164.005 164.225 164.275 164.325 164.375
164.75 165.2625 167.825 167.85 167.875 167.925 167.975 168.45
168.65 169.60 169.975 171.20 171.405 171.95 MHz

Y-12 Plant, Oak Ridge, TN

Nuclear Transport Safety Network: KAL23 3336.5 kHz

HF Point to Point Network:

KAL23 2610.5 4480.5 4598.5 4604.5 4776.5 5212.5 5377.5
5379.5 6804.5 7349.5 7355.5 7429.5 7465.5 7723.5 7767.5 9359.5
10494.5 10871.5 11126.5 13803.5 16065.5 18417.5 20405.5
23533.5 25432.5 kHz

Aeronautical Communications:

KYX8 2622.5 4669.5 6646.5 8963.5 11397.5 13261.5 17902.5
kHz

WF14 2287.5 6982.5 7840.5 9115.5 kHz

On site communications: 27.545 27.555 27.565 27.575 27.595
27.675 40.47 41.61 41.67 49.87 155.34 163.175 163.925 164.10
164.225 164.325 164.375 164.40 164.525 164.55 164.675 164.775
165.2625 166.575 166.655 167.025 167.125 167.825 167.845
168.45 170.075 171.20 171.50 171.625 172.20 172.30 172.725
173.6125 173.7125 173.7875 407.175 409.30 409.50 409.725
410.35 410.80 411.025 411.20 411.35 412.125 412.725 412.75
416.20 416.40 417.65 417.725 417.825 419.125 419.15 419.875
MHz

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Nuclear Transport Safety Network: KRF266 3336.5 5309.5
5752.5 5948.5 7701.5 8015.0 9919.5 11556.5 14657.0 17398.5
kHz

HF Point to Point Network:

KAL24 2610.5 4480.5 4598.5 4604.5 4776.5 5377.5 5379.5
6804.5 7355.5 7429.5 7465.5 7690.5 7723.5 7767.5 9359.5 10871.5
11126.5 13803.5 16065.5 18417.5 19791.5 20405.5 23533.5
25432.5 kHz

Aeronautical Communications:

KMO5 2287.5 2622.5 4669.5 6646.5 6982.5 7840.5 8963.5
9115.5 11397.5 13261.5 17902.5 kHz

On site communications: 162.05 162.125 164.75 170.125 171.20
171.95 409.025 MHz

Piketon, OH

HF Point to Point Network:

KKR40 2610.5 4480.5 5377.5 6804.5 7429.5 kHz

On site communications: 164.225 164.25 164.325 164.375 164.75
167.825 410.35 411.20 413.80 MHz

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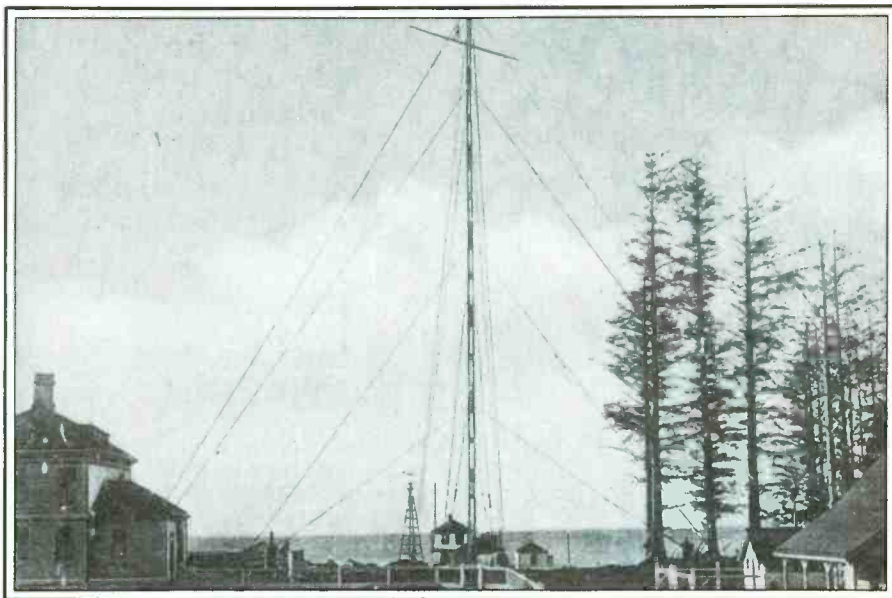
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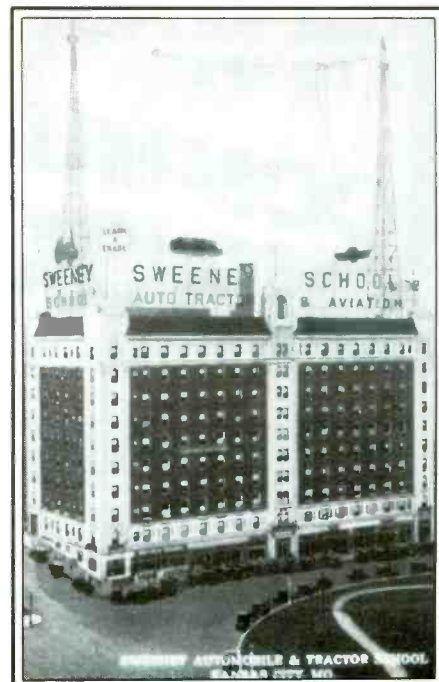
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The antenna mast at North Head, WA was 182 feet in height.



The broadcasting facilities for WHB were at the Sweeney School.

Radio: Looking Back

A Leisurely Stroll Through The Early Years

BY ALICE BRANNIGAN

We are fortunate enough to get a chance to share with you a peek at a very early, long-forgotten wireless station, one of the breed of stations that was established along the Pacific Northwest to communicate with ships at sea.

Our photo is of the U.S. Navy's wireless telegraph station at North Head, WA as it looked in 1909. When checked out in *Radio Station Treasury*, it turns out that, at that time, this station was known as "TE." In 1909 they hadn't even begun issuing station identifications that would be accepted these days as callsigns!

Within a few years regulations for international callsigns were established and station TE became known as NPE. This station originally operated on 109 kHz, but records of 1924 indicate that it later expanded operations to also include 60, 66, 76, 125, 315 and 500 kHz. Records of 1930, however, no longer show this station in operation; the callsign had been reassigned to Astoria, OR.

The view we have available is via a 1909 picture postcard mailed from Dryad, WA to someone in Chicago. The person who mailed the card in 1909 wrote, "There are a lot of wireless stations along the coast. I suppose there will be an airship line to Mars someday." From our vantage point of 77

years later, it's hard to imagine the days when radio was so startling and new that the public looked upon it as something directly out of a Jules Verne science fiction story.

Speaking Of Airships

Well, wireless did "take," and although we haven't yet established that TWA route to Mars, aviation has grown at about the same rate. In the early 1920's, radio stations were springing up all over the continent just as the benefits of aviation were reaching the general public. It was therefore a natural for the Sweeney Automobile, Tractor and Aviation School, in 1922, to open up a broadcasting station.

This Kansas City, MO institution took out one of broadcasting's early licenses and opened up with 500 watts on 730 kHz as WHB, The Heart of America. As seen in the early photo of WHB, the entire station was located in the large ten-story office building housing the Sweeney School. Two towers (each more than 100 feet in height) were mounted on the building's roof and supported a four-wire antenna.

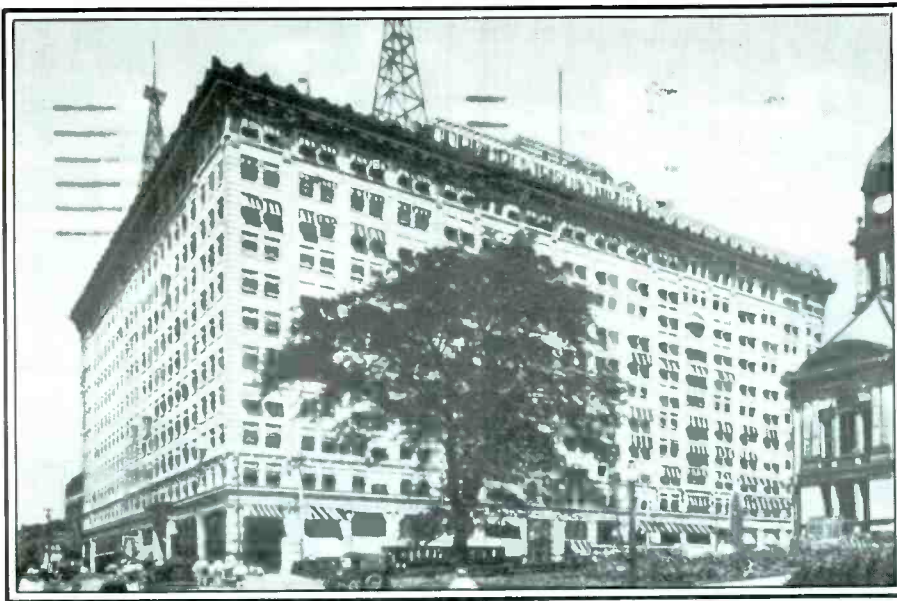
This was all quite imposing, and on the reverse of the photo an inscription discusses "the million dollar Sweeney School; largest

trade school in the world. At the top of the building may be seen the largest electric sign in the world, also the largest inland radio broadcasting station in the United States."

By 1926, WHB had moved to 820 kHz. Records of 1930 indicate that, at that time, the station had been sold to WHB Broadcasting Inc., and had been relocated to the Hotel Biltmore while also changing frequencies to 860 kHz. By the mid-1930's, WHB had upped its power to 1 kW. After WWII the station was located in the Scarritt Building and operating on 880 kHz, later settling down on its present frequency of 710 kHz with 10 kW (5 kW at night).

Still A Mystery

In the April issue we ran a mystery photo of a couple of towers that were located atop the DuPont Hotel in Wilmington, DE during 1919. We asked if any readers could help us to identify the station. While our mystery photos usually bring in a tidal wave of mail, that one was such a puzzler that only one reader took a stab, David E. Jackson of Lombard, IL. Dave suggested the possibility that the station might be WZN, a U.S. Army station at Ft. DuPont, or else it might be broadcaster WPAW, which was in Wilming-



We're still trying to identify the station at the DuPont Hotel in 1919.

ton and operated on 834 kHz by the Delaware Radio Installation Co. These guesses were based upon a station directory published in 1923.

Dave asks, "So, what do I win?" Basically, Dave, only the joy of knowing that your try was the only one received! Not likely that the Army's Ft. DuPont was located anywhere near the DuPont Hotel. Station WPAW can also be ruled out because prior to 1921 there weren't any broadcasting stations; the station shown in the DuPont Hotel was in existence for several years before WPAW commenced operation. So, that little mystery remains unsolved.

Here's another brainbuster to cause vexation. Reader Vernon Clauson of Winslow, AZ sent in a postcard and asked if we could identify the station shown in the scene (and we can't).

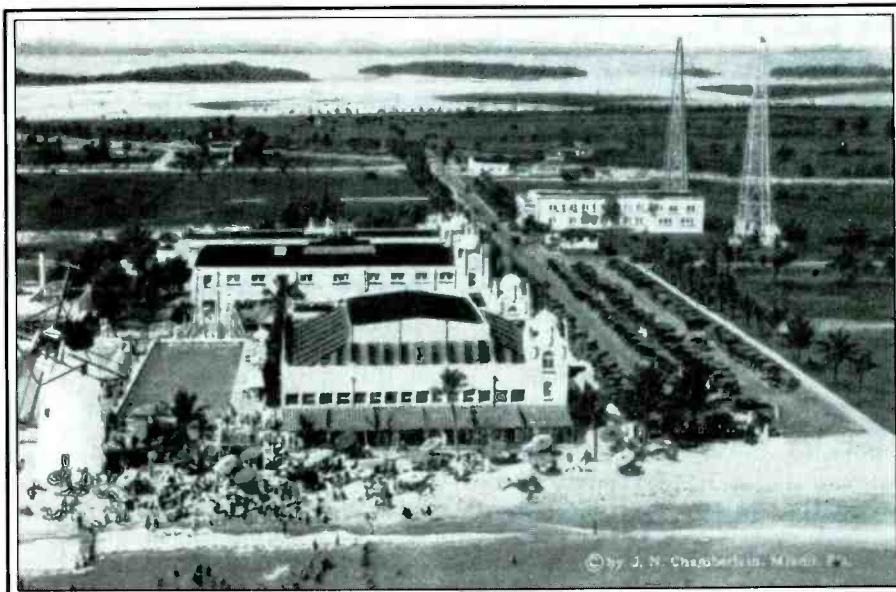
The view is of two lattice type towers lo-

calated to the north east of a large bathing pavillion (and windmill) located at Miami Beach, FL. The card is postmarked March of 1922, thus placing it four years ahead of the advent of Miami Beach's first station, WIOD/WMBF.

The view on the card looks towards the west from the ocean, the islands in Biscayne Bay can be seen in the background. From what I have learned about Miami Beach, in the early 1920's the only populated areas that tourists visited were all located near the southern tip of the island. That would indicate that this scene shows a major east-west street located south of Lincoln Road. A major north-south thoroughfare near the top of the photo splits into two streets at the intersection as it heads south.

As my own best guess, I speculate on the possibilities that the photo is of coastal telegraph station WAX operated by Tropical

The twin towers at the right in this photo of Miami Beach in 1922 belonged to a radio station. But which one? Anybody out there know the facts?

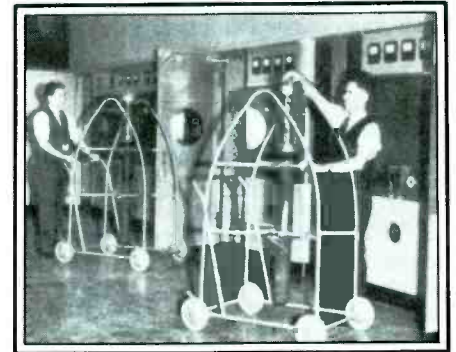


Radio Telegraph. In 1922, WAX operated on 188, 425, 500, 667, and 1000 kHz. The main problem with my guess is that WAX was listed as being in Miami, not Miami Beach. More specifically, WAX may have been located in Ojus, a Miami suburb, a long way from the ocean surf at Miami Beach. Any readers who can identify the station shown in the photo, please step forward!

Sackville Scene

Monitoring the shortwave broadcast bands means that you'll sooner or later tune across several of the more than 50 frequencies used by Radio Canada International. Although RCI has transmitters throughout the world, its Canadian-based transmitters are located at Sackville, New Brunswick.

Thought you'd like to take a look at the Sackville station when it first went on the air



The Radio Canada transmitters looked like this in 1945.

right at the end of WWII. In 1945, when the photo was taken, Radio Canada was using the callsign CHTA for this station located in the salt marshlands of the Canadian Maritimes. On the Great Circle Route to Europe, this area is one of the few places in Canada free of the influences of the north magnetic pole. The antennas erected for CHTA were designed to resist winds of 120 MPH, even when coated with two inches of ice!

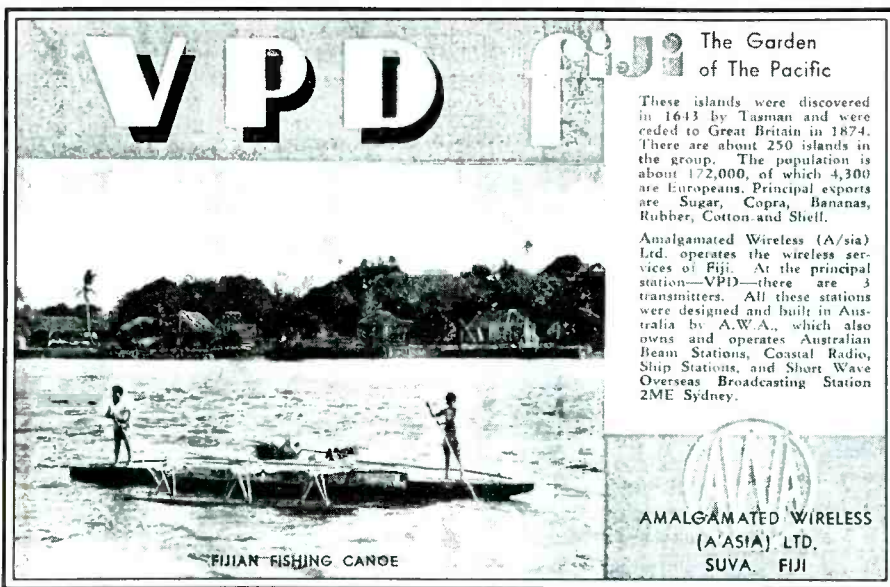
CHTA's original equipment in 1945 consisted of two transmitters, each running 50 kW and fed into an antenna system that produced an effective radiated power (ERP) of ten million watts. More than 26 miles of wire were used for the antenna system, which was strung between towers ranging from 170 to 380 feet in height.

Our photo of CHTA shows engineers preparing to install the 100 kW high-voltage tubes in the transmission panel. Special racks were designed to convey the tubes from the storage vault to the equipment to protect them against breakage during handling and transportation.

Gone now is the callsign CHTA, and while RCI's Sackville installation has one 50 kW transmitter, it also has five transmitters running 250 kW.

From The South Pacific

While the thought of 120 MPH winds and 2 inches of ice is not at all unappealing this



Feast your eyes on this rare QSL card from shortwave broadcaster VPD in the Fiji Islands during the mid-1930's.

time of the year, I can't help but turn my thoughts to the South Seas. Our friend Howard Kemp, of Laconia, NH sent in a 1930's QSL card from a great DX catch, station VPD in Suva, Fiji Islands. And you thought that Jimmy "Superfly" Snuka was the best thing to come from Fiji! Put an eyeball on this wild and wonderful wisp of wallpaper from VPD!

Although the QSL states that VPD had three transmitters, the only frequency listed in *Radio Station Treasury* for VPD in 1936 was 13075 kHz. The station, known as "Radio Suva," was owned by Amalgamated Wireless Ltd., of Australia, a company that also owned a number of coastal and ship stations as well as Australian short-wave broadcaster 2ME (VK2ME).

No shortwave broadcasting in Fiji these days, so unless you can log a "ute" station or Ham from Fiji, there's no chance of hearing these islands. Indeed, Howard Kemp's QSL is a rare treasure and we are happy to share it with POP'COMM readers!

Mobilefone Comment

In the April issue we mentioned that the first mobile telephone was devised in 1907 when Dr. M.C. Overton, of Lubbock, TX installed a standard telephone in his car. Thus, while away from his office, he was able to stop his car anywhere and hook some clip leads to the overhead telephone lines when he needed to call his office or speak to a patient.

You never know who'll read something in a magazine! Our discussion of this interesting mobile communications system brought in a letter from M.C. Overton, III, M.D., not only a prominent neurosurgeon, but also the grandson of the 1907 mobile telephone inventor!

Clarifying our explanation of the mobile-phone device, Dr. Overton says that his grandfather didn't have to shinny up the utility pole. All he did was ground one side

of the telephone circuit and then toss the other wire over one of the telephone company lines. When his call was completed, he simply pulled on the one wire to get it back.

While attending medical school in Kentucky just before the turn of the century, Dr. Overton had worked for what was later to become the Bell System. When he went to Lubbock to open his medical practice, the telephone company begged him to accept a very important position with their firm. He turned down the position in order to work in the field of medicine, apparently not all that impressed with the potentials of telephone communications based upon their status at the turn of the century!

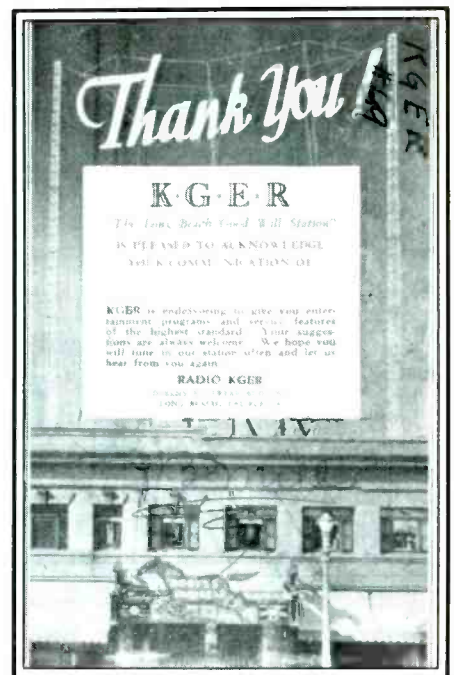
From Long Beach

Come to think of it, we can't give Miami Beach publicity without mentioning one of the beautiful beaches along the coast of California. That brings us to station KGER, a Long Beach Landmark since the 23rd of January, 1927.

The station was first put on the air by C. Merwin Dobyms, of Dobyms Footwear, 435 Pine Ave. In the early days, KGER was on 1370 kHz with a 100 watt transmitter, but by 1930 the power had been increased to 1 kW and by then the frequency had been changed to 1360 kHz.

Within the year, KGER had been sold to the Consolidated Broadcasting Co., who eventually upped the transmitter power to 5 kW and also opened up secondary studios at 643 South Olive St., Los Angeles. By 1946 the KGER transmitter was located at Atlantic and Compton in Long Beach.

Today, KGER remains on the air running 5 kW on 1390 kHz. Our QSL card from KGER is dated 1931, just before the station was transferred by Dobyms Footwear to new owners. The card shows the 2-story Dobyms Footwear building topped by a pair of towers about 50 feet in height and supporting a 3-wire antenna system. On one side of



Station KGER of Long Beach, CA sent out this QSL card in 1931. This station is still on the air!



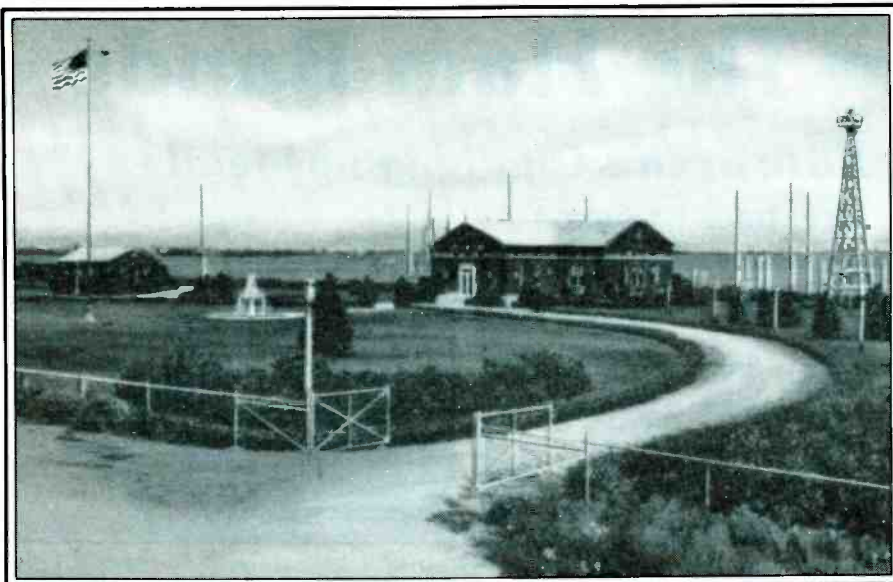
KGER designed this stamp that took the place of an EKKO stamp. The design of the Pegasus superimposed over the radio towers bears a striking similarity to the cover of the *Radio Amateurs Call Book*.

the QSL is the slogan, "The Long Beach Good Will Station." The other side of the card bears an ad for the owner's shoe company and an imprint of an EKKO-like stamp bearing the slogan, "The Wave of Long Beach" and "The Service Club of the Air."

They're All Ears!

Let's not forget that those who listen are the flip side of the coin when it comes to radio. That's why we are going to take a look at a picture postcard showing the FCC's monitoring station at Grand Island, NE.

For the life of me, I can't think of a single occasion that anybody would find to send home a picture view of an FCC monitoring station. It can't be that this rather blah-looking collection of brick buildings and wooden poles is a tourist attraction. Mostly, I'd say



Just the thing to send to that guy down the block with the 5 kW linear, a picture postcard from the FCC monitoring station at Grand Island, NE!

that folks I know would prefer not to get a postal message from the FCC station at Grand Island!

Nevertheless, Grand Island is a major link in the FCC's nationwide network of monitoring stations that check all frequencies for interference and make certain that licensees are complying with FCC regulations. RTTY monitors have reported hearing Grand Island's transmitter, KAA60, on several frequencies including 2295, 5373, 13493, 13990, 13992, 19230, and 23035 kHz (among others) over the years. These transmissions are distinguished by a privacy system called "bit inversion."

"Dear Uncle Rupert, here's a postcard showing the place they took me after they broke down the door with the crowbars. Tell Mrs. Wiggins that I'm sorry if my signal knocked out *Dynasty's* final cliff-hanger show of the season, but she didn't have to call the FCC. And, please turn off my CB rig and also the linear. I didn't have time to do it when they were putting the cuffs on me. Regards from your nephew, Orville."

No Joke!

A couple of times I've run humorous cards from the early days of radio. Somehow I just haven't gotten around to running enough of them, according to those readers who wonder why these cards haven't been run here of late. No particular reason other than not realizing that they were so popular!

These cards were sent out in the 1920's by people who wanted to gently impress their friends with the fact that they had bought a radio. In those days, owning a radio was a status symbol the equivalent of today owning a Patek Philippe watch and driving a Lamborghini.

This month's joke radio card facetiously complains about the squeals and heterodynes heard during the era of receivers with regenerative circuitry. Reading between the lines, it says, "I may be hearing a lot of



These gag radio postcards were the rage in the early 1920's.

howls, but I'm still having more fun with my radio than you are without one."

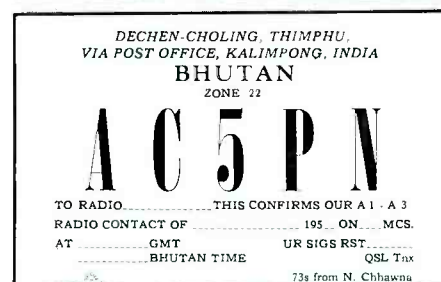
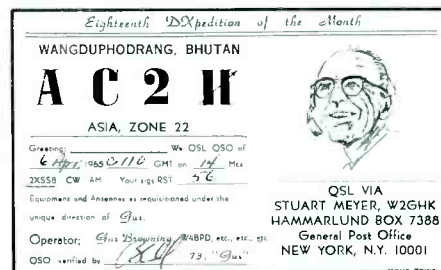
And, by the way, for those readers who keep asking me to say something about myself in addition to babbling about radio, don't think that watches and cars impress me, they don't. I merely used them as hypothetical examples. What does impress me? A QSL card from Bhutan, the Canyon de Chelly National Monument, and maybe the Hope Diamond—in fact, any diamond over five carats (but only if it's of good color).

That's a wrap for this time. Again, I want to thank those readers who have so generously submitted information and material for use in this section of *POP'COMM*. See you next issue!

Historic Ham QSL's

I've said it before and I'll say it again, I'm impressed by QSL's from Bhutan. That's probably because you just don't see 'em too often.

For the uninitiated, the Kingdom of Bhutan is about the size of New Hampshire and Vermont combined. Located in the Himalayan Mountains, the nation is bounded by Sikkim and China; most of its land area consists of towering mountains surrounding fertile valleys. It is a mystical storybook kingdom that one hears from or about very seldom, and where Westerners get to only rarely.



Bhutan became independent (from England) in 1948 and since that time it has had close links to India, which provides aid (and guidance in Sikkim's foreign relations). Only 1 out of every 118 persons owns a radio; that's a total of 12,000 radios! In other words, radio is not a hot item in Bhutan. Still, a 100 watt broadcasting station operates a brief schedule on 3395 and 7040 kHz. The chances of hearing this station in North America are about four notches below nil.

The only chance to ever QSL this remote kingdom is via working or hearing a Ham there. Again, they're hardly commonplace, and for many years there wasn't even an official callsign prefix assigned for Hams to operate in Bhutan. Still, a few Hams have been heard from over the years, mostly using unofficial "AC" prefixes.

We have no less than two QSL's from Bhutan to share with you, both are at least 20 years old. Station AC2H was operated briefly in Bhutan by famed DXer Gus Browning, W4BPD, during a 1965 DXpedition. The QSL from AC5PN represents a station operated by a local resident, one of the very few to become active on the air.

Although the present Ham prefix in Bhutan is A5, traditionally the nation was carried in ARRL country lists without any prefix indication.

Like I said, I'm impressed!

PC

Monitoring The Ham Bands

Join The DXing Elite In This Challenging Field!

BY PATRICK O'CONNOR

Are you looking for something new to listen to on your radio? How would you like to join a rather elite group of SWLs who have access to over 800,000 low-power stations in over 300 countries? Would you be interested in listening to something as old as radio itself, and as advanced as tomorrow's technology? If you are, read on!

The amateur radio (ham) bands have all this and more. It is not uncommon to hear people from all over the world talking to each other. You might hear a fisherman in Greenland discussing the weather with a farmer in South Africa; a missionary in Honduras arranging aid for refugees; or a homesick soldier in Germany talking with her parents in Alabama.

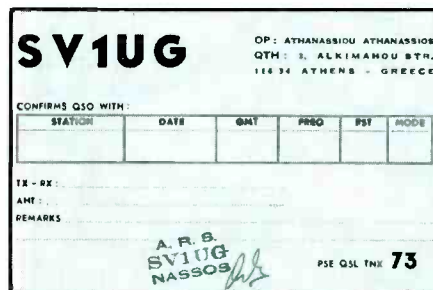
You might find one of the numerous amateur "nets" to your liking. Discussions vary from chess to cooking, passing along messages, or just plain ragchewing. There is something new all the time, so you can never be sure what you will hear next.

Amateur radio dates back to the earliest "wireless" days of the turn of the century, when experimenters used primitive spark-gap equipment to send messages over a short distance. As time passed, amateur operators helped expand the field of radio technology, and pioneered many new concepts that are standard today. Single sideband transmission, just to name one example, was introduced by amateur operators.

Amateurs have many methods of communicating. The most common are with Morse code (known as CW, for "continuous wave") and SSB (single sideband). Also used are FSK (frequency-shift keying), RTTY (radioteletypewriter), FAX (facsimile), SSTV (slow-scan television), and NBFM (narrow band FM).

Amateur radio occupies several bands of frequencies in the high-frequency spectrum between 1800 kHz and 30 MHz, assigned by international agreement by the members of the International Telecommunications Union (ITU). Below is a listing of the six most popular bands, and the effects of various factors on signal propagation:

10 Meters: 28000-29700 kHz. CW between 28000-28300 kHz, voice transmission 28300-29700 kHz. Highly dependent on a high sunspot count for long-distance (DX) operation. Better in summer than in winter, and during the daylight hours. When the band is open, DX communications are able to be carried out with little interference. The best that can be hoped for here over the next few years is an occasional short-skip opening of less than 500 miles distance.



Examples of QSLs received from stations heard by the author. The cards are from Northern Ireland, Canada, Greece, and Haiti.



15 Meters: 21000-21450 kHz. CW between 21000-21200, voice transmission between 21200-21450 kHz. Another sunspot-sensitive band, also better in the daytime during the summer months. Some openings still occur, but they are rare. This band will see more use when the current sunspot cycle begins to rise.

20 Meters: 14000-14350 kHz. CW between 14000-14150 kHz, voice between 14150-14350 kHz. Not as sunspot dependent as the other bands, there is still some effect, with the band being closed to long-distance communications late at night now. At present, this is the best overall DX band. Not too seasonal in character. It should be noted that, unlike U.S. amateurs, foreign hams are allowed to use voice modes in the 14100-14150 kHz sub-band.

40 Meters: 7000-7300 kHz. CW between 7000-7150 kHz, voice modes between 7150-7300 kHz. This is a noisy band, as the 7100-7300 kHz segment is shared with international broadcast stations. Not sunspot sensitive as a rule, this band provides local and semi-local service during the day, and DX at night. It is slightly better in the winter. Amateurs outside the continental U.S. are allowed to use voice transmissions in the 7075-7150 kHz sub-band.

80 Meters: 3500-4000 kHz. CW between 3500-3750 kHz, voice transmission between 3750-4000 kHz. This band is better during the winter months, with a lower sunspot count. Local communications, up to 300 miles or so, are possible during the day-

light hours. A path of darkness is needed between the transmitter and receiver for DX communications. The best bet for European DX to be heard is after local sunset, around 3780-3805 kHz. Pacific/Asian stations may be found just before local dawn.

160 Meters: 1800-2000 kHz. No specific CW allocation. This band is almost "dead" during the day, and is at its most useful during the lowest part of the sunspot cycle, during the winter months. In the next two or three years, this band will be seeing much more use.

There are also new bands, not yet in general use, at 10 MHz (30 meters), 18 MHz (17 meters), and 25 MHz (12 meters).

By mutual agreement, amateurs operate upper sideband on 10, 15, and 20 meters, and lower sideband on 40, 80, and 160 meters.

Long distance communications aren't that common above 30 MHz. During periods of high sunspot activity, the 6-meter band (50-54 MHz) can produce spectacular DX reception through sporadic-E skip. The bands above 50 MHz are normally used for local communications or for experimental purposes.

When you start to log stations, you will note that all amateurs are assigned call signs with combinations of letters and numbers. These are issued by the national governments to the amateurs in their countries from internationally recognized call sign allocations (see Communications Confidential, POP'COMM, September 1983, pages

950 Jackson Street Allentown, Pa.

UNITED STATES OF AMERICA

S W L

Your STATION Hrd on
Meters at M-EST, Calling
Working QSA R
QRM QRN QSB Receiver:

Remarks:

PSE - QSL - TNX - 73's T. L. "Lu" WIRTS

Here is a typical SWL card from a POP'COMM reader.

NIPPON

JA 2-3803

THE LAND OF THE RISING SUN

RADIO	DATE	JST/UTC	MODE	MHz	RST	WKG
			CW			
			SSB			

RX COLLINS 755-1 YAESU FRDX400 MICKEY M. MATSUO
 ANT DP GP LW 80m P.O. BOX 46 Atami-city
 LIFETIME MEMBER OF JARL Shizuoka 413 JAPAN

One of our Japanese readers shows the type of card used by listeners in his country. By the way, Mickey would like to swap cards with other POP'COMM readers. He is 32-years-old and is licensed as JH2CLZ.



Here's a well-equipped amateur station with callsign EA3AOC. The EA prefix indicates that it is located in Spain.

60-61 for a list of these allocations). The country issuing the license can be identified by the first two or three letters and numbers, called the "prefix." For example, if you heard the station D44BS, you would look up D4 on your list and see that the prefix is assigned to the Cape Verde Islands. Others might be WA1MYQ (USA—all calls with a W are American); 9Y4YL (9Y4—Trinidad & Tobago); LZ1KSN (LZ—Bulgaria).

To hear these signals, you will need a good receiver capable of receiving SSB signals. Most newer communications receivers have mode selection ability for both upper and lower sideband reception, as well as CW. Special equipment is needed to convert the more exotic forms to transmission to usable form.

You will also need a good antenna. While it is quite possible to hear many countries with a short antenna, best results will be obtained with a longwire or dipole antenna.

The reason for this is that unlike the international broadcasters who run hundreds of thousands of watts of power into large, complex antenna systems aimed at the listener, amateurs operate with a maximum power of 2000 watts (and often use much less). This lower power is usually fed into a homemade antenna, or occasionally into a directional "beam" antenna. Therefore, it is easy to understand why a good longwire or dipole antenna is needed to "sniff out" the weaker amateur signal.

One thing that should not bother the listener is language. Most DX contacts are made in English, which appears to be recognized as the unofficial universal language of amateur radio.

After listening for a time, you may begin to wonder if you can get a QSL from amateur stations. The answer is yes, you can! All you need to do is send a note to the amateur you heard, noting the date and time of reception

in GMT, the station he was talking to (working), the mode of transmission, the frequency, how well the signal was heard (most amateurs use the RST code), and the antenna and receiver you used. Enclose an SASE for domestic reports, and either an SASE and International Reply Coupons, or mailing label with IRC's or mint stamps. Be sure the stamps you send are from the amateur's country, as American stamps are useless overseas! Mint stamps may provide a better return rate for DX stations, as many small post offices overseas are reluctant to redeem IRC's. A list of foreign stamps for QSL pur-

DIAMOND

D-130 SUPER DISCONE WIDEBAND

Suggested Retail
\$79.95

Features

25-1300 MHz Super-Discone Antenna.
Transmit on 50, 144, 430, 1200 MHz Monitor 25-1300 MHz with one antenna

Description

All stainless steel discone and vertical radiator for TX. Rugged Construction, wide bandwidth.

Gain (dBi)

0 dB

VSWR

1.5:1 or less

Input Power

50 Watts

Length

1.7 M

Impedance

50 Ohms

Weight

1 kg

Mount Model

Adapts to 25-50mm masts.



ENCOMM

1506 CAPITAL AVENUE, PLANO, TEXAS 75074
NATIONAL DISTRIBUTOR

poses may be obtained for an SASE from DX Stamp Service, 7661 Roder Parkway, Ontario, NY 14519.

You should not expect all of your reports to be answered. Many amateurs, for whatever reason, will not QSL shortwave listener reports; some do not QSL at all. Overall, however, you should hear back from 50% to 75% of the stations you write to.

For station addresses, the *Radio Amateur Callbook* lists the name and address of every licensed amateur operator in the world at the time of publication. There are two editions of this annual publication. One is a list of all amateurs in the United States and its possessions; the second is a listing of all foreign operators. Your local library may have these books. If not, a local ham may have a

fairly recent copy he may let you use. Most ham equipment stores sell this book.

If you don't have personal QSL cards already, you can have your own made up by a local printer, or you may have them done by one of the many companies that advertise in the amateur radio magazines.

When you begin to listen, you may want further information on what other SWLs are hearing. At the present time, the only SWL club with an amateur radio column is the Association of DX Reporters. One dollar to ADXR, 7008 Plymouth Rd., Baltimore, MD 21208 will get you a sample copy of the latest bulletin. Another good source of information is the amateur radio magazine *CQ*. Information on amateur radio in general may be obtained by writing to the American

Radio Relay League (ARRL), 225 Main St., Newington, CT 06111.

Why don't you give ham band listening a try—I am sure you'll find it to be both fun and challenging! **PC**

The RST Code

Used by amateurs to report on signal Readability, Strength, and Tone.

"R"

(Readability)

- 1- unreadable
- 2- barely readable, some words clear
- 3- readable with much difficulty
- 4- readable with slight difficulty
- 5- perfectly readable

"S"

(Strength)

- | | |
|----------------|----------------------|
| 1- very faint | 6- good |
| 2- very weak | 7- moderately strong |
| 3- weak | 8- strong |
| 4- fair | 9- extremely strong |
| 5- fairly good | |

"T"

(Tone – Used on CW Only)

- 1- 60 Hz or less, very rough & broad
- 2- very rough AC, harsh & broad
- 3- rough AC tone, rectified but not filtered
- 4- rough note, some filtering noted
- 5- rectified & filtered AC, strongly ripple-modulated
- 6- filtered tone, trace of ripple modulation
- 7- near pure tone, little ripple modulation
- 8- almost perfect tone, hint of modulation
- 9- perfect tone

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THE AMATEUR RADIO VERTICAL ANTENNA HANDBOOK

CAPT. PAUL H. LEE, USN(RET), N6PL

Capt. Paul H. Lee's *Vertical Antenna Handbook* became a classic in its first printing. Out of print for several years, this Second Edition has been brought out in response to your demand and the needs of the service. Among the topics covered are vertical antenna theory, design, installation, and construction. Specific information is given on vertical arrays, feeding and matching, short verticals, ground effects, and multiband and single-band verticals, plus there is a section that answers many of the most commonly asked questions about vertical antennas for the amateur. The Second Edition features an addendum on antenna design for 160 meters, the band that finally is coming into its own.

Order your copy now.



PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



New CMP

Motorola's Cellular Systems Group announced the new America Series 900 Cellular handheld portable telephone now available through a limited number of retail dealers in selected cities. This versatile handheld cellular telephone will travel with ease to and from cities equipped with cellular service, providing instant telephone communications.

The America Series 900 Cellular Telephone is available with a full line of accessory products, including a vehicle adapter that comes equipped with an externally mounted antenna, one-hour portable battery recharging, and space-efficient vehicle mounting.

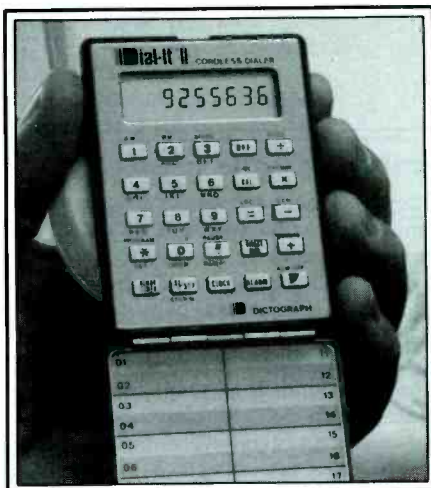
Key features and capabilities include storage and recall of up to 17 telephone numbers (including lengthy international listings), electronic lock with automatic power "off", and super-speed calling from memory locations. Other features include Touch-Tone signaling, including Touch-Tone from memory for alternate long distance carrier access such as MCI or GTE Sprint,

pager triggering, electronic banking and other telecommunications services. Switch-hook operation allows three-way call and call transferring capabilities.

Another extension of versatility available with Motorola's America Series 900 Cellular Portable Telephone is keypad programmability which enables the user to implement features directly from the keypad. Selectable System Registration allows the user to choose the systems into which the unit will operate.

The battery for the America Series 900 Cellular Telephone will provide up to 8 hours of normal operation including 30 minutes of active talk time between charges.

Additional information about the America Series 900 portable telephone, its many features and benefits, is available from Motorola, Inc., Communications Sector, Public Relations Dept., 1301 E. Algonquin Road, Schaumburg, IL 60196, or circle number 101 on our reader service card.



Multi-Featured Cordless Dialer

The Dial-It II is packed full of features for its size. The ultra thin pocket-sized Dial-It II will speed the process of telephone dialing and enhance daily business routines.

Not only can the Dial-It II be used successfully in the home or office, but it's a great traveling companion for use at meetings, conventions, hotels or anywhere a public phone is required. Its compact size lends itself to usage by business associates, family members, and friends. Just slip it in your pocket and away you go!

The Dial-It II organizes, stores, and remembers up to 100 telephone numbers, many up to 32 digits in length. If you are a heavy user of computerized long distance services, you may maximize Dial-It's capability by using the Transient Memory System to store up to 80 long distance discount ser-

vices, such as MCI and Sprint or a combination of up to 60 computer services and 40 local numbers.

To place a call, simply hold the Dial-It II against the microphone of the telephone handset and dial the person's initials or enter a 2-digit number and Dial-It II does the rest. It's like a walking electronic telephone book.

Dialing long distance is made easy through the innovative Transient Memory System. Two specially designated keys store your Long Distance Computer, Credit Card, and Authorization Numbers independently of the regular memory system. The touch of either button when storing numbers or dialing directly will eliminate the necessity of pressing up to 16 digits each time. What a time saver! Many telephone systems now allow you to call long distance by credit card without using an operator. Hence, you can program your credit card number into the CCN Button for one-touch credit calls.

Dial-It II only displays the number being called. However, if you're worried about unauthorized use, the Dial-It's changeable electronic access code makes it tamper-proof. Private numbers are kept private. Simply select any 3-digit combination, press the secure button on the keypad, and the Dial-It II is locked. Only you can unlock it.

Want to call a number not in storage? No problem! Directly dial the number from the Dial-It's self-contained dial pad. (Most rotary dial phones actually accept true tone signals.) The Dial-It converts all rotary phones connected to a touch tone network without additional cost from the phone company. For those few who are saddled with the older non-compatible pulse systems, the Dial-It II takes over after you hand dial the local MCI or Sprint number.

The telephone still busy? Simply hold the Dial-It up to the microphone of the handset and push the redial button—whether you dial the number previously from storage or use the self-contained dial pad to make a direct call. Dial-It recalls the last number dialed and dials it again and again, as often as you need it!

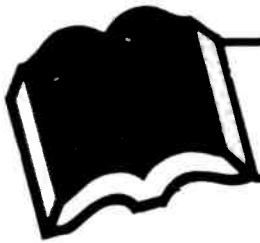
Forgot about that important phone call or appointment? The Dial-It II reminds you of things to do!

Why carry a Dial-It and a calculator? A full-featured calculator is incorporated for on-the-spot answers.

The universal clock is programmable for either the 12 hour, a.m./p.m. system, or the 24-hour standard.

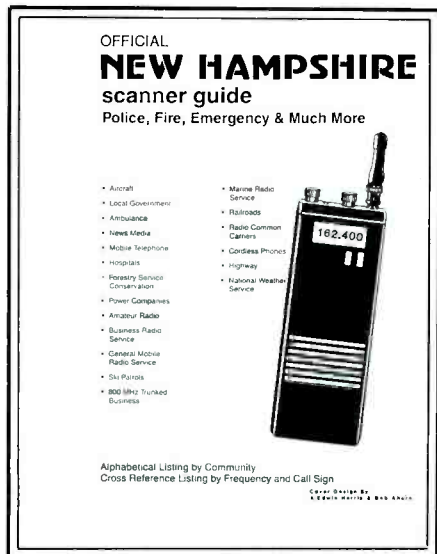
The Dial-It II even retains its memory when changing the two 3 volt lithium batteries, eliminating the need for reprogramming.

Dial-It II is from New Innovations, 7 Saint Moritz, Savannah, GA 31419.



BOOKS YOU'LL LIKE!

BY R.L. SLATTERY



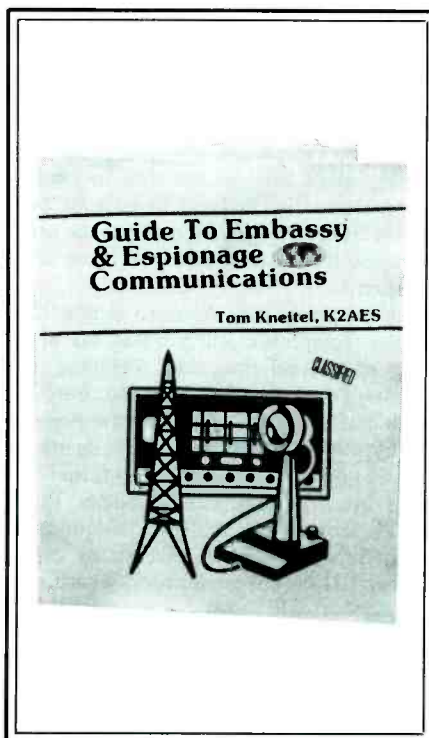
New Hampshire Directory

Scanner users in the state of New Hampshire now have a frequency directory they can call their own, produced by a native son, Bob Coburn, W1JJO. Bob (actually, the guy's a college professor so maybe we shouldn't be so familiar as to call him "Bob") has been into communications for 30 years, and a scanner enthusiast since the gizmos were invented in the late 1960's. For years he was waiting for a directory to come out featuring all of the important New Hampshire services. Alas, none was forthcoming. That's when he decided to sit right down at his computer and fill it with lots of listings.

What he ended up with was an extremely competent 192-page directory he calls *The Official New Hampshire Scanner Guide*. It contains almost 5,000 listings of frequencies of public safety, news media, business and industrial, maritime, ski patrol, GMRS, medical, maritime and other stations between 30 and 860 MHz. These are listed in alphabetical order of the communities (Ackworth to Woodsville), and also cross-referenced by frequency/callsign.

There are system descriptions, maps, frequency assignment tables and explanatory notes about the usage of specific frequencies. Look's like Bob knows his onions; this is an excellently compiled book done up in a very professional binding with a slick cover.

The book is stocked by leading scanner and electronics dealers throughout New Hampshire. If your favorite dealer doesn't have Bob's *Official New Hampshire Scanner Guide*, it may be obtained by mail from: Official New Hampshire Scanner Guide, P.O. Box 712-PC, Londonderry, NH 03053. The book is \$14.95, plus \$2.05 for shipping/handling. Be sure to mention that we sent you!



Embassies and Espionage

Several times each week the news media reminds the world that there's a rather thin and tenuous dividing line between the diplomats of some nations and their espionage agents and/or terrorists. In the July issue of *POP'COMM* there was an intriguing story discussing the basics of how this ties in with shortwave communications, but with each passing week we've all seen that the entire matter is far more complex and deep-rooted than had ever been imagined.

Tom Kneitel's newest book, *Guide To Embassy and Espionage Communications*, is a probing look into worldwide embassy and (presumed) espionage communications systems and networks, and the possible ties that exist between them. It discusses the stations sending number groups, the codes and frequencies they use, as well as their languages and formats. This includes information on the communications system used by Mossad (Israeli Intelligence).

Embassy and diplomatic networks come in for special scrutiny—Western, Eastern and Third World, even the United Nations. Much information is given on how they (including the U.S.) are continually accused of monitoring the shortwave, satellite, and landline messages they exchange. There's even an account of a recent technological development that apparently permits one nation to covertly slip bogus traffic into the embassy communications of other nations for various and sundry dastardly purposes!

Plenty of illustrations are included in this section, including QSL cards received from various diplomatic stations (and even one from KKN44, operated by the U.S. Embassy in Liberia)!

The major portion of the *Guide to Embassy and Espionage Communications* is the nation-by-nation station/frequency directory containing the very latest information—several times more information than had been included in Schaay's earlier embassy registry. Operating modes (SSB, CW, RTTY) are given, and RTTY data is provided in shift/baudot. In addition to numbers stations, embassy stations are covered, plus the United Nations, Interpol, and the largest listing we've yet seen for the International Committee for the Red Cross. Callsigns, locations, tactical identifications, and other information is supplied. In the United States section, callsigns/frequencies/locations are even given for VHF/UHF stations operated within this country by the State Department. There is also a listing of microwave and satellite frequencies used for New York/Washington long distance telephone calls—these are the channels that everybody constantly accuses everybody else of monitoring on the sly!

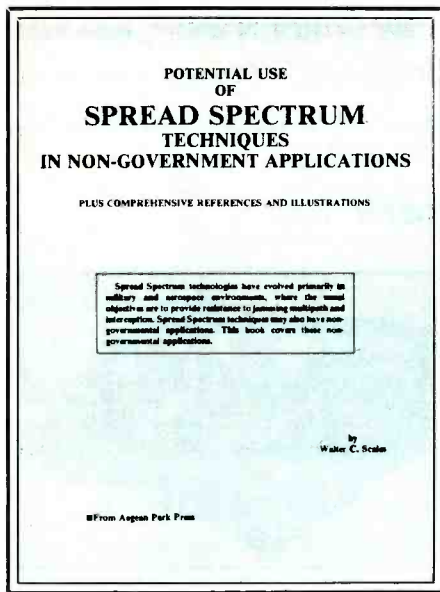
Appears as though all of the bases are covered here. The large-format (8½" by 11" size) book really digs into the heart of the matter in a defiant and tenacious manner that is revealing, interesting, and easy reading. The reader gets a scary close-up look at a photocopy of an internal FBI memo commenting on one DXer's curiosity about certain shortwave stations! There's also a reproduction of the smalltown newspaper clipping telling about the "radio Ham arrested as spy." You just know who that would have to be—the author of the *Guide To Embassy and Espionage Communications*, *POP'COMM*'s own Tom Kneitel!

This book is now available from many communications dealers, and also from CRB Research, P.O. Box 56, Commack, NY 11725. The price is \$10.95, plus \$1 postage/handling (to addresses in U.S.A./Canada/APO/FPO).

By the way, there's a coded message included in this book that the author says doesn't require 1-time pads, computers, or anything fancy. It's in the form of number groups, like you'd hear on shortwave. Supposedly a child should be able to figure out the message. Thusfar it's got me stumped!

Spread Spectrum Thoughts

Spread Spectrum technology is what they're calling "state of the art" these days in communications. A 222-page book entitled *Potential Use of Spread Spectrum Techni-*



ques In Non-Government Applications is a complete reprint of FCC Report MTR-80W335 dated December 1980.

Written in a clear, easy-to-understand fashion, it's an excellent textbook for anyone who wants to learn about this new technology. It tells about the techniques, the uses, the advantages, and why it might be used for non-government applications. Learn about the economics of using the technology, the FCC enforcement and monitoring considerations, and how spectrum efficient this technology turns out to be.

Fully illustrated and referenced with appendixes, there is a good mix of technical and non-technical information here that all fits together to provide an excellent overview of the topic, even to the extent of providing the reader with a working vocabulary of terms used in Spread Spectrum.

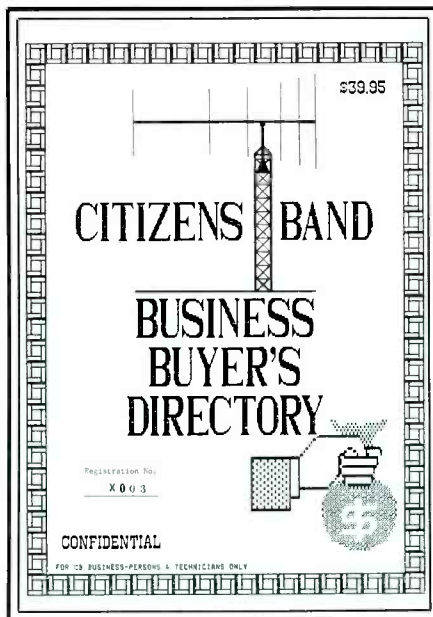
If you're a systems planner, or a technician, or simply a communications buff who wants to find out what's going on, here's a book that's probably as much concise information on Spread Spectrum as you're likely to find, or need.

The book is priced (in softcover) at \$24.80, plus \$1 postage/handling, from Aegean Park Press, P.O. Box 2837, Laguna Hills, CA 92654.

CB Business Buyer Info

If you're a company or a person professionally involved in the business or technical aspects of CB radio, here's a new aid. It's a book called *Citizens Band Business Buyer's Directory*, by Bill Cheek of COMMtronics Engineering, P.O. Box 1019, Lemon Grove, CA 92045.

This is an 80-page directory of manufacturers and distributors of transceivers, antennas, military surplus, books, kits, accessories, test gear, tools, parts and components (including chips), filters, books, scanners, and other related items. Listings include company name, address, telephone number, as well as some descriptive information on products and services. Listings are alphabetical by company name, then (at



the back of the book) they're cross-indexed according to products/services.

Especially useful is information regarding sources for replacement parts for equipment produced several years ago by manufacturers that are no longer around. Listings also include information on once-popular companies that are apparently now out of business; saves you lots of time trying to track 'em down!

The book opens with an extremely informative and perceptive analysis of the past, present, and future of CB as viewed from the aspect of the CB manufacturing, sales, and servicing end of the thing. It discusses what had gone awry with CB and how the new technology in equipment is generating a new demand for CB products by a rather sophisticated buyer who's a far cry from the media-created "goodbuddy" types that wanted to sound like long-haul truckers back in the 1970's. He tells how the CB market seems poised on the brink of renewed growth and suggests ways to get in on the ground floor of what might be a very exciting, challenging, and rewarding business.

Cheek's book was so fascinating and upbeat that it caused me to go out into the garage and dig the old Browning Golden Eagle out from under the pile of *Country Joe and The Fish* LP's I've been saving; it'll be "Break Channel 7" tonight, no doubt!

Here's the catch: The directory is being marketed and made available only to bona fide CB sales/service/manufacturing/export/import interests. Each copy has an individual serial number and copies are not available to the general public. In other words, in order to buy a copy, you've got to enclose with your order some sort of proof (letterhead, business card, etc.) that shows your connection with the CB industry.

The *Citizens Band Business Buyer's Directory* is \$39.95 per copy from COMMtronics Engineering (address above). It will undoubtedly become the standard reference guide for the re-emerging CB industry. We wish it success!



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CIRCLE 62 ON READER SERVICE CARD

Antenna Pre-Amps And Tuners

If you've been thinking of improving your emergency communications set-up, this article will provide you with some frank facts about tuners, trimmers, pre-amplifiers, and other electronic amenities that you put in between your communication set and your antenna system.

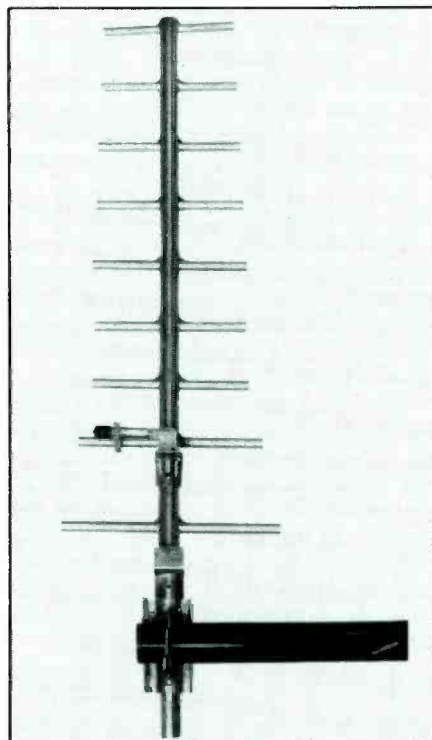
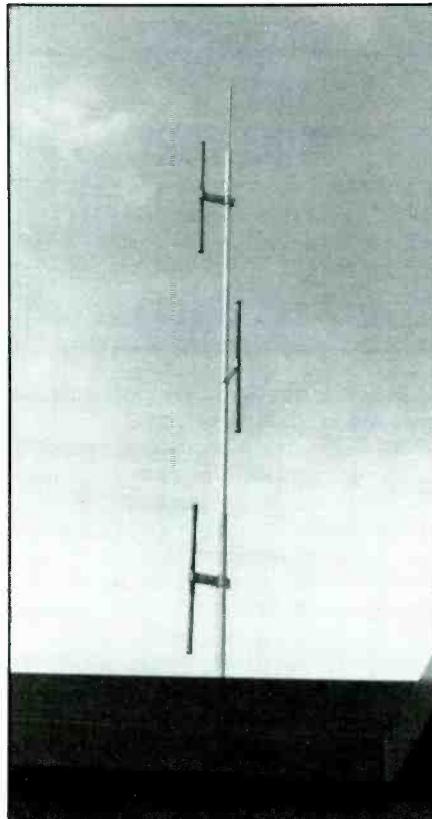
Scanner Amps

For scanner receivers, the best way to improve upon your existing system is to upgrade your coaxial cable and upgrade your antenna system. If you need to squeeze a little bit more signal from that distant transmitting station, try switching to Belden 9913 semi-rigid coaxial cable in between your scanner antenna and your scanner receiver. This cable offers ultra-low loss on frequencies well beyond 900 MHz. It's fairly easy to work with, but needs to be routed like a stiff garden hose. Second best would be RG-213/U non-contaminating coaxial cable that has low loss characteristics up to 900 MHz. If you're running RG-8/X, or heaven forbid, RG-58/AU, you have considerable losses in your feed system, and it should be switched out. Coax losses can literally kill signals at 400 MHz and especially 800 and 900 MHz. Want more gain? Go to a larger size coax cable.

You can also improve upon your emergency communications set-up by upgrading your antenna system. There are some excellent scanner antennas available that offer both omnidirectional as well as directional gain capabilities. The omnidirectional gain antenna stacks elements vertically in a collinear array to achieve more gain. When you electrically stack collinear arrays in an antenna system, it lowers the angle of pick-up radiation which gives stronger reception capabilities down close to the horizon.

If you wish to increase your reception on your scanner in just one general direction, a multi-band beam antenna would be an excellent way to increase your reception range to those distant VHF and UHF transmitting stations. Many of our regular POP'COMM advertisers offer some of the largest selections of omni and directional antennas available that they make themselves. The antennas are also available from some of their suppliers. Just check out their ads.

Scanner pre-amplifiers may not do the job that you might expect in pulling in those distant stations. While the pre-amps indeed work well in boosting incoming signal levels, they also boost the steady noise floor that accompanies weak signals. Scanner pre-amplifiers should be cautiously selected in urban cities. The incoming signal level is



These antennas have both omnidirectional as well as directional gain capabilities.



A scanner pre-amplifier can boost incoming signal levels. However, they may also boost the steady noise floor that accompanies weak signals.

so high with the pre-amplifier switched on that most handheld scanners and some base and mobile-type scanners begin to exhibit signs of overload and intermodulation. This is usually recognized by hearing two stations simultaneously on a frequency where the station you wish to receive isn't actually transmitting at all! In this case, it would be better not to use a pre-amp because your existing scanner receiver has plenty of RF gain capabilities itself.

If you're out in an area away from local VHF and UHF transmitters, a scanner pre-amplifier may very well increase the signal level just above the noise where you can make out who is transmitting. What a scanner pre-amplifier won't do is magically pull in stations that you absolutely could not hear before. It just won't happen unless there's something wrong with your scanner receiver in the first place. Yes, scanner pre-amps do a good job; but if simple pre-amplification to all scanners was all that was necessary to pull in more stations, scanner manufacturers would put in the pre-amps themselves. Most scanners—especially handheld scanners—can't use any further pre-amplification without risking severe over-load and intermodulation.

There is a device that's quite useful for scanner listeners in downtown areas, and that's the scanner pre-selector which is a type of antenna tuner. This passive device (it has no amplifiers built-in) goes in between your outside antenna and your scanner receiver. You tune the controls to cancel out unwanted interference from stations on frequency adjacent to or mathematically related to the desired frequency you're wishing to receive. Sometimes strong AM or FM broadcast stations, as well as strong mobile telephone stations, creep in to your favorite frequency on your scanner receiver because of their close proximity. The scanner

pre-selector allows you to "notch out" the offending frequency and to develop sharp skirts around the desired scanner receive frequency to pull in your stations loud and clear without annoying interference.

If you are a shortwave listener, big coax cable is not necessarily required for pulling in distant stations with little loss. On shortwave frequencies between 2 to 30 MHz, up to 150 feet of the small coax will usually exhibit minimal losses.

If you don't have the capability to string out a long wire out on your roof or between two trees, you may wish to investigate an external shortwave antenna, or an active shortwave antenna system. The external shortwave antenna is nothing more than a loaded whip that is tuned broad-banded to cover the entire shortwave region. Metz Communications Corporation makes excellent broad-banded shortwave antennas. This whip antenna should be mounted on something metal on the roof for best shortwave reception. I've seen whips attached to the rain gutters that go around the house, and the rain gutter makes for an excellent ground plane. The shortwave radio should also be connected to plumber's tape or copper foil to earth ground to help reduce receiver noise. Avoid using round ground wires—they tend to look inductive at certain frequencies and cancel the ground effect. Use something flat like copper foil or plumber's tape.

If you have a tired shortwave receiver that could use a boost in receiver amplification, you may wish to try an active shortwave antenna. These usually feature a broad-banded pre-amplifier inside the box below the antenna element, or in the control box that sits by the set. If the pre-amplifier is located up in the antenna unit, all the better. The active pre-amplified antenna is a great performer when grounded, too. It could add that extra boost to your shortwave station that has a few years on it! MFJ, Inc. and Dymek make excellent active antennas.

Selective antenna tuning is a big plus for shortwave reception. It allows you to peak your antenna system to the desired frequency you wish to hear, and create sharp nulls on frequencies on each side of you to avoid interference. Many different types of tuners are available; usually, the more expensive the tuner, the greater the selectivity in precise frequency performance. If you're trying to pull in a distant, foreign, low-power, shortwave transmitting station, and right next to it is a high-power, foreign, broadcasting station, the pre-selector and antenna tuner will allow you to pull up the weak one and slightly reduce the stronger one. More modern shortwave receivers have built-in filters that also increase the amount of selectivity that you're able to achieve.

Transmitting Tuners

If you're also involved in emergency communications transmitting, there are various types of tuners available. There's also a lot



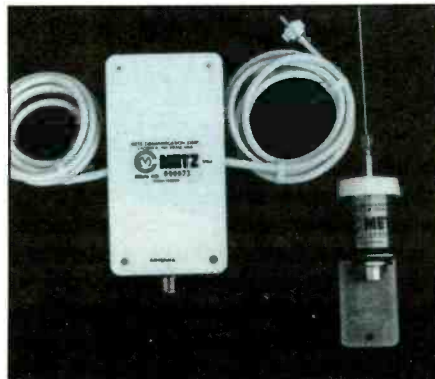
This scanner pre-selector, useful for listeners in downtown areas, allows you to "notch out" interference from adjacent frequencies.

of misinformation about these tuners, so we'll try and clear things up here.

For VHF and UHF work, you use a resonant antenna for each band that you wish to operate. Some antennas, such as the Metz VHF antenna, can cover a wide band of frequencies—from 144 through 159 MHz. These broad-banded transceiver antennas will work well to cover several different services that you may wish to operate on. Because we have such a large span of frequencies on VHF and UHF, antenna tuners are not readily available to allow you to tune into a random wire or a random length whip for VHF and UHF operation.

On high frequency, from 2 to 30 MHz, you can either use a pre-tuned antenna system or a random wire with an antenna tuner. Pre-tuned systems would include beam antennas, dipoles cut to frequency, and mobile antennas for a specific frequency. These are fed with 50 ohm coaxial cable, and manufacturers of Amateur Radio transceivers also offer antenna "trimmers" that will allow you to work slightly off the cut frequency of the whip, beam, or dipole.

Let's say you are working on the amateur radio 20-meter band at 14.250 MHz. During the emergency, you are asked to switch to a MARS (Military Affiliate Radio Service)



Mount this external shortwave antenna on something metal on your roof—like a rain gutter.

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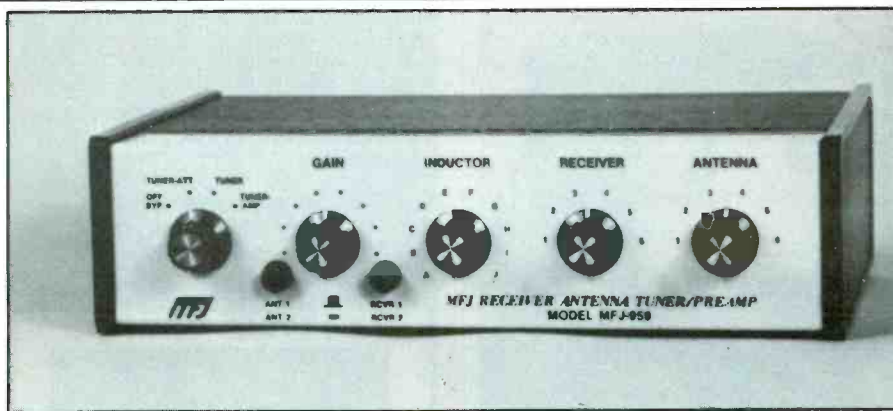
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CIRCLE 35 ON READER SERVICE CARD



A pre-selector/antenna tuner like this MFJ-959 allows you to peak your antenna system to the desired frequency you wish to hear.

frequency outside of the normal tuning range of your Ham antenna. The automatic antenna "trimmer" that matches your Amateur Radio transceiver could very well take care of this slight frequency excursion. As long as they feed a 50-ohm type antenna that is fairly close in resonance to the frequency you're operation on, the automatic trimmers do their job well. They won't tune out anything above 3-to-1 SWR, however.

Relatively new on the market are the fully automatic mobile antenna tuners that work with reactive antennas, such as CB-type whips, long wires, and makeshift emergency antennas such as an ungrounded flag-

pole or aluminum gutter. These fully automatic tuners have only a single wire reactive output—not coax. That single wire can be as short as 10 feet and as long as 100 feet and work well on frequencies between 2 MHz to 30 MHz. The new ICOM 735 amateur transceiver uses their new AH-2 fully automatic mobile antenna for this purpose. The tuner will tune up just about anything!

However, part of a reactive antenna system is a healthy ground that is brought up to the antenna tuner. The ground may consist of an earth ground, sea water ground, lake or river ground, vehicle ground, or anything with at least 100 square feet of conductivity.

The long wire won't work unless it has a good ground counterpoise to work off of.

Once you have your long wire strung out and your ground system brought up to the tuner with foil, you can operate on any frequency that you are allowed to between 2 and 30 MHz with great results. Just push the automatic tune button; after a few seconds, the proper selection of inductors and capacitors are switched into the tuner and you're all set to go on the air. The ICOM AH-2 tuner sells for less than \$400 and plugs into their IC-735 transceiver that can be used in an emergency on any frequency between 2 to 30 MHz, and on all Ham frequencies with a valid Amateur Radio license. Of course, in a real emergency where life or protection of property is at stake, anyone may use any frequency to transmit anywhere to call for help. This set-up will certainly do the trick.

When you read those ads about tuners, trimmers, pre-selectors, filters, and amplifiers, remember that each one has a specific purpose and specific role with a particular type of communications equipment in order to do its thing properly. You just can't buy any amplifier and hook it into any receiver and expect that it's going to work wonders.

Get those catalogues from our advertisers and you'll see that they have put in great effort in order to present a full line of accessories to compliment your emergency communication station, and that they describe in detail what each one of these accessories might do for you. PC

Copy Worldwide Short-wave Radio Signals on Your Computer

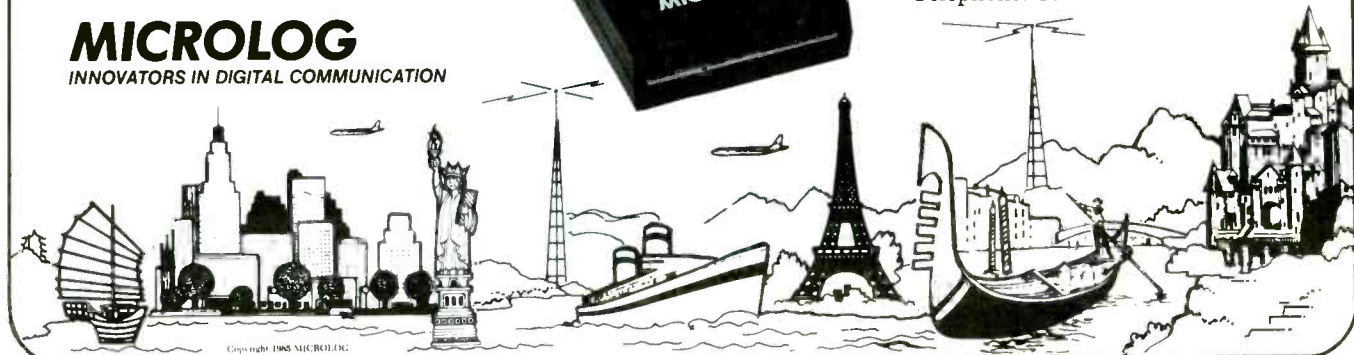
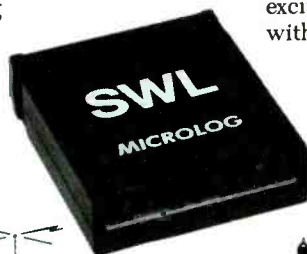
Remember the fun of tuning in all those foreign broadcast stations on the short-wave radio? Remember those mysterious sounding coded tone signals that baffled you? Well, most of those beeps & squeals are really digital data transmissions using radioteletype or Morse code. The signals are coming in from weather stations, news services, ships & ham radio operators all over the world. Our short-wave listener cartridge, the "SWL", will bring that data from your radio right to the video screen. You'll see the actual text as it's being sent from those far away transmitters.

The "SWL" contains the program in ROM as well as radio interface circuit to copy

Morse code and all speeds/shifts of radioteletype. It comes with a cable to connect to your radio's speaker/earphone jack, demo cassette, and an excellent manual that contains a wealth of information on how to get the most out of short-wave digital DXing, even if you're brand new at it.

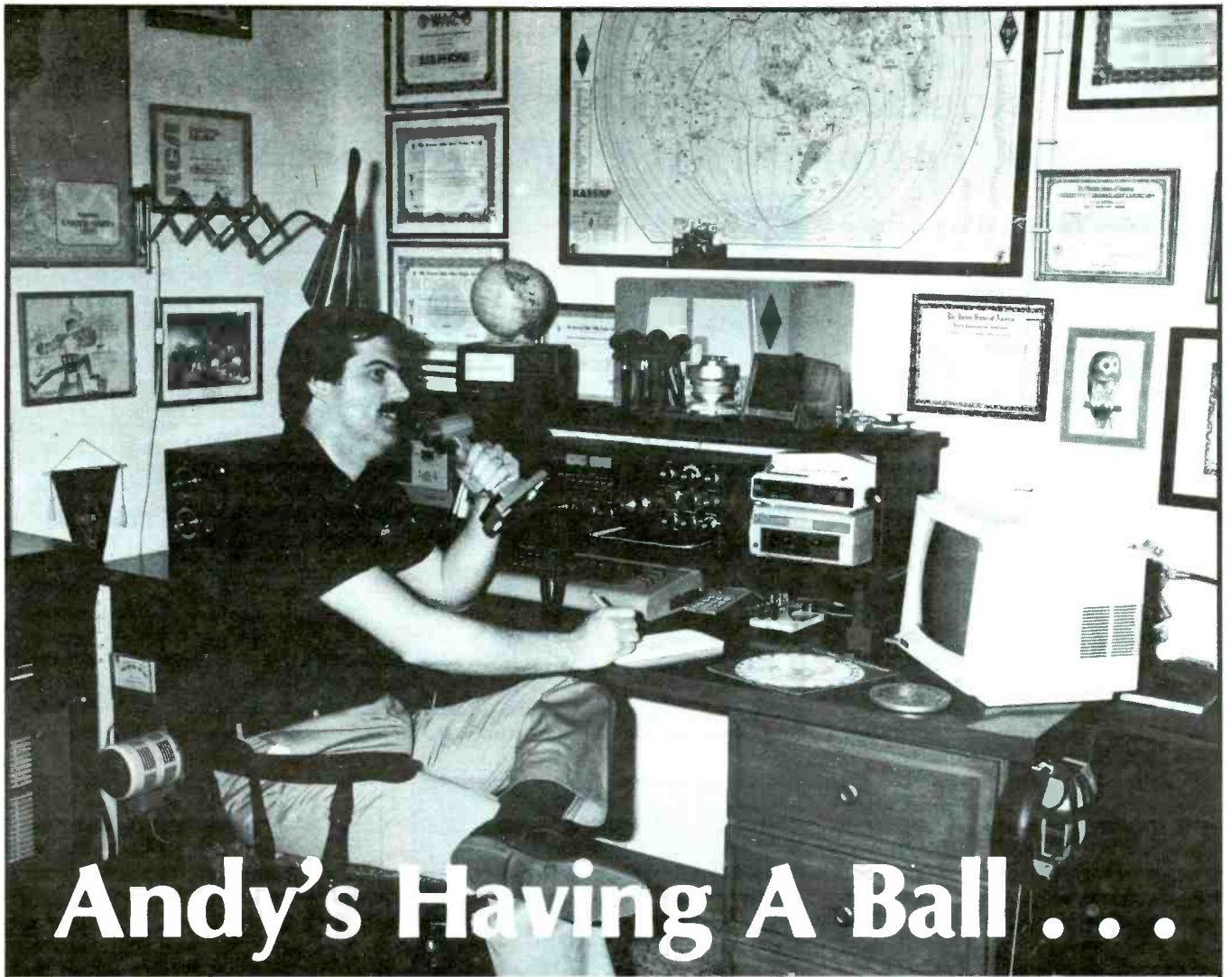
For about the price of another "Pac-Zapper" game, you can tie your Commodore 64, 128 or VIC-20 into the exciting world of digital communications with the Microlog SWL. \$64. Postpaid, U.S. MICROLOG CORPORATION, 18713 Mooney Drive, Gaithersburg, Maryland 20879. Telephone: 301 258-8400.

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CIRCLE 2 ON READER SERVICE CARD



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with, Amateur Radio is the hobby for you. The world is waiting for you.

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This space donated by this publication in cooperation with the American Radio Relay League.

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

MW And Tropical Bands Flexo Antenna Switch

In previous columns I have mentioned the use of at least two antennas and a means of switching between them as an aid to IDing on busy channels. Switching often gives you a choice of the better signal for program listening too, especially when there is some program you want to catch on a distant clear or, a weak regional or local station. How would you like some additional choice? Use a Flexo switch!

There is nothing mysterious about a Flexo switch and how it contributes some flexibility to your installation. Any good two-pole, four-position switch will do. Built into a small neat job, (Figure 1), it is a low-cost device and convenient to operate right by your receiver. The small box (Radio Shack 270-251) supports a switch, phono connector and a small insulating strip which mounts two screwdriver terminals, (Figure 2). The two single-wire antenna lines are connected here. The switch is a two-pole, six-position type (Radio Shack 275-1386) but only the first four positions are employed. The Flexo switch provides a low-cost means of switching between two end-fed longwires, a help in its own right. Two additional switch positions can be useful at times in obtaining a clearer and/or stronger signal.

The idea of the Flexo switch is based on the fact that two incoming single-wire antenna lines can be connected to the antenna input terminals of your receiver in four different ways as shown in Figure 3. In example A, antenna one is connected to the high antenna terminal of the receiver. No connection is made to antenna two. Conversely, in example B, antenna two is active while antenna one is not. This is exactly the same as the simple switching arrangement shown in last month's column and in the Better Signals column of the March '86 issue as well. It is nothing more than a single switch choice between two single-wire antennas.

Let's go on from here with two additional connection arrangements. In example C, both antennas are paralleled and connected to the receiver antenna terminal. In example D, antenna one connects to the antenna terminal and antenna two to the ground terminal of the receiver. This latter is a dipole-like method of feed.

The switch wiring and how it connects to the longwire and long longwire of last month's antenna arrangement is give in Figure 4. The two longwires are connected to their separate inputs on the switchbox. A short piece of coaxial line links switchbox to coaxial receiver. The two switch sections are labelled S1 and S2; the switch is set to position one. Note that the long longwire, if attached as shown, is connected to the coax-



Figure 1. The inexpensive and very useful Flexo switch connected to receiver.

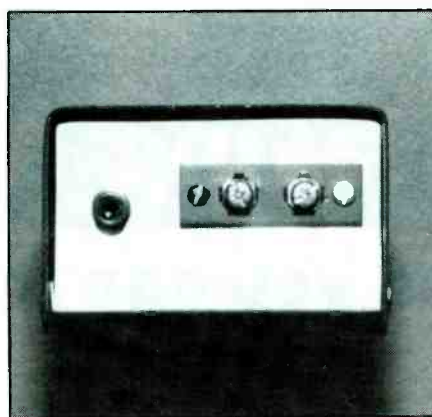


Figure 2. Switchbox coax output and terminals for two single-wire antenna feeds.

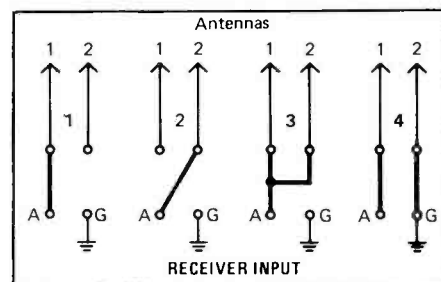


Figure 3. Connection possibilities for two end-fed longwires.

ial-line inner conductor and feeds the receiver input in single-wire fashion by way of S1. Switch S2 is inactive on position one.

On position two the shorter longwire is connected to the inner conductor through S1. Again S2 is not active. These two switch positions provide a simple, basic switching between two single-wire antennas.

On position three the long longwire is connected to the inner conductor by S1. Also, switch S2 connects the shorter longwire to the inner conductor as well. The two antenna wires have been paralleled. On position four switch S1 connects the long longwire to the inner conductor of the coaxial feed while S2 connects the shorter longwire to the braid (via the switchbox coaxial connector) of the coaxial line that links the switchbox with the receiver.

In operation the first two positions performed as they did in the simple single-pole, two-position switching arrangement described in previous columns. The third and fourth positions were of occasional help in obtaining a clearer and/or stronger incoming signal in the presence of co-channel interference or adjacent-channel spillover.

The Flexo switch can also be used in tropical band reception and some of the higher-frequency bands as well. Two longwire lengths that provide good average performance over the shortwave broadcast bands are 71 ft. and 120 ft., (Figure 5). The latter length also helps to perk up the MW reception despite its short length. You can obtain the benefits of both lengths by connecting them to a Flexo switch.

In my test installation the wires were stretched out towards the west and south-southwest. On the MW band the best signal levels were almost always in position three (wires paralleled by Flexo switch). Unlike the example of Figure 4, the combination

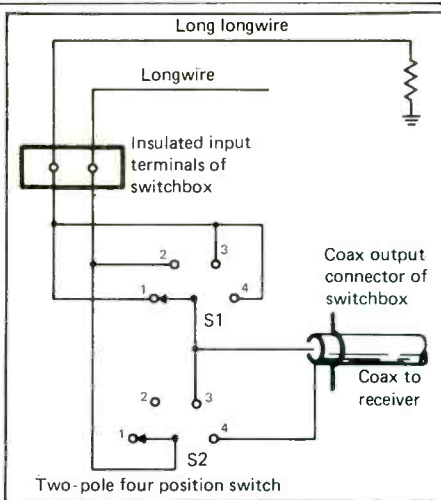


Figure 4. Wiring of Ed Noll's Flexo switch.

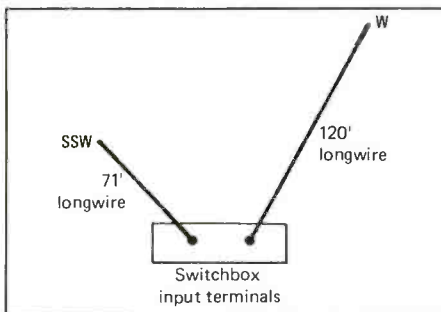


Figure 5. Flexo in circuit with two longwires for SW/MW operation.

was not as useful in making crossover ID's on those frequencies active for the moment with two signals. Such is to be anticipated because neither wire corresponds to a quarterwave length on the MF band.

Results were fine on the tropical bands and the signal could be peaked by selecting the proper longwire. In general, best signals were obtained on the 90M band with the short antenna; on the 60M band it was the longer antenna that was better. 120M reception was best with both wires parallel while 75M was a toss-up, working best toward Europe on the short wire and toward the west on the longer one. There were exceptions to the above general performance. Certainly, the angulations of the wires must be a factor and your results could be quite different. However, it is nice to have a simple switching arrangement that can accommodate to a degree.

Results were good on the higher frequencies bands but not as consistent. After all such longwires have multiple directivity lobes on these much shorter-wavelength frequencies. These patterns can have an influence on whether the stronger signal is delivered by the short or the long antenna wire. For example, on 19M, Australia and Tahiti were best on the longer wire; Chile, on the shorter one. Very generally, bands 25 and 41 delivered better signals on the short antenna; Channel 31, the longer one. Channels 13 and 16 were the most variable.

Hook up a cheap Flexo switch and watch your S-meter dance. **PC**

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CIRCLE 28 ON READER SERVICE CARD

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

The world of secret diplomatic communications made national news last April after the United States dropped bombs on Libya in retaliation for Libya's apparent role in the terrorist bombing at a West Berlin discotheque, where an American serviceman and a Turkish woman were killed and 230 persons were wounded.

Libya's reported link to the nightclub explosion was determined by the National Security Agency, which intercepted and decoded cables being sent from the Libyan People's Bureau (embassy) in East Berlin to Tripoli, Libya, the day before and shortly after the West Berlin incident. Those cables, with their apparent references to the explosion, were made public after the White House insisted that the security agency release them. NSA, whose prime task is to break codes and translate intercepted communications, tried to resist the White House decision for fear that disclosure of the cables' contents would compromise American intelligence gathering.

Although the White House released the texts of those cables, to win support of the American people and the country's allies, it was not disclosed how the texts were transmitted over radio.

Could the cables have been sent via RTTY? If so, then here are some frequencies known to have been used by the Libyan government in the past. Monitor them and, with a little luck, you might be able to start your own security agency. The frequencies are 4500, 11125, 11508, 11985, 14387, 18297, 20682, 20732 and 20932 kHz.

Chances are that those Libyan cables would not have been intercepted had the Libyans used a computer and a private telephone line to send their messages. The U.S. State Department plans to link itself via desktop computers to some 250 U.S. diplomatic missions around the world, thus mothballing its Teletype machines.

The changeover, according to *The New York Times*, would reduce the large volume of paper telegrams that are prone to security breaks. It would allow diplomatic personnel overseas to use the information bank in Washington, D.C. to retrieve research and background material and to send memoranda and electronic mail back and forth.

Installation of the computer system is to begin later this year in Washington and overseas in about two years, according to the newspaper.

Don't plan on eavesdropping on any U.S. embassy bulletin boards. Not only will the lines linking the computers be out of public reach; important traffic will be encrypted and different passwords will be used by select personnel.



No, this is not NASA's control center at Houston, Texas. It is the listening post of Ulrich Krebsler, HB9PKU, of Basserdorf, Switzerland.



A closer look at some of Ulrich Krebsler's monitoring equipment. Krebsler is author of RTTY-Handbook, which is reviewed in this month's column.

Mention has been made in this column occasionally about Teletype copy of news and financial services that can be downloaded from various satellites to your present monitoring systems connected to a few extra pieces of hardware.

Now comes word from *InfoWorld* newspaper that such services including foreign press, can be downloaded to your computers via the cable TV lines coming in to your homes.

A California-based software company has joined with two Colorado satellite information firms in providing the service, which would entail installation of the cable TV services and an adapter. You should ask your local cable TV company about getting the service provided by Satellite Information Systems Co. of Boulder, CO, and X-Press Information Services of Golden, CO. Ashton-Tate of Torrance, CA provides "Framework" software, which will download the copy to data or text files.

A welcome addition to your library of ship directories is the *List of Ship Stations* from the ITU at Geneva, Switzerland. This 1,405-page directory and its four supplementary updaters are special because of their low cost and immediacy.

The directory is of prime interest to the RTTY monitor of merchant vessels because it gives the names of the ships, their call signs, the country having jurisdiction over them and their usage. The supplements will make the directory current at the time you place your order.

If you order the directory now, you will receive the directory issued this past March, plus any subsequent updates.

The only drawback to this publication is the same found with other ITU directories of a similar nature—it doesn't have a separate listing of call signs in alphabetical order followed by the ships' names. You can,

however, purchase such a listing separately from the ITU.

The cost of the directory was 53 Swiss francs, or \$25, when I ordered the 1985 edition last January. The 1986 edition should be a bit more expensive because of the weakening of the American dollar in comparison with other currencies. But the directory is still a bargain compared to the cost of *Lloyd's Register of Shipping*, *ABS Record*, or *Jane's Merchant Ships*.

To order the directory, you may send a check drawn upon your own local bank or a money order in the U.S. dollar equivalent of the publication's current cost in Swiss francs. Write the ITU first for the latest pricing. Check the foreign exchange listing in the financial section of your newspaper to find the current exchange rate.

Send your order to International Telecommunications Union, General Secretariat, Sales Service, Place des Nations, CH-1211, Geneva 20, Switzerland. Air-mail postage from the United States is 44 cents. Ask for List V, List of Ship Stations, 26th edition, 1986. Allow about 90 days for the publications to reach your mailbox.

An alphabetical call sign is in List VII A, 11th edition, 1983. In 1985, the publication sold at 35 Swiss francs (about \$18.85 last May). The Swiss franc then was worth nearly 54 cents.

Many RTTY monitors living in the United States are familiar with RTTY frequency guides written by the late Oliver P. Ferrell, Joerg Klingenfuss of West Germany, and Michiel Schaay of Holland. All are excellent publications and are used by the serious monitor.

There is another guide which might be added to your library: *RTTY-Handbook* by Ulrich G. Krebsler of Switzerland. Containing 360 pages, this book is geared more toward the European RTTY monitor, listing



Ulrich Krebsler, who specializes in monitoring RTTY stations, is shown here seeking to log a hard-to-get utility station sending RTTY traffic.

frequencies that have been actually monitored on the continent, but could be useful to the North American monitor when skip conditions are good.

Krebsler covers the frequency spectrum from 10 kHz to 30 MHz and provides listings by frequency, an alphabetical station list, an alphabetical call sign list, a list of press and meteo stations, the Q- and Z-codes used in RTTY traffic, a NAVTEX transmission schedule, ITU country designator symbols, and various abbreviations used in Telex and CW traffic. In all, *RTTY-Handbook* contains 5,100 frequencies and is devoted mainly to RTTY with a smidgeon of embassy CW frequencies mentioned.

In compiling the frequency list, Krebsler used RTTY decoders manufactured in Switzerland by Poly-Electronic, the sister company to the publisher of his handbook. These decoders automatically tune to RTTY signals, rendering obsolete the use of the "mark" and "space" RTTY shift in the listing. Only the baud speed is given. ARQ and FEC signals also are indicated.

To order *RTTY-Handbook*, send an international or postal money order to Poly-Verlag, Spranglenstr. 30, CH-8303 Basersdorf, Switzerland. The handbook costs 55 Swiss francs (about \$28 last May), plus 5 Swiss francs (about \$2.75) for postage and handling.

As the volume of loggings sent to this column continually grows, it has become necessary to use many abbreviations in order to squeeze as many of your listings as possible in these pages. Loggings by your columnist will be noted by "(Ed.)" and comments by him as "--Ed." See the chart for other abbreviations normally used.

Joining our loggings section this month is Albin Magliano, from the beautiful isle of Tahiti. He sends some very interesting loggings, which we'll explore shortly. Let's greet him with a "bienvenue," which is French for welcome.

Noted on the postmark of his letter was the call sign FAAA, which is used by Centre-tri-avion, Ile de Tahiti. This call sign is sometimes seen in French naval RTTY traffic.

Now let's see what the clackity clack of the ol' RTTY machine is producing this month:

Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Correction mode
FF	French
foxes	"Quick brown fox..." test tape
GG	German
ID	Identification/ied
MFA	Ministry of Foreign Affairs
nx	news
PP	Portuguese
RURY	"RYRY..." test tape
SS	Spanish
tfc	traffic
w/	with
wx	weather

3172.8: Coded WX from Rome Meteo, Italy at 0445, 850/66R (Jim Hartung, MD).

3361.7: Un-ID station working in EE at 1100, ARQ (Fred Hetherington, FL).

3365: Un-ID station, probably Italian, w/callsign IER20 w/RURY QUU QRX ARAR at 1802, .../66N (M/Sgt David Freed, U.S. Army, FRG). It's General Guardia Finanza, Rome, Italy--Ed.

3755.2: RFLIA, French military, Ft. de France, Martinique, w/RURY to RFLID at 1110, 750/66R (Hetherington, FL).

3936: ELRB, Roberts International Airport, Monrovia, Liberia, w/RURY, 500/66R at 0025 (Hetherington, FL).

4177: JISF, NEW ZEALAND REEFER, a Japanese fishing vessel; also C6BJ6, FINNHAWK, a Finnish cargo ship, w/ARQ Telexes from 0100-0135 (Ed.).

4489: Bracknell Meteo, England w/coded WX at 0435, 425/66R (Hartung, MD).

4583: Hamburg Meteo, FRG w/coded WX, 425/66R at 0444 (Hartung, MD).

5117.3: TYE, ASECNA, Cotonou, Benin, w/RURY + QRK 5 at 0415, 425/66N (Tom Brailey, MI).

5240: 4OC2, TANJUG, Belgrade, Yugoslavia, w/nx in EE at 0229, 425/66R (Ed.).

5459.9: VOA, Rabat, Morocco, w/Near East File nx BC in EE at 2100, 425/100N (Freed, FRG).

5803.3: 9GC, Accra Aeradio, Ghana, w/RURY & PSE QJH1 at 0249, 425/66R (Brailey, MI).

5942.6: FUG, La Regine Naval Radio, calling EBA (Madrid Naval) w/RURY at 0155, 850/100R (Brailey, MI).

6251.1: Un-ID USN station w/tfc to AIG947 at 0446, 850/100R (Hartung, MD). Jim, you heard Madrid, Spain (probably 72JKL). The Spanish Navy has been settled in on this freq for a long time now--Ed.

6420.4: Foxes & RURY from PWZ33, Rio de Janeiro, Brazil, at 0330, 850/66R (Brailey, MI).

6483: UFB, Odessa Radio, USSR w/tfc in RR at 0240, 170/66N (Hetherington, FL).

6501: FFL, St. Lys Radio, France, w/FEC tfc list at 0205 (Hetherington, FL).

6787: KRH51, U.S. Embassy, London, England, w/foxes at 0434, 850/100R (Hartung, MD).

6968.4: Un-ID station w/foxes at 1030, 850/100N (Guy Akins, WA). Probably USN--Ed.

7393.3: GYU, Royal Navy, Gibraltar, w/tfc to MUH1 at 2310, 850/66R (Hetherington, FL).

7435: RUZU, the Soviet WX station at Molodzhayna Base, Antarctica, w/RURY & calling VLV (see 7924 kHz logging), 425/66N at 0646. Also sent coded WX (Ed.).

7439.2: Un-ID Spanish naval unit w/callsign 77URY w/RURY SGSG & foxes at 0419, then to 77JKL (not 72JKL!) at 0425, 850/100R (Ed.).

7584: Vienna Meteo, Austria, coded WX at 0412, 425/133R (Hartung, MD).

7618.3: Bucharest Meteo, Rumania, w/coded WX at 0424, 850/66R (Hartung, MD).

7812.5: Y7A34, MFA, Berlin, GDR at 0455 w/RURY & QRA tape followed by GG tfc & 5L tfc, 425/66N (Ed.).

7924: VLV, Australian National Antarctic Research Expedition, Mawson Base, Antarctica under moderate QRN w/RURY & QRA. Also tape reading "FOC FJY3 The Frozen Antarctic island...Champagne may be nice but Aussie beer is...The land of the kangaroo..." Was 425/66N at 0613 (Ed.).

7953: NX in SS from AFP, Paris, France, at 0245 (850/100R).

7990.3: Un-ID RAF unit w/callsign MTS sending RYIRYI & foxes at 0623, 170/66R (Ed.).

8105: CLN217, PTT, Havana, Cuba, w/telegrams

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in RR to Vladivostok, USSR at 0640, 425/66N (Ed.).

8156.7: MKD, RAF, Akrotiri, Cyprus, w/foxes & RYR1 at 0007, 170/66N (Ed.).

8345.5: Soviet ship L. BREVNEW to Odessa Radio, 0143 in ARQ (Jim Navary, VA). Two Soviet ships are bear that name. One is URRN, the other UKTY. I think you snagged URRN, a passenger ferry & freighter out of Odessa. UKTY is a nuclear icebreaker from Murmansk--Ed.

8356: WYF9382, SEAVILLE, an American yacht from Albany, NY w/Telex in ARQ at 2222 (Ed.).

8458.4: 72JKL, Madrid Naval Radio, Spain w/RURY & SGSG to 78EAL, 850/100R at 2009 (Ed.).

8705: Portishead R., England, w/tfc list in FEC at 0900 (Wolfgang Palmberger, FRG).

8820: CAI7E, Pascua Aeradio, Easter Island, w/RURY at 0557, 600/66N (Ed.).

8945: MFA in Havana, Cuba, w/5F & 5S tfc at 0458, 425/66R at 0458 (Dallas Williams, CO).

9052.5: ANSA, Rome, Italy, w/RURY & QRA + NX in FF & EE at 1822, 425/66N (Freed, FRG).

9227: Test tele w/RURY & QJHI at 0625, 426/66R (Albin Magliano, Tahiti). This was TJK, ASECNA in Douala, Cameroon. QJHI means "run your test tape"--Ed.

9291: TFC in FF from FAAG, French Navy, Noumea, New Caledonia, 170/100N at 0546 (Magliano, Tahiti).

10137: TNL97, Brazzaville, Meteo, Congo, w/RURY & CQ tape at 2141, 575/66N (Michael Walker, TX).

10307.6: OLM4, PTT, Prague, Czechoslovakia, w/RURY & QRA tape at 1755 & wkg PTT, Beijing, PRC at 1800, 425/66R (Ed.).

10383: 5YE, Nairobi Meteo, Kenya, w/RURY at 2158, 850/66N (Walker, TX).

11027.6: 9PL, Kinshasa Aeradio, Zaire, at 2240 w/RURY, 425/66R (Hetherington, FL).

11070: LOR, Puerto Belgrano Navrad, Argentina w/CQ & RURY tape at 2315, 170/66N (Hetherington, FL).

11250.4: 5KM, Bogota Naval Radio, Colombia, w/RURY, 425/100R at 1335 (Hetherington, FL).

11419.4: VNA, Hanoi, Vietnam, w/NX in EE at 1145; FF at 1245, 425/66N (Hetherington, FL).

11475: EE NX from KCNA, Pyongyang, N. Korea at 2239, 425/66N (Walker, TX).

11502: BTA, Sofia, Bulgaria, w/NX in EE at 1330, 425/66N (Hetherington, FL).

12075: 8CH w/RURY & "Do you read? Over." Was 425/66R at 0716 (Magliano, Tahiti). The callsign is assigned to a station in Jakarta, Indonesia--Ed.

12185: JANA, Tripoli, Libya w/NX BC at 1939, 425/66N (Freed, FRG).

12492: GUYC, LEONIA, w/Telex via Portishead R., England, ARQ at 1530 (Navary, VA). It's a British tanker--Ed.

12522: Soviet ship SEWERODONECK w/Telexes to Vladivostok R. at 0422, 170/66R (Magliano, Tahiti). Two Soviet ships have this name, one with the callsign UPTT and the other listed as UOSZ. UPTT is a floating fish factory from Vladivostok; the other is a freighter out of Odessa. You probably heard UPTT.--Ed.

12693.4: 72JKL, Madrid Naval R., Spain,

w/RURY & SGSG to 78EAL, 2236-2240 & again at 2300, 850/100R (Ed.).

12797: ~Murmansk R., at 1849 w/Telexes to several Soviet tugs, including USEJ, Besstrachny, 170/66N made (Ed.).

13075: HPP, Panama R., Panama w/FEC tfc list at 1909 (Ed.).

13092: UMV, Murmansk, USSR in FEC w/tfc list at 1316 (Ed.).

13523.5: INA, Baghdad, Iraq, w/EE NX at 1545, 170/66R (Carol Kirk, CT).

13540: TELAM, NX in SS from Buenos Aires, Argentina at 1540, 850/66R (Frankie Gittens, Secretary of Caribbean SWL Club Barbados).

13597.7: CTK in Prague, Czechoslovakia, w/EE NX at 1630, 425/66N (Atkins, WA).

13616: ZEN62, Hong Kong w/AFP NX in FF at 0801, 425/66N (Magliano, Tahiti).

13655.2: Dakar Meteo, Senegal, w/coded WX at 2140, 425/66N (Atkins, WA).

13752.5: HZJ, Jeddah Aeradio, Saudi Arabia, w/RURY at 2230, 425/66N (Williams, CO).

13999.8: AAA9USA, US Army MARS in TX w/telegrams to Northeastern US at 1601, 170/60R (Darryl Symington, OH).

14362: PAP, Warsaw, Poland, w/Polish NX, 1237-1249, 425/66R (Ed.).

14367: XINHUA, Beijing, PRC, NX in EE at 1307, 425/66R (Ed.).

14372.9: INA, Baghdad, Iraq w/NX of Middle East in EE at 1340, 425/66R (Ed.).

14398: Polish Embassy, Havana, to MFA in Warsaw w/info on Cuban citrus fruit exports, 1452 in 425/100N (Ed.).

14448: Polish diplo traffic at 1255 (170/66N) mentioning Trypolisie (Tripoli, Libya) (Ed.).

14456.5: Test tape w/RURY + A? Lanaka YE)U6 YE)U6 ARQ noted at 1632 in 425/66N. My guess is MFA, Cairo, Egypt. Am I correct? (Ed.).

14461.4: 5L tfc from un-ID station at 1733, 500/66N (Symington, OH). The 500 Hz shift, seen here in the past, seems to indicate MFA Havana as the source--Ed.

14548: JAL44, Kyodo, Tokyo, Japan, w/NX in EE at 0746, 425/66N (Magliano, Tahiti).

14572.8: NX in Arabic from JANA, Malta at 1638, 425/66R (Ed.).

14600: CAK, Santiago Aeradio, Chile w/RURY, 850/66R at 0034 (Williams, CO).

14626.2: Polish embassy tfc from Havana, Cuba at 1525, 425/100N (Ed.).

14638.2: USIA NX in EE & SS from NY City at 1755, 425/100N (Frank Jenkins, NV).

14673: Agerpress, Bucharest, Rumania, w/NX in EE at 1312, 425/66R (Ed.).

14794.3: Arabic NX from AFP, Paris, France at 1540, 425/66N (Ed.).

14937.5: Coded WX & aero notices in EE from ASECNA, Naimy, Niger at 1703, 600/66N (Ed.).

15667.5: FDY, French Air Force, Orleans, France, w/RURY, 425/66R at 1630 (Atkins, WA).

15933: LOK, Buenos Aires Naval R., Argentina, w/RURY at 2149, 425/100N (Williams, CO).

16117: PANA, Dakar, Senegal, w/NX in EE & FF at 1743, 425/66R (Palmberger, FRG).

16134: MAP, Rabat, Morocco w/FF NX to Europe & Asia at 1633, 425/66R (Darrell Lingenfield III, PA).

16348: TASS NX in EE from Havana at 1830, 425/66R (Navary, VA).

16661: GWIQ, ROYAL SERVICE, a British shippy ship carrying pipe & other materials to British offshore drilling rigs. Working GKE6 at Portishead at 1714, ARQ (Ed.).

16665: UHYE, Amderma, a Soviet stern trawler & fish factory w/encrypted Telex to UJY at 1519, 170/66R (Ed.).

16681.5: C6BE4, NORTH STAR, a Bahamian passenger ship w/Telex to KFS at 2035, ARQ (Ed.).

16694: VRJE, DARYA MA, a bulk carrier from Hong Kong w/Telex at 1659, ARQ (Ed.).

17201.5: CBV, Valparaiso R., Chile w/Telex to Chilean merchant ship having callsign CBAC, 2135 in ARQ (Ed.).

19068: MAP, Rabat, Morocco w/NX in FF at 1625, 425/66R (Lingenfield, PA).

19257.5: Encrypted tfc from Cuba at 1619, 425/66N (Ed.).

19505: PL, Havana, Cuba w/NX in SS at 1427, (Palmberger, FRG).

19747.5: WX in FF, plaintext followed by coded at 1605, 850/66R (Navary, VA). It's Dakar Meteo, Senegal--Ed.

20030.1: Encrypted tfc from Cuba, 1919, 600/100R (Ed.).

20472.5: CXR, Montevideo Naval R., Uruguay, w/foxes, RURY & SGSG & calling NBA at 1437, 600/100R. Was 20496.4 kHz (Ed.).

22862: ZRH, Cape Naval R., Fisantekraal, RSA, calling CCM at 1510, 850/66R (Gittens, Barbados).

PC

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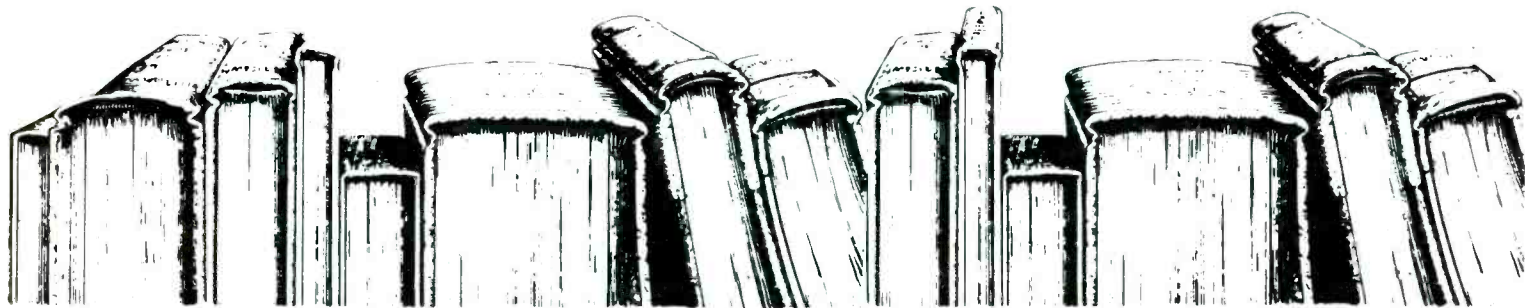
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SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

10-4, Wrong Number

Cellular telephones seem to be more in use by police agencies every day. Police in St. Petersburg, FL conducted a test of cellular phones last year and gave the 800 MHz service high marks for its ability to increase productivity, police effectiveness and decision-making, as well as increase citizen satisfaction with the police force. The month-long test involved the installation of cellular phones in 16 marked patrol cars: 44 officers and 5 sergeants used the radiophones.

One of the biggest advantages cellular phones provided for police, the test revealed, was the relief of congestion on public safety radio channels normally used by the police department. Routine administrative communications, as well as detailed messages during emergencies, were handled over the cellular system.

One use St. Petersburg police found for the cellular phones was the electronic filing of police reports from the patrol car. Police connected portable computer terminals in their cars to the cellular phones and filed routine reports to host computers at police headquarters.

The St. Petersburg police force hopes to implement the use of cellular phones in all patrol cars on a permanent basis in that city.

New Directory

An excellent guide out of the Midwest is the fourth edition of the *Scanner Frequency Directory for Northwestern Ohio and Southeastern Michigan* published by Daryll Symington, N8EBR.

The new guide has 400 new frequencies listed, 125 call sign changes, and a number of deletions of unused frequencies. It also includes a new 800 MHz section. A frequency cross-reference list makes it easy to identify unknown users.

The guide first lists radio users alphabetically and then by frequency. Radio code and unit numbering lists are detailed for most police and fire agencies. A Detroit police precinct map is also included.

The book covers Defiance, Erie, Fulton, Henry, Lucan, Ottawa, Sandusky, Williams and Wood counties in Ohio, and Hillsdale, Lenawee, Monroe, Washtenaw, Wayne, Macomb, and Oakland counties in Michigan.

The guide can be ordered for \$7.95 from Midwest Software Services, P.O. Box 399, Holland, OH 43528.

Growing Club

Something good is going on in Ohio and residents of surrounding states are finding out as well.



Life Star, the helicopter ambulance service of Hartford Hospital in Hartford, CT is shown in flight. (Photo courtesy of Hartford Hospital).

The All Ohio Scanner Club is growing rapidly and it has to be because they are doing something right. We've seen at least one scanner club get caught up in its own politics and internal fights over the publication of certain information, but the AOSC has formed itself into possibly the nation's most harmonious regional scanner club.

The Club already has more than 200 members and now accepts members outside the Buckeye State in Pennsylvania, West Virginia, Kentucky, Indiana and Michigan. And that's not to say that the group

doesn't also have members from other states as well—involvement members hail from a total of 20 states and Canada at last count! In fact, the Club has gained so many new members in Pennsylvania that they now have a column exclusively for the Keystone state. Ohio columns are broken down into five regions; a separate column is devoted to surrounding states.

Other columns in the AOSC Newsletter include those detailing state government radio systems; an excellent technical column that can be understood by those who have



The interior of Life Star is shown. The helicopter communicates with Hartford Hospital on 155.385 MHz and is also equipped with a Wulfsberg Flexicom radio system to communicate with any emergency crew on the ground. (Photo courtesy of Hartford Hospital).

trouble finding the right end of the soldering iron; a beginners section; a column detailing what can be found between bands from 50-88, 174-420 and 512 MHz and up; a special topics column; an information exchange; an excellent no-holds-barred federal government and military communications column; a for-sale section for members; a transportation column for rail, marine, air, and land transportation communications; a column for utility listeners below 30 MHz; excellent product reviews that are timely; informative book reviews by members; and much more.

The Club, which was founded in 1979 by Jerry Callam, recently increased the size of its 50-plus-page newsletter, which is published six times a year. Annual membership costs \$15 for new members and \$12 each year after that. A sample copy of the latest newsletter can be obtained for \$1.50 by writing to the All Ohio Scanner Club, P. O. Box 148, Vandalia, OH 45377.

HT Trick

Sylvester O'Farrell, VE3LBH, of Ottawa, Ontario, passes along an interesting tip to Hams who own ICOM IC-02AT handheld 2-meter radios. Apparently the handheld can receive above its normal 140-150 MHz range up to 154 MHz with a simple keyboard trick.

The radio can be moved above 150 MHz by the shift "*" key. First, dial in 149.9 MHz, shift into the 150 region, and from there up to 154 MHz the keys work normally. Frequencies in this band can be memorized and retrieved, but moving back to the 140-150 MHz band requires use of the same technique. Once frequencies have been stored, you can move from 140 to 150 and back using the memory.

Coming North

If you think it's bad enough with the proposed "privacy" communications legislation in the United States, there may be a similar movement afoot north of the border—in Canada.

Eric Stapleton, VE3LLK, of Thorold, Ontario, passes along news that Toronto Metro Police Chief Jack Marks says he may push for Federal legislation in Canada that would ban the public from monitoring radio calls. Marks told the Toronto Star that the public, the news media, tow truck drivers and even criminals monitor police frequencies and sometimes interfere with police operations. The police chief said he may ask the Canadian Association of Chiefs of Police to request that the Federal government enact legislation to ban monitoring. While the chief admits it might be impossible to stop monitoring, he suggests the use of mobile computer terminals by police officers on patrol for private messages.

Steel City Shuffle

If you live near Pittsburgh, PA you might want to consider investing in an 800 MHz scanner, if you don't already own one.

Police in the Steel City are testing whether or not to switch to a 20 channel trunked Motorola system that operates on the 800 MHz band.

The city's Water Department and Fire Bureau have already switched to the trunked system and, if it works as well as expected, not only will police switch over, but parks, public works, general services, and environmental services departments will switch over as well.

City officials are touting the system as one in which scanner listeners will be left out in the cold, unable to monitor police calls anymore, if the system is implemented. That's quite untrue, however. With the Motorola trunked radio system, a computer, which puts out a signal on one of the 20 channels, assigns mobiles to one of the 20 channels when they key up their microphone. Each time the mobiles transmit, they are assigned to a new channel and the computer automatically switches both units to the new channel. It may be tough to follow a mobile from one channel to another as the computer switches channels, but it's not entirely

impossible to do. You'll probably encounter a couple of other calls as well in the process, especially during peak usage times.

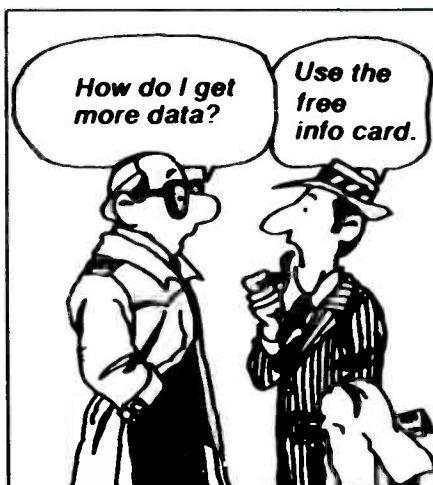
Several agencies can use the same trunked system as they operate in "groups" on the system. The system also offers the advantage of interdepartmental communications, if needed, especially during emergencies.

Fifteen other cities, including Miami, FL are already using the trunked system. Thanks to Joe Conroy of Pittsburgh and Thomas E. Finnegan of Scranton, PA, for letting us know about this proposal.

Your Turn

We love hearing from you here at POP'COMM. While it's impossible to reply to every single letter, all are read. We also use many letters here in Scanner Scene. We welcome your photographs of listening posts and radio installations and towers. Send your tips and notes to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909.

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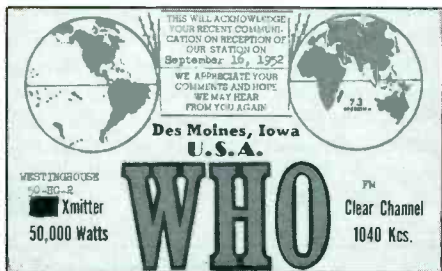
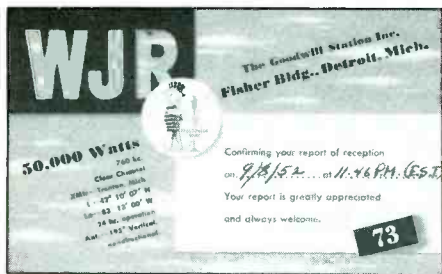


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BROADCAST TOPIK

BY MARK MANUCY, W3GMG

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING



From the collection of Bob Grubbs.

There are many of us that are organized to a fault. Everything has its place and every appointment is known. There are those of us at the opposite extreme and the rest of us fall somewhere in between. I have my moments of inspiration and organization, however, I certainly fail to be among the most organized. Several months back I spoke of pads for receivers and I am just now following up on what I said I would do "next month". Those of you that read this column regularly know when I say next month that means the next (few) months!

So, if one needs a pad to drop the level of signal coming into a receiver even more than the pad switch on the front panel will provide, here is one way to go about providing for additional attenuation. I will give values for several different impedances which should be enough to cover the normal ranges. If you have special requirements send them to me with an SASE and I'll put them in my trusty computer and send you the reply. Don't expect to find the exact values in your local electronics store but try to come within a few ohms. I have rounded the values to the nearest 10 ohms. For 50/52 ohm coax the values are so close to each other just use the same values. Refer to the drawing elsewhere. The resistor "S" is the series resistor and the resistor "P" is the parallel resistor. These are called "T pads" since they are shaped like the letter "T". For 300 ohm twin lead use an "H pad" which is balanced as opposed to the "T" which is unbalanced and designed for coax cable use. The other way around this pad business is to use a variable pad of the value for the coax

in use, however finding the exact amount of attenuation would be difficult. If it is not important to you in making signal reports what the attenuation is, then the variable pad might be the easier route for one to take. The variable pad must not be wirewound. Also remember that if this is used with a transceiver it must be inserted between the transmitter and receiver and not the transmitter and the antenna.

Coax Value In Ohms	dB Loss	Resistor P Ohms	Resistor S Ohms
50	1	430	2
	2	220	6
	3	150	8
	6	68	18
	10	36	27
75	1	650	4
	2	330	8
	3	220	12
	6	100	22
	10	56	36
300	1	2600	9
	2	1300	18
	3	220	6
	6	100	12
	10	56	18

When is a pad used? When the receiver has too much signal coming into it from the antenna, a pad is used to lower the level of the signal. Many times, however, a pad may not help the "too strong" signal situation. The trick is telling if a pad is needed or if there is another problem.

The first indication that there may be need for a pad is when the 'S' meter reads toward the high side on almost all signals. If the receiver is the older tube type set, such as an older Hallicrafters or National, then a pad may not be necessary since they can handle pretty much of anything. The newer transistor type set is another situation and they get very fussy when the signal level becomes too great.

There are several ways you can tell if a receiver is getting too much signal from the antenna. If the strong stations sound distorted or mushy, you can bet there is too much signal, especially if the other stations which aren't as strong sound clean and clear. Second, if you hear many stations that should not be heard at different places on the dial or several local stations at places on the dial that normally do not have a station, then this, too, may be caused by too much signal at the antenna terminals. However, this problem may not be corrected by the use of a pad. Of course, it *might* be cor-

rected with a pad. Double talk? Not necessarily, but we have to play sleuth to find out.

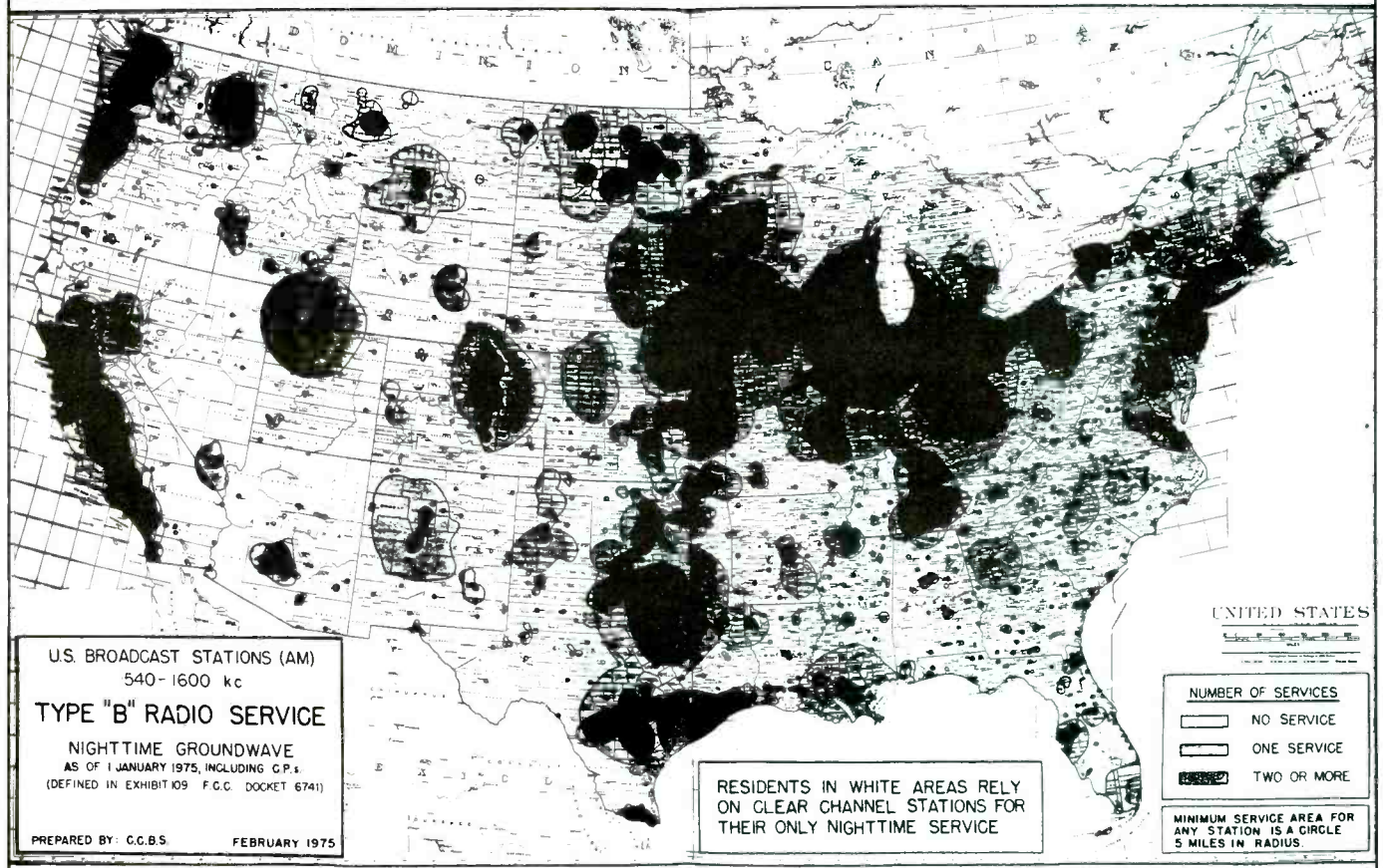
The first problem is pretty clear cut. Either the station sounds good or it doesn't. If it doesn't then does less antenna improve the situation? If so, then a pad is called for. I have to assume that one has already reduced the RF gain or increased the front panel attenuator (if there is one) to try to correct the situation. In many instances the RF gain will not make any change, and only if the attenuator is in the antenna circuit will any difference be noticed. When a large or long antenna is involved a pad becomes necessary to have the advantage of a particular antenna.

If many stations are heard throughout the dial where they should not be, then the problem becomes a little more difficult. There are situations where the problem may not be yours. If a number of AM stations are located close to each other (and to your location) all kinds of strange harmonics and frequency mixing can take place. There is very little the DXer can do to eliminate these harmonics. When the problem is generated *within* the set, then the pads can help by reducing the signal level coming into the set. One other work about the construction: be sure the pads are built in metal boxes. Remember we're trying to reduce the signal level, therefore if the signal can get around the pad then the pad is not going to work. Balanced pads and pads for the FM/TV bands will be discussed later as will the problem of the range just above the BC band (1.8 - 4 MHz).

As I reported last month the AM stereo wars between Kahn and Motorola are heating up again. Kahn has signed an agreement with Totsu Co., to market the Kahn exciter. Totsu is a major far eastern trading company which will promote the Kahn products throughout the Far East. This is good news for Kahn, who needs just this kind of break if he is to survive with any amount of strength in the U.S. market. Having the Kahn exciter in Japan means the Japanese (and other) receiver manufacturers will produce receivers in quantity with the Kahn de-



Bartlesville, OK. No date on postcard but it looks to be about early 1960's.



Although this chart is almost 12 years old it gives you the idea of how much the 50 kw clear-channel stations are still needed. The small circles are the local channel stations.

coder built in. This is the best news the U.S. AM broadcast industry has had in a long time. These Japanese receivers (home and auto) will now become available in the U.S. with both systems automatically decoded and switched so that AM stereo can finally get under way.

Approximately one-third of the AM stereo stations in the U.S. are Kahn systems. Kahn says he has lost no stations to Motorola since this time last year and my count confirms this. However, the conversions of the defunct Harris system have gone to Motorola but this is probably due to the less expensive retro-fit kits to convert them from Harris to Motorola. Otherwise, the station would have to buy a complete new exciter from Kahn. By the way, all the Kahn equipment sent overseas will be manufactured in the U.S.A.

According to Mr. Tachi, president of Tot-su, the Kahn system was preferred over Motorola due to the serious co-channel interference in Japan from other countries. Also, many major Japanese stations use synchronous transmission and the Kahn system is not affected by stereo image motion problems as is the Motorola system. Stereo imaging (platform motion) is most noticeable when there is co-channel interference and when synchronous transmitters are used.

I understand the FCC is going to take a look into the complaint Kahn has lodged against Motorola (see last month's column).

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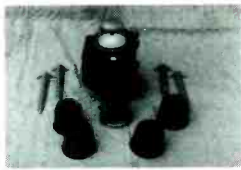
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BACK REJECTION:

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LENGTH:

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SWR:

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Call	Location	Freq	Pwr	Ant
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WEAB	Allentown, PA	790	1/5	DA-2
KQEU	Olympia, WA	920	5/5	DA-2
WGKA	Atlanta, GA	1190	10/0	O
WARA	Attleboro, MA	1320	5/5	DA-2
WRAB	Arab, AL	1380	1/.65	DA-N
KBXT	Duluth, MN	1490	1/1	O
WKDC	Elmhurst, IL	1530	.4/0	DA-D
KTCR	Wagoner, OK	1530	.84/0	O
KXEW	Tucson, AZ	1600	2.5/1	DA-N
FM				
KPFT	Houston, TX	90.1	100	431'
KGOD	Wasilla, AK	90.3	58	318'
KPDJ	Eureka, CA	92.3	32.3	1525'
WPRO-FM	Providence, RI	92.3	45.4	489'
WYFL	Henderson, NC	92.5	100	990'
WFUZ	Ocala, FL	93.7	100	525'
WMEZ	Pensacola, FL	94.1	100	1329'
WNJY	Riviera Beach, FL	94.3	1.38	472'
WLNB-FM	Goose Creek, SC	94.3	N/C	490'
KZZZ	Kingman, Az	94.7	45.7	2492'
KDJK	Oakdale, CA	95.1	29.5	632'
WSTS	Laurinburg, NC	96.5	80	756'
WDHP	Presque Isle, ME	96.9	100	1480'
KVMV	Mc Allen, TX	96.9	100	1147'
WMVB-FM	Millville, NJ	97.3	50	205'
WPST	Trenton, NJ	97.5	50	430'
KAVV	Benson, AZ	97.7	.63	589'
WKYD-FM	Andalusia, AL	98.1	100	981'
KNSS	Carson City, NV	98.1	75.9	2273'
KMIX	Turlock, CA	98.3	2	390'
WKJY	Hempstead, NY	98.3	3	328'
WVOD	Manteo, NC	99.3	N/C	217'
WYFI	Norfolk, VA	99.7	50	456'
KMMR	Ma, MI	100.1	3	377'
KPXI	Mt. Pleasant, TX	100.7	100	984'
KAIO-FM	Russellville, AR	100.9	3	161'
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KMXX	Sterling, CO	105.5	3	300'
KGAR	Mercedes, TX	106.3	.53	633'
WAEZ-FM	Milton, WV	106.3	.26	1092'
KIHX-FM	Prescott, AZ	106.3	N/C	471'
WHLM-FM	Bloomsburg, PA	106.5	35.5	577'
KROR-FM	Yucca Valley, CA	106.9	4	1371'
WBFL	Bellows Falls, VT	107.1	1.15	530'
WCGQ	Columbus, GA	107.3	100	1011'

KEY: D = Daytime N = Nighttime DA = Directional Antenna DA1 = Same Pattern Day & Night DA2 = Different Pattern/Power Day/Night O = Omni Antenna Day and/or Night * = Special Operation or Critical Hours N/C = No Change

This could be an interesting battle. Kahn claims the Motorola system causes interference when operated at more than 50 percent modulation, which is the level they originally tested for FCC approval. Kahn has

also reported that several Motorola stations have turned their stereo systems off to avoid listener complaints. If you know of any stations that have stopped broadcasting stereo please drop me a note.

Call Letter Changes

Location	Old	New	Location	Old	New
AM Stations			FM Stations		
Eureka, CA	New	KTCD	Abbeville, AL	WXLE	WIZB
Barstow, CA	KPRD	KSZL	Hot Springs, AK	KACQ	KLAZ
Colorado Spgs, CO	KKHT	KKCS	Fresno, CA	KFRY	KFRE-FM
Windsor, CO	KUAD	KVVS	Greely, CO	KGBS	KISF
Commerce City, CO	New	KPBL	Eagle, CO	KGMJ	KEYQ
Fraser, CO	New	KGRJ	Micanopy, FL	WGLV	WGGG-FM
Buena Vista, CO	New	KDMN	Miami, FL	WINZ-FM	WSST
Brandon, FL	WJCZ	WEND	Williston, FL	WJRQ	WLLQ
Lynn Haven, FL	New	WWSS	Chicago, IL	WMET	WRXR
Jacksonville, FL	WCRJ	WJXW	Pella, IA	KXJX	KFMD
Atlanta, GA	New	WPBD	Scottsville, KY	WLCK-FM	WVLE
Washington, GA	WGPL	WLOV	Henderson, KY	WHKC	WGBF-FM
Crystal Lake, IL	WIVS	WAIT	Salisbury, MD	WKYZ	WLWV
Indianapolis, IN	WMLF	WTUX	Muskegon, MI	WSNX	WSNX-FM
Charlevoix, MI	WKHQ	WKOS	Brainerd, MN	WJYY	WJYY-FM
Muskegon, MI	WTRU	WSNX	Anoka, MN	KTWN-FM	KMGK
Pascagoula, MS	WPMP	WPMP	Pascagoula, MS	WPMP	WPMP-FM
Centreville, MS	WSLL	WZFL	Centreville, MS	WZZB	WZFL-FM
Canton, MS	New	WONG	Lincoln, NE	KHAT	KHAT-FM
Lincoln, NE	KECK	KHAT	New York, NY	WRFM	WNSR
Trumansburg, NY	New	WJCU	Kannapolis, NC	WJZR	WRFX
Charlotte, NC	New	WMPF	Ottawa, OH	WPNM	WQTL
Waldport, OR	New	KBBM	Milford, HO	WRXY-FM	WJOJ-FM
Salem, OR	KGAY	KYKN	Enid, OK	New	KBVV
Monroeville, PA	WNRZ	WXVX	Pittsburgh, PA	WPNT	WLTJ
Sans Souci, SC	New	WGCF	Columbia, SC	WDPN	WMMC
Beaufort, SC	New	WAGP	Jacksonville, TX	New	KBJS
Ferris, TX	New	KLCA	Seabrook, TX	KYND	KLEF
Abilene, TX	KFMN	KKSL	Wichita Falls, TX	New	KMOC
Murray, UT	KLAF	KOLC	Brian Head, UT	New	KREC
Alexandria, VA	WCXR	WCPT	Seattle, WA	KIXI-FM	KLYC
Seattle, WA	KXA	KRPM	Pasco, WA	KTCW	KEYW
Sumner, WA	KARP	KFRS	Tacoma, WA	KRPM	KRPM-FM
Rice Lake, WI	WAQE	WMYD	Deer Park, WA	KNOI	KAZZ

Over the past month or so I have been corresponding with Christopher Kissel who has built a synchronous detector with independent sideband detection. He recently sent me a tape containing recordings of WNBC and WBT as well as some shortwave stations. The quality of the reception is vastly superior to the diode envelope detector and, with the independent sideband detectors, the stereo of WNBC and WBT is very evident. The circuit, however, is complex and beyond the scope of this column. If you are a serious builder drop me an SASE and I'll put you in touch with Christopher. I'll be glad to give you a copy of the tape if you send me a C-90 cassette and return postage. Synchronous detectors are on their way and are compatible with the Kahn stereo system, which is what the shortwave stereo broadcasters will have to use.

Scott Hood told me he spent Christmas in Hawaii and had a ball with AM DXing. From the list he sent I'd say his best DX was WOAI, WHO, KTRH, WBAP, WHAS, KRLD and WWL. That's about 5,000 miles on WHAS and WWL. Congratulations, Scott. The other stations you questioned are, as far as my best guesses are: 830 kHz,

R. Belize, 20 kw; CFJR, 5/1 kw; 1200 kHz, WAGE, Leesburg, VA, 5/1; 1440 kHz, CFGO, Ottawa, Ontario, 50/50 (not 1200). As to the others, there is not enough information to determine what they were.

How many states have you logged on the BC band? How do you count your loggings? Are they all from one location or as you travel around? I don't get a whole lot of comment about the different angles of BC band loggings. Jerry Rappel sent a note recently in which he mentions having logged about 30 states so far. He is also a TV engineer. So you see quite a few of us "industry types" can't get away from the hobby part of the game! Jerry is also a TV-DX nut. I don't have a whole lot of call for TV info, Jerry. The best I've seen is from the WTVDX Association. If you're not familiar with them they can be reached at P.O. Box 514, Buffalo, NY 14205.

Bryan Howard tells me he's using a Grun-dig radio and has become "hooked" on the BC band. Thanks for the letter, Bryan.

One of my best birthdays was a few years ago when I got an ICOM R-70. My past birthday brought a new Commodore C-128 computer. This will replace the C-64 which

I'll no longer have to share! Once I get past playing Bach on the synthesizer then we may get some programs generated for the 128. Anyone else out there who is a Bach organ music nut will understand my addiction. I don't mean to slight other machines but having worked with the C-64, even using it to write these columns and answer letters as well as having fun with it, the 128 is more than twice as much fun since it still has the C-64 as part of it. For the money it's one tough machine! What can I say, it sets next to my other favorite . . . the R-70, and they live peaceably together without noise or interference between themselves! Be sure all cables are shielded! I have much more noise from the power line at the back of my property but guess what, the Gas and Electric is changing the poles out this week so maybe that noise will go away, also. Then I'll have peace and quiet in the shack once more.

The loop antenna plans continue to be popular as I get several requests each week, as are the Commodore computer programs. Also, always glad to get your comments on DXing or whatever. Mail address is P.O. Box 5624, Baltimore, MD, 21210. See you next month.

PC

FOCUS ON FREE RADIO BROADCASTING

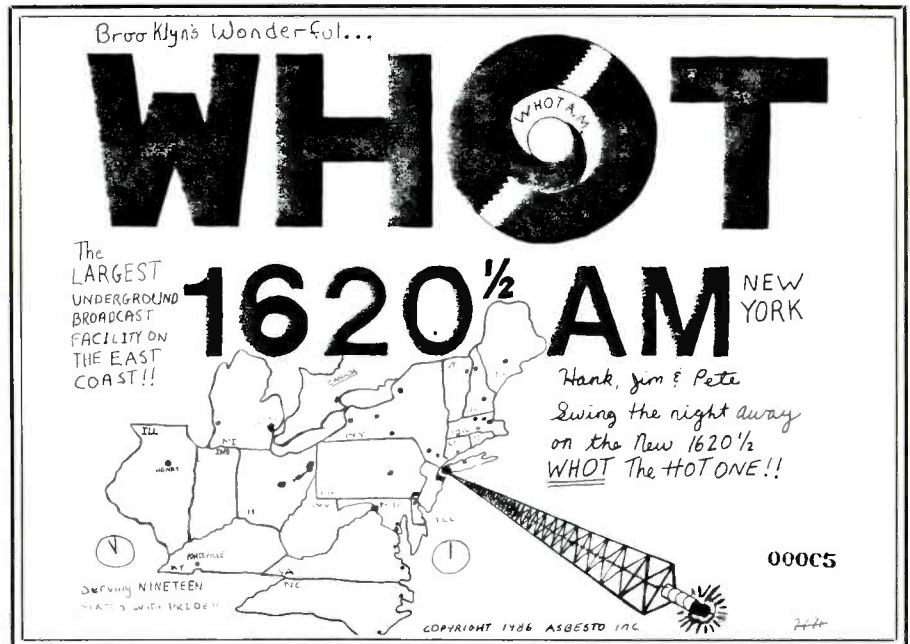
Pirate broadcasting activity seems to be on the upswing as there's quite a bit of pirate news and loggings to pass along to you this month.

A new Canadian pirate was to have begun test broadcasts on April 7. This one is **CGWN** (Canada's Great White North) **Radio**, located in Southwestern British Columbia. The station describes itself as a "non-licensed, non-political, non-racist station" and says that its half hour broadcasts will contain the latest worldwide news, shortwave news and information, a mailbag segment, and rock music beamed to various parts of the world. Tests were to have been conducted through the middle of the summer followed by the beginning of a regular broadcast schedule. CGWN will use a frequency in the 49 meter band.

Initial broadcasts were to have used a variety of antenna-transmitter combinations in order to determine which combination provided the best signal. CGWN seeks comments, suggestions and other "helpful hints" and all correct reports will be verified. Canadian listeners should enclose a self-addressed, stamped envelope. In the U.S. and other countries, enclose a self-addressed envelope and two International Reply Coupons for an airmail reply. The station's address is Post Office Box 80033, Burnaby, British Columbia, Canada V5H 3X1. Let me know if you log this one and perhaps you guys at CGWN can send a sample QSL card and/or a photo of your operation for future use in this column.

Promotional literature from **WHOT** supplied by Richard W. Gleitz in York, PA says that the station's studios and offices are in Brooklyn, NY and operations are on the unassigned frequency of 1620.5 kHz (the information sheet says "kilocycles") with an estimated power of 100 watts "emanating from the WHOT office building." They indicate coverage of "two countries and 19 states in two time zones and two provinces." The info sheet also says WHOT is "the largest underground broadcast facility on the East Coast." QSL card requests should be made during an actual test or broadcast. Otherwise they must be validated by a WHOT staff member. This can be accomplished by calling 1-718-946-9748 between 1700-0200-UTC. Richard heard WHOT on February 16 at 0614-0638 on 1625 and again on March 1 at 0650, this time closer to 1630 kHz.

KNRH says it is one of a growing number of automated pirate operations, using all pre-recorded programming. The station uses a lot of material provided by other pirate broadcasters. In addition to programs



WHOT's large QSL card was received by Richard W. Gleitz.

from Radio Pamela in Kent, England, (mentioned in the May Pirate's Den) KNRH also airs material from Falcon Radio, Radio Caroline, and the now defunct Laser 558—all of which serves to supplement KNRH's own programming efforts. Incidentally, Radio Pamela also airs programming from KNRH. The station is using 11975 and says it is still maintaining its hefty six hour per day program schedule. The trouble is, nobody seems to be hearing the station, or at least no reception reports are being received. The transmitter is a home-built job and the antenna a "well-hidden" half-wave dipole. If you do log KNRH, reports can be sent to Tracy Sands, 2170 West Broadway #119, Anaheim CA 92804.

WBBR was logged by Peter W.D. Wright in Richmond, VA on 16 March at 0238 UTC using 7438.1 lower sideband. Several references to "Big Boy Enterprises" were heard during the program, as were interviews conducted by Zelma Wit with the "Soldier" and the "Messenger" regarding survival tips in avoiding the FCC. The mailing address given was Box 982, Battle Creek, MI 49016. Peter notes that WBBR has been reported as having been closed down by the FCC so he's uncertain if he heard the original WBBR or whether someone else has taken over use of the call letters.

The Voice of Laryngitis was the first pirate logging in a year of trying for Garth



Bob Tarte's glow-in-the-dark QSL from Radio Fort.

Carman of Edmonton, Alberta, Canada. Garth heard Laryngitis on 7425 at 0100-0130 on March 23. Signal strength was fair but Garth notes there was interference from the Voice of Greece on 7430. The program featured what Garth says he hopes was a fake FCC raid, a com-

mercial for "Comatose Mattresses" and a skit by "The Old Philosopher."

Peter Valenzon III in Stamford, CT informs that **WCBB** (Citizen's Band Broadcasts) has returned to the air. Peter says the station has been active on and off for the past four years and he's currently hearing it between 0100 and 0530, mostly on Fridays and Saturdays, on CB Channel 8 (27055 kHz). Broadcasts cover Stamford, Darien, and Greenwich, CT as well as parts of Long Island, NY. On the air personalities include Mike Kramden, Dave Rock and Mark Scrutinizer. According to Peter, the sound quality is good and the programs are largely rock-n-roll, news and comedy.

Bob Tarte in Grand Rapids, MI forwards information about a very interesting pirate he heard some time ago—**Radio Fort**. Bob's logging was on 7460, opening at 0450 with an interval signal of a frog croaking and a nine note trumpet melody. The broadcast began with a newscast consisting of readings from the *Book of the Damned* by Charles Fort. Bob recognized the content immediately since he was once a columnist for *Fortean Times Magazine*.

Bob says that Charles Fort was one of the first, "if not the first" cataloguer of strange phenomena such as falls of fish or other strange objects from the sky, UFO's, sea monsters, strange astronomical effects, and so on.

Although Bob isn't much of a QSL collector he did go after a QSL from Radio Fort because of his former ties with Fort and because the station claimed that the logo on the card would glow in the dark. Bob says "darned if the ink on the front isn't phosphorescent!" Bob sent the card to me (it's pictured this month) and I can confirm that the printed letters actually do glow in the dark. Bob would like to know if anyone else ever heard this station.

Radio Mouser (spelling uncertain) was logged on 7490 at 0130-0142 with rock-n-roll music by Phil Bekkala in Larium, MI.

Phil also heard **Radio Malabu** on 7480 at 0310-0316 with station identification as "American free radio station Malabu."

WLRK, a pirate in Wilkes-Barre, PA has been logged again by Hank Rogers in Kingston, PA. Hank reported that he had thought this one was off the air permanently but he's hearing it on 99.7 MHz with a three-times-per-week schedule of about 0200-0400 running popular rock music. Hank says the station often takes telephone requests but that he's never heard a phone number announced on the air.

The Scripture Hour—either a program name or the name of the station—was noted on 1612 at 0200 by Jon, KA3ONI in Potomac, MD. Jon says the programs are mostly Christian music and prayer. He thinks the station is in North Carolina

WBBB was heard on 1620 at 0800-0930 on April 2 by Stephen Haney of Brooklyn, NY. The announcer identified himself as "Vinny Goomba" and said that the call letters stood for the Brooklyn neighborhoods of Bensonhurst, Bay Ridge and Bath

Beach. Programs were said to be experimental, with more to come in the future. Power announced as 30 watts. The program featured rock music and a report on the latest music video releases. According to Stephen, the audio quality was poor and no address was announced. A phone number was announced but when Stephen called it, it proved false.

A tentative logging of **KORO** was made by Paul Johnson in Phoenix, AZ on April 20 from 0609-0650 on 7435. Paul says the disc jockey sounded like the same one he's heard on two previous occasions from this station. The format was rock music and something that sounded like the Canadian National Anthem was played at sign off. Although the music was clear, the voice audio was poor and there was considerable fading. Paul says it was his first pirate logging in four months.

Aced out? A note from Gordon H. Hubbard in Tucson, AZ says he sent an SASE to the Association of Clandestine Enthusiasts (A*C*E) sometime ago but has had no reply and wonders "How come?" Dunno, Gordon. Headquarters for ACE moved sometime back and we here at **POP'COMM**

haven't seen a copy of their monthly newsletter since last December! Try writing to Box 46139, Baton Rouge, LA 70895. If that address doesn't work, maybe our readers can offer additional info.

Raymond K. Taylor of San Diego, CA would like Pirate's Den reporters to include the dates of their loggings (you'll note that I'm putting them in where they're supplied). Ray said he's never been able to hear a pirate and that more information from the pirates themselves, particularly power used, antenna, and antenna pattern would help a lot. Ray says he's made up a 24 hour chart with a two-letter code for each pirate logging he runs across so he has a good grasp of who's been on and when and where.

I can only echo Ray's remarks about the need for information. No matter which side of the microphone you're on—pirate broadcaster or pirate DXer—you can help others hear more pirates by supplying your loggings, station information, station photos, QSLs, and general news about pirate activity. That way Pirate's Den can help more listeners hear more pirates. We're all in this together so let's help each other out.

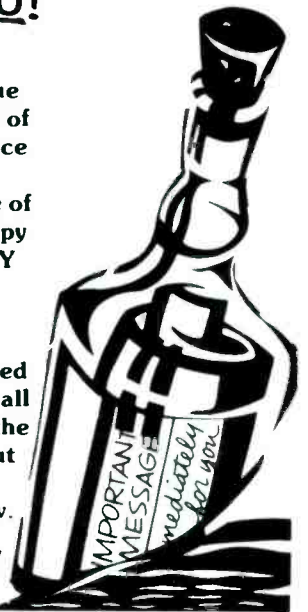
'Til next month, Keep 'em Flyin!

PC

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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

As predicted last month, the Radio Beijing-Radio France International connection has been made, so now broadcasts from China are a snap to hear in North America. The current schedule, which will probably have changed by the time you read this, has broadcasts in English at 0000-0100 on 11685 and 15445; 0200-0300 on 6015, 9635; 0300-0400 on 11970, 11980, 15280, 15445; 0400-0500 on 11980, 15280; 0500-0600 on 9565; 1100-1200 on 9535; 1200-1300 on 9535 and 9640. A "test" transmission is also being conducted from 1300-1400 on 9550 and 9730.

High Adventure Ministries' KVOH in California has been delayed yet again—this time until fall. Things are being held up pending final payment for the transmitter. As you can see from the map featured this month, coverage of all of South America is intended, all the way into Antarctica, in fact.

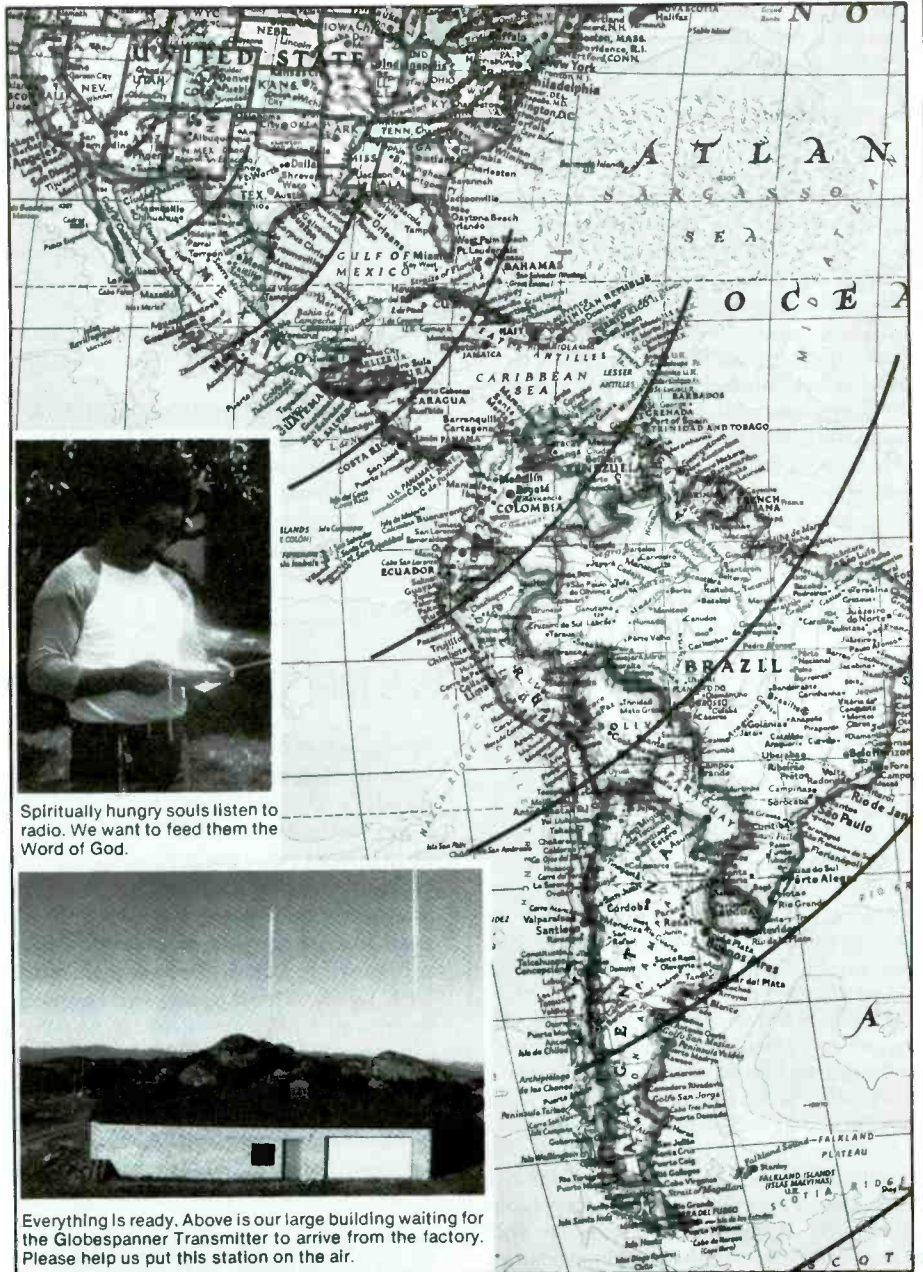
The Voice of the Islamic Republic of Iran is evidently beginning to bring many of the new transmitters it has been installing into use now. For the summer, VOIRI plans to use 7110, 7235, 7260, 9635, 11805, 11860, 11895, 11930, 15150, 15160 and 15445, all rated at 500 kilowatts, according to Radio Netherland's Media Network quoted in *DX Ontario*, the bulletin of the Ontario DX Association.

The Radio Monte Carlo (Monaco) broadcasts mentioned last month turned out to be via transmitters in Morocco. Programs are a relay of the Radio Monte Carlo medium wave outlet on Cyprus and are in French and Arabic. The latest schedule has them on 9795 between 0700-0830 and 15465 from 0500-2100. Reception reports go to: SUMERA, 78 Avenue Raymond Poincar, 75016 Paris, France.

The new high power transmitters from the Ivory Coast are being heard more regularly. These, too, are rated at 500 kw and are operating at various times of the day and night, mostly in French, on 6015, 7215, 9620, 11920 and 15350.

Another country planning to join the "500 Kilowatt Club" is Jordan which has plans for a new medium and shortwave installation that will include eleven curtain arrays and three of the big monster transmitters. We don't know when that'll happen, though it's likely not for awhile.

If, like this editor, you are still looking for the no-longer-so-new Kenya high power outlets, they are currently on the air from 0200 (Sundays 0230) to 0630 in Swahili on 6075, English on 6090; 0630-1530 in Swahili on 9880, English 9665; and 1530 to sign off in Swahili on 6190, English on 6132. The latter frequency may be a typo but that's what it reads.



Spiritually hungry souls listen to radio. We want to feed them the Word of God.

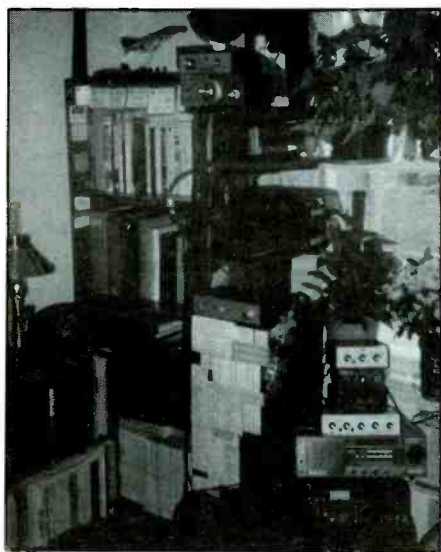
Everything is ready. Above is our large building waiting for the Globespanner Transmitter to arrive from the factory. Please help us put this station on the air.

Literature from High Adventure Ministries' KVOH shows intended coverage.

If you'd like to have HCJB DX Party Line host John Beck speak at your church or SWL club meeting you can send your invitation to him at the World Radio Missionary Fellowship, Inc., P.O. Box 553000, Opa Locka, FL 33055-0401. Former DX Party Line host Clayton Howard will, indeed, take Beck's hosting chair while the Becks are back in the U.S. on furlough.

One of the questions we frequently receive is "How do I write a reception report in a language I can't understand?" There is no question that you are far ahead in QSL collecting if you can write reports in the native

language of the country. But that doesn't have to be carried to the 'nth degree—Spanish, Portuguese and French are enough—in almost all other cases English will serve. But, for those who haven't been able to put together reports in the above languages or who are using only a limited form, there is help in the form of *Language Lab*. It's a 50-page guide that enables you to write an almost limitless variety of report letters. The Spanish edition is out now (French and Portuguese will follow later this year) and is available for \$12.95 plus \$1 shipping (\$2 overseas), in U.S. funds only, from Tiare



Bill Ramsay in Toledo, Ohio listens in this leafy shack.

Publications, P.O. Box 493, Lake Geneva, WI 53147. Be sure to mention that you're a POP'COMM reader!

LOTS A MAIL THIS MONTH. Bill Ramsay of Toledo, Ohio sends in a photo of his shack which includes an ICOM R71A receiver as well as a Kenwood R-2000 plus assorted pre-selectors and audio filters. Bill DXes both the medium and shortwave bands.

Pat McDonough in Pittsburgh bemoans the fact that his photo has not yet appeared in these pages despite his having sent one in twice. Wish we could give you a solid answer to that one Pat. We may have held it for use later or it may have been pulled further down the line. Send one more and give us another chance and be sure to address the photo directly to Listening Post.

Loy W. Lee, who is Assistant Manager as well as Music and Fine Arts Coordinator at KEKU-FM and KEKH at Eastern Kentucky University in Richmond, sends in some loggings taken on a "DXpedition" to the university's environmental laboratory lodge at Maywoods. Lee had company in the form of fellow listeners Ed Shaw, Lance Barron and Dr. Joe Roitman. He encourages others to try a DXpedition, saying they're great for hearing the hard-to-hear stations. DXpeditions are popular among many DXers, Lee, but we've never been on one and are past the age where that much lost sleep can be looked upon lightly! Nice to see a mention of our old friend Ed Shaw whom we've heard very little about in recent years! How are you, Ed?

William Moser who is Director of Physics Education at the Buhl Science Center in Pittsburgh says he's been an SWL since the late '60s although, like many, he got away from the hobby for a few years. He includes some nice QSL copies and one original, from Mali, which is included this month. Bill says he targets Africa in particular.

David Cole in Baton Rouge, LA notes that there are at least three shortwave lis-



Radiodiffusion Television due Mali sends this nice card. Courtesy William Moser.



Here's the well-equipped listening post of Gayle and Larry Vanhorn of Orange Park, FL.

teners in the Political Science Department at Louisiana State University, himself among them. David would like to contact others in the area and discuss forming a local group. You can reach him at 5894 Guava Drive, Baton Rouge, LA 70808.

Another shack featured this month belongs to Gayle and Larry Van Horn of Orange Park, Florida. Gayle is the shortwave listening half of the team while Larry is a well-known expert on satellite subjects. Gayle has 170 countries in her log—all of them in just over four years of listening! Thanks for the pic and for the nice words about our new book *Secrets of Successful QSL'ing*, Gayle. We're glad it has brought you some verifications!

Just getting into the hobby is 13-year-old Debbie Levine of Arlington Heights, IL. She'd like some tips for beginners. Well Debbie, for one thing, you might join the Chicago Area DX Club. They can be reached at 6525 South Sacramento, Chicago, IL 60629-2823. Debbie would like to correspond with others. Her address is 1219 East Waverly Pl., Arlington Heights, IL 60004.

It was nice to hear from Edward Kusalik of Coaldale, Alberta whom we've had the pleasure of meeting at a couple of past conventions. Ed says it's rare when he gets the opportunity to have his picture taken in his shack and so shares this extraordinary experience with us. Ed specializes in Southeast Asia, Indonesia and Africa but, alas, didn't include any reports with his letter. The layout in Ed's shack includes a Yaesu FRG-7000, Collings (military) R-388 and URR/51J receivers.

John P. Corea, 1733 K Street in Belmar,



A rare event: Ed Kusalik, Coaldale, Alberta, caught in his shack.



John Corea in Bellmar, NJ is nearing his 20th anniversary as a DXer.

NJ 07719, is using a TRS-80 computer in conjunction with his listening and would like to hear from others who are pairing up the two.

Remember, we always welcome your reports—listed by country, with space between logs and your last name and state abbreviation after each. Also, your letters with comments, clippings, QSL copies (for the actual cards if you get spares), questions, observations, schedules and so on. Make it a habit!

Note that times in the Listening Post are given in UTC, GMT (sob) having finally been dropped. Aside from the traditions and the flavor, there is no practical difference between the two. Frequencies are stated in kHz.

Here's what's on:

ALBANIA- R. Tirana, EE on 7065 at 0000-0020 (Neff, OH); EE nx at 0630 on 7080 (Cole, LA); 0249 on 7120 in EE to 0256 s/off (Mayo, NE); 0332 w/ID & world nx on 7300 (Groner, BC); 9480 at 1637 in EE (Johnston, OH); 0000-0028 in EE on 9760, at 0130 on 9765 (Carman, ALB); 2200 on 11620 in EE (Corea, NJ).

ANTIGUA- Deutsche Welle Relay on 6040 in EE at 0104 (Lyster, BC); 9605 in SS at 0200, at 0345 in EE on 9640 (Carman, ALB).

ARGENTINA- RAE on 9690 at 0145 in EE (Hunt, NC); 0100 on 9690/11710 (Taylor, CA); 11710 at 0119 (Lyster, BC); 0107-0125 in EE w/ID, nx, mx (Neff, OH).

ASCENSION ISLAND- BBC Relay w/World Service for Africa on 17885 at 1400, also 11860 at 0530 (Cole, LA).

AUSTRALIA- R. Australia, 6060 at 0530 w/EE nx (Hobbs, ONT); 5995 at 0941 in Neo-Melanesian, 9710 w/IS at 0947, 7205 in EE at 1621 (Lyster, BC); 9580 in EE at 1214 (Neff,

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 Foreign Air Mail—one year \$73.00, two years \$143.00, three years \$213.00.

OH); 9645 at 1130 in EE w/"Innovations" (Cobb, ME); 9655 at 0730, not listed in latest sked (Cole, LA); 9660 at 0705 w/horse race payouts (Lyster, BC).

ABC Perth (Waneroo) on 9610 in EE at 1400 (Carman, ALB); 0952 w/background mx (Lyster, BC); nx at 1556 (Lyster, BC); 1135 w/racine results (Cobb, ME).

VNG Time Station, Lyndhurst, w/announcements at 1134 on 7500 (Lyster, BC).

AUSTRIA: R. Austria International, 6155 at 0340 w/address to write for sked (Ross, ONT); 0431 w/talk & "Shortwave Panorama" (Lyster, BC); at 0335 (Carman, ALB).

BELGIUM: BRT at 1300 on 15590 in EE (Corea, NJ); 1345 w/"Brussels Calling" (Cole, LA); 0135 in EE (Neff, OH).

RTBF w/nx in FF 1700-1715 & easy listening mx til after 1730 on 17765 (Batman, LA).

BENIN- ORTB on 4870 in FF w/African mx at 0628 but no other clear ID (Moser, PA); at 2252 (DXP-Maywoods).

BOTSWANA- R. Botswana w/rx pgm in EE on 4820 at 0412 but much QRM (Lyster, BC) Note that HRVC also here w/rx pgms-- Ed.

BRAZIL- RadioBras on 11745 at 0200 (Taylor, CA); 0201-0230 w/sports, sambas (Neff, OH); 0155 w/IS to 0200, EE s/on (Lyster, BC).

R. Nacional Amazonas on 11780 at 2300 w/nx & ID's in PP (Witsman, IL); 0030-0050 in PP w/talk, pops, ID's (Cobb, ME).

R. Globo, Rio, 11805 at 0255 to s/off 0328 in PP w/sports scores, jingles, ads, echo, time checks, nx 0300, jazz & sudden off (Paszkiwicz, WI).

R. Amazonas, Manaus, 4805 at 0145 in PP, mx ID, freq on the hour, off 0205 (Rass, ONT).

BULGARIA- R. Sofia on 7115 at 0414 in EE (McDonough, PA); 9700 at 2130 w/IS, ID, nx in EE (Neff, OH).

BURKINA FASO- RTB on 4815 at 2300 w/lively mx, OM in FF, ID as "R. Burkina" (Moser, PA); noted at 2218 (DXP-Maywoods); 0245 w/ID in FF "Ici Ougadougou, R. National du Burkina," anthem & off (Ross, ONT).

CAMEROON- R. Cameroon, Yaounde, 4850 at 2221 (DXP-Maywoods).

R. Douala, 4795 at 2208 in FF w/nx (Ross, ONT); at 2230 (DXP-Maywoods).

CANADA- RCI to Africa at 1800 on 17820//15260, 30 minutes in EE then 30 in FF, EE to Europe at 1900 on 5995/11945/15140/15325. Into un-ID language at 1930 (Brown, WI); 5960 at 0115, on 9535 at 0124 (Lyster, BC); 9760 w/"The World at 6" at 2206 (Lyster, BC); 11945 at 2035 in EE (Neff, OH); FF at 2115 on 15150 (Carman, ALB).

CBC Northern Quebec Service, 6195 in EE at 0305 (Carman, ALB); 9625 at 1215 w/WX, time, financial nx (Neff, OH).

CFRX Toronto at 2000 in EE w/ID as CFRB, mx ads (Ross, ONT); 2100 mx & ads (Brown, WI); at 1908 (Neff, OH).

CFVP Calgary on 6030 at 2121, relaing CFCN (Lyster, BC).

CHU time station, 0107 on 7335 (Lyster, BC).

CENTRAL AFRICAN REPUBLIC- RT Centrafricaine, Bangui, in FF at 2215 on 5034.5 (DXP-Maywoods).

CHAD- RNT s/on at 0457 on 4904 but w/ute QRM & fade by 0510 (Batman, LA); 0501 YL in FF, some mx, considerable QRM (Moser, PA).

CHINA- R. Beijing (via French Guiana) 6015 at 0255 in EE w/skcd, East is Red & off 0257 (Mayo, ME); 1149 on 9535 w/Chinese by Radio to 1157 off, then ID, IS & on in EE to North America at 1200 (Lyster, BC); strong sigs at 1200 on 9535 (Carman, ALB); 1238 w/talks, ID (Neff, OH); 9550 at 1400 s/off (Carman, ALB); 9730 test freq at 1354 w/talk, ID w/skcd, East is Red w/R. Berlin International underneath (Mayo, ME).

CLANDESTINE- R. Venceremos, or the clone, 6565 at 0341. Bad quality on o remote report & news of ytop movements mentioning exact locations (Witsman, IL).

COLOMBIA- R. Sutatenza, Bogota, 5095 at 0039 (DXP-Maywood).

Caracol Neiva, 4945 at 0505, ID 0507, Coca Cola ad & others (Groner, BC).

COSTA RICA- R. Reloj, 4832 in SS w/mx, tick-tock behind announcer at 0745 (Johnston, OH); 0406 but much QRM (Lyster, BC); 0645 on 6006 (Cole, LA); at 1158 (DXP-Maywoods).

TIFC on 5055 at 0303 w/rx pgm in EE (Ross, ONT); 0340 EE rx. Promptly sent QSL & pennant (Carman, ALB).

CUBA- R. Havana Cuba, 6090 at 0500 w/EE nx (Hobbs, ONT); 6140 w/mx, contest, talks (Neff, OH).

R. Rebelde, 5025 at 0350 w/machine gun ID, strong (Carman, ALB).

CYPRUS- Cyprus BC Corp. w/2215 s/on 6125

kJHz w/nx in Greek, local mx to 2245 off. Clear but under R. Berlin International (Batman, LA).

CZECHOSLOVAKIA- R. Prague, 5930 at 0125 in EE (Hunt, NC); at 0315 (DXP-Maywoods); 0109 in EE, 0422 in un-ID language (Lyster, BC); 0125 commentary, classical mx, ID (Neff, OH).

DOMINICAN REPUBLIC- R. Discovery, 6222 at 0232-0256 s/off in EE/SS. Carib mx, OM w/travelog info, ID & address for test BC reception reports (Cobb, ME).

R. Clarin, 11700 at 2302 w/mx, jingles, ads (Neff, OH); 11699 at 2143 (Shiflet, CA).

EAST GERMANY- R. Berlin International, 6125 at 0255 w/discussion (Hunt, NC); 2200 w/IS, ID, mx, commentary (Neff, OH).

ECUADOR- HCJB on 6230 at 0200 w/"Saludos Amigos" (Neff, OH); 0245 w/DX Party Line on 9870 (Carman, ALB); 3220 in SS at 0405 (Ross, ONT).

R. Quito, 4920 w/mx & talks at 0330 (Carman, ALB).

EGYPT- R. Cairo, 9475 at 0220 in EE w/nx, ID, sked (Cobb, ME); 9475//9675 (both weak) w/Arabic mx at 0157 (Lyster, BC).

ENGLAND- BBC w/"English by Radio" at 0650 on 6150//6165 (Lyster, BC); World Service at 0400 on 3995; in Bulgarian on 3975 at 0430 (Cole, LA); 6120 at 0145 in EE (Levine, IL); 7150 at 0602 w/World Service (Neff, OH); 7210 w/"financial English" at 0545-0600 s/off (Lyster, BC); 0245 in SS on 9765 (Carman, ALB); 15070 at 2040 in EE (Neff, OH); 15260 w/nx at 1600 (Witsman, IL).

ETHIOPIA- V. of Revolutionary Ethiopia on 7110 at 0406-0430 w/nx in Amharic, western classical mx. Vies w/Mozambique for the freq (Batman, LA).

FINLAND- R. Finland International w/EE at 1200, 1300, 1400 on 11945/15400 (11945 not used Tuesdays); 1500 on 15400 (Taylor, CA); 1300 on 15400 w/IS, ID, time check, sked, Nordic News, press review (Neff, OH); 11945 at 1330 (Carman, ALB); 15400 at 1500 (Hobbs, ONT).

FRANCE- R. France International, 17620 at 1645 in N. African service w/sports nx (Moles, OK); 1600 w/"Paris Calling Africa" (Cole, LA).

FRENCH GUIANA- RFI Relay, 9800 at 0300 w/nx in EE (Hobbs, ONT).

GABON- AFRICA #1, 4830 at 2223 (DXP-Maywoods); 15200 at 1605 in FF (Moser, PA); 1500 w/5-minutes of EE nx (Mayo, ME); 15475 at 1750 in FF, ID "Numero Un." At 1921 w/mx & "killer" strength signal (Carman, ALB).

GHANA- R. Ghana on 3366 at 0548 w/EE, mx medleys, ID & nx, announced as "The Commercial Service of R. Ghana - GBC-2" (Mayo, ME); 4915 at 2230 w/African mx, nx, ID (Neff, OH); at 2241 (DXP-Maywoods).

GREECE- V. of Greece, 9420 at 0340 w/EE (Hunt, NC); 15630 w/nx in EE 1235-1250 (Johnston, OH); ditto & //17565 (Cole, LA).

GUATEMALA- R. Cultural, TGNA on 3300 at 0425, easy listening mx, SS ID (Cole, LA); 0145 soft mx, ID by OM, very strong (Hunt, NC).

HAITI- 4VEH on 4930 at 2207 (DXP-Maywoods).

HONDURAS- HRVC, Va V. Evangelica at 1208 on 4820 (DXP-Maywoods).

R. Luz y Vida, 3250 at 0330, vy weak, in SS (McDonough, PA).

INDIA- AIR, 11620 in EE at 2100 (Corea, NJ); 2211 in EE w/talks, ID, nxrel (Neff, OH); 15325 at 1530 w/mx (Hobbs, ONT).

INDONESIA- RRI Ambon, 4845 at 1204 (DXP-Maywoods).

RRI Pekanbaru, 5884v at 1117 (DXP-Maywoods).

IRAN- V. of Islamic Republic of Iran, 9022 at 1930 in EE to s/off at 2029, weak by readable (Johnston, OH); EE at 1930 (Corea, NJ); 15084 EE at 1130, talks & listeners' mail (Cobb, ME); at 1359 (DXP-Maywoods).

IRAQ- R. Baghdad on 7170 at 2100 in EE (Corea, NJ); 2100 w/announcements, ID & mx (Neff, OH); 9565 in EE at 0345 (Carman, ALB); 9745 at 1939 (DXP-Maywoods).

ISRAEL- Kol Israel, 7410 at 0200 w/nx, talks, mx (Neff, OH); 0116 talk about Israeli BC history (Lyster, BC); at 2230 9435//9815, at 0437 in Hebrew on 9435 (Cole, LA); 0220 in EE, heavy QRM (Carman, ALB); weak at 2254 (Lyster, BC); 9815 at 2235 w/EE nx (Moser, PA); 11585 w/nx, ID at 1815, into FF, on 11605 in un-ID language to 1801, ID, into 2nd language; also 12080 w/ID & nx in (possible) GG (Groner, BC); 12080 in EE at 2000 (Carman, ALB); 15095 at 1340 in Hebrew w/EE pop tunes, ID at 1400 as the commercial "B" service, into nx (Mayo, ME); 15485 at 1530 w/EE nx, IS (Hobbs, ONT).

ITALY- RAI on 11800 at 1935 w/EE for England & N. Ireland (Cole, LA).

JAPAN- R. Japan on 5990 at 1350 w/General Service in EE, also at 1100. Since 7 April, S. American Service at 5990 in SS JJ & PP,

off 1100 (Cole, LA); 1556-1559 in EE w/Asian nx, sports (Lyster, BC); 9645 w/General Service in EE at 2300 (Corea, NJ); 9735 at 0750 in EE (Lyster, BC).

KUWAIT- R. Kuwait, 11675 at 1845-2100 w/pop mx pgm 2000-2059 (Johnston, OH); 1837 w/nx commentary in EE, US pops (Cole, LA); 15505 at 1516 (DXP-Maywoods).

LIBERIA- VOA Relay on 15600 at 1805 in EE w/African service (Ross, ONT).

ELWA on 4760 at 2200 in EE, end of rx pgm, into VOA nx (Ross, ONT).

LITHUANIAN SSR- R. Vilnius on 7400 at 2200 in EE w/ID, nx (Neff, OH).

LUXEMBOURG- R. Luxembourg, 6090 at 0115 in EE w/US rock (Hunt, NC); 0000 w/American-sounding announcer w/nx, rock (Moser, PA).

MADAGASCAR- R. Netherlands relay, 9540 at 2100 to 2125 s/off in EE w/"Dutch by Radio" closing announcements (Cobb, ME).

MALAYSIA- R. Malaysia, Sarawak, EE on 4950 at 1440 (Carman, ALB).

MALI- RT Malienne, 4783 at 2230 w/FF nx, some QRM (Moser, PA); 0558 s/on w/IS & Bamako ID at 0600. No sign of listed //4838 (Batman, LA).

MAURITANIA- ORTM at 0622 on 4845 in Arabig, fades out quickly (Batman, LA); at 0651 (DXP-Maywoods).

MAURITIUS- Mauritius BC Corp., at 0538 on 9709 w/subcontinental & western mx, EE ID at 0600. Poor signals (Batman, LA).

MEXICO- XEUDA R. Universidad de Sonora, Hermosillo, classical mx & talks in SS on 6115 at 1700 (Shiflet, CA).

MOROCCO- R. Medi I, 9575 at 2132 in FF w/dance, rap, rock, cigarette ad, ID 2201 & 2216, nx 2201 w/synthesizer bridge. Slight QRM from RSA/9580 (Paszkievicz, WI).

MOZAMBIQUE- R. Mozambique, Maputo in PP at 0400 on 7110, African mx, interview (Batman, LA).

NETHERLANDS ANTILLES- R. Netherlands relay, Bonaire 6165 at 0315 w/talks in EE (Hunt, NC); 0500 to NA (Hobbs, ONT); 9650 at 1100-1125 s/off in EE (Cobb, ME); 9715 at 0753 in EE (Lyster, BC).

Trans World R., 11815 at 1130-1200 w/nx & inspirational mx (Taylor, CA); 1230-1300 (Neff, OH).

NEW CALEDONIA- R. Noumea, in FF at 0800 on 1710 w/nx to 0815, pop mx to after 0830; at 1038 (DXP-Maywoods).

NICARAGUA- V. of Nicaragua, 6015 at 0400 w/propaganda (Taylor, CA); 0105 in EE, weak (Lyster, BC).

NIGER- ORTN Naimey, 5020 at 2212 (DXP-Maywoods).

NIGERIA- FRCN-Kaduna on 4770 at 0517 w/EE nx. Announced as "The Ghana BC Service" (Mayo, ME); at 2245 (DXP-Maywoods).

V. of Nigeria, 7255, difficult at 0500 (Taylor, CA).

NORTH KOREA- R. Pyongyang 9977 at 1130-1149 s/off in EE, talks, martial mx (Cobb, ME); 13650 w/EE nx at 2300 (Shiflet, CA).

NORTHERN MARIANAS- KFBS Saipan w/EE lesson from Malay, hymns 0730-0800 on 11705 (Batman, LA).

NORWAY- R. Norway 9590//11860 at 1600-1630 (Taylor, CA); 11870 in Norwegian, off 1846. Also 9590 at 1900 in Norwegian & 7265 at 1640 in Norwegian (Groner, BC); 15305 at 1325 in EE (Hunt, NC); 1806 in EE on 15310 (Carman, ALB).

PAPUA NEW GUINEA- NBC Pt. Moresby 0857-0910 on 4890 w/nx & WX in EE (Lyster, BC); at 1201 (DXP-Maywoods).

PERU- Rdf. San Martin, Tarapoto on 4810 at 1007 (DXP-Maywoods).

R. Echo, Iquitos, 5010 w/pops & ID 0300 (Groner, BC).

PHILIPPINES- FEBC at 1330 w/rx mx on 5990, audible under R. Japan (Batman, LA).

R. Filipinas at 0714 on 9580 w/OM in (possible) Tagalog (Batman, LA).

VOA relay, 15290 at 2215 in EE, also 2225-2250 (Mayo, ME).

PORTUGAL- R. Portugal in PP at 1700 on 15285 (McDonough, PA); 9565 at 0305 in EE (Cobb, ME).

RUMANIA- R. Bucharest, 5990 at 0245 w/talk about SSB reception (Hunt, NC); 0202 w/nx, ID (Cobb, ME); 0200-0230 but barely readable (Taylor, CA); 11940 at 1300 in EE (Neff, OH); 15250 at 1230 (DXP-Maywoods).

RWANDA- Deutsche Welle Relay, 17800 at 1130-1145 in EE w/ID, "Calling Africa" (Cobb, ME).

SAUDI ARABIA- BSKSA on 15060 at 1536 (DXP-Maywoods).

SENEGAL- ORTS Dakar, in FF at 2325 on 4890, lengthy talk, ID (Ross, ONT).

SOLOMON ISLANDS- SIBC, 9545 at 0759-0805 w/Westinghouse ads, commercial programming (Lyster, BC).

SOMALI REPUBLIC- R. Mogadishu in Somali at 0420 on 7200, het & SSB QRM (Batman, LA).

SOUTH AFRICA (REP. OF)- SABC on 4835 at 0410 w/"Radio Today" in EE. At 0425 in Afrikaans on 4880 w/easy listening mx (Cole, LA).

R. RSA, 9615 at 0202-0230 w/nx, ID, "Africa Today" (Neff, CA); 0240 in EE (Hunt, NC).

SOUTH KOREA- R. Korea, 7550 at 2235 (DXP-Maywoods); 9750 at 1418-1435 in EE w/Olympic preparations & "Cooking Corner" (Lyster, BC).

SPAIN- Spanish Foreign R., 6055 at 0130 in EE w/"Spanish Panorama" (Hunt, NC); here & 9630 in EE at 0103 (Lyster, BC); 15160 w/classical mx at 1810 (Carman, ALB); to Africa 1830-1930 on 15215//15375 to Middle East. Send your reports to Spanish Foreign Radio, P.O. Box 156282, Madrid 28080, Spain. (Brown, WI).

SRI LANKA- VOA relay, 15395 at 1720 in EE for Asia/Far East (Ross, ONT).

SWAZILAND- Trans World R., 4760 at 0315 in (possible) Shona, rx choir, off 0331 (Ross, ONT); at 2219 (DXP-Maywoods).

SWEDEN- R. Sweden International, 9695 at 0430 s/off (Taylor, CA).

SWITZERLAND- Swiss R. International on 9885 at 1541-1600 in EE then into FF (Lyster, BC); 12035 w/nx, "Grapevine" show at 2110 (Carman, ALB); 2103-2125 in EE (Neff, OH); 15570 at 1330 w/"Dateline," into FF to S. Asia & Australia at 1400 (Cole, LA).

SYRIA- R. Damascus, 9635 at 2005 w/nx, pops & "Daily Talk" (Batman, LA); 11625 at 2332 in SS (Groner, BC); 2309-2325 in Arabic & SS (Neff, OH); 12085 in EE at 2100 s/off in EE (Johnston, OH); 2109 w/nx, press review, mx (Moser, PA).

TAHITI- R. Tahiti, 11825 at 0723 (DXP-Maywoods).

TAIWAN- WYFR (via Taiwan) on 15055 at 1421, just audible. ID in EE 1430 (Mayo, NE); 1349 w/rx pgms (Mayo, ME).

TANZANIA- R. Tanzania, tentative at 0631 on 4782 (DXP-Maywoods).

TOGO- RTT on 5047 at 0527 w/chime IS, "Ici Lome" (Moser, PA); 2336 EE & FF w/pops (Ross, ONT).

TURKEY- V. Turkey, 2200 w/EE nx on 9560 (Cole, LA); 2218-2230 in EE (Neff, OH).

UKRAINIAN SSR- R. Kiev, 11860 at 0030 in EE (Shiflet, CA); at 0045 (Taylor, CA).

UNITED ARAB EMIRATES- UAE Radio, Dubai, 11955 at 1625 w/mx, ID, time, nx, WX. Into Arabic (Neff, OH); 15320 at 1559, "Mailbag" pgm, nx, back to Arabic 1642 (Mayo, ME); 1775 in EE at 1330 (Corea, NJ); 1328 on 17775 & 17830 (DXP-Maywoods).

V. of the UAE, Abu Dhabi, 7225 at 0600-0630 w/nx in Arabic, rx pgm, mx (Batman, LA).

UNITED STATES- R. Marti, 9525 in SS at 0130 (Carman, ALB).

WHRT, 7400 at 0300 w/"R. Earth" (Neff, OH); 0500-0600 w/talk by Lester Sumrall; 11865 mentioned but not heard (Taylor, CA); 9770 at 2100 to Europe, N. Africa, Mideast (Brown, WI). AFRTS, 11805 at 1442 w/nx, sports (Neff, OH).

WINB, 15145 at 2310-2330 rx mx, freq info (Cobb, ME).

KCBI, 11735 w/"Radio Connection" at 1958 (Neff, OH); 2000 on 11790 in EE (McDonough, PA).

WRNO, 9860 at 0138, rock (McDonough, PA); 11705 at 2100-2130 w/pgm about medical insurance (Witsman, IL); 15420 at 1800, 6185 at 0600, 7355 at 0300 (Hobbs, ONT).

WYFR, 6065 w/VOCF relay in EE at 0305 (Neff, OH); 6185 at 0618 (Neff, OH); 11830 //11875 at 1600 (Carman, ALB); 15170//17750 at 1920 (Carman, ALB).

VOA, 9455 at 0004 w/nx, "Caribbean Report" (Neff, OH).

USSR- R. Moscow, 7260 at 0100 in EE (Levine, IL); "Home in the USSR" at 0555 (Carman, ALB); 0131 on 7335 w/CHU winning (Lyster, BC); 11840 (via Havana-- Ed.) at 1730 w/EE nx (Hobbs, ONT); 13665//13705 in EE at 1246 (Neff, OH).

R. Magallanes pgm to Chile, 11745 at 0330 in SS, IS & ID (Paszkievicz, WI).

VATICAN- Vatican R., 6250 at 0658 w/rx services in Latin (Cole, LA); 0058-0108 s/off on 6015 (weak) //9605 (weaker) in EE (Lyster, BC).

VENEZUELA- La V. del Tigre, El Tigre, 0429 in SS w/pops, ID's, talk (Ross, ONT).

R. Mundial Bolivar, Cd. Bolivar, 4770 at 0545 in SS (McDonough, PA); 0103 in SS (Ross, ONT).

La V. de Carabobo, Valencia, mostly pops, several ID's, some ads at 0320 (Groner, BC).

R. Tachira, San Cristobal, 4830 at 0230, doorbell sound effects, ID's, mx (Hunt, NC).

R. Capital, Caracas, 4850 at 0255 w/lively mx, US pops, ID's (Hunt, NC); ID, anthem, s/off at 0457 (Cole, LA).

R. Yaracuy, San Felipe, 4940 at 0150, Latin pops, ID's (Hunt, NC).

R. Rumbos, Caracas, 4970 at 0240 w/mx, doorbells, ID (Hunt, NC).

Ecos del Torbes, San Cristobal, 4980 w/mx & talks at 0325 (Carman, ALB); 0245 Latin mx, OM announcer (Hunt, NC).

YVTO time station, Caracas, 6100 at 0614 (Moser, PA).

VIETNAM- V. of Vietnam, 1127-1131 on 10010//10040//10059v (DXP-Maywoods); 10040 in EE at 2030 (Corea, NJ); 15010 at 1903 in EE, ID at 1910 (Groner, BC).

WEST GERMANY- Deutsche Welle, 9505 at 0930 in EE to Asia (Taylor, CA); 15270 at 2153 w/IS, into SS, 15410 at 2201 in GG (Lyster, BC).

ZAMBIA- ZBS R. Zambia, 4910.8 at 0330 w/fish eagle IS, "One Zambia - One Nation" ID, faded by 0400 (Ross, ONT).

The following step to center stage to take their bows: Stanley D. Mayo, Yarmouth, ME; John P. Corea, Belmar, NJ; Jeff Shiflet, Hacienda Heights, CA; Garth Carman, Edmonton, ALB; Sheryl Paszkiewicz, Manitowoc, WI; Armond Groner, Kamloops, BC; Alex Batman, Baton Rouge, LA; S. Lyster, Keremeos, BC; Debbie Levine, Arlington Heights, IL; George Neff, Niles, OH; Doug Johnston, Piqua, OH; David Cole, Baton Rouge, LA; William Moser, Pittsburgh, PA; Steve Moles, Wyona, OK; Raymond K. Taylor, San Diego, CA; Loy W. Lee and the Mayowoods, KY DXpedition team; Ernie Brown, Luck, WI; Pat McDonough, Pittsburgh, PA; Ken Cobb, Portland, ME; Billy Hunt, Durham, NC; Robert Ross, London, ONT; and Karl Witsman, Oakwood, IL.

'Til next month—good DXing. Why not send us a report? **PC**

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NEW AND EXCITING TELEPHONE TECHNOLOGY

Linking Computers Via Satellite

Like it or not, geostationary satellites are here to stay for telecommunications. Many subscribers may find the delay caused by the long trip back and forth from the satellite annoying. Talking through satellites takes some getting used to.

Computers, on the other hand, have no problems at all sending data through satellite links. They can be programmed to allow for any delays. Also, to send large amounts of data rapidly, wide bandwidth is needed. Getting wide bandwidth on telephone lines can become tricky and very expensive. A telecommunications satellite is inherently a wide bandwidth device.

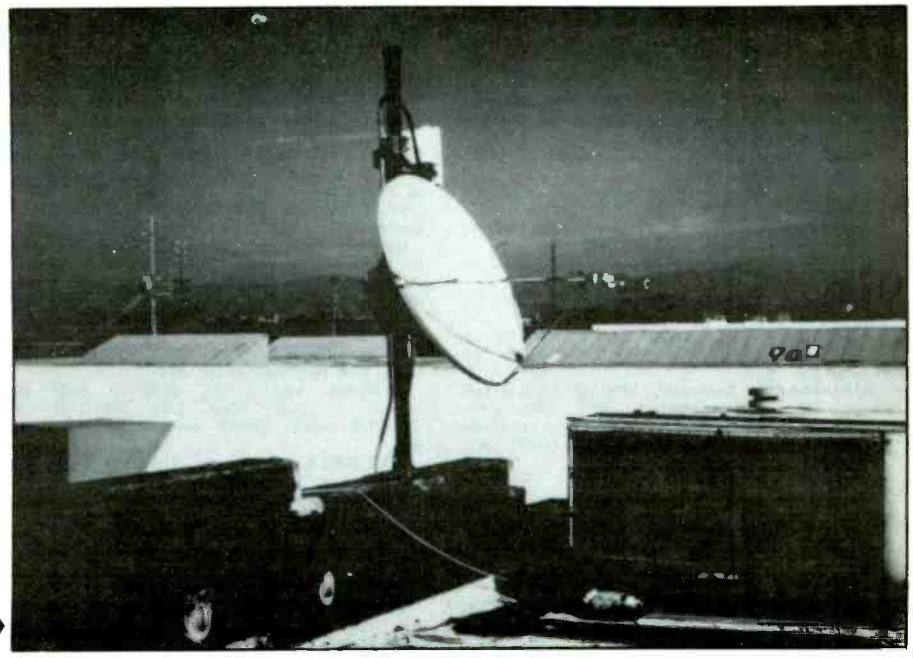
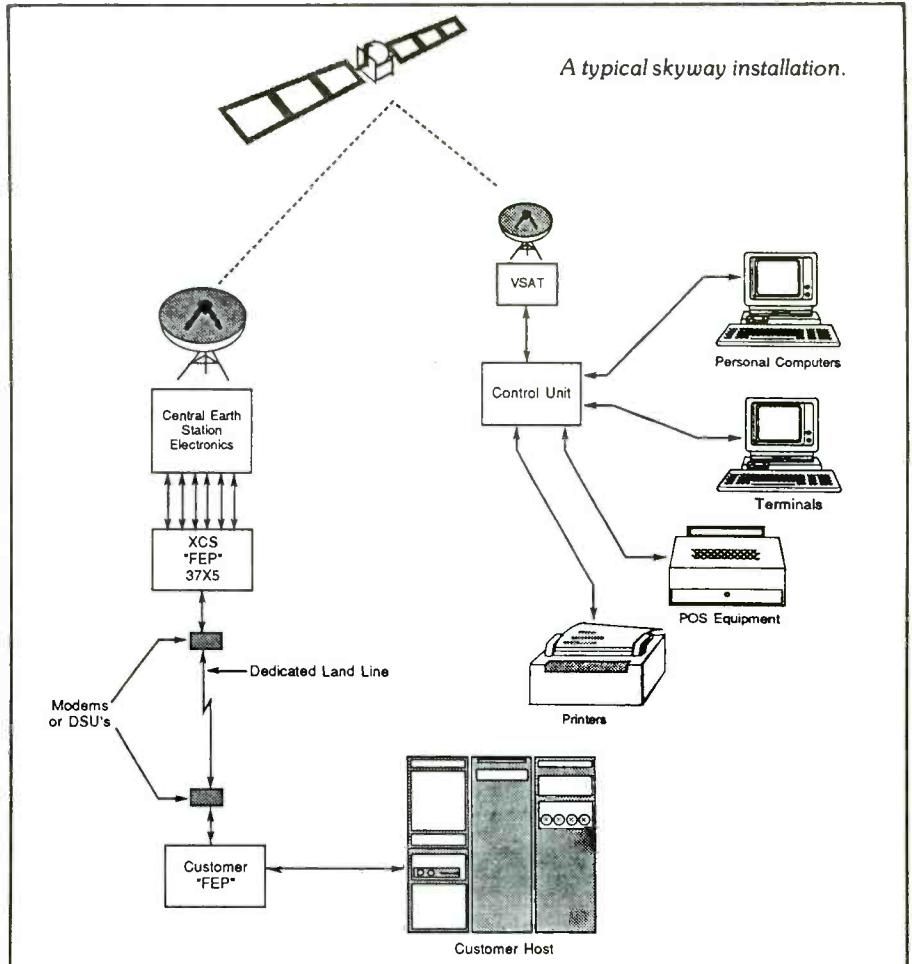
Terrestrial phone or computer links require switching and routing. Setting up another computer spur in a network can require weeks or months of planning and liaison with one or more telephone companies. To set up a satellite link requires only dragging the hardware to the site and pointing the dish at the right satellite. This can be done in hours. In fact, when Mexico City had its large earthquake last year, the long distance telecommunications were back up immediately after British Telecom had flown in a satellite terminal. Repairing the destroyed terrestrial links took months.

Xerox—the company that helped kill the carbon paper industry to everyone's delight—has come out with a satellite computer link called Skyway. This appears to be the first linking system available to anyone who wants to send data to and from various computers. There have been large private systems in use for some years.

The Skyway system uses a transponder on the GTE GSTAR Ku Band satellite. The system consists of "hubs" and "customer sites." The hubs are the locations where large mainframes would be. In Los Angeles, Xerox has one hub where they also have their own IBM mainframe. Customers can rent time on this mainframe to run manufacturing and production type software.

Each hub has a seven-meter (23 foot) dish and outputs data at 9.6 Kilobits. Once down on the ground, this data can be fed locally to a mainframe. The data sent back from the spur units comes in at 2.4 Kilobits. As spurs usually input only a line or two at a time and mainframes tend to spew out pages at a time, these speeds should be adequate for nearly all users.

Should a customer desire higher baud rates, this can be arranged. It would, of



A 1.2-meter dish mounted on a customer's rooftop.

course, cost proportionately more.

Xerox has hubs in Los Angeles, St. Louis, Chicago and New York. A spur can be anywhere in the continental U.S.

A spur station can be set up in about one day. The only tricky bit is placing the antenna which is a 1.2-meter (3½ foot) dish. The dish can be mounted either on flat ground such as a parking lot or on a roof. The modem or "Send/Receiver Micronode" should be within 250 feet of the antenna. The micronode modem box, which is a two cubic foot box, outputs to RS232 standards so the computer can be within about 300 feet of the box.

The network supports IBM SNA/SDLC terminals, personal computers, and printers. Even a simple computer terminal can be supported, should the need arise. It will also work into the Ethernet Local Area Network (LAN).

The cost of installing a spur or node is about ten thousand dollars. On top of that there is a flat rate lease. This works out at about 30 percent less than using phone lines to do the same job. Xerox also provides 24-hour service, should the link do something strange in the middle of the payroll processing.

Once a spur is in position, it is an easy task to increase the traffic through it. If traffic is increased on land lines, it requires going through the whole planning process again. Getting more bandwidth on a transponder requires only throwing a few switches and making some simple software modifications.

There are currently over one hundred locations taking advantage of this system. It may not answer the needs of the owner of a small computer, but any company with locations in more than one city could use this system. Companies that take orders and deliver in several locations would also find this a good way to go.

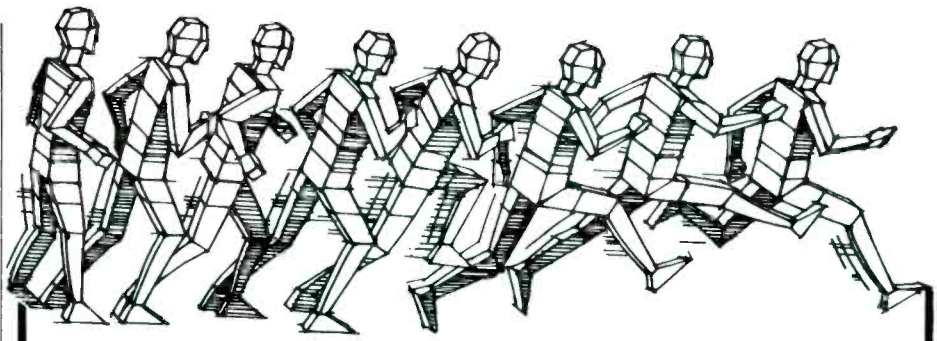
Nick Lagattuta, the operations manager for Xerox Skyway, says the service has been in operation since late 1985. With the additions of the other hubs, the number of spur installations should increase dramatically.

Xerox will supply everything needed to get the system up and support it once it is up. Besides the hardware end of things, they will also provide the financing and planning needed. If you wish to find out more about this system, you can call Nick Lagattuta at (213) 306-4000.

This is obviously only the beginning of customer direct access to satellites. It makes sense especially when speed of installation and bandwidth are taken into account. Using packet switching techniques, enormous networks can be set up. Soon, with the usual price erosion that occurs in the computer and telecommunications industry, any individual or company will be able to get satellite access. This will give every small home computer the power and flexibility of a mainframe.

The only problem I foresee is explaining to the neighbours that the dish out back is not for TV but for the computer.

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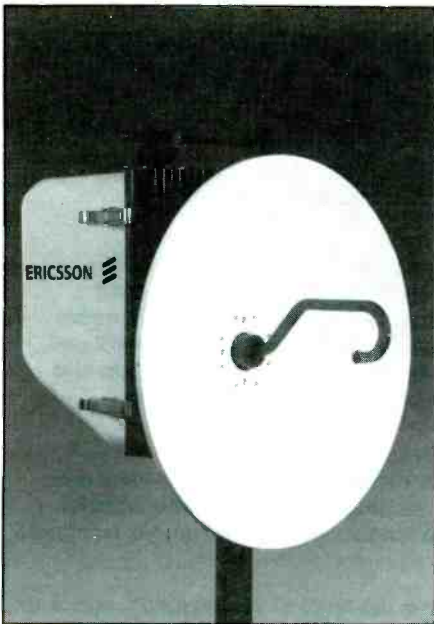
SATELLITE VIEW

INSIDE THE WORLD OF TVRO EARTH STATIONS

Second Generation Mini-Link 18

Ericsson Radio Systems announces the availability of its enhanced second generation, all-in-one digital 18 GHz microwave radio, MINI-LINK 18. This enhanced version of the already proven original MINI-LINK 18 fully complies with the new FCC frequency plan (340 MHz).

Introduced in 1981, MINI-LINK 18 is a low-capacity, short haul microwave. This improved MINI-LINK 18, like its predecessor, is easy to install due to its low weight and small dimensions. Because housing and electronics are contained in one unit, the use of towers and installation hardware is minimized.



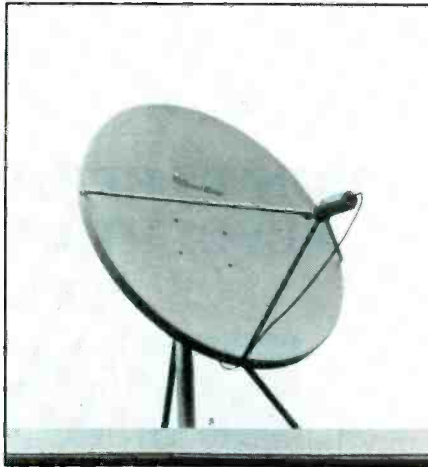
Another new feature is MINI-LINK's frequency agility, which diminishes spare costs and makes equipment usage planning easier. It is retunable over all 24 channels. MINI-LINK 18 transmits up to four T1 digital bit streams (6 Mb/s), up to approximately ten miles.

MINI-LINK 18 has proven high reliability and is used by several cellular carriers. Using the MINI-LINK to tie together base stations and the cellular switching office affords the distinct advantages of short delivery time, enabling quick cut-overs; money saved; quality of transmission improved; full control over transmission facilities; and higher availability than with leased lines.

For more information, telephone Jan Wareby at (201) 460-8030.

Channel Master Introduces Ku-Band Line

A line of Ku-Band equipment from Chan-



nel Master® features innovative wall and roof mounts designed for quick dish installation. Both mounts offer a three-leg design for stability. They feature a unique ball and socket leg brace which allows the mounts to fit almost any structure. Patents are pending on both mount designs.

The roof mount may be adjusted for use on flat surfaces, on roof peaks, on any slope or on roof eaves. Most parts are preassembled so that installation can be completed in under 30 minutes on most structures.

The mounts also offer 120° azimuth adjustment and 5° to 70° elevation adjustment with fine tuning. Heavy duty galvanized steel construction with zinc-plated stampings and stainless steel rivets is used for corrosion resistance and high strength.

Channel Master® offers four antenna sizes in its Ku-Band line: .75 meter, 1.0 meter, 1.2 meter and 1.8 meter. The computer-designed dishes are made of fiberglass reinforced polymer using the sheet molded compound (SMC) process, which produces an extremely accurate and durable parabolic surface.

The Channel Master® Ku-Band dishes use an offset feed design which eliminates feed assembly shadows. The design also re-

duces snow loading in northern latitudes. The dual mode conical feed horn allows optimum feed positioning, keeping side lobe gain more than 20 dB below the main beam.

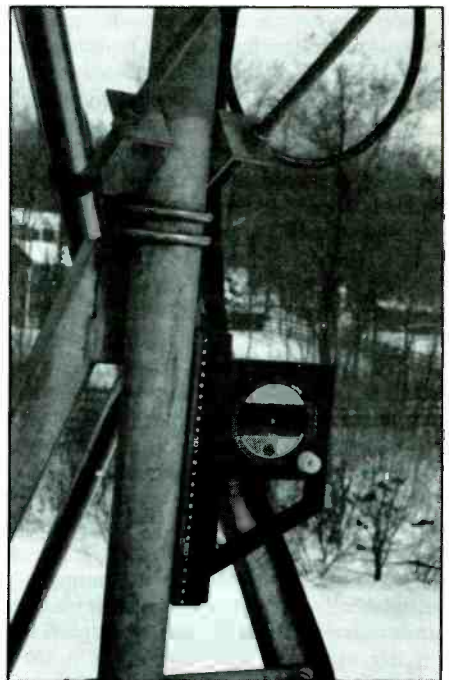
Wind tunnel tests have shown Channel Master® Ku-Band dishes and mounts capable of surviving winds over 100 mph with minimum deflection. The systems are operational in temperatures from -40° C to +65° C and in winds gusting to 69 mph.

Channel Master® also offers a line of Ku-Band compatible receivers and electronics to complement its dishes and mounts. The systems are designed to meet a wide range of commercial and consumer demands.

For more information on the Channel Master® Ku-Band equipment line, contact Greg Hurt or Richard Deutsch at Channel Master, Box 1416, Smithfield, NC 27577.

Magnetic Level And Angle Indicator

A magnetic level and angle indicator from Sylvax Corporation speeds the installation of TVRO dish antennas and assures the accuracy of both the angle of declination and the angle of elevation to 0.2 degrees.



Designed to set angles and/or measure them, the Inogon Level and Angle Indicator provides direct numerical readings of angles. It consists of an angle indicator calibrated in degrees that fits into a magnetized rule available in 10", 24" and 48" lengths. The rule is calibrated in inches and centimeters. The indicator frame and window are made of high impact plastic.

The Inogon Level and Angle Indicator

uses a new optical technology that eliminates errors in positioning the polar mount and the dish. Angle measurements are based upon a change in visual patterns that occurs when light passes through two superimposed optical windows.

To make sure that a polar mount is truly plumb, an adjustment screw on the indicator is turned until zero degrees on the moving scale lines up with a zero reference point on the fixed scale. Then the magnetic Level and Angle Indicator is attached to the pole and the pole is elevated into the position where parallel lines appear in the window of the angle indicator. At this point, the polar mount is vertical.

To set the angle of elevation of the dish, an adjustment screw on the indicator is turned until the desired angle of elevation (in number of degrees) on the moving scale lines up with a zero reference point on the fixed scale. The magnetic level and angle indicator is then attached to the crossbar of the "spider" (the supporting superstructure on the back of the antenna). The antenna is then tilted until parallel lines are seen in the window of the angle indicator, showing that the correct angle of elevation has been reached.

The magnetic Inogon Level and Angle Indicator is available from major distributors in the communications satellite industry.

For additional information, write Sylva Corporation, Dept. DA, 342 Madison Avenue, New York, NY 10017.

Black Widow Satellite TV Systems

A new series of satellite television systems, priced and designed to appeal to do-it-yourselfers, has been introduced by the R.L. Drake Company under the 'Black Widow' name.

"We're offering three models in the new Black Widow line: a basic system and two step-up versions," said Michael Brubaker, Vice President of Sales. "We've designed the series so that a consumer can start with the basic system and upgrade to one of the more sophisticated versions at a later date."

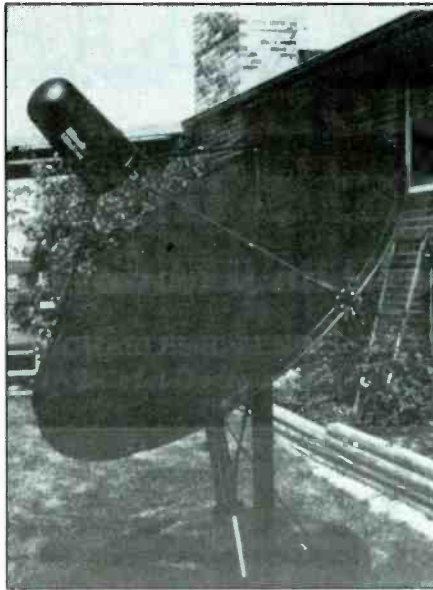
Series I includes a six-foot antenna with patio mount, a low noise amplifier, a single conversion receiver and 100 feet of connection cable.

Series II consists of a six-foot antenna with polar mount, an automatic positioning system, a block conversion receiver and 100 feet of connection cable.

Series III comes with a six-foot antenna with polar mount, antenna expansion panels (which can enlarge the antenna to 8 feet), a deluxe block conversion receiver and 100 feet of connection cable.

Brubaker said that the basic system would carry a suggested retail price of under \$1,000, although final pricing information has not yet been made available.

"We've carefully designed the Black Widow series so it's easy enough for homeowners to install themselves if they want to,"



he added. "The instructions are extremely concise and easy-to-follow. The basic system comes with an easy-to-install patio mount that doesn't require the pouring of concrete. We think the Black Widow line will have tremendous appeal among electronics enthusiasts and do-it-yourselfers."

For more information on the Black Widow line, contact the Sales Department, R.L. Drake Company, P.O. Box 112, Miamisburg, OH 45342. **PC**

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RADAR REFLECTIONS

BY JANICE LEE

SB 221 Almost Passes

On May 1, radar detectors came within a frog's hair of becoming legal in Connecticut. After a twenty-four-year detector ban, lawmakers almost restored drivers' First Amendment rights to listen to their radar detectors. Earlier this year the Judiciary Committee introduced bill SB 221 which would have made installing and using these devices legal in the Nutmeg State; (currently these devices can be sold, advertised, and transported in the state).

For a while SB 221 looked like a shoo-in. First the Joint Judiciary Committee passed the bill with a 16-5 vote. Next, it slid through the Senate 26-9 and the Transportation Committee 15-8. Then the Finance Committee added their approval 19-9. But, in the final House vote, SB 221 was axed 77-71. Only seven votes kept drivers in Connecticut from enjoying the same rights as drivers in 48 other states.

As president of RADAR (the Radio Association Defending Airwave Rights, Inc.), I have been watching SB 221's progress. One of RADAR's main objectives is keeping radar detectors legal everywhere. I believe this year's close vote will assist in next year's win. This is due to the response of 20,000 constituents voicing their opinion for the repeal of this legislation. I urge concerned motorists to contact their representatives to show that they are in support of this legislation. With your support this antiquated law can and will be repealed!

There is an obvious parallel between the state's detector ban and the national speed limit. Both laws are outdated, ineffective, and ignored more often than enforced. The Connecticut detector ban, for example, is an enforcement nightmare. Decades ago, drivers used large detectors attached to their dashboards. Today's drivers use cassette-sized detectors that are easy to conceal. In order to sustain a conviction, officers must actually see the device in operation. Spotting a tiny detector while driving at highway speeds not only requires the keen eyesight of Superman, but also the patience of Job.

Because it is so difficult to deal with, the ban is haphazardly enforced. Many times motorists are incorrectly cited for possession when this clearly does not apply. Defying all logic, the ban regulates only the use or installation of a detector.

Pointing out the current groundswell of support for changing the national speed limit, I see a similar future for Connecticut's detector ban. National media polls continue to indicate more and more drivers favor higher speed limits. Public opinion is in line with federal highway speed studies. These tests reveal that 55 mph actually is not as safe a speed as the government would have us believe.

Most American drivers believe they are being conned by the Federal government in

the name of safety. Connecticut drivers believe they are being conned by their state. I believe the democratic process will soon terminate both of these outdated laws.

Lawyer Wages 'Speed Trap' War

Kimball, West Virginia, is a quiet town with lots of trees gracing both sides of US 52, and Mayor Jack Premo wants to keep it quiet. The highway's 55 mph speed limit drops to 35 mph as you come into town, then at the town limit drops to 25 mph, strictly enforced.

Lawyer Roger Perry suspects town officials have created a speed trap, a way to pay for municipal services at the expense of unwary out-of-town drivers. He's taken his case from traffic court to the state Supreme Court to try to prove it.

Kimball has quite a reputation. Newspapers in Welch and Williamson have published repeated letters from outraged motorists who claim to have been caught in Kimball's radar snare.

Mayor Premo says there's a reason: "That highway runs right through the middle of town, and it's hard to keep these people slowed down. They come off that interstate down in Princeton and a lot of them forget where they are."

Basil Perry, Roger Perry's brother who lives in Ohio, was driving through Kimball on his way to Virginia several years ago when he got pulled over for speeding. He was released on \$50 bond pending a trial in municipal court.

"He showed up in court with an out-of-town lawyer—my wife—and a newspaper reporter and photographer from Welch, and they decided it wasn't worth messing with," said Roger Perry, who practices law with his wife, Susan. "They gave him his money back and dropped the charge."

The resulting newspaper story caught the eye of Jackson Richardson of Millersville, MD, a former Kimball resident. In July 1982, Richardson received a ticket for driving 32 mph in a 25 mph zone.

Richardson, an employee of the Defense Department in Washington D.C., is an expert on radar devices, according to Perry. Richardson maintained that he was not speeding and that the radar device used in Kimball was not accurate because it was built before 1984.

He hired Roger Perry to prove it in court.

One of the lawyer's first moves was an attempt to look through the town records to see how many non-residents had received speeding tickets. Town officials refused, saying he had addressed his request to the wrong person and that he hadn't been specific enough about which records he wanted to see.

That part of the dispute was settled recently by the West Virginia Supreme Court,

which ruled that the town records were public documents. The justices sent the case back to the circuit court for an order opening the records.

"Court records were never meant to be hidden away, only to be revealed in small sections to diligent investigators, who first must prove their mettle by navigating through a labyrinth of red tape," Supreme Court Justice William Brotherton said in the court's opinion. "If Mr. Richardson, his attorney or any other person wishes to go fishing through the traffic records of any court in this state, he has the right to do so."

In the fiscal year that ended June 30, 1980, the category of "fines and forfeits"—including fines other than speeding—was the city's third largest source of revenue, contributing \$11,366 to total revenues of \$43,045.87.

Accused Drivers Take On Radar Devices

The accuracy of speed-detecting radar devices is being challenged in Sacramento Municipal Court by three local drivers accused of speeding.

The trio represents a group of 16 alleged speeders, who are legally represented by the Drivers' Defense Clinic of Sacramento.

Radar devices should not be used to measure speed, the group contends, because too many variables may contribute to malfunctions.

The citizens were issued separate speeding citations last fall from officers of the California Highway Patrol and the Sacramento Police Department.

Acting as representatives for the 16-member group are Daniel Krueger, Joyce Pantos and Clifford Payne.

James W. Dirks, the attorney representing all of the drivers, has asked Municipal Court Judge Michael S. Ullman for a ruling to exclude evidence from the "Doppler" radar systems used by patrolmen in each of the alleged speeding incidents.

During pretrial hearings in Municipal Court, radar expert Steve Hocker testified that crucial, adequate training of officers can make the difference between an accurate and inaccurate speed-detecting radar.

Hocker, an executive for Kustom Signals, a radar manufacturer in Kansas City, said that although Sacramento officers may have been trained properly, a 1979 study on radar usage by police officers in Dade County, FL, had some disturbing results.

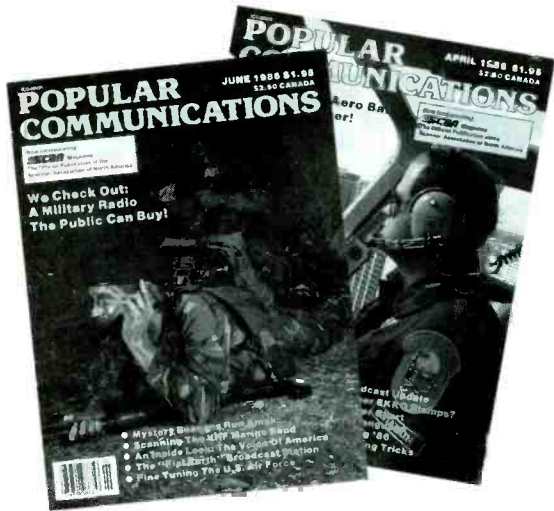
The study showed that officers erroneously used the radar devices in 30 percent of the cases in which tickets were issued.

"The usage of radar can be very accurate and reliable when used by a well-trained officer," Hocker said.

But the defendants claim in documents filed with the court that operator error is among several factors that could cause radar inaccuracy.

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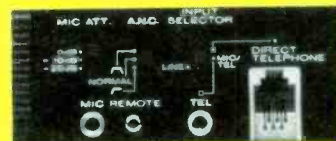


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Specifications

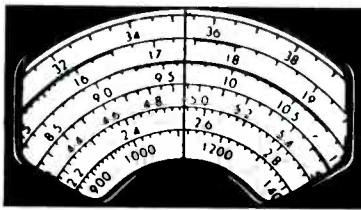
PORTABLE CASSETTE	PMD221	PMD430
Frequency Response (%± ips)		
Normal tape	40Hz—12.5kHz (40Hz—6.5kHz)	35Hz—14kHz
CrO ₂ tape	40Hz—14kHz (40Hz—7.5kHz)	35Hz—15kHz
Metal tape	40Hz—15kHz (40Hz—8.5kHz)	35Hz—17kHz
Signal to Noise Ratio, NR off	57dB	51dB
Dolby B NR on	—	60dB
dbx NR on	—	75dB



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COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

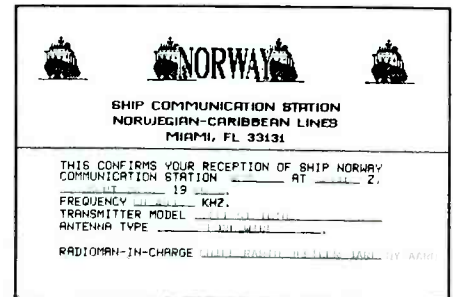
Gary Bledsoe, AK reported hearing several jamming signals. On 9681.7 kHz he heard stations with identifiers KB, UA and AG. On 9520.1 kHz he heard identifier IG and on 7270 kHz identifier AW. All of these MCW jammers were targeted against Radio Free Europe.

Additional material was received regarding the Space Shuttle explosion and as previously mentioned it's just not possible to use all of the items contributed. I must mention two contributors in particular, James Harvey Sr., Indiana, and Geoffrey Flanders, VT. Thanks to all who provided information on this tragic event.

Hans Loewert, FRG advises he is a very



Hans Loewert, a reader from West Germany, enjoys utility transmissions.



Part of the collection of Milan Seifert, VA.

active SWL'er with special emphasis on utility transmissions. He sent along a photo which shows him in front of his very impressive equipment installation.

A nice note accompanied some logs from Deanna Kratzer, WA. In part, she said, "My husband has been bugging me for months to send you some of my loggings, but your prompt in the May 1986 issue finally made me do it. I am a 29 year old mother of two and have been a serious shortwave listener for seven years. My interest in shortwave began when I was young. My father is a shortwave listener and my mother is a scanner nut."

Great to hear from you Deanna and I am glad your hubby encouraged you to send in some intercepts. I hope that my bugging you gals will result in additional responses from the ladies. By the way readers, I must draw your attention to the logging format used by Deanna and submitted by Vernon Jackson, OK. For use in the column these formats are ideal. The information is readily scanned and the spacing permits cutting individual selected loggings from the page. My hearty thanks to these two contributors.

Bartok J., England, provided us with some voice cipher transmissions many of which are not often heard here in the USA:

3370 DFC37, Bonames, FRG. Marker and 5F GG/YL, alternates between USB and AM

3415 ART2 (Prob Rawalpindi, Pakistan), 5L groups (phonetics), USB full carrier at 2216.

4420 YL giving Polish 5F groups at 2200.

4880, ULX2 (Russian Alloc.) YL with phonetic groups at 2215.

5091 JSR2 (Japanese Alloc.) YL with phoentic groups at 2210.

5110 "Mad Violin" playing frantic gypsy tune followed by "Terminat, terminat, terminat" at 2100. USB full carrier.

These addresses for QSL's of Non-Directional Beacons were supplied by Robert Homuth, AZ.

FAA Aerobeacons

Station Chief
Flight Services
(name of airport where located)
Federal Aviation Agency
City, State ZIP

British Columbia Aerobeacons

Transport Canada
Air Administration
PO Box 220
Vancouver, B.C. V6Z 2J8
Canada

Radio Beacon "HPL" 375 kHz

Mr. Dirk Richards
PO Box 584
Nucla, CO 81424

Arizona Radio Beacons

Sector Manager
PHX Airways Facilities Sector Office
2641 East Buckeye Road
Phoenix, AZ 85034

Oakland, CA Radio Beacons

Oakland Flight Service Station
PO Box 2368 Airport Station
Oakland, CA 94614

Ontario Aerobeacons

Transport Canada
Air Administration
4900 Yonge Street
Willowdale, Ontario M2N 6A5
Canada

USCG Beacon "H", Egmont Key Light Station, 310 kHz

Egmont Key Light Station
600 8th Avenue SE
St. Petersburg, Florida 33701

Radio Beacon "G" 296 kHz and "PIL" 317 kHz

USCG Aids to Navigation Team
General Delivery
Galveston, Texas 77550

Radio Beacon "C" 300 kHz

Commanding Officer
USCG Base, Mobile
Building 101, MAIC
Mobile, Alabama 36690

Radio Beacon "INE" 521 kHz

Flight Service Station
Missoula County Airport
5225 Highway 10 West
Missoula, Montana 59802

Robert added that if KABC-TV remote pickup unit on 26190 kHz, NBFM can be heard, this address can be used for reception confirmation: Steven C. Pair, Engineering Supervisor: Mini Cam, American Broadcasting Company, Inc., KABC-TV News, 4151 Prospect Avenue, Hollywood, CA 90027. He also cautioned to *always* send a SASE, and for foreign stations you should furnish a self-addressed envelope with an IRC or two. None of these listed stations have their own QSL card.

INTERCEPTS (UTILITY)					
REQUENCY	IDENTIFYING FEATURE	TIME	MODE	MESSAGE	NAME/STATE
8325		0600	SSB	"Alpha 2 Bravo 4 Oscar 2 Bravo Oscar Charlie Uniform - 1st target unattempted due to heavy weather. Alpha 2 Bravo 4 Oscar 1 Bravo 2 1 4 Sierra Charlie Sierra Delta Alpha 8 8 8 1 Xray Alpha 2 Bravo 4 Oscar 3 Bravo 2 1 5 1 Charlie Sierra Delta Alpha 8 Oscar 8 1 Xray Primary Aircrafts status 1 Target 1 unattempted."	Kratzer, WA
8585	US Coast Guard (ROTC Broadcast)	1400	SSB	Weather report	Kratzer, WA
8725	USS Downs to CSS 2 San Diego	0515	SSB	Phone patch	Kratzer, WA
9000	0817 to 1790	1213	SSB	"Return to Kodiak over" "Airstation Kodiak request you return to Kodiak" "1790 - Commsta Kodiak copy on last" "Airstation Kodiak request you return to Kodiak copy? over" "1790 Commsta Kodiak" "Airstation Kodiak Advises you return directly to Kodiak over" "1365 Foxtro"	Kratzer, WA
9005	32174 to 83	0957	SSB	"Establish command post Charlie 0 0403Zulu with 31 patch 1 power. Need customs, parking and vehicle, require pick-up truck. 32174 out"	Kratzer, WA

Very readable logging formats sent in by Deanna Kratzer, WA (left) and Vernon Jackson, OK (right). Nice work!

Utility Station Intercepts	
Version 2. Jackson -- 1412 N. Graham Ave. -- Tulsa, OK 74115	
3039.0 KHz CH	0412Z APR 23, 1986
IDRB	Italian Navy, Rome, Italy
Channel Marker:	VVV VVV VVV IDRB IDRB IDRB
4222.2 KHz CH	0245Z APR 21, 1986
ZRH	South African Navy, Capetown, Republic of South Africa
Channel Marker:	XXX DE ZRH OSX 4 6 8 12
4224.0 KHz CH	0315Z APR 21, 1986
ZRQ	South African Navy, Capetown, Republic of South Africa
Channel Marker:	VVV VVV VVV ZRQ2/3/4/5
4225.0 KHz CH	0301Z APR 21, 1986
72JKL	Not on file.
Channel Marker (?):	7BEAL 7BEAL 7BEAL DE 72JKL 72JKL 13 R6 13 R6
4232.0 KHz CH	0322Z APR 21, 1986
HWN	French Navy, Paris, France
Channel Marker:	VVV DE HWN
4251.5 KHz CH	0340Z APR 25, 1986
GKC	Fortishead Radio, England
Channel Marker:	DE GKC
4257.5 KHz CH	0328Z APR 25, 1986
WLOZ	Mobile Radio, Mobile, Alabama
Channel Marker:	DE WLOZ DBS? OSX 4 6 8 12 MHZ NW ANS CS/6 K DE WLOZ DBS? OSX 4 6 8 12 MHZ NW ANS C9 K
4317.0 KHz CH	0310Z APR 23, 1986
ZSC	Capetown Radio, Republic of South Africa
Channel Marker:	CG DE ZSC ZSC ZSC AR K K

5629 SYN2 (Greek Alloc.) YL with phonetic groups at 2230. Finishes with "End of Message, End of Transmission."

In answer to numerous requests for identification information, the slow encrypted traffic heard on 4780 kHz is transmitted by WGY912. This station is located at Mt. Weather, Berryville, VA which is in the Blue Ridge Mountains, off RT 601, between Bluemont and Paris, VA. It's the VIP Relocation Site and part of the Federal Emergen-

cy Management Agency (FEMA) Network.

Another POP'COMM reader has advised of his success in obtaining QSL responses. Here is what Milan Seifert, VA had to say. "After reading your article in the January '86 issue of *Popular Communications* (Monitoring the Cruise Ships), I have decided to send in my 2 cents. I have received a QSL card from the ship Norway. . . . Enclosed is a copy of my prepared reply card (done on a C-128 using Print Shop and Easy Script programs). I have received QSL

cards from: Nordic Prince, Nieuw Amsterdam, Norway, Rotterdam and Royal Viking Sky. I always include SASE and PFC along with my report."

USB net stations S4JG, S8R, Z2M, ØGB, 9YD, 3XZ, D4U and 4LH were heard by Tom Borawski, PA on 8973 kHz. The exchanges between the various stations were in English with operators making references to "alligator" frequency and "ping-pong" (meaning unknown). What appeared to be position reports were given in short enciphered messages of digraphic groups preceded by the word "nuco" and followed by the word "un-nuco". The net certainly seemed to be military in nature but no further identification was obtained.

An anonymous contributor has provided some special, supplementary, and procedure signs used by the USSR evidently for Merchant and Naval vessels communications. These appear in Chart 1.

The Pacific Air Forces HF Net (PACAF) was the subject of a fantastic analytical report sent in by Tony Griffin, OR. Tony said, "I have enclosed a list of freqs, channel names and channel usage that I am aware of at this time for GIANT TALK and PACAF which you will find very SAC-like in procedure." Tony's report appears in Chart 2.

Patrick O'Connor, NH, among other activities, writes for the *DX Reporter*, newsletter of the Association of DX Reporters. He forwarded some QSL cards he had received from various stations he had monitored. By the way, be sure to look for Pat's QSL from U.S. Embassy station KKN44 as shown in Tom Kneithel's new book, *Guide to Embassy & Espionage Communications*. This is quite a rare QSL!

Chart 1. I'd like to thank the anonymous contributor who sent in this chart.

USSR	USSR
Special and supplementary signs	Procedure signs
North - - - - -	Sign of the Naval Signal Code
South - - - - -	Sign of the Boat Signal Book
East - - - - -	Code Sign
West - - - - -	Separation Sign
Interogative - - - - -	
Telegraph - - - - -	
Boat - - - - -	
Air - - - - -	
Gas - - - - -	
Smoke - - - - -	
Jack (flag) - - - - -	
Cone - - - - -	
1st supplementary sign - - - - -	
2nd supplementary sign - - - - -	
3rd supplementary sign - - - - -	
4th supplementary sign - - - - -	

GIANT TALK FREQ LIST

Channel Name	Freq	Usage
ALFA	11243	X
ALFA CHARLIE	13907	
ALFA PAPA	8101	F
ALFA TANGO (not verified)	14744	
BRAVO	11220	
BRAVO QUEBEC	5700	D
BRAVO UNIFORM	3113	F
BRAVO WHISKEY	13211	F
CHARLIE	14955	
CHARLIE QUEBEC	15035	D
DELTA	20890	
DELTA QUEBEC (not verified)	27870	
ECHO	4495	F
FOXTROT	5026	F
FOXTROT XRAY (not verified)	6680	
FOXTROT 315	11118	F
GOLF	6826	
KILO	6870	F
LIMA	11494	T
MIKE	15041	X
PAPA	9057	F
QUEBEC	6761	X
ROMEO	9027	X
SIERRA	13241	X
TANGO	17975	X
UNIFORM	23337	X
VICTOR	4725	X
WHISKEY	20631	X
YANKEE (not verified, poss. XRAY)	7330	
YANKEE QUEBEC	11408	D
ZULU	18594	

Legend X = Primary Air/Ground calling circuit.
 F = ABNCP inter-communication frequency.
 D = Used for RTTY Data pass after comms are established in voice. T = Training frequency for practice message passing.

PACAF FREQ LIST

Channel	Freq
ALFA TWO	6712
CHARLIE	?
FOXTROT	?
GOLF	?
LIMA	20740
MIKE	14775
NOVEMBER	?
OSCAR	10452
PAPA	?
QUEBEC	?
SIERRA	?
TANGO	18005

NOTE: PACAF may use USB or LSB on any of the net frequencies.

Chart 2. A very impressive report from Tony Griffin, OR.

Intercepts

- 206: QI beacon, Yarmouth, NS, at 0820 (Steve Zimmerman, WI).
- 269: UDE beacon, Delta Station, Manitoba, at 0840 (Zimmerman, WI).
- 275: ADF beacon, Arkadelphia, AR, at 0812 (Zimmerman, WI).
- 284: QD beacon, The Pas, Manitoba, at 0815 (Zimmerman, WI).
- 300: YIV, Garden Hill, Manitoba, at 0825 (Zimmerman, WI).
- 314: F beacon, Farallon I. Light Station (USCG), CA, at 1240 (R. Homuth, AZ).
- 317: FTT beacon, Fulton, MO, at 0835 (Zimmerman, WI).
- 338: DE beacon, Detroit, MI, at 0100 (Zimmerman, WI).



GNF
 North Foreland Radio
 BTI Radio Station
 96 Rumliford Road
 Rumliford
 Kent
 (CT10 2PQ)

Ricco Stations
 Portsmouth Wick Stavanger
 Colercoats Humber North Foreland
 Nelson Lands End (Bristol) Cape
 Academy Portsmouth
 Sardinia Earth Station
 Gooltully

Centres of Excellence for Maritime Communications

COMMUN. le 12 Août 1985

MARINE FRANÇAISE
 COMMANDEMENT DE LA ZONE
 NOUVELLE CALÉDONIE
 Service "TRAFFIC DE NAVIRES"
 Nr 080 T.V.L.

Le Capitaine de Frégate PRONAS
 Officier des Télécommunications
 en Nouvelle Calédonie

OBJET : Boucle des émissions de PIU par radio amateur.
RE : Votre lettre en date du 20 Juillet 1985.

1.- Je vous en remercie que l'émission que vous avez interceptée le 20 Juillet 1985 à 0427 sur la fréquence 6585kHz Indentif PIU, correspond bien à l'une des composantes émises par la Marine Nationale Française en Nouvelle Calédonie à destination de navires.

2.- Le caractère militaire de cette station m'interdit de fournir des renseignements quant à la puissance émise ou à la nature des aériens utilisés.

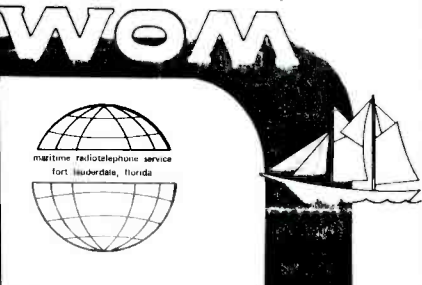
3.- Je vous prie d'agréer, Monsieur, l'assurance de ma haute estime et de mon profond respect.

Patrick O'Connor


MARITIME 110 : Mr Patrick O'CONNOR

Patrick O'Connor, NH shares his QSL's with POP'COMM readers.

WOM



maritime radiotelephone service
 Fort Lauderdale, Florida



USCGC NORTHLAND (WMEC 804)

NLGF

QSL

DATE: 23 October 1985 TIME: 1912 and 1952

FREQ: 6200 KHZ (WINDOW) MODE: UPPER SIDE BAND

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Bob Margolis
 LEE W. GILMOR, RMS, USCG
 Radioman-in-Charge

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/identification
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	with
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

- 396: ZBB beacon, So. Bimini, Bahamas, at 0530 (Borawski, PA).
- 401: LA beacon, W. Lafayette, IN, at 0710 (Zimmerman, WI).
- 515: OS beacon, Columbus, OH, at 0700 (Zimmerman, WI).
- 2292: MTO, British Royal Navy, Rosyth, Scotland, CW marker w/VVV at 0529 (Pat O'Connor, NH).
- 2514: Un-ID USB station w/phone patches to St. Johns, NS during eves (Sherry, MA).
- 2670: USCG station, Boston, MA w/WX for Eastern seaboard, USB at 2248 (Bennett, FL).
- 2700: 9KK, Safat, Kuwait at 0430 w/EE & Arabic voice mirror, YL announcer (O'Connor, NH).
- 3172: X beacon in CW at 0240. Occasional cipher message (Borawski, PA).
- 3412: L beacon in MCW at 0350 (Borawski, PA).
- 3414: Shannon VOLMET in USB at 0600 w/WX for all major Western European airports (M. Harris, GA).
- 4087.8: WJG, Memphis, TN, at 0016 in USB to vessel STEEL TRADER (O'Connor, NH).

- 4106: EE/YL w/4F groups, in AM at 0433 (Don Brown, MD).
- 4125: WRM3232/WSF3930 QUEEN OF MARS/OCEAN ENTERPRISE vessels to Kodiak, AK. In SSB at 0607, lots of check-ins & fishermen's blues every eve (Jeff Hall, WA). Tug CAPT. ADAMS to WKT, Bayou La Batre, AL, at 0135; KXV at Piney Pt., MD to WV4463, towboat BIG BILL at 0430; KZV864, Pr. Allen, LA to PACE at 1035; WIX, Lakin, WV, to WXE2187, the towboat JAMES E. WRIGHT at 1125; WFE, Houston, to WX5549, the towboat JOHN S. at 1551; all in USB (Bob Margolis, IL).
- 4143.6: KZR, Miami, FL, to WYT9190, towboat GODFATHER at 1021; KSA, Galliano, LA to FESTIVALE at 1040; KAZ483 also Galliano, LA, to NORA JEAN at 1057; KGW346, Philadelphia, PA, to WYT8666, towboat VOYAGER II at 1118; WEC, Norfolk, VA, to WC4701, SUN CRESCENT at 1446; all USB (Margolis, IL).
- 4195.8: 78QLD DE 73HSX in CW at 0134 (J. Brumm, IL). Possibly Spanish Navy-- Ed.
- 4234: 72WTT DE 77URY in CW at 0519 (Brown, MD). Sounds like Spanish Navy, too-- Ed.
- 4285: XFU, Vera Cruz, Mexico, in CW at 0130 w/CQ marker (Ross, Ontario).
- 4298: CCV, Valparaiso Naval R., Chile in CW w/WX in SS at 0210 (George Osier, NY).
- 4393: "This is Roma Radio Maritime Radio-Telephone Service" in Italian & EE, USB at 0400, repeating tape (Owen O'Neil, NH).
- 4448: S beacon, in CW at 0154, repeated every 5 seconds (Osier, NY).
- 4585: KIG449 BLUEFLIGHT 100, Virginia CAP at 0001 to AERO 5 (O'Connor, NH).
- 4725: OM & YL passing tfc in alphanumeric cipher groups in EE from 0640-0656. YL ID'd as "Salamar" (Linville, Alta).
- 4906: FDC, Metz Aeradio, France in CW w/VVV at 2323 (Osier, NY).
- 5080: W9W/X3R, USN Pacific missile range clearance net (Barking Sands?) w/X3R working "Bleed Control" ("Plead Control"??-- Ed) stating that he was reversing course. Eerie whooping over all of this. Heard often. USB at 0600 (Hall, WA).
- 5090: Un-ID AM station at 0045 sending 3/2F groups (Sherry, MA).

5135: SS #'s in AM at 0320, CW QRM (Hafeli, Canada).

5258: CMU967, Santiago Naval R., Cuba in CW at 0209 w/coded #'s (Osier, NY).

5535: London (?) to un-ID aircraft at 0304 in USB. Technicians discussing throttle problems (Johnston, VA).

5571: OMAHA 55, PANTHER 73, ALPHA, SLINGSHOT, ALMIGHT tracking aircraft at 110 knots near Georgetown (SC?). This freq seems to be a new addition to the 8912/14686 and 18666 kHz family (Larry Williams, SC).

5616: DELTA 20 in USB receiving flight instructions at about 0115. Mentioned 5550 & 6557 kHz (Sherry, MA).

5812: SS/YL in AM w/4F groups at 0221 (Ross, Ontario).

5915: ZLZ, Wellington (Himitangi), New Zealand, in CW at 0842 w/marine forecast (Hall, WA).

6200: WDDO, NOAA ship OREGON II at 1746 to NMN, USCG Portsmouth, VA (O'Connor, NH).

6338: 9VG9, Singapore in CW at 1623 w/CQ tape (Hall, WA).

6428: VHP2, Commsta, Canberra, Australia, in CW at 0715 w/VVV (Hall, WA).

6484.5: WSC, Global Marine Communications, West Creek, NJ in CW at 1924 w/CQ tape (Vernon Jackson, OK).

6486: JCU, Chosi, Japan w/CQ tape in CW at 0727 (Hall, WA).

6502: TBB6, Ankara, Turkey in CW at 0245 w/VVV (Ross, Ontario).

6593: 3 fun-loving OM's (Kirk, Alvin & Russell) in the "OK(?) Net" w/lots of X-rated coms & 4F groups; also on 6535 & 6545 kHz (Williams, SC).

6604: Gander Radio, NF, w/VOLMET WX in USB at 2325 (Johnston, VA).

6725: RASPBERRY MIRAMAR (USN at Miramar NAS, San Diego, CA) to GOLDEN EAGLE in AM at 0441 (Hafeli, Canada) Actual freq. is 6723 kHz-- Ed.

6756: SPAR 76 in LSB at 2230 to Andrews AFB. Phone patch for sports scores! (Daryll Symington, OH).

6761: WAR46, FEMA facility at Ft. Richie, MD, in USB at 0740 w/radio check on SAC's MAINSAIL QUEBEC channel. Very odd! (Hall, WA).

6800: SS/YL in AM at 0217 w/4F groups (Osier, NY)

6833: SS #'s in AM at 0707 (Hafeli, Canada).

7424: Two legit-sounding Ham stations (w/callsigns) in CW at 0430-- what were they doing here? (Borawski, PA).

7600.7: HD210A, Guayaquil, Ecuador Freq/Time station in AM at 0420; time pips w/SS announcement (Bledsoe, AK).

7905: D beacon every 5 seconds, CW at 0225 (Osier, NY).

8002.4: WRK, Dixilyn Field Drilling Co., Houston, TX, at 1210 w/duplex CW t/c at about 23 WPM (Brumm, IL).

8484: VJM, Macquarie Island, Antarctica in CW at 1840 w/high-seas warnings. Also HLF in Seoul, S. Korea here (Hall, WA).

8502: XSG, Shanghai, PRC in CW at 1916 w/CQ tape (Hall, WA).

8505: XSX, Keelung, PRC, in CW at 1918 w/calltape (Hall, WA).

8632: 9MB2, Penang, Malaysia in CW at 1700 w/CQ tape (Hall, WA).

8876: KJY74, Hurricane Center, Miami, FL to GALE 42 in USB (O'Connor, NH).

8903: Air Zimbabwe #533 at 2242 to Kano Aeradio, Kenya, USB (O'Connor, NH).

8912: MAYPOLE (FAA), WINDMILL, BAGPIPE, WIGWAM, ROUGH-N-READY, GARLIC 52, SUNSHINE, BAMBOO, WISECRACK, P-3, GAGGLE 01, ALMIGHTY, & TIDEWATER, tracking aircraft & boats (Williams, SC).

8963: Nigeria #749 in USB to un-ID station. Said they didn't have the proper insurance papers "so they won't let us go." Other station said they'd relay into to Central Control. Aircraft gave location as "Mal-lee-boo," but heavy accented pilot made copy difficult (Borawski, PA).

8991: P beacon in CW at 2150 (Borawski, PA).

11182: U.S. mil aircraft w/patch in USB at 2245. "219" unable land at Goose Bay because of conditions-- "wind unacceptable, ceiling unacceptable." Requested alternate Dover AFB or other (Sherry, MA); also heard here AIREVAC 456 in USB at 2139 to Lackland AFB w/relay of med info about sick baby aboard. Enroute San Antonio USAF Med Center (Hall, WA).

11465: Air Force 2 to BRANDYWINE & CROWN CONTROL. USB at 2000 (Harris, GA).

12283.4: Piccolo type musical tones w/varying pitch, 1324-1330 (Brumm, IL).

12330: GBBM, cruise ship ISLAND PRINCESS in USB at 2333 to KMI, Dixon, CA with high-seas phone t/c (O'Connor, NH).

12658: JNA, Tokyo, Japan in CW at 0033 w/CQ tape (Hall, WA).

12672: JOU, Nagasaki, Japan, in CW at 0230 w/calltape (Hall, WA).

12683: JCT, Chosi, Japan, in CW at 0226 w/CQ tape (Hall, WA).

12714: CBV, Valparaiso, Chile, in CW at 0137 w/EE & SS t/c (Brumm, IL).

12756: YQI2, Constanta, Bulgaria, in CW at 1859 w/coded data (Osier, NY).

12880: SAG6, Goteborg, Sweden, in CW at 1756 w/QSX on Channel 11 & comms on 4/6/8/23 MHz (Osier, NY).

13041: PZN, Paramaribo, Suriname in CW at 0013 w/CQ tape (Hall, WA).

13092: UAH, Tallinn, Estonian SSR, in CW at 1940 w/calltape (Ross, Ont.)

13115: WMS, W. Indies Fruit Co., Miami, FL in LSB w/t/c list (Borawski, PA).

13247: SAM26000 in USB to Andrews & Hickam AFB. Patches re food supplies. Later, as Air Force 1, asked for primary & reply was "42331" (?). Heard 1905-2006 (Mike Benedetto, WA).

13385: EE/YL in AM w/4F groups from 1615 until QRM & fade at 1648 (Brown, MD).

16599: BLACK EAGLE in USB at 2155. A wild antiaircraft & missile exercise taking place here & on 13156 kHz. Stations DELTA WHISKEY, ALFA WHISKEY, GOLF, ROGER, INDIA, DELTA, FREELANCE 20) & 201, BLACK EAGLE 101 & 102, WHISKEY GOLF BRAVO CHARLIE, etc., all having a go at tracking incoming missiles and aircraft, "Delta-ing" them "with birds" & when "bogies" has been identified & intercepted, calls of "Grand Slam" on target. Believe BLACK EAGLE & FREELANCE were fighter types while other stations were vessels or ashore, many entities. Everything shifted to 13 MHz as primary about 2300. Very interesting operation; ended at 0000 (Hall, WA).

18435: CW station at 1814 w/time pips every second w/weird machine tones. Strong sigs. Can't find anything listed for this (Hall, WA).

27879: KLCK beacon in CW at 2200 (Dennis Murphy, CA). The callsign is assigned to an AM broadcast station on 1400 kHz in WA state, so it looks like this one's from the fringes-- Ed.

SCANNING TODAY (from page 8)

more frequencies," they say. Don't worry about the fact that cell downsizing was part of the very premise that sold cellular to the government in the first place. These are the experts in turning logic upside down for expediency. If they can have their original concept of cellular phones declared null and void . . . if they can have open radio signals declared private . . . maybe it's time for me to sell my scanners and buy some stock in these slick companies. With that type of upside down logic at work, can phone bills for NOT using a cellular phone be far away?

Type Acceptance Battles Next?

It is no secret that the FCC doesn't think much of this unworkable and unrealistic Privacy Act nonsense. But they may not have a choice. Ed Sivroy of the Chicago Chapter of the Radio Communications Monitoring Association brought up this potential danger to me recently as we were discussing the current situation. Many scanner owners, knowing that it will be almost impossible to be caught monitoring those newly off-limits channels, feel they have nothing to worry about. They also point out that the legislation does not forbid manufacture of equipment. But, as Ed points out, there is a history of using FCC regulations to enforce the intent of legislation. The FCC must take direction from the laws passed, like it or not. How can they Type Accept a radio that contains off-limits frequency ranges? The pressures not to approve the sale of these radios will be enormous. Scanners, ham equipment with general coverage receivers, low cost tunable TV sets, converters . . . they could all end up being fair game in the Type Acceptance battles to come.

If we permit this legislation to become law, all to create an illusion of privacy so that more cellular phones can be sold, then we will have given away a right that will become increasingly more painful as time goes on. The Electronic Communications Privacy Act is on-

ly the stage setter. All of the problems we will face as radio hobbyists in the year's ahead will flow from it, in as yet unknown ways.

Life And Death Tension It's There If You Listen For It

The first reaction most of us get from listening to the man or woman behind the dispatcher microphone is that they are amazingly calm or, perhaps, even uncaring. Don't believe it! These are the people on the hot seat. A wrong call, a miss in a critical decision, can be disaster. The measured tones you hear are the mark of a true professional. They must not panic. They must make themselves clearly understood no matter what. The voice you hear may be covering up a churning stomach and nail biting concern. And it is not just the concern of doing one's job right. These days, more and more frequently there are lawsuits of the multi-million dollar range against emergency response departments and personnel. The dispatcher's every word is taped and may someday be played back in a courtroom.

It's not as easy as it might seem. Some time back we ran a story about a dispatcher who took a phone call almost nightly from a lady. She was lonely and just needed someone to talk to. One night she called and said that she really needed to talk, but the dispatcher had a number of urgent emergencies. He hung up on her and later found out that she committed suicide. Life and death. It's the dispatcher's mind every day. Which call gets priority? Which call must be ignored? Tough decisions to make, even if there was time to weigh the options! But there isn't time . . . that dispatcher must make a decision almost instantaneously. And then, perhaps, be second guessed later. These are truly unrecognized heroes of our local public safety teams.

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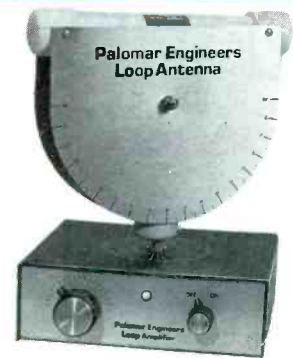
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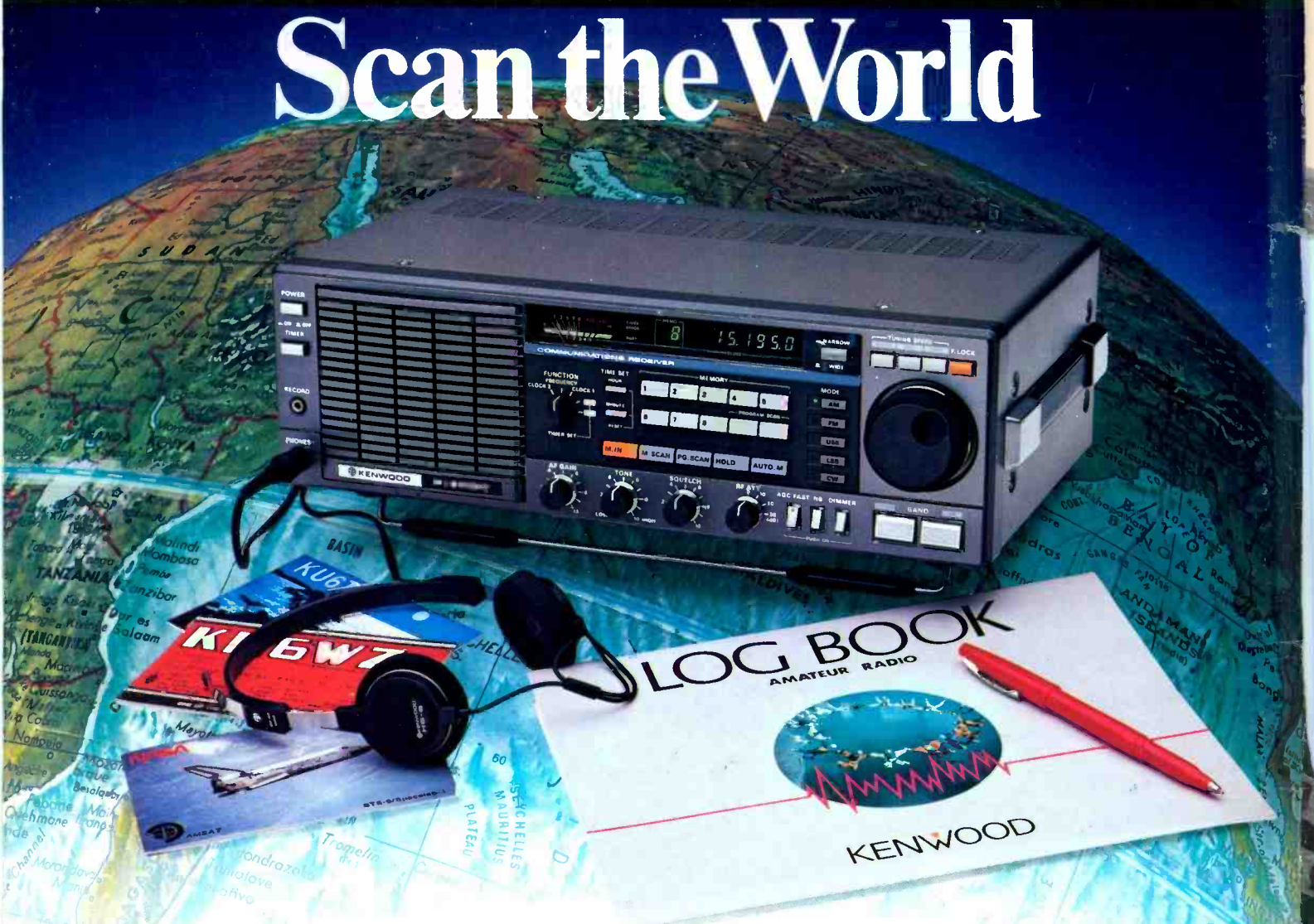


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