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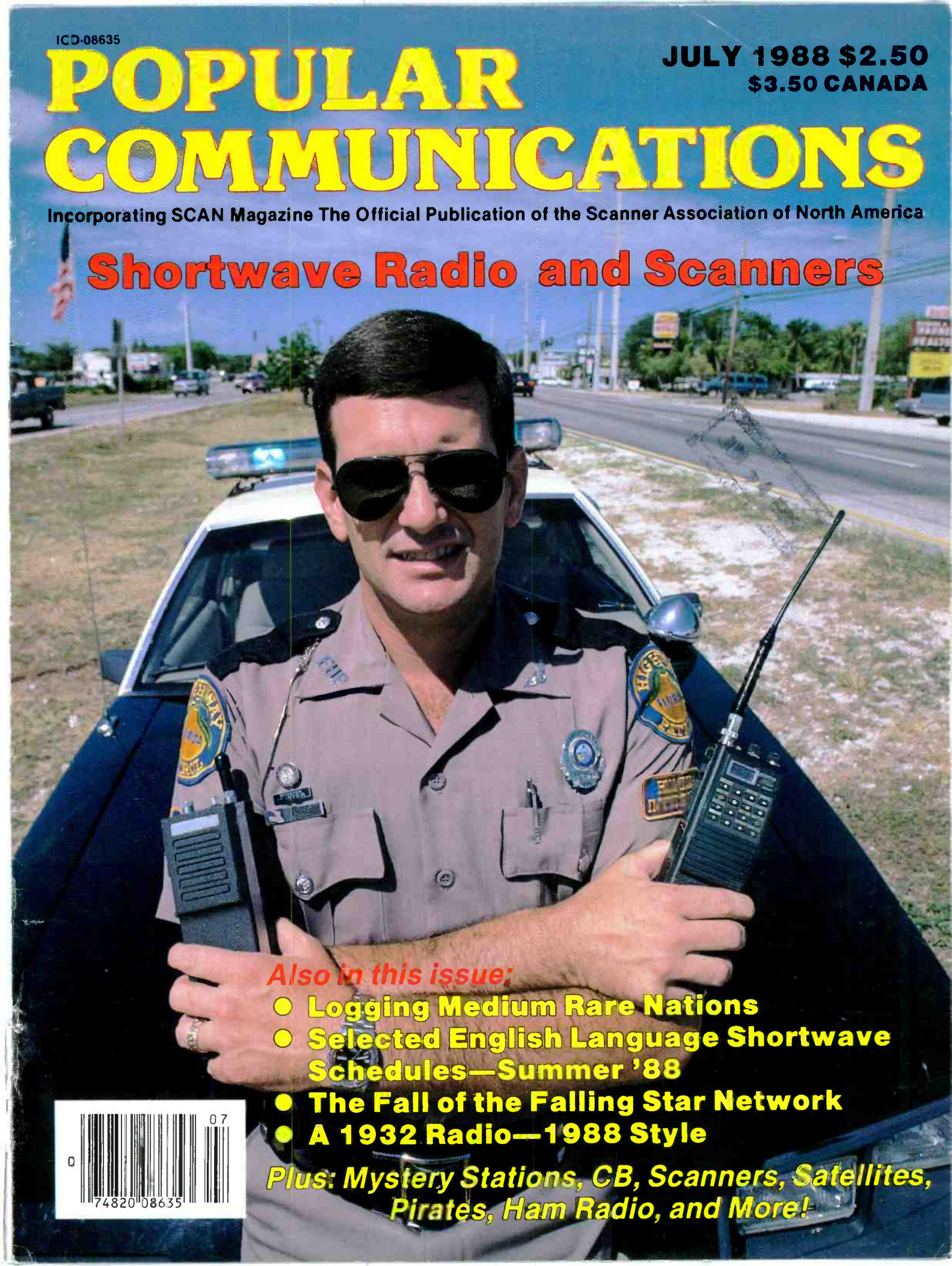
Shortwave Radio and Scanners



Also in this issue:

- Logging Medium Rare Nations
- Selected English Language Shortwave Schedules—Summer '88
- The Fall of the Falling Star Network
- A 1932 Radio—1988 Style

Plus: Mystery Stations, CB, Scanners, Satellites, Pirates, Ham Radio, and More!

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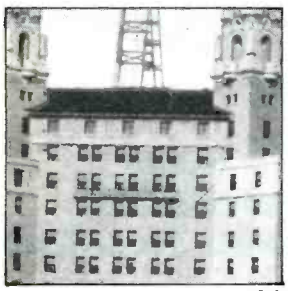
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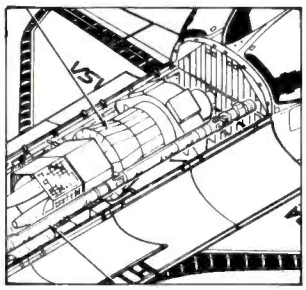
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FEATURES

This month's cover: *Florida State Trooper, Herb Price, of Key Largo who is also KB4ULN, stands in front of his car with a police HT and a ham HT.*

DEPARTMENTS

Offices: 76 North Broadway, Hicksville, NY 11801. Telephone 516 681-2922. FAX (516) 681-2926. Popular Communications (ISSN 0733-3315) is published monthly by CQ Communications, Inc. Second class postage paid at Hicksville, NY and additional offices. Subscription prices: Domestic—one year $18.00, two years $35.00, three years $52.00. Canada/Mexico—one year $20.00, two years $39.00, three years $58.00. Foreign—one year $22.00, two years $43.00, three years $64.00. Foreign Air Mail—one year $75.00, two years $149.00, three years $223.00.

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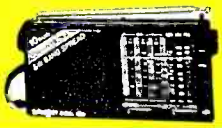

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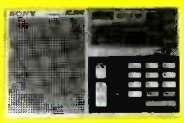

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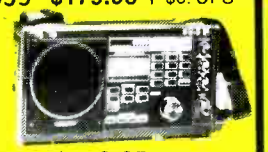

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BEAMING IN AN EDITORIAL

BY TOM KNEITEL, K2AES

Detroit's Delightful Design Flaw!

No matter how hard I try, I can't seem to dissuade my car from heading straight towards the nearest radio swap meet or flea market. I can feel the wheel tugging and pulling, trying to get me to go willingly in the direction of the event. Once that happens, I'm a goner. Even if I make a determined effort to ignore the subtle tugging of the wheel, the vehicle seems to automatically find the gathering—and this time of the year the problem is at its very worst, what with swap meets, CB jamborees, coffee breaks, and flea markets taking place in every county.

Sometimes I think I could fight off the car's instinct by firmly gripping the steering wheel and turning it in another direction. Actually I'm afraid to try for fear of finding out that it won't work. Usually by the time I'm debating all of this in my head, the car has already found its way there and the parking lot guy is waving me into an empty spot between two cars loaded to the hilt with radio gear.

My XYL insists that the people that run these events press a secret button that causes all cars owned by radio nuts to home in on a signal. Let me here note that there hasn't been a radio swap meet, or flea market, that has offered her any amusement at all in many years. Moreover, there hasn't been one in at least fifteen years that hasn't provided me with one or more opportunities to continue filling my attic with rare and exotic electronics delights.

Even as I trudge through the parking lot, I'm furtively surveying the cars to see if anybody's arriving with goodies that I can bargain for before they're put on display for everybody to see. On more than one occasion, I've never even made it out of the parking lot and into the main area. Two years ago, while in New Hampshire, I saw a National RBL-2 receiver at the bottom of a stack of equipment being unloaded from a pickup truck. By the time the RBL-2 was on the tailgate, I was in hot negotiation with its owner. It was a piece of gear that I had wanted for many years, in fact since about a week after someone talked me out of the one I had been using.

It was touch-and-go there for a while at the tailgate, with the receiver's owner insisting that he had "sort of" promised it to someone else. I don't know whether or not that was true, but it greatly aided in jacking up the price. Ultimately, we came to terms and no sooner had I paid the gent when someone else showed up that wanted to buy an RBL-2. Hard to imagine that there would be two idiots in one place that would be interested in owning an ancient WWII receiver intended for VLF reception.

Like the Sirens of mythology, who lured ships onto the rocks, radio jamborees and flea markets lure my car into their parking lots.

I tried to tell the fellow that I had just bought it myself but he didn't seem to care. Still, he wanted to negotiate; not even caring that we were standing there doing business on the tailgate of the guy I had just purchased it from. When I told him how much I had just paid for the receiver, he agreed that I had spent too much. Still, I couldn't resist his offer which gave me a reasonable profit for giving him ownership of this receiver that I hadn't removed from the very spot it sat in when I had purchased it only a few minutes earlier.

Moments later, while still in the parking lot, I spotted a National HRO-600 receiver being carried to someone's car. That was a set that had always interested me. Negotiations commenced on the spot. Of course, the fellow carrying the set didn't want to sell it since it had just come into his possession. Eventually, I managed to show him the error of his ways and the joys making a fast profit. By the time I got the HRO-600 back to my car, it was time to leave. But I was happy—I had accomplished the entire gamut of flea market experiences; I bought a little, I sold a little, I made a couple of bucks, I spent too much, and left with a chunk of hardware that I always wanted but for which I hadn't even the slightest use.

Of course, most of the time I do manage to make it all the way into the gala event, taste the lukewarm coffee and soda, and savor the cold hot dogs. Stuff I wouldn't eat or drink anywhere else somehow manages to be palatable at a radio flea market. Probably because I'm too busy eyeballing the hardware to notice what the food looks or tastes like.

These festivals take place two ways, inside a hall or out in the open. Outside usually means broiling in the sun while standing ankle-deep in dust. This is as opposed to inside, where the air conditioning is invariably inadequate while the PA system is simultaneously too loud and manned by an obnoxious loudmouth whose finger somehow got glued to the mike bottom.

Elbowing through the milling throngs is an adventure. Until you actually move your way through the front of the crowd to see what's so interesting, you never really know what you're working towards. You could spend a lot of time struggling to the front only to find that it's some guy with a table filled with nondescript used IF cans and grimy transformers. Or, it could be someone with several luscious pieces of ICOM, Kenwood, or Yaesu equipment being offered at spectacular prices.

Then there are those who don't have a table from which to sell. They wander around toting a single piece of communications equipment trailing cut wires and cables. If what they're selling looks similar to the equipment installed in your car, it's time to take a quick check to make certain that yours is still mounted under your dashboard.

Interesting to note that those who sponsor most of the flea markets, swap meets, and CB jamborees, appear to call up some central casting office to order a dozen or so lost toddlers. They also hire several rowdy teenagers to run through the crowds yelling and knocking into people. And no flea market has ever been complete without the panhandler carrying the bottle of muscatel in the paper bag. I've done a careful study of all of these assorted flea market denizens and am reasonably certain of my suspicions that these very same people are hired to travel from one flea market to another. I do, however, think that the bored-looking wives who all congregate near the coffee stand to exchange complaints are probably authentic. You just know from eyeballing that delegation that none had the slightest idea that the Sunday drive was going to culminate like this.

I guess that my car isn't the only one that automatically homes in on these gatherings. I'm pretty sure it's something in the design of the electronic ignition systems they're using these days. Oddly enough, once the car arrives at the gathering, the engine isn't able to start again until a minimum of two hours has passed and at least one piece of communications gear has been purchased.

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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.

Would Like To Hear From Readers

DX'ing and *POP'COMM* have enabled me to survive many cold nights of boredom in Alaska. I wish to commend you on a job well done. The ship I'm on is a WLB-class ocean going buoy tender. If any *POP'COMM* readers would like to write to me I'll tell them about DX'ing in Alaska, or Alaska itself.

SS3 David W. Childers,
USCGC Firebush WLB-393,
P.O. Box 65-F,
Support Center Kodiak,
Kodiak, AK 99619

How about it, let's send Dave some QSL's and letters to pass the time at sea. Note that Dave's rating is a Subsistance Specialist (cook), so if anybody's got a good barbecue or chili recipe, Dave can spice up the Firebush's menu. —Editor

Aux Sqwaux

Why doesn't *POP'COMM* run a feature on the U.S. Coast Guard Auxiliary. It is my understanding that membership in this civilian auxiliary is open to all persons holding a ham license, or owning a boat or aircraft. I would imagine that the communications efforts of the USCGC Auxiliary would make interesting reading.

Martin Edelstein,
San Diego, CA

I think so too, Marty. After a number of futile attempts to get the cooperation of the Coast Guard and its Auxiliary to cooperate in the preparation of such a story, I've pretty much given up hope of getting them off the dime in Washington. I'm working on another angle, however. —Editor

A Tip Of The CAP!

Thanks for printing Gordon West's information on EPIRB's and ELT's. It was a good introduction to the subject.

In searching for ELT's, our first problem is getting a CAP Direction Finding Team to a point where the signal can be heard on the ground. Scanner owners can help by reporting ELT signals they hear at home to their local CAP unit (if known), or the nearest FAA facility (look up under U.S. Dept. of Transportation in the blue pages). Report the following information: your name, telephone number and location; the frequency monitored; times of reception and if signal is still present; signal strength (loud, weak, varying); whether you think it might be moving; and the height of your receiving antenna above ground (if known).

Ask them to forward the information to the Air Force Rescue Coordination Center where it will be determined if a search is warranted or it's a known non-distress situation.

As Gordon stated, the CAP is the Official Auxialiary of the U.S. Air Force. Readers interested in joining can find their local unit by contacting National Headquarters, Civil Air Patrol, Maxwell AFB, AL 36112. New Jersey readers can write HQ, NJW-CAP, Box 16099, McGuire AFB, NJ 08641.

Lt. Col. Gary C. Wilson, CAP,
WB2BOO/AFB1WA
Asst. Director of Emergency Services,
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The Truth Will Out

Your March "Beaming In" about the letters you've gotten from the UFO people confirms what I (and many of your other friends) have suspected for years. A "UFO machine" uses your brain. You are not controlled by the FBI or the CIA. You are not basically evil. It's just that you are controlled from outer space. Also, March was one of your best editorials. Keep up the good work and the magazine's sense of humor.

Ed Jones, WB2DVL,
Somerset, NJ

Claim To Fame

I was thrilled to appear in the December issue "Ham Column." I've subscribed to *POP'COMM* since 1983 and it's still my favorite magazine. My name in the magazine is my first claim to fame!

Fred Liddell, KB2BUY,
Baldwin, NY

Paper Tigers

In the March issue *Beaming In* you discussed some of the hostile mail the magazine has received. I found it amusing, yet I was surprised that you didn't mention getting any anonymous letters. I'd have bet that those are a regular part of the mix that arrives.

Joseph Brancatto,
Philadelphia, PA

They weren't mentioned because anonymous comments, complaints, and suggestions never reach my desk. Incoming mail goes through several handling stages, and anonymous letters to the editor are all filtered out during this process. As a result, since I don't see it, such material wasn't included in my comments. While we are willing (upon specific request) to withhold the names of correspondents whose letters we print, we don't print letters from anonymous sources. It therefore seem pointless to read them or give consideration to the opinions they express. I figure that if I'm willing to sign my own name to a lot of opinions, then those who disagree with them should be willing to likewise. —Editor

Likes and Dislikes

The things I like best about *POP'COMM*: 1) You aren't afraid to take a strong editorial position, even on controversial topics; 2) From the station listings in several columns, the Editor is obviously an active DX monitor; and 3) The long overdue addition of ham and CB coverage. By the way, surely I can't be the only *POP'COMM* reader to call to your attention that another publication is now trying hard to duplicate *POP'COMM*'s look, format, and style. You should feel flattered. The thing I like least about *POP'COMM* is that you dropped the FCC-news column the magazine used to carry.

Jimmy Gaines, "Red Robin Base,"
Cleveland, OH

Many requests have continued to come in asking that we reinstate the FCC-news column. We are therefore resuming that column effective with this issue. —Editor

Racing With The Moon

Your article *Hot Wheels Over Your Scanner* (March issue) was worth the price of my subscription just for that issue alone. I was at the Miami Grand Prix and sat across from the pits. I was able to find ESPN's unedited audio on 450.1875 MHz which enabled me to match the Diamond Vision screen with the TV program and the race at the same time. Worked just great. For other motorsports fans who might be interested, I monitored the SCCA/CC at the Daytona Sunbank on 467.725 MHz. Also, many race fans monitor "MRN," the International Speedway Corps Motor Racing Network radio feed on 454.00 MHz. Would like to see *POP'COMM* regularly include motorsports scanner frequencies.

Kenneth L. Merrick,
Atlanta, GA

Thanks For The Memory

I was sorting through some back issues of POP'COMM when, in Alice Brannigan's column last September (page 18), I spotted a photo of the "Little Symphony Orchestra." My father was the bass player standing in the background. His name was Gaston Brohan. I could hardly believe my eyes. That 1925 photo was taken before I was born. My dad played with the Detroit Symphony for over thirty years. Thank you for bringing back lots of wonderful memories.

Mrs. Suzanne Leeney, K6OKV,
Twin Falls, ID

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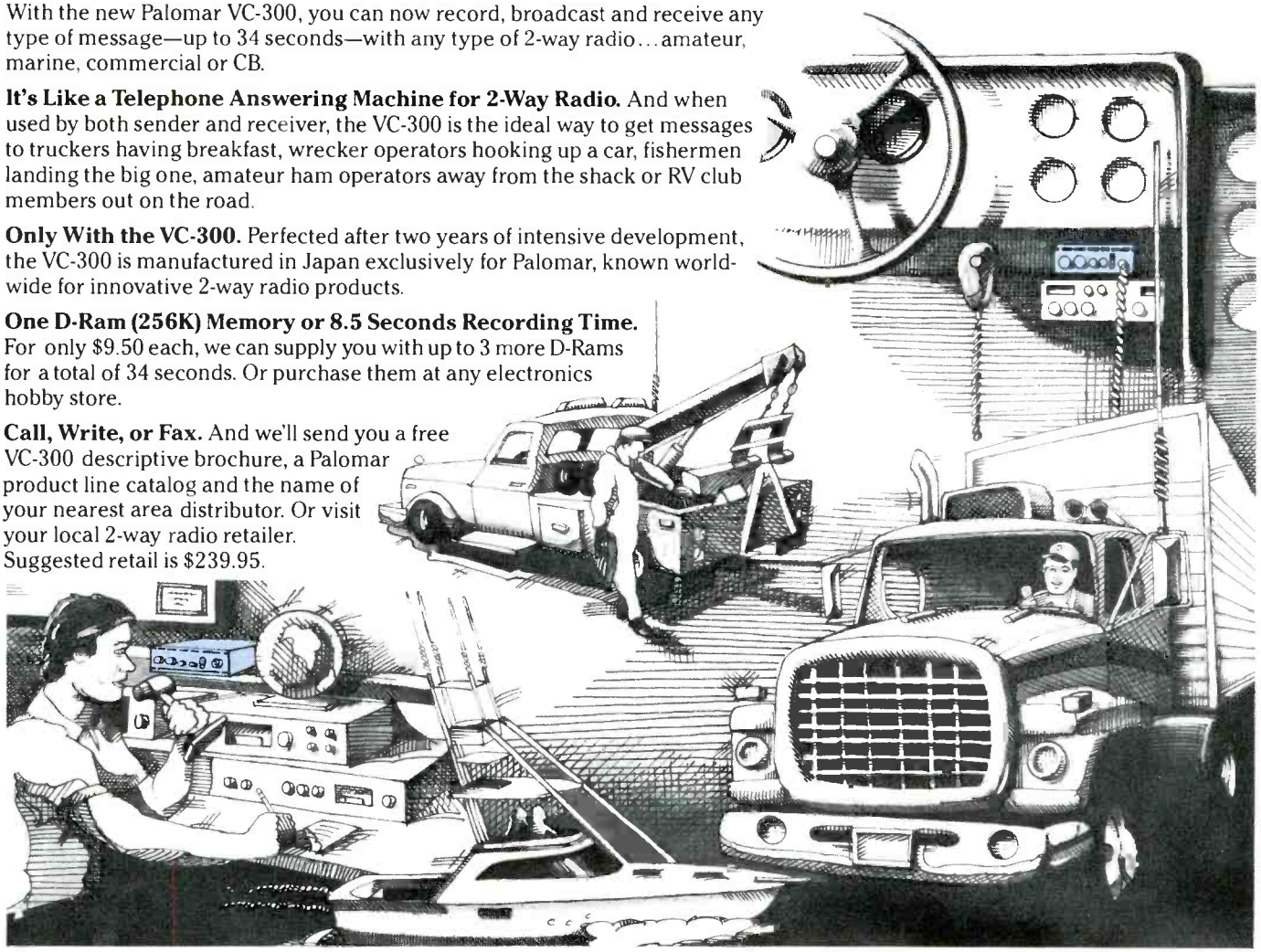

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SCAN On TV . . . Again!

NBC outlet, WVTM-TV, Channel 13 in Birmingham, Alabama, recently featured this month's SCAN Public Service Award winner James Nevett. (See the SCAN Public Service Award column of this issue for more details.) Mr. Nevett said that he was quite uncomfortable with all the publicity he has received, but appreciates the efforts of SCAN. He mentioned that he could put the SCAN cash award to good use and that, "My only hope is that if I'm ever in a similar situation, someone will be there to help." Mr. Nevett is the latest in a growing number of SCAN award winners who have received widespread media attention. Why all the sudden attention? We can't say for sure, but our guess is that a good reason for much of the exposure is the increasing realization that public safety officials need citizen help to be most effective. It is really a partnership that makes the system work. That's the way it was years ago, but somehow we had gotten away from the concept, especially in our larger cities. Today we are beginning to recognize again just how important citizen involvement is . . . and it has any number of dimensions. It can take the form of heroic acts, like this month's SCAN winner demonstrated. Or it can be active participation in Neighborhood Watch groups. It can be as simple as taking some extra steps to protect your home with security devices. Even just taking a moment to call your local law enforcement officials when you spot something that might be suspicious, such as an unfamilair car driving repeatedly through the neighborhood, can help make the difference. In any case, we are pleased to be receiving more nominations for the SCAN Public Service Award than ever before. Remember that you do not need to personally know the person you are nominating or have been involved in the incident. A newspaper clipping (with the name of the paper and date) is all we need to get the ball rolling. Both ordinary citizens and public safety personnel are eligible to receive the award which includes a cash prize and handsome personalized award plaque. The person making the nomination also receives a special commendation plaque. Address your nomination to: SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558. We'll take it from there.

. . . And Some TV Coverage We Wish He Hadn't Received!

In the recently televised Senate hearings on drug traffic, a star witness under immunity from prosecution was describing how his group of smugglers evaded detection for many years by drug enforcement authorities. He said they had an "electronics expert" experienced in "electronic countermeasures". When asked to describe this equipment his explanation seemed to indicate that he didn't know much about it, except to say that they used "oscilloscopes, radio scanners, and things like that". *Radio scanners* . . . there it was on national TV and before all those Senators and staff members. One more black eye and a little more ammunition for those who would restrict the right of U.S. citizens to own omnidirectional receiving equipment. But wait a minute. This time there was no sudden uproar of "ban the scanners". No comments about being able to go into any store and buy one of these sinister devices without approval from the local police. In fact, no comment at all. The reason, I believe, is that we are becoming more sophisticated on the national political and law enforcement levels to the fact that a scanner is just an ordinary radio receiver, albeit with some amazing microprocessor control circuitry. Still, if scanners didn't exist, it would be possible to achieve the same result of being able to "listen in" with a turntable FM receiver and a simple converter built with parts from the local Radio Shack store and plans in the *Radio Amateur's Handbook*. We're not talking about super secret "electronic countermeasures" here . . . just plain old ordinary FM communications receivers.

To their credit, the drug enforcement officials I have spoken with at the U.S. Treasury fully understand this, and have taken the steps needed to make sure critical communications are secure. That word has undoubtedly been relayed to the Senate investigators as well. So there is hope that a little reality and common sense will take hold after all. Maybe there is even hope that some people in the cellular phone business will recognize the truth about open radio transmission at sometime in the future!

An Active Roll For Scanner Owners In Drug Enforcement

In our discussions with drug enforcement officials in Washington, some interesting things came to light. Often, for instance, we think of the drug problem as a big city problem. No question about the fact that it is one of the biggest problems our larger cities face today. We also discussed the fact that most SCAN members live in smaller cities and towns, with relatively few living in large cities. My conclusion would have been that most of us don't live in areas where we could be of help . . . but that wasn't the reaction of the drug enforcement officals at all! It seems that most drugs find their way into this country through rural and small town areas. This makes sense when you think about it; a DC-6 airplane with a load of cocaine would be rather obvious if it were dropped off in Chicago. Therefore, the smugglers use the furthest out of the way places they can find. Sometimes, airplanes drop packages into fields, or they find a rural airstrip they can land on. Smaller port cities where they can tie-up a pleasure yacht without much notice are also popular on the East Coast and in the Gulf of Mexico. Because of the sheer vastness of our country, these are also the areas that are the most difficult to patrol. There just are not enough personnel in the field to handle it, and even tripling their numbers would scarcely put a dent in the problem. It's no wonder that most of these shipments get through without detection!

What is needed, say drug enforcement people, are many extra eyes and ears of citizens in these areas. Scanner owners can be especially helpful because of the ability to monitor radio communications . . . nearly all of these drug smuggling operations are coordinated by radio. If you regularly monitor local airfield or marine communications you will quickly get a feeling for what is normal, legitimate communications. The smugglers almost always use code words to identify their cargo, but this rarely hides the fact that something illegal is "going down" to the knowledgeable listener. If the pilot is asked how many bags of fertilizer he's going to drop, stop and ask yourself, when was the last time you know of that someone paid for an air shipment of fertilizer. The time of day can also be a tip off. Someone suggesting that they take the garbage off the yacht, when it is 2 a.m. in the morning, is a pretty good sign that these are more than just meticulously clean yachtsmen. Also listen for communications off the regular channels.

Keeping alert for what you see is also important. A yacht riding low in the water, for instance, indicates a heavy cargo load. A regular schedule by previously unknown aircraft is another possible tip-off. Whatever you observe, it is best to make a mental note of it and keep it to yourself. Don't try to find out what is going on by watching the operation. Don't even discuss it with neighbors. These guys, as you may have heard, are not the friendliest bunch around . . . you

(Continued on page 73)

Logging The In-Betweens

How To Tune 71 Medium-Rare Shortwave Broadcasters

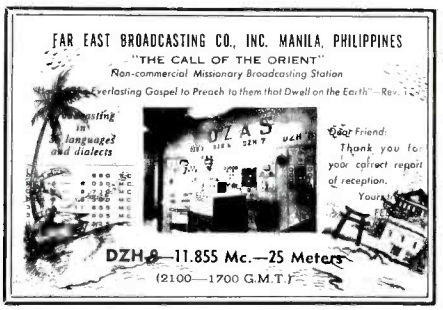
BY GERRY L. DEXTER

Some countries which have broadcast stations on the short wave bands are darn near impossible to hear. More than one DX'er has developed a nervous tic as a result of sleepless nights and long hours concentrating on signals from Tristan da Cunha, Bhutan, the Maldive Islands—signals which weren't even there.

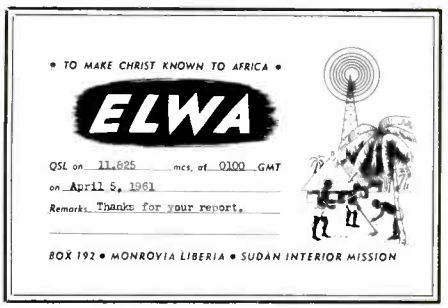
At the other end of the scale are shortwave broadcasters which you can practically tune in on the fillings of your teeth; powerful stations in the United States, Canada, Brazil, England, the Netherlands, South Africa, West Germany, Australia and so on.

But most are sort of Mister In-Betweens. They are certainly not automatic logs, yet they are several degrees short of being impossible.

The In-Betweens occupy a large segment on the scale measuring reception difficulty. Furthermore, they slide up and down this part of the scale, sometimes becoming easier to log than they were and sometimes the reverse. These changes can be attributed to (or blamed on!) a number of factors. It may be that, for a time, propagation to a particular area is more favorable, resulting in what is normally a rather difficult station showing up for a time. Perhaps a channel normally filled to the gills with interference suddenly becomes clear, allowing reception of a rarer station. Or the key may be how efficiently the station's technical facilities are being put to use or a new frequency doing a better job. Sometimes this results in a permanently better situation but, more often, it is just a temporary benefit and it is the wise DX'er who logs a needed station during its "up" period.



11850 is one frequency for FEBC in the Philippines. This QSL confirms reception on 11855 over 30 years ago!



Old Timer ELWA is a station of the Sudan Interior Mission in Liberia and can be heard signing on at 0700 on 4760.

In-Betweens aren't reported to our *Pop'Comm* Listening Post column as often as countries such as Spain, Argentina or Egypt. And we've used that less-than-often appearance as a general guide for what to include in the list of hints and tips we present here.

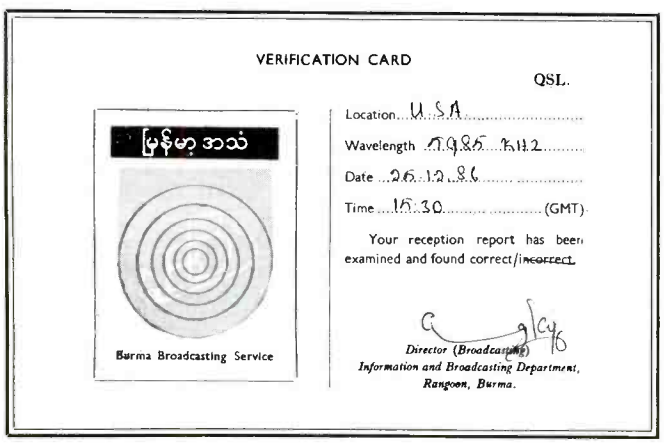
Incidentally, we've included "countries" as they're listed in the *World Radio TV Handbook*, rather than try to follow the more complex and often confusing country lists of any DX clubs—since there are several different lists involved. Furthermore, many of the countries which the lists manufacture out of the various islands of Indonesia, Papua New Guinea and so on would tend to fall into the more difficult category anyway.

Most of the countries on the list below can be logged with an average quality receiver and antenna (as opposed to an inexpensive portable). But you have to couple the equipment to equal parts of persistance and careful tuning.

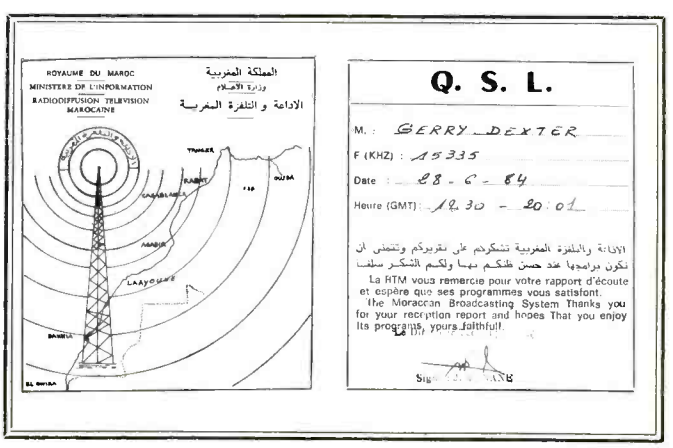
Most of the tips below are based on loggings made over the past few months by some of North America's most experienced and dedicated shortwave broadcast DX'ers. Fill in information, where needed, was taken from the WRTH and other reference volumes:

Here are the In-Betweens. All times are UTC.

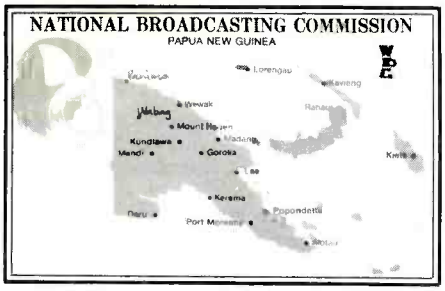
Algeria – Radio Algiers operates on a number of frequencies; i.e. 7245, 9509, 9640, 11715, 15160, 15215 and 17775 most often but doesn't have them all in use at one. Check them at 2000 for an hour of scheduled English. Other times



The Burma Broadcasting Service QSL's more readily than it did years ago.



This oversized QSL card is from RTM Morocco, heard on 15330 and 15335.



The National Broadcasting Commission of Papua New Guinea is a pretty easy catch on 4890. All of the cities shown on this map card QSL have shortwave stations!

(mostly afternoons in North America) they're using French or Arabic.

Angola – There are many Angolan stations on 41 and 60 meters but they shift around a lot. Best bet is the main government station, Radio Nacional de Angola, on 9535 and 11955 in Portuguese and English from as early as 1600. Carries some revolutionary programs such as the Voice of Namibia.

Antarctica – Radio Nacional Arcangel San Gabriel, from the Argentine Antarctic base, is active in Spanish on 15474 from around 2300 tune in to sign off which varies around 0040.

Bangladesh – Radio Bangladesh has periods now and then when it is heard very well (as opposed to fair or not at all) on 15525 at 1230 in English. You can also try 9775 around 1315 or 6240 at 1400 sign on though, for most of us, the latter won't work as we get into spring and summer.

Belize – This tiny Central American nation has held forth for years on 3285 with English language programs in the evenings to just past 0605.

Benin – Office de Radiodiffusion Television du Benin, the government station, uses 4870 and can often be heard at 0600 sign on and in our winter time months to sign off at 2300.

Bolivia – There are a couple of dozen active Bolivian stations. Two of the best bets are Radio Illimani in La Paz which signs on at 0900 on 4945 and 6025. Also try Radio Nueva America, also in La Paz, at 1000 sign on on 4797.

Burkina Faso – The former Upper Volta is a frequent visitor on 4815 at 0700 sign on, and to 0000 sign off, all in French. The government station ID's as Radio Burkina.

Burma – The Burma Broadcasting Service is a fairly often log around 1200 on 4725. At about the same time you may also be able to hear the Mamymo Defense Forces Station on 6570. Both stations are in Burmese and local dialects.

Canary Islands – This one could be easier than you think. Radio Exterior de Espana operates a relay station here and sometimes even includes an English site ID. Try between 2200 and 0000 on 15365, carrying regular Spanish Foreign Radio programming.

Central African Republic – Radiofiddusion Centrafricaine from Bangui operates on slightly variable 5034 and signs on daily at 0500, in French.

Chad – The main government station, Radiodiffusion Nationale Tchadienne at N'djamena begins daily broadcasts at about 0454 on 4904 slightly variable. A regional station, Radio Moundou on 5286 slightly variable, comes on the air at 0458. Both stations broadcast in French.

Congo – Radio TV Congolaise is reported infrequently, in large part because it seems to be on the air only infrequently! It has not been reported recently, but keep an ear on 15190 during the period between 1700 and 2200. Programming would be in French.

Cyprus – Check for the BBC's East Mediterranean relay, currently at 1430-1615 to Southern Africa on 15420. Also to East Africa at 0300 on 7160. There are many other channels in use, too.

Denmark – Radio Denmark still clings to the hope of one day again having a real foreign service. Until the dream comes true, you'll have to catch the lone English segment—a sign on announcement. Best bets are the broadcasts to North America, currently at 1300-1352 on 15165 and 2200-2252 on 9740.

Equatorial Guinea – Radio Nacional, aka Radio Africa, on 9553 carries a lot of commercial religion from around 1900 onwards. Also try Radio Nacional on 5004 (alternate 4925) at 0430 sign on and Radio Nacional at Malabo (the other two are at Bata) on 6250 from 0500 to 2200. The last two are all Spanish.

Ethiopia – The Voice of Ethiopia (they've dropped the word "Revolutionary") runs from 1400 on 9560 and includes some English as well as some revolutionary-type programming.

Galapagos – Technically a province of Ecuador, but most lists consider it separately, as does the WRTH. La Voz de Galapagos operates on 4810, in Spanish, to sign off a few minutes past 0200. Careful, there are a couple of other Latin stations which also use this frequency.

Greenland – For quite awhile, this was a good deal harder to log than is currently the case. Kalaalit Nunaata Radioa is heard on 3999 signing on at 0957 in Greenlandic. Listen for the celeste interval signal and mention of "Gronlands Radio."

Guinea – Radiodiffusion Nationale uses 4910 to 0000 sign off and from 0600 sign on. Reported using 4830 late last year. Also try 7121 variable to 0800 sign off. "Ici Conakry . . ." is included in the ID.

Guyana – The Guyana Broadcasting Corporation was inactive on shortwave for sometime but returned early this year. Try 5950 for the Channel Two national service in English as early as 0800, some reports of reception around 1000.

Haiti – Religious broadcaster 4VEH is the only shortwaver active from this troubled half of Hispanola. Broadcasts are mostly in French and Creole on 4930. Try around 0000-0200 for this one.

Hong Kong – The new BBC relay station here has put this country back on the map (in recent years it has been on only for the every-other-year yacht races in the South China Sea) Try 7160 or 7180 for the BBC via Hong Kong around 1300.

Iceland – The Icelandic State Broadcasting Service is a lot more accessable than it used to be. Recently logged around 1900, in Icelandic, on 9985. Broadcasts use the upper sideband (USB) mode.

Indonesia – One of the Radio Republik Indonesia regional stations, RRI-Ujung Pandang in Sulawesi, is often heard on either 4719 or 4753 around 1200. The Voice of Indonesia overseas service has an hour of English at 1500 on 11790, parallel 15150.

Ireland – Quasi-legal Radio Dublin International runs an English language pop/rock format on 6910 (sometimes 6930) and can sometimes be heard with fair signals in the late evenings.

Jordan – Jordan Radio Television seems to have got itself some new high power transmitters and is heard by many DX'ers now, in Arabic, on 11920 between 1300 and 1430.

Kampuchea – Voice of the People of Kampuchea slips in sometimes by using the off channel of 11938 (in parallel with 9695) and has an English language broadcast at 1200.

Kenya – During the winter months, the Voice of Kenya shows up on two 49 meter band channels-6100 to 2100 and 6150 from 2100. Otherwise, try 4885 or 4915 from 0300 sign on, though these use less power and aren't heard very often.

Laos – The main station of Lao National Radio in Vientiane is a difficult log. Easier to hear is the regional station at Savannakhet on 7385. Try around 1200. Programs are in Laotian.

Lebanon – The government radio is still absent from shortwave but you can try the Voice of Lebanon (operated by the Phalangist party) on 6550. It's sometimes heard in Arabic around 0500. Also the Voice of Hope (run by the same people who operate KVOH in California) is heard in Arabic around 0400 on 6280.

Lesotho – Radio Lesotho signs on a couple of minutes before 0300 on 4800 with the national anthem and into English. If the frequency is QRM'd check an hour later.

Liberia – Of several stations in Liberia, ELWA is often heard with its interval signal, sign on and into religious programming from 0659 on 4760.

Luxembourg – Radio Luxembourg has English from 0000 on 6090 but this is often QRM'd. You can also try 15350 which runs 24 hours in French.

Madagascar – Try the Radio Netherland relay station here. Best bets currently would seem to be 11740 and 15560 at 1430-1525 in English to South and Southeast Asia; 11950 and 15560 at 1530-1625 to South Asia, in Dutch; and 1930-2025 on 9540 and 11740 in Dutch to Central and West Africa.

Malaysia – Radio Television Malaysia on 4845 is often heard around 1200 with programs in local languages. At the same time try the outlet at Sarawak on 4950, carrying English and Chinese.

Malta – IBRA Radio, broadcasting over the Deutsche Welle installation, has a brief English program at 2100-2115 on 6100.

Mauritania – ORTM at Nouakchott is a frequently reported logging on 4845 with guitar interval signal and anthem at 0600 sign on. French and Arabic.

Monaco – Trans World Radio, Monte Carlo, has recently been noted using 12025 at 1500, in various languages. Religious programming.

Mongolia – Look for Radio Ulan Bator using 9615 and 12015 (Radio Beijing is sometimes on this latter frequency, too) at 1200 with English.

Montserrat – The Deutsche Welle relay on this island carries the evening North American services at 0100 and 0300 on 9565.

Morocco – Radiodiffusion Television Marocaine broadcasts on 15330 at 1700 to 2100 (listed) and 15335 1000 to 0100, all in French.

Mozambique – Radio Mozambique, Maputo sometimes makes an appearance on variable 3210 and, lately, 4866, too) from 0258 sign on, in Portuguese.

New Caledonia – RFO Noumea is a regular performer for many listeners. 7170 is your best bet, around 0700, all French.

Niger – La Voix du Sahel on 5020 signs on with flutes and anthem at 0530, programming in French.

Oman – Radio Oman can sometimes be picked up around 1830 in Arabic on 9735 but often must make it through the interference from the Voice of America.

Pakistan – Radio Pakistan has a dictation speed English news at 1600 on 11615, 15595 and 17660. Try English also around 1200 on 11640.

Papua New Guinea – The main PNG station of the National Broadcasting Commission is also the most regularly heard. The Port Morseby outlet is on 4890 in English and Pidgin as early as 0700 and as late as 1300.

Philippines – Check for Radio Veritas Asia in various languages on 9605 to sign off at 1055. English is noted at 1300 on 9700. Another religious broadcaster, FEBC, is scheduled for English at 1300-1430 on 11850.

Qatar – The Qatar Broadcasting Service can often be heard with its programs in Arabic around 2000 on 9535.

Rwanda – the Deutsche Welle relay station here is on a number of frequencies. Best bets seem to be English at 0330 on 7225, at 1600 on 9695, 1800 to 2200 in German on 15275 and 2200 on 15410.

Saudi Arabia – The all Arabic programs of the Broadcasting Service of the Kingdom of Saudi Arabia include broadcasts at 2130-2300 on 9705, 9720 and 9885 and 1700-2130 on 9870.

Senegal – RTV Senegal is a pretty easy catch with its 0600 sign on (actually, slightly earlier) on 4890, all French.

Seychelle Islands – The religious broadcaster, FEBA, has a long and choppy schedule and its various language broadcasts are not of long duration, all of which makes for a complicated schedule. Try around 1200 or later on 11865, 15175, 15325, 15415 and 17780. There should be some English or English IDs.

Singapore – Radio Singapore is best heard around 1100 or later on 5010 or 5052. 11940 sometimes also shows, though an hour or two later.

Somalia – Radio Mogadishu can be quite often heard with its 0300 sign on in Somali on 7200 or just below.

Sri Lanka – Although there are VOA and Deutsche Welle relays here, try for the Sri Lanka Broadcasting Corporation with some English programming on 9720 as early as 1200, as late as 1600.

Sudan – Radio Omdurman's 0400 sign on in Arabic on 5039 is just a matter of checking for it until you hear it.

Surinam – Radio Surinam International's broadcast is a relay via Radiobras in Brazil so, technicially, it's not Surinam you're hearing. Try the private station, Radio Apinte, 5005 sometimes audible to 0400 in Dutch.

Swaziland – Trans World Radio uses 3200 and 7285 with sign on a couple of minutes prior to 0300, English ID and into religious programs.

Tanzania – Radio Tanzania can be tricky. Check 4785 and/or 5050 for sign on at 0300, with some English included. Zanzibar, considered as a separate radio country by many, is heard at times on 11734, around 1700-1800.

Thailand – Radio Thailand has English at 1230 on 9655 and is currently doing somewhat better than it has in some years, though it's still a touchy one to catch.

Tunisia – Radiodiffusion Television Tusisienne is often heard on 7225 (sometimes 7310) from 0430 sign on in Arabic. Also, of late, at 1600 on 12005.

Uganda – Radio Uganda can be a bit of a battle. Recently heard from 0259 sign on with drums, English ID and pop music on 4975. Check also 5026 variable.

Uruguay – The frequencies 9595 and 11735 are used by one owner for relays of two stations - Radio Oriental and Radio Monte Carlo (either may appear on either frequency) in Spanish from late afternoons US time to variable 0200 sign off.

Yemen Arab Republic – Radio San'a has been heard lately with all Arabic and sign on at 0300 on 4853, but expect interference. Try 9780 as another possibility.

Yemen (People's Democratic Republic) Dybs, Aden, is often heard on 7190 from 0300 sign on. In Arabic, but the program includes some American pop/rock.

Yugoslavia – Radio Yugoslavia is bringing its new high power transmitters into play but no so's you'd really notice. There's an English segment at 2200. Check 5980, 6100, 7240 and 9620.

Zaire – La Voix du Zaire is sometimes active on 15245 to 2300 sign off, mostly French. Radio Lubumbashi on 4751 signs on at 0400 and is sometimes heard. So his Radio Candip at Bunia on 5066 from listed 0330 sign on.

Zambia – The Zambian Broadcasting Service, aka Radio Zambia comes on the air around 0340 with its fish eagle sound effect and then into English on 4910.

Zimbabwe – The Zimbabwe Broadcasting Corporation is one of those which needs some especially good African reception conditions. But it's far from impossible. Check 3306 or 3396 around 0400 sign on, in English.

There you have 'em. Mark the ones you need, get your gear in gear and get going. They're there for the logging! Good luck! **PC**

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Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for about $12,000,000. To celebrate this purchase, we're having our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry...offer ends July 31, 1988.

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12-Band, 100 Channel • Crystalless • AC/DC
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
The *Bearcat* 760XLT has 100 programmable channels organized as five channel banks for easy use, and 12 bands of coverage including the 800 MHz. band. The *Bearcat* 760XLT mounts neatly under the dash and connects directly to fuse block or battery. The unit also has an AC adaptor, flip down stand and telescopic antenna for desk top use. 6-5/16" W x 1⅜" H x 7⅜" D. Model **BC 580XLT-SA** is a similar version without the 800 MHz. band for only $219.95.

SALE! Regency® TS2-SA

List price $499.95/**CE price $309.95/SPECIAL**
12-Band, 75 Channel • Crystalless • AC/DC
Frequency range: 29-54, 118-175, 406-512, 806-950 MHz.
The *Regency* TS2 scanner lets you monitor Military, Space Satellites, Government, Railroad, Justice Department, State Department, Fish & Game, Immigration, Marine, Police and Fire Departments, Aeronautical AM band, Paramedics, Amateur Radio, plus thousands of other radio frequencies most scanners can't pick up. The *Regency* TS2 features new 40 channel per second *Turbo Scan*™ so you won't miss any of the action. Model **TS1-SA** is a 35 channel version of this radio without the 800 MHz. band and costs only $239.95.

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List price $799.95/**CE price $329.95/SPECIAL**
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RD500-SA Uniden visor mount radar detector $79.95

NEW! Bearcat® 200XLT-SA

List price $509.95/**CE price $299.95**
12-Band, 200 Channel • 800 MHz. Handheld Search • Limit • Hold • Priority • Lockout
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
The *Bearcat* 200XLT sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 20 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz. band and 100 channels, order the **BC 100XLT-SA3** for only $199.95. Includes antenna, carrying case with belt loop, ni-cad battery pack, AC adapter and earphone. Order your scanner now.

Bearcat® 800XLT-SA

List price $549.95/**CE price $259.95/SPECIAL**
12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512, 806-912 MHz.
The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9¼" x 4½" x 12½." If you do not need the 800 MHz. band, a similar model called the **BC 210XLT-SA** is available for $196.95.

Bearcat® 145XL-SA

List price $189.95/**CE price $98.95/SPECIAL**
10-Band, 16 Channel • No-crystal scanner Priority control • Weather search • AC/DC
Bands: 29-54, 136-174, 406-512 MHz.
The *Bearcat* 145XL is a 16 channel, programmable scanner covering ten frequency bands. The unit features a built-in delay function that adds a three second delay on all channels to prevent missed transmissions.

Bearcat® 175XL-SA

List price $279.95/**CE price $156.95/SPECIAL**
11-Band, 16 Channel • Weather Search Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512 MHz.
The *Bearcat* 175XL has an automatic search feature to locate new frequencies. Priority, lock out, delay and scan speed are all included.

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Scan up to 55 channels at the same time. Includes belt clip, flexible antenna and earphone.

BC760XLT
800 MHz. mobile scanner
Only $279.95

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If you purchase a scanner, CB, radar detector or cordless phone from any store in the U.S. or Canada within the last 30 days, you can get up to three years of extended warranty service from Warrantech. This service extension plan begins *after* the manufacturer's warranty expires. Warrantech will perform all necessary labor and will not charge for return shipping. Extended warranties are non-refundable and apply only to the original purchaser. A two year extended warranty on a mobile or base scanner is $29.99 and three years is $39.99. For handheld scanners, 2 years is $59.99 and 3 years is $79.99. For radar detectors, two years is $29.99. For CB radios, 2 years is $39.99. For cordless phones, 3 years is $34.99. Order your warranty for your merchandise today.

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BC 55XL-SA *Bearcat* 10 channel scanner. $114.95
BC 70XLT-SA *Bearcat* 20 channel scanner $169.95
NEW! **BC 560XLT-SA** *Bearcat* 16 channel scanner . . . $98.95
MT5100 PLUS-SA *Regency* marine transceiver . . . $134.95
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UC102-SA *Regency* VHF 2 ch. 1 Watt transceiver . . . $117.95
BPS5-SA *Regency* 16 amp reg. power supply . . . $169.95
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MA518-SA Wall charger for HX1500 scanner $14.95
MA553-SA Carrying case for HX1500 scanner $19.95
MA257-SA Cigarette lighter cord for HX12/1500 . . . $19.95
MA917-SA Ni-Cad battery pack for HX1000/1200 . . . $34.95
BP205 Ni-Cad battery pack for BC200/BC100XLT. . . $49.95
B-8-SA 1.2 V AA Ni-Cad batteries (set of eight) . . . $17.95
FB-E-SA Frequency Directory for Eastern U.S.A. . . . $14.95
FB-W-SA Frequency Directory for Western U.S.A. . . . $14.95
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SRF-SA Survival Radio Frequency Directory $14.95
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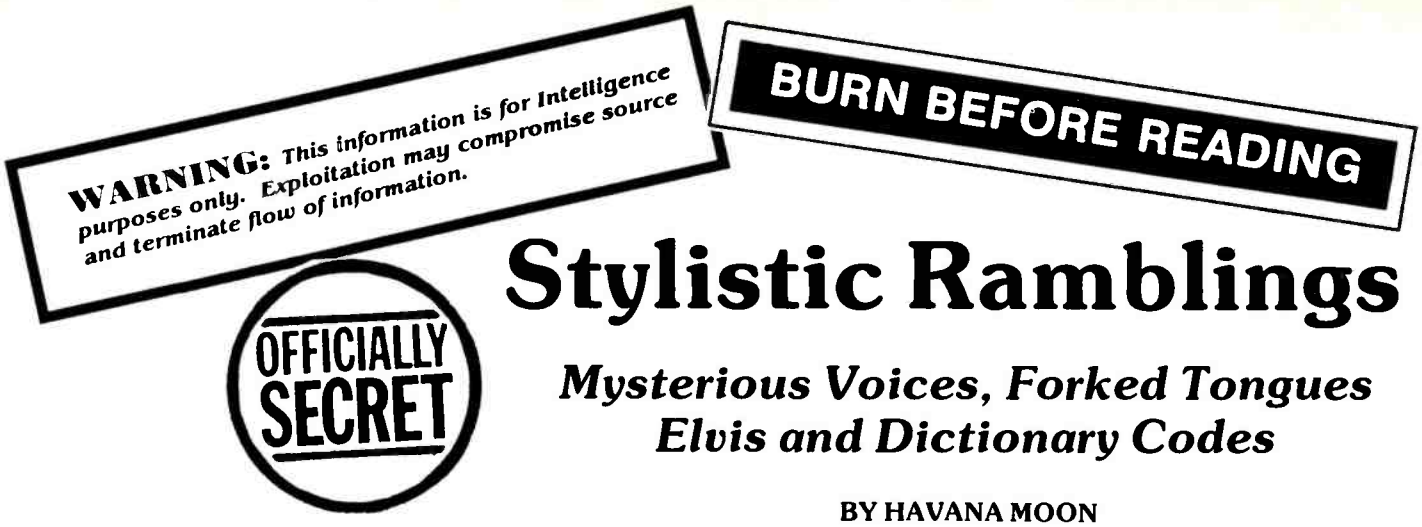


Stylistic Ramblings

Mysterious Voices, Forked Tongues Elvis and Dictionary Codes

BY HAVANA MOON

Hi, everybody! I'm Havana Moon! And—in some circles—my name is synonymous with "numbers transmissions!" And it's very likely that my name is synonymous with other things—some things I probably don't even want to know about—in the aforementioned circles. Some portions of that circle being FEMA, the FCC, NSA and the CIA, or so I'm told.

And—no pun intended—but it's not uncommon for those higher-ups of the above agencies to go around in circles. And what a circle it must have been when these guys came up with the Electronic Communications Privacy Act! But some say the Georgetown cocktail circuit is nothing but one huge confused circle, anyway. What else would you expect from a bunch of Harvard Business School graduates?

And, as most of you now know, the beginning of this dark(?) and sinister(?) mystery of the electromagnetic spectrum was a very, very long time ago. If you remember Squiggy, the generic '50s greaser in the old LAVERNE AND SHIRLEY show, you were around when this femme with a penchant for "numbers" was just entering puberty. And if you remember when Elvis was king, you were around at about the time this bi-lingual femme was slapped on the derriere and gave forth with a numbers group rather than a cry! Yes, folks, its been a long, long time and hundreds and hundreds of thousands of number groups since that eventual day or evening.

And it sure seems that the more one delves into "numbers transmissions," the more one's mind—rightly or wrongly—moves towards visions of 1934 pulp fiction novels and vintage Bogart and Bergman movies.

Well, Elvis is gone and Squiggy only appears on "late-night reruns" on some obscure cable channels. but the "numbers" endure and tantalize and taunt and tease! They were, they are and they will be as long as they serve a purpose. Even the man at the FCC once said that the "numbers" would endure as long as they continued to serve their purposes. Obviously the man at the FCC would not identify the purpose or explain just why the FCC did not see fit to respond in the prescribed manner to my Freedom of Information Act Request on "numbers transmissions." It was nice, however, that this kindly man at the FCC took time from his very, very busy schedule to talk with me on the phone and assure me that my request would be honored. I have been waiting—but not holding my breath—since October of 1986, FCC.

And it sort of makes you wonder just what the FCC, or the issuing agency is hiding in that inter-agency "numbers(?)" document with a confidential classification. Now if we only knew just how many other agencies held this same document or the name of the issuing agency we just might have something. I have been told, however, that the issuing agency is quite similar to the NSA! I, unfortunately, do not have that statement in writing. And, as you well know, if it ain't in writing it ain't worth the paper it's not written on.

And how about that FEMA bunch and the many "clones" of high-ranking government officials that—for the most part—live under mountains? At the very least, FEMA could have phones to say that my request for "numbers" information would not be honored. Maybe the FCC has a larger budget for phone calls than does FEMA. I'll even bet it takes more money than even Jim and Tammy Faye could ever dream of just to keep FEMA operational for heaven only knows what!

The bottom line is simply that little, very little meaningful—much less truthful—information is going to come from any government agency in regards to "numbers transmissions." Big Brother, friends, speaks with a forked tongue when it come to "numbers transmissions." Big Brother, however, seldom speaks when it comes to "numbers" matters!"

And while the voice remains mysterious, small bits of information does—at times—surface. And—in future articles—I'm going to tell you a lot about "numbers transmissions." I'm going to tell you things you just might possibly have never read or heard!

And for openers, take a close look at the following:

.....

018 018 018 07
006 06 055 03 011 10 010 49
055 06 023 15 048 41
"End"

.....

What you just saw is a highly simplified version of a "dictionary code." And some—but not all—"numbers stations" DO utilize the above. Two of the most common frequencies for the above type transmissions are 6802 and 6840 kHz. This 3/2 format on these frequencies is read by a YL and is in English. Some small amount of German in the 3/2 format has also been noted on these frequencies. The best time to catch one of these transmissions would be after 0100 UTC. And please be reminded that many German "numbers transmissions" make use of the 3/2 transmission format. And don't be too shocked to learn that SOME German transmissions originate from Warrenton/Remington, Virginia, sites! There is, however, at least one other domestic site other than Warrentown/Remington! And I'm going to tell you of this site in just a few paragraphs!

And now is very definitely the time to locate a pencil and a legal pad and have a go at it. And remember, that no code or cipher was ever solved just by one glance or just looking at it. It does take some effort.

Be reminded that the above is only a "Dick and Jane" or "See Spot run" explanation of "dictionary codes!" Be aware that legitimate "dictionary codes" can be highly complicated and—most importantly—highly secure. I'll go into further detail on this as well as other crypto systems in future articles. And I'm most confident that professional "crypies" are now in a state of major shock at my somewhat kindergarten cryptological example. So be it!

And I'm not sorry to say that I'm—for lack of a better word—uncomfortable with the statement that all four-digit and 3/2 digit English transmissions originate from the

Warrenton/Remington site in Virginia. I'm even more than uncomfortable when I am told that all five-digit Spanish transmissions originate from a site near Havana, Cuba! It just ain't that simple, folks!

And there's a darn good reason for this uncomfortable feeling! One four-digit Spanish and English site is located just a scant two miles inside the Jupiter Inlet, Jupiter, Florida! This location—at random times—transmits on 4670 kHz! This—very curiously—was confirmed by an independent source just as this article was being prepared. This source with impeccable credentials prefers to speak with anonymity. I have, however, known the general, but not exact location of this site for the past two years. This site is located very near a NASA tracking station and security is very heavy!

The BIG QUESTION, however, is just why was I—without prior warning—presented with independent and reliable confirmation of this Florida site! WHY?

And before I forget: The identifier 018 equates to the January 1988 issue of *POP'COMM*. And here's another clue or two: The first three digits indicate a page number. And hyphenated words count as one word. Obviously 07 is the group count.

And obviously—very obviously—those SWL's that decide to follow the "UTE" route find themselves in a shadowed forest! They have abandoned the International Broadcast path that does not stray! And when deviating from the path that does not stray, it is often hard to retell of the dark and sinister things heard. Big Brother might become upset!

Very obviously—just a few sentences back--I (Havana Moon) deviated from the path that does not stray.

Your comments and intercepts are solicited. And if you respond before midnight . . . .

And a BIG THANKS to Detective Lieutenant John Fuard, Dr. John Santosuosso and Eric Conners for their able assistance in the preparation of this article.

Time now for a Tecate and . . . .

Havana Moon y Amigas . . . .

17331 20760 21082

Additional Reading

CLOAK AND CIPHER, by Dan Moore & Martha Waller (Bobbs-Merrill)

CODES, CIPHERS AND COMPUTERS, by Bruce Bosworth (Hayden Books)

CRYPTANALYSIS, by Helen Gaines (Dover Paperbacks)

THE CODEBREAKERS, by David Kahn, Ph.D. (Macmillan)

THE PUZZLE PALACE, by James Bamford (Penguin Paperbacks)

* * * * * * * *

SOLUTION TO OUR "DICTIONARY" CRYPT

First three digits equate to page number. In this instance the page number is 6.

Second two digits equate to word number of corresponding page. "The" is the fifth word on page 6.

* * * * * * * * PC

The Day The Falling Star Network Fell

Is It The World's Longest Running Battle With the FCC?

BY TOM KNEITEL, K2AES, EDITOR

What are Yonkers? Actually, Yonkers is a place. With a population of 195,000 souls, it's one of the largest cities in New York State, almost twice the size of Albany, New York's capital city.

In the early 1930's, Yonkers had a broadcasting station, WCOH on 1210 kHz. But in 1932, WCOH packed up its transmitter and moved to a nearby community to become WFAS on 1230 kHz. Since that time, many smaller communities near Yonkers became home to local broadcasting stations. Not Yonkers, it's remained one of the few American cities of its size not to have any type of broadcasting station. Problem is that the FCC hasn't allocated any AM, FM, or TV broadcast frequencies for possible use in Yonkers.

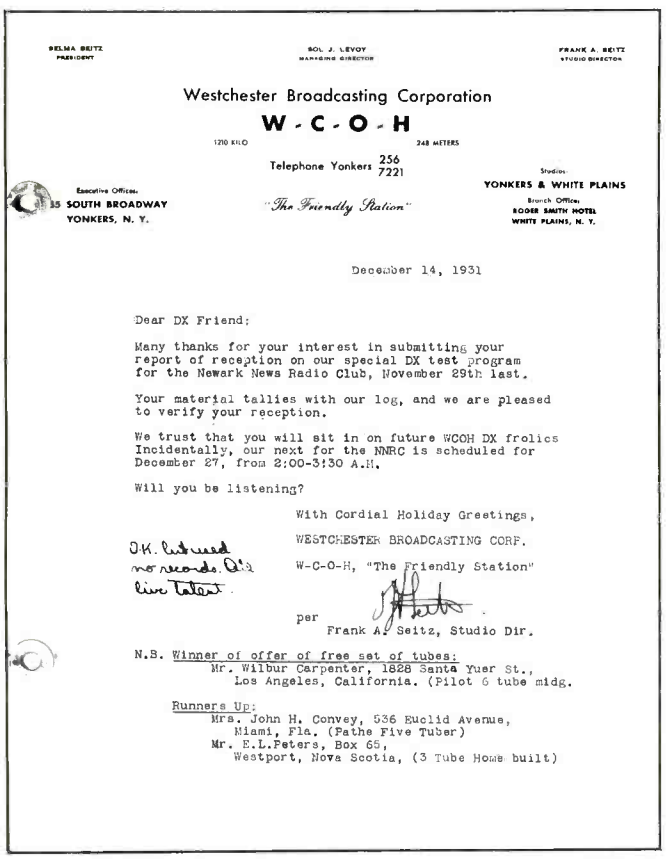
In 1970, in keeping with the era of the "Woodstock" generation, two young Yonkers residents felt it was time to put their community back on the broadcast dials. That would be 16-year old Allan Weiner and 22 year-old Joseph "J.P." Ferraro, Jr. They created the *Falling Star Network*, dedicated to free speech and freedom of the airwaves. Weiner operated WKOV-AM (1620 kHz) and WXMN-FM (87.9 MHz) from the basement of his family's home. Ferraro operated WFSR-AM and WSEX-FM, sharing the same frequencies and splitting air time with Al Weiner's stations. AM and FM broadcasts were simulcast, and the FSN operated every day. Starting out with programming that ran from noon to 4 a.m., eventually the FSN operated a full 24-hour daily schedule.

Backed by a corps of fifty volunteers, the programming was non-commercial, consisting mostly of youth-oriented talk, with a large helping of contemporary music—Dylan, Country Joe and The Fish, Baez, Ochs, Havens, Guthrie, and other artists whose talents were addressed to social issues.

Unfortunately, none of these broadcasting activities were sanctioned by the FCC. The FSN selected frequencies that wouldn't interfere with other stations, and there was no attempt made to conceal the locations of the stations nor the identities of the FSN's operators.

Warnings

The FCC warned Weiner and Ferraro three times over a period of months to cease operating, and the FSN did temporarily suspend operations after each of the warnings.



Westchester Broadcasting Corporation

W-C-O-H

1210 KILO 248 METERS

Telephone Yonkers 256 7221

Executive Offices: 15 SOUTH BROADWAY YONKERS, N. Y.

"The Friendly Station"

Studios: YONKERS & WHITE PLAINS

Branch Office: ROGER SMITH HOTEL WHITE PLAINS, N. Y.

December 14, 1931

Dear DX Friend:

Many thanks for your interest in submitting your report of reception on our special DX test program for the Newark News Radio Club, November 29th last.

Your material tallies with our log, and we are pleased to verify your reception.

We trust that you will sit in on future WCOH DX frolics Incidentally, our next for the NNRC is scheduled for December 27, from 2:00-3:30 A.M.

Will you be listening?

With Cordial Holiday Greetings,

WESTCHESTER BROADCASTING CORP.

W-C-O-H, "The Friendly Station"

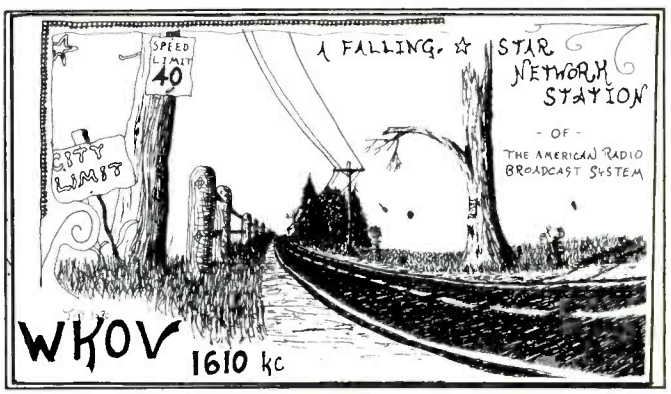
per Frank A. Seitz, Studio Dir.

O.K. Entered no records. Q's live later.

N.B. Winner of offer of free set of tubes:
Mr. Wilbur Carpenter, 1828 Santa Yuer St., Los Angeles, California. (Pilot 6 tube midg.

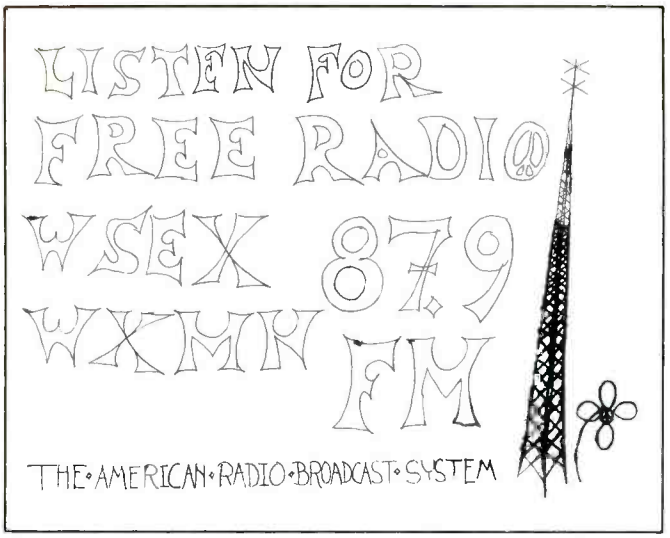
Runners Up:
Mrs. John H. Convey, 536 Euclid Avenue, Miami, Fla. (Pathe Five Tuber)
Mr. E.L.Peters, Box 65, Westport, Nova Scotia, (3 Tube Home built)

Until 1932, WCOH was Yonkers' only broadcaster. After WCOH moved away, things were quiet in town for almost forty years until the Falling Star Network activated. (Courtesy Joe Hueter.)

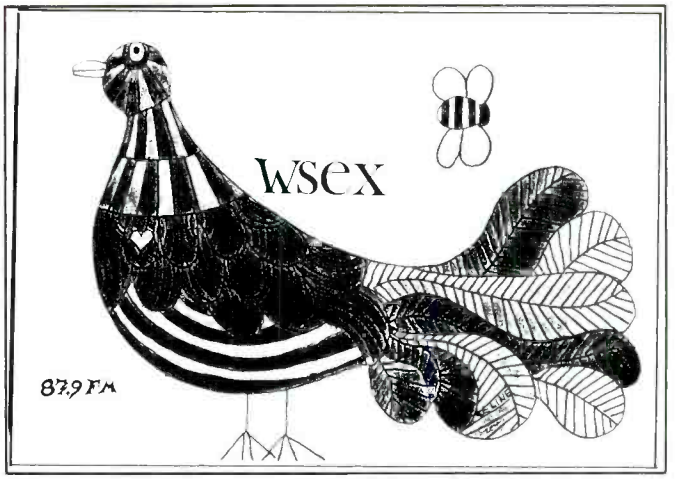


A rare QSL card from WKOV.

The WKOV logo is still seen within the "Free Radio" movement.



These posters were spread around Yonkers to let the public know about the Falling Star Network.



A QSL from WSEX makes reference to the birds and the bees.

Weiner and Ferraro even journeyed to the FCC offices in an effort to obtain licenses after the FCC told them that they couldn't broadcast without such documents. They said that their request was laughed at and they were facetiously asked, "Do you kids have a million dollars?"

The FSN had been a high-profile operation for a year and a half. The Yonkers *Herald Statesman* carried many stories about FSN and its running battles with the FCC. Even the *New York Times* was covering the rebellious little network. Weiner told the media that the FSN wasn't seeking any financial profit, they were interested only in the "beauty of broadcasting." He said, "We started this whole thing as an artistic and creative medium, and to bring freedom to the airwaves, not because we want fat bank accounts and chauffeur-driven cars."

Reporters asked about the lack of FCC licenses and were told that the FSN wasn't disputing the FCC's right to assign channels and set aside bands for the prevention of interference. Weiner stipulated, "We certainly are, however, disputing their right to reserve broadcasting for only the well-to-do."

Tech Specs

Weiner's stations consisted mostly of equipment scrounged from warehouses and military surplus depots. The FM transmitter ran 250 watts. The AM tansmitter (an old WWII BC-610) ran 300 watts and was purchased for $400. WKOV's antenna was a 30 ft. whip mounted on the roof of the house. WFSR used a longwire antenna. Weiner's complete station, if purchased new, would have cost about $75,000.

Less than impressed were a few close neighbors who claimed that they were getting TV interference from the FSN stations. Also, the local ham radio club was really on the warpath, recruiting some fifty members to make tape recordings of all FSN broadcasts. Otto Supliski, Yonkers Amateur Radio Club president was quoted by the media as announcing that the tapes were at the government's disposal since, "as an official monitoring station for the FCC, that's our job." He suggested that those who put FSN on the air "should be severely penalized" and the "person who sold them surplus equipment should be in trouble, too."

Supliski complained about FSN's use of "foul language," and that unlicensed stations can disrupt the DEW line. He added, "Just at the snap of a finger, there go our defenses." Although FSN had acquired a large and enthusiastic audience in its eighteen months on the air, they had come under increasing pressure from the courts and even local police to close down.

In July of 1971, the FSN went silent. Weiner said, "No one closed us down, things were tense so I shut it down." A few weeks later, U.S. Marshals and the FCC appeared one morning to arrest the FSN operators, dismantle and confiscate the equipment.

Weiner told the *New York Times*, "We didn't do it for money or for politics. Somebody's got to show the FCC that their domination of the airwaves is just not logical. We knew for months that we would be arrested. There was nothing we could to to stop it, but we felt we had a right to broadcast, and we did."

Weiner and Ferraro were arraigned in Federal District Court, being charged with violations of the Communications Act. In late October of 1971, the FSN operators were given suspended sentences and put on probation. The judge cautioned them not to take the law into their own hands and to cease operating as individuals outside of society.

Fish-eye view of master control at WKOV/WXMN, circa 1970.

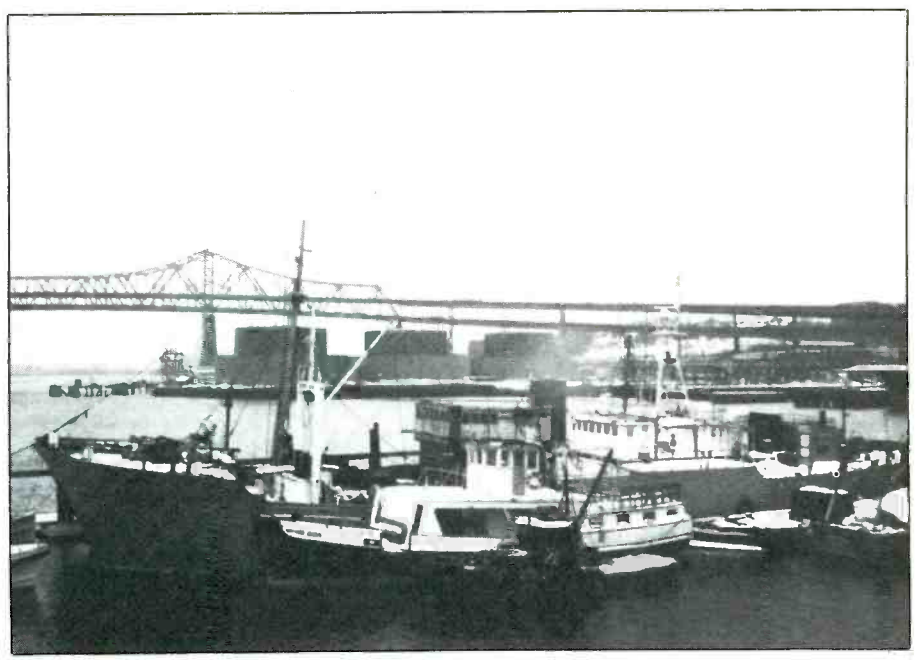
Al Weiner and J.P. Ferraro pose at the controls of KPF941, a 1984 attempt to put Yonkers on the air with an FCC license. (New York Times photo.)

At Long Last, An FCC License

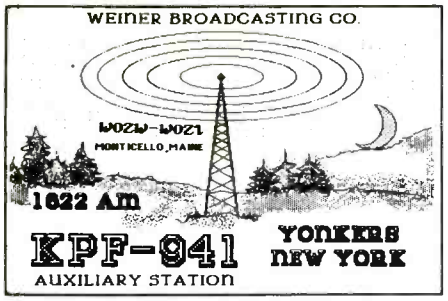
Thirteen years later, Al Weiner had moved to Maine and owned two commercial AM broadcasting stations. It was then, in 1984, that he noticed certain "loophole" wording in FCC regulations that appeared to contain the hope for an FCC-licensed broadcast station in Yonkers.

He noted that it might be able to secure a license for a broadcast auxiliary station in Yonkers to operate on 1622 kHz, just outside the high frequency edge of the standard AM broadcast band and almost identical to the frequency of the old FSN stations. The FCC's presumption is that such stations are intended for use only for remote pickup transmissions to broadcast station studios, or for two-way communications between news reporters and broadcast station newsroom dispatchers. Still, Weiner felt that the way the FCC regulations were worded, direct broadcasts for public reception over such a station would not be prohibited.

Weiner and Ferraro applied for the license and were issued the callsign KPF941 for a station in Yonkers. On November 7th, 1984, they commenced non-commercial broadcasting with 100 watts. Programs



Radio Newyork International is located aboard this ship. It's the M/V Sarah as it looked while in port near Boston. (Courtesy Mark Foster, WA1PNW.)



A prized KPF941 QSL card.

would seem to be on a direct collision course with FCC regulations and attitudes. Certainly Weiner and Ferraro have no shortage of critics for daring to do anything that might bring forth the FCC's ire. There are also those who see them as the martyred prophets of the movement to permit the establishment of amateur or personal broadcasting stations.

From a strictly broadcasting standpoint, each of their controversial stations quickly attracted a faithful audience as well as considerable media attention. Trendy *Rolling Stone* magazine selected *Radio Newyork International* as the best radio station of 1987.

Somewhere between the FCC regulations, and the free-form approach to broadcasting of Weiner and Ferraro, there might someday be an amicable crossover point—but not before more sparks are destined to fly.

They appear to be as determined to broadcast as the FCC seems resolute in silencing them. Stand back and watch the sparks! **PC**

went out eight hours per day for a total of twenty two days. That's the amount of time it took for the FCC to find out about the broadcasts, react in horror, and threaten legal action.

Although Weiner insisted that he was using KPF941 according to the wording of FCC regulations, the agency disagreed and was not at all amused. The FCC said that Weiner's interpretation of the rules were incorrect. Weiner then asked for a waiver of the rules, but that produced no positive results.

Worst of all, the FCC was so miffed at Weiner for his operation of KPF941, that the agency decided that he didn't have the sufficient moral fiber to be an FCC licensee. Despite the fact that there had never been any question in regards to the way his two stations in Maine were being operated, the FCC forced Weiner to sell the stations at 75% of their true assessed value. Weiner had no choice but to dispose of both stations at a substantial financial loss.

Falling Star Rises Yet Again

Less than three years later, in mid-1987, Weiner and Ferraro were back on the air—they claimed legally, although the FCC again objected. That's when their shipboard broadcasting station, *Radio Newyork International* dropped anchor in waters beyond American territorial claims. The FCC wasted no time in boarding the ship anyway, removing RNI from the air, arresting its staff, and then dropping all of the charges against the station.

The saga of RNI is still in the process of unfolding, and seems to be basically an aftershock of the day in 1971 when the *Falling Star Network* fell.

Weiner's philosophy has basically remained unchanged since 1970. He was quoted then as saying, "We don't claim to have the best programs on the air, but we try. We don't claim to be the most free-thinking around, but we give our mikes to anyone who has something to say. We don't have thousands of dollars to spend on equipment to make our station have a high fidelity signal, but we have taken our own money and have made high-fidelity stations—this is, we believe, for the people. The airwaves should be as free as the rays of the sun, they belong to the people—not corporations."

It's an unusual philosophy; one that

Selected English Language Broadcasts

Summer—1988

BY GERRY L. DEXTER

Note: There are hundreds of broadcasts aired in the English language every day on the shortwave broadcast bands, many of them directed to North American audiences. This is a representative listing and not intended to be a complete reference. The listing is as accurate as possible, however stations oftenmake changes in their broadcasting hours and/or frequencies, often with little or no advance notice. Some broadcasters air only part of the transmission in English, or may run English into the hour following. Numbers in parenthesis indicate a start time for English that many minutes past the hour. All times are UTC.

Time	Country/Station	Frequencies
0000	Radio New Zealand	15150, 17705
	KVOH, California	9495
	Radio Sofia, Bulgaria	9700, 11720
	Radio Havana Cuba	6140
	HCJB, Ecuador(30)	9720, 11775, 11910, 15115
	Radio Kiev, Ukraine SSR(30)	5980, 7165, 11790, 11890, 13645
	KUSW, Utah	11655
	BRT, Belgium(30)	5910, 9925
	Radio Beijing, China	9665, 9770, 11715
	BBC, England	5975, 6175, 9915
	Voice of Israel	7462, 9435, 9815
	REE, Spain	6125, 9630
	Vatican Radio(50)	6185, 9605
	WHRI, Indiana	7400, 11770
	Radio Moscow	5915, 5940, 6000, 6045, 6115, 7115, 7150, 7215, 7310, 11770, 12050, 13665
	Radio Portugal	6095, 9680
	Radio Berlin Inter'l, E. Germany	6080, 9730
0100	Radio Austria Intern'l(30)	9870
	Radio Prague, Czechoslovakia	5930, 7345, 9540, 9630, 9740, 11990
	RAI, Italy	9575, 11800
	Radio For Peace Inter'l, Costa Rica	7375
	DW, W. Germany	6040, 6085, 6145, 9565, 9735
	Voice of Israel	7462, 9435, 9815
	Radio Norway Inter'l(Sun)	9615
	Voice of Greece(30)	7430, 9425
	Radio Baghdad, Iraq	6195
	REE, Spain	6125, 9630
0200	Radio Polonia, Poland	6095, 6135, 7145, 7270, 9525, 11815, 15120
	Radio Tirana, Albania(30)	7065, 9760
	Radio Bucharest, Romania	5990, 6155, 9510, 9570, 11810, 11940
	Radio RSA, South Africa	9580, 9615, 11730
	RAE, Argentina	9690, 11710
	Radio Havana Cuba	6115, 6140
	Radio Beijing, China	9645, 9770, 11715, 11980, 15455
	Radio Sweden(30)	9695
	Radio Belize	3285
	Radiobras, Brazil	11745
	Radio Cairo, Egypt	9475, 9675
	VOFC, Taiwan	5945, 5985, 11740
	RFI, France	5950, 6055
	Radio Netherlands(30)	6020, 6165, 9590, 9895
	Radio Norway Inter'l(Sun)	9565
	Radio Portugal(30)	9705
	Swiss Radio Inter'l	6135, 9725, 9885
	Radio Budapest, Hungary	6025, 6110, 9520, 9585, 9835, 11910
	Radio Berlin Inter'l, E. Germany(15)	6080, 9730
0300	TWR, Bonaire	9535
	Radio Tiarana, Albania	7065, 9760
	Radio Prague, Czechoslovakia	5930, 7345, 9540, 9630, 9740, 11990
	HCJB, Ecuador	6230, 9720, 11775
	Radio Kiev, Ukraine SSR	5980, 7165, 11790, 11890, 13645
	ZBC, Zimbabwe	3396
	HRVC, Honduras	4820

Time	Country/Station	Frequencies
	KUSW, Utah	9815
	Radio Beijing, China	9690, 9770, 11715
	RFI, France(30)	6055, 9800
	DW, West Germany	6010, 9545, 9605, 9700
	Radio Austria Inter'l	6015
	Radio Japan	5960, 11870, 17825, 21610
	Voice of Greece(40)	7430, 9425
	TIFC, Costa Rica	5055
	Voice of Nicaragua	6100
0400	RAE, Argentina	9690, 11710
	Radio Berlin Inter'l, E. Germany(30)	6010, 9560
	Radio Sofia, Bulgaria	7115
	Radio Five, South Africa	4880
	Radio Austria Inter'l(30)	6015
	Radio France Inter'l(30)	6055,9800
	BBC, England	5975, 9510
	Voice of Turkey	9445
	Radio Budapest, Hungary	6025, 6110, 9520, 9585, 9835, 11910
	Swiss Radio Inter'l	6135, 9735, 9885
	Radio Havana Cuba	6035, 6090, 6140
	Radio Moscow	5940, 6000, 6095, 6190, 7150, 7260, 7290, 7310, 11790, 12010, 12050
0500	Radio Cameroon	4795, 5010
	ELWA, Liberia(55)	4760
	Voice of Israel	7410, 9385, 9435
	Radio Havana Cuba	6035, 6115, 6140
	Radio Dublin Inter'l, Ireland	6930V
	Voice of Nigeria	7255
	Radio Lesotho	4800
	KUSW, Utah	6155
	DW, West Germany	5960, 6120, 6130, 9635, 13790
	Radio Netherlands(30)	6165, 9715
	Radio Japan	5990
	REE, Spain	6125
	WRNO, Louisiana	6185
0600	HCJB, Ecuador	6230, 9720, 11775
	Radio Cook Islands	11760
	FIBS, Falkland Islands	3958
	GBC, Ghana	4915
	WCSN, Mass.	9495
	Radio Austria Inter'l(30)	6000, 6155
	BBC, England	9640
0700	Radio Sofia, Bulgaria(30)	9700, 11720
	SIBC, Solomon Islands	5020, 9545
	KUSW, Utah	6135
	VOFC, Taiwan	5985
	Radio Japan	5990
	Swiss Radio Inter'l	6165
	BBC, England	5975, 9640
	TWR, Monaco(25)	7105
0800	KNLS, Alaska	11860
	Radio Tirana, Albania	9500, 11835
	Radio Australia	9580
	BRT, Belgium	9860

Time	Country/Station	Frequencies
	Radio Berlin Inter'l, E. Germany(15)	6040, 7185, 9730
	HCJB, Ecuador	6130, 11925
	KYOI Saipan	11900
0900	NBC Papua New Guinea	4890
	KNLS, Alaska	11820
	WRNO, Louisiana	6185
	Radio New Zealand(30)	9540, 11780
	Radio Oman	9735, 11890
	AFRTS, USA	6030, 9530, 15265
1000	Radio Australia	9580, 11720
	KNLS, Alaska	11930
	GBC, Guyana	5950
	Voice of Vietnam	9840, 15010
	All India Radio	11920, 15130, 15335
	Radio New Zealand(30)	6100, 9540
	Voice of Greece(40)	11645, 15630
1100	TWR, Bonaire	11815
	Radio Thailand(30)	9655
	Radio Byongyang, No. Korea	6576, 9600, 11735
	KUSW, Utah	9850
	BRT, Belgium	17595
	Radio France Inter'l	6175, 9805, 11670, 11790, 15195, 15425
	BBC, England	5965, 6195
	Radio Japan	5990, 6120
	Radio Beijing, China	9535, 15280
	Voice of Israel	9385, 11770, 15485, 15640, 15650, 17635
	Radio Pakistan	15605, 17660
	Voice of Vietnam	9840, 15010
1200	RCI, Canada	9625, 11855, 17820
	Radio Australia	9580
	Radio Bangladesh(30)	15525, 17870
	HCJB, Ecuador	11740
	Radio Baghdad, Iraq	11790
	VOPK, Kampuchea	9695, 11938
	Radio Finland Inter'l	11945, 15400
	Radio Austria Inter'l	15320
	Radio Beijing, China	9535, 13650, 15380
	Radio Ulan Bator, Mongolia	9615, 12015
	Radio Singapore	5010, 5052, 11940
	Radio Tashkent, Uzbek SSR	7325, 9600, 9715, 11785, 15460
1300	Radio Pyongyang, No. Korea	9555, 9600, 11735
	All India Radio(30)	9545, 11810, 15335
	BRT, Belgium(30)	15590
	Radio Finland Inter'l	11945, 15400
	Radio Norway Inter'l(Sun)	6035, 9590, 15190, 15310
	Radio France Inter'l	15365, 17720
	Voice of Vietnam(30)	9840, 15010
	Swiss Radio Inter'l	9535, 12030
	Radio Beijing, China	7335, 9530, 11600, 11755

Time	Country/Station	Frequencies
1400	Voice of Ethiopia	9560
	Radio RSA, South Africa	15125, 17755, 21590
	Radio Australia	9580
	HCJB, Ecuador	11740
	WCSN, Mass.	13760
	Radio Finland Inter'l	11945, 15400
	FEBC, Philippines	9760
	Radio Japan	5990
	Radio Norway Inter'l(Sun)	15300, 15305, 15310
	Radio Sweden	9695, 15345
	Radio Korea, So. Korea	9750, 15575
1500	KSDA, Guam	11980
	BBC, England	6195, 11775, 15260
	Radio Norway Inter'l(Sun)	11870, 15310, 17840
	Voice of Indonesia	11790, 15150
	Radio Veritas Asia, Philippines	9770, 15215
	Radio Lira, Costa Rica	15460
	Radio Japan	5990
1600	Radio Nacional, Angola	9535, 11955
	BSKSA, Saudi Arabia	9705, 9720
	HCJB, Ecuador	15115, 17590
	KUSW, Utah	15225
	WCSN, Mass.	21460
	Radio Cairo, Egypt(30)	15225
	Radio France Inter'l	11705, 11995, 17720
	UAE Radio	11730, 11955, 15320, 17865
	Radio Pakistan	9465, 11615, 11625, 15605
1700	"Radio Africa", Equatorial Guinea	9553
	Radio Norway Inter'l(Sun)	9655, 15220, 15310
	Radio Surinam Inter'l(40)	17840V
	Radio Japan	5990
	WMLK, Pennsylvania	9455
	Voice of Nigeria	11770
1800	RCI, Canada	15250, 17820
	BSKSA, Saudi Arabia	9705, 9720
	Radio Havana Cuba(30)	9670
	WCSN, Mass.	15390
	All India Radio(45)	11620
	Radio Kuwait	11665
	Radiobras, Brazil	15265
	Voice of Nigeria	15120
1900	Radio RSA, South Africa	7270, 11900
	Radio Sofia, Bulgaria(30)	6070, 9700, 11720
	KUSW, Utah	17715
	Radio Algiers, Algeria	9509, 9685, 15215
	Radio Japan	9505
	Radio Norway Inter'l(Sun)	9590, 15230, 15310
	Radio Afghanistan	6020, 9635
	VOIRI, Iran(30)	9022, 11930
2000	BSKSA	9705, 9720
	KVOH, California	17775
	RAE, Argentina	15345
	IBRA, Malta(45)	5980
	All India Radio	9620, 9910, 11620
	Voice of Kenya	6100
	BBC, England	5975
	Radio Damascus, Syria	9950, 11625
	Radio Baghdad, Iraq	9875
2100	Radio Sofia, Bulgaria(30)	d6070, 7115, 9700
	All India Radio	9550, 9910
	Radiobras, Brazil	9760
	Voice of Nigeria	15120
	RCI, Canada	11880, 15150, 17820
	HCJB, Ecuador	11790, 15270, 17790
	Radio Baghdad, Iraq	9875
	Swiss Radio Inter'l	9885, 12035, 15570
2200	RCI, Canada	5960, 9775
	Radio Yugoslavia(15)	5980, 6100, 7240, 9620
	RAE, Argentina	6060, 9690, 11710
	Radio Sofia, Bulgaria(30)	9700, 11720
	KUSW, Utah	15580
	WCSN, Mass.	15300
	VOFC, Taiwan	7355, 9955, 11805
	BRT, Belgium	5910
	BBC, England	5975, 9915
2300	Radio Tirana, Albania(30)	6200, 9760
	Radio Pyongyang, North Korea	11735, 13650
	Radio Vilnius, Lithuania	6200, 7165
	Radio Japan	15300
	Voice of Turkey	9445
	RBI, E. Germany	6070, 6125, 6165
	Radio Korea, So. Korea	15575
	Radio Sweden	6065, 9695
	Voice of Vietnam(30)	9840, 12035

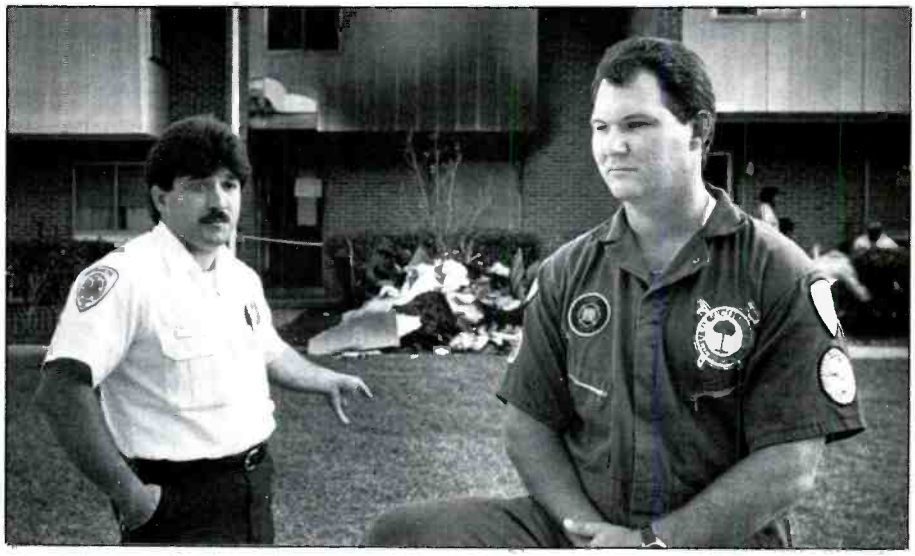
PC

Firemen Rescue Man From Apartment Fire

"It takes a special kind of fellow to walk through flames to get someone else."

Those were the words of S.E. Hendrick, fire chief of Conway, South Carolina, while describing the exploits of two of his firefighters. "We have those kind of firemen," he said. "They do a commendable job and I'm real proud of them to say the least."

Hendrick was speaking of Marty Johnson and Jimmy Hammond, volunteer firefighters with the Conway Fire Department. The two firefighters went into a burning apartment to rescue an unconscious 41-year-old man.



Marty Johnson and Jimmy Hammond in front of the apartment. (Photo courtesy of Charles Slate/The Sun News.)

SCAN PUBLIC SERVICE AWARD

"It makes you feel real good to save somebody's life," Johnson told the *Myrtle Beach* (S.C.) *Sun News*. "If the rest of the guys hadn't done their jobs, Jimmy and I couldn't have done what we did, and the guy would have perished."

According to an account of the incident in the *Horry Independent*, the fire occurred about 1:00 a.m. in the Huckabee Heights Apartments in Conway. Hendrick said the fire was apparently caused by a cigarette that was left on a sofa by Vertis Gause. After entering the smoky apartment, Hammond and Johnson found Gause lying face down in an upstairs bedroom above the fire. Hammond picked the man up and took him outside while Johnson stayed upstairs and searched two other bedrooms and a bathroom to make sure no one else was in the building.

"It was still burning downstairs when the two guys went upstairs and brought him out," said Tony Hendrick, Horry County Emergency Services assistant director. "If it hadn't been for them, he wouldn't be living today. I'm sure of that. He was unconscious and not breathing when they brought him out."

Tony Hendrick revived the victim after he was rescued, according to the *Sun News* and the *Independent*. Gause suffered from smoke inhalation and some burns. He said he didn't remember anything about the fire, but was glad to be alive.

The rescue was made by the two firefighters after a friend of Gause's, Horace Kinlaw, tried unsuccessfully to rescue the man. He ran into the apartment and up the stairs, but was unable to rescue Gause. Kinlaw jumped from the bedroom window, suffering minor injuries.

Stella Bellamy, a neighbor, called the fire department and alerted others in the apartment building.

"We were asleep in the bedroom and I smelled something," she told the *Sun News*. "I ran out the door and peeped around the corner and saw it. I ran from house to house calling everybody else and getting them out. I've never experienced anything like that before."

"The whole fire department is a hero when you save somebody," Hammond said. "Training officers are the most important people. They are the ones that taught you what to do."

For their rescue, volunteer firefighters Marty Johnson and Jimmy Hammond will receive the SCAN Public Service Award, which consists of a commendation plaque and a cash prize. For making the nomination, Gerard A. Bellamy of Conway, South Carolina, will also receive a plaque. Congratulations to all of you.

SCAN PHOTO CONTEST WINNERS

Best Appearing

Ray Blackstone of Houston, Texas, writes that he carries a scanner and a camera everywhere, even when he just goes to the store. With a listening post like this,

however, we doubt that Ray leaves home very often!

A professional photographer and videographer, Ray says that his scanners have more than paid for themselves by leading him to stories that he has photographed and then sold the pictures to a local newspaper or magazine.

Pictured here are Ray's two Realistic Pro-30s, one of which always travels with him, and a Realistic Pro-78 and a Bearcat 210. The Pro-30 mobile scanner has the main emergency and press frequencies, and the other Pro-30 is used for paramedic, SWAT and Life Flight frequencies. The Pro-78 is used for monitoring the state and county police, and the Bearcat searches for new frequencies when it is not tuned to the local television news units.

A Realistic DX-160 is used for shortwave listening, and a Commodore computer and Microlog SWL are tied into a Realistic DX-400 for RTTY and CW reception.

Best Equipped

John L. Crist, Jr. of Dallas, Texas, is a busy man. In addition to monitoring with

(Continued on page 72)

Radio Remembered

Leafing Back Through The Pages of History

BY ALICE BRANNIGAN

It didn't take long for the tactical applications of radio to be realized. After the invention of the vacuum tube, the way was cleared for the development of transportable equipment that had many surreptitious uses.

One of the first such practical uses of undercover shortwave radio was during the early 1930's trial of Bruno Hauptmann, charged with the kidnap and murder of the Lindbergh baby. In fact, as the nation sat glued to broadcast receivers listening for the verdict, they heard no less than *two* verdicts!

First, the word emerged from the locked courtroom that Hauptmann had been found guilty, with a recommendation for life imprisonment. A few minutes later the networks reported a verdict of murder in the first degree, which meant the electric chair.

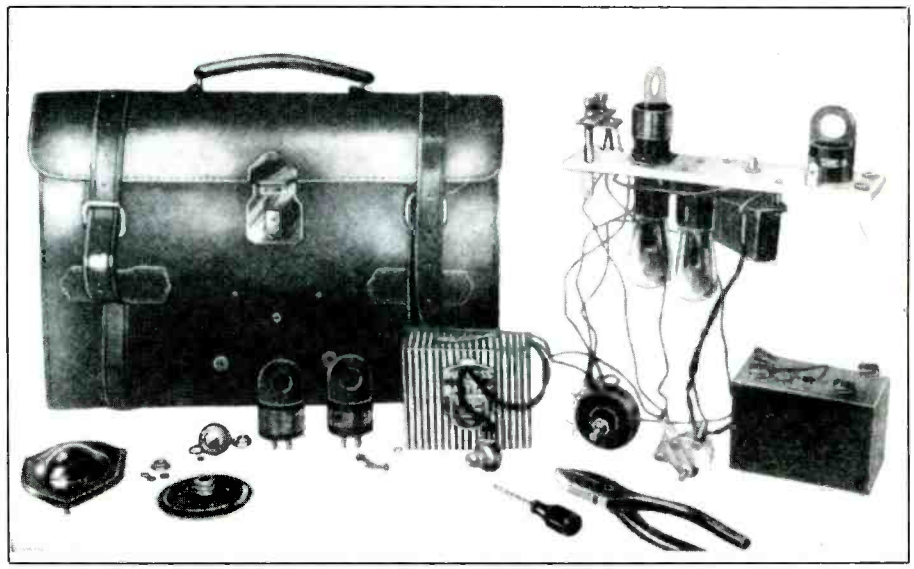
The reason for this was a little mixup in shortwave code signals. The Associated Press reporter had secretly carried a shortwave transmitter into the courtroom. It was concealed in an ordinary leather briefcase. This was to give him the jump on all other reporters since members of the news media weren't going to be permitted to reveal the verdict until the judge unlocked the courtroom doors.

If the jury's verdict was "Guilty, recommendation mercy, life imprisonment, the AP code signal was four dots. Near the courtroom an AP telegrapher was startled to hear this signal in his headphones. But the coded signal he heard didn't come from his associate's transmitter lying innocently on a table in the courtroom. Unknown to the AP people, a *New York Daily News* reporter had a second shortwave transmitter hidden in a small overnight bag. The *Daily News* reporter's signal to his own outside receiving station was four dots to signify that the jury had entered the courtroom. When the AP telegrapher heard the four dots, he didn't realize it was a different code from another hidden transmitter, and he flashed the wrong information to his office.

The foul-up caused much criticism. The AP reporter was accused of guessing at the verdict (and making a bad job of things), or else it was thought he had been tricked by the word of a bribed court employee.

Garbled message notwithstanding, the short range (100 ft.) transmitter didn't need much of an antenna to be effective. With a more substantial antenna, surreptitious communications could cover hundreds or thousands of miles.

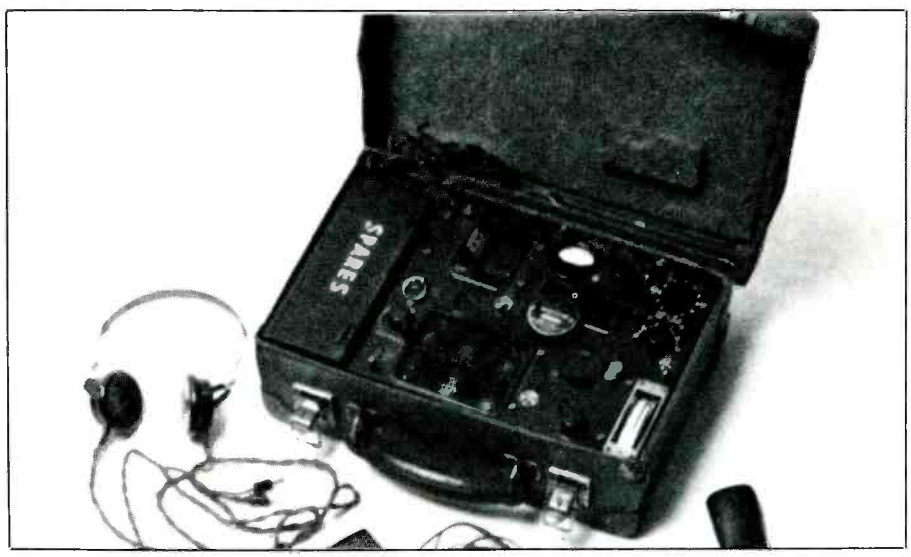
Within ten years, this concept was to be in widespread use as complete long range transmitting and receiving stations were built in small suitcases. As WWII spread, Allied and Axis espionage agents used such equipment to communicate with their commands. Sometimes it was used behind enemy lines, or it could be used in non-combat zones.



This is similar to the secret transmitter hidden in the courtroom during the famous Lindbergh baby kidnapping trial.

Thousands of such hidden transmitters of various designs were used throughout the world by espionage agents and sabateurs. We have a photo of one type of WWII portable suitcase transceiver. Considering its compact design, it had a surprisingly reliable range of hundreds of miles.

As the war progressed, so did communications technology. This permitted the design and production of ever-smaller communications devices. In 1944, the Germans were producing a small transceiver operat-



A WWII British spy and saboteur transceiver constructed in a suitcase.

A Canadian soldier displays a captured Nazi mini-transceiver. It had a range of two and a half miles and operated in the UHF band.

ing in the 320 to 380 MHz band. It had a range of up to 2½ miles. Complete with its microphone, headset, and antenna, it weighed only 4 lbs.

Power (1.4 and 150 volts) came from dry cells in a separate box. Two midget UHF tubes were used in the RF stages and a dual-purpose standard loktal tube was in the audio circuit. The 5 ft. antenna was comprised of laminated ⅜-inch strips. During use, it plugged into the top of the unit. When not in use, it could be folded up and carried in the pocket. The push-to-talk mike could be clipped to the clothing.

It was transceivers such as this that inspired even smaller civilian devices that began to appear by 1946. One such transceiver fit into a man's top jacket pocket, with the power pack in another pocket. The antenna was sewn into the jacket lining.

In 1947, the era of true communications miniaturization was realized when inventor Cledo Brunetti built a complete 'phone transmitter (including batteries and microphone) into an empty lipstick container. Things had come a very long way from briefcase CW radios to 'phone rigs in lipstick cases, and it had taken only a relatively few years. Even that giant step towards miniaturization was minimized by the later development of solid state devices and other technologies not focused on vacuum tubes.

The year 1947 saw a secret transmitter in a hollow lipstick case.

Wolf Packs

A request from W. Randolph of Halifax, Nova Scotia who asks about the communications used by "wolf packs" of Nazi U-boats during WWII.

There were four shore stations normally used for communications with the U-boat fleet. These were RXU in Lorient (5660, 7640, and 11125 kHz), KYU in Wilhelmshaven on RXU's frequencies, JDU in Kiel (5315, 8400, 11260, 13325, 16410, and 19780 kHz), and DAN in Norddeich (5595, 8470, 12700, and 16975 kHz). DAN is still an active maritime telegraph station.

Communications consisted of several categories. One was the *Naval Enigma* crypto type consisting of thirty-six 4-letter groups plus header. Then there were "WW" signals, (routine weather data). There were so-called *B bar* and *Short E bar* transmissions that were encrypted traffic relating to fuel status, position reports, etc. Also there were *Long E bar* transmissions, indicating that an enemy vessel or convoy had been sighted and an attack was impending or under way.

High frequency direction finding (HFDF) signals were often sent on 4412 kHz when enemy vessels were sighted. These signals were intended for reception by shore stations and other U-boats.

National Park Broadcaster

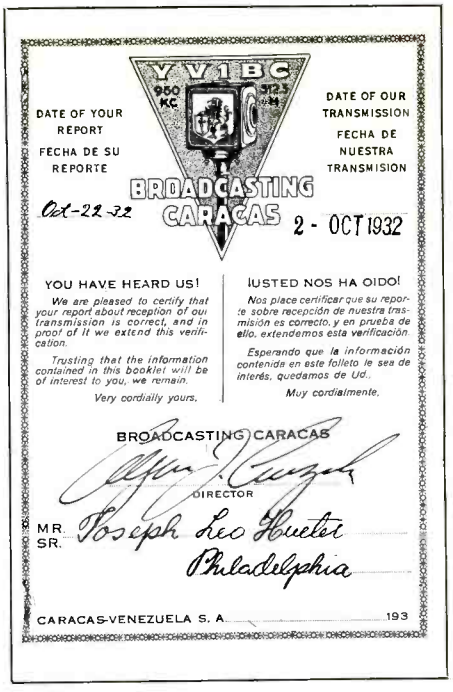
Alexander Durant, Albany, NY passed along a picture postcard dated 1926 and showing the imposing New Arlington Hotel, Hot Springs National Park, AR. He directs our attention to the roof of the building and points out that there's a broadcast tower there which suggests the probability of a broadcast station. Indeed, it does!

This was none other than KTHS (the call-

In 1946, communications technologies developed during the war were adapted to civilian applications for undercover transceivers.

Nazi subs during WWII made use of the famous Enigma code machines.

The stately New Arlington Hotel, for a time, owned and operated station KTHS in Arkansas. Note the KTHS antenna on the roof. The KTHS studios were in one of the two turrets. (Courtesy Alexander Durant.)



YV1BC was one of the early broadcasters in South America. (Courtesy Joe Hueter.)

sign meant *Kum To Hot Springs*). The license for KTHS was issued on December 19th, 1924 for 500 watts on 800 kHz. It was issued to the New Arlington Hotel. The station had been constructed under the direction of Cam Arnoux and E.L. Olds, both of whom had been hired away from WBAP in Ft. Worth, TX.

One turret on the newly built hotel was used as the KTHS studio. The transmitter room was on the 12th floor. A Western Electric transmitter was fed to wires strung between two steel towers on the roof, one 150 ft. tall and the other 125 ft. in height. The complete station installation cost $27,000.

Programming commenced on 20 December, 1924. KTHS quickly received 186 telegrams and twenty five long distance telephone calls reporting reception in twenty two states. It was a boon to the Chamber of Commerce because after only two months on the air, KTHS had attracted 25,000 inquiries asking for tourist information on the National Park there. The station even tried a one-time experiment in 1925 when it had a two-station "network" with WHAD in Milwaukee, WI.

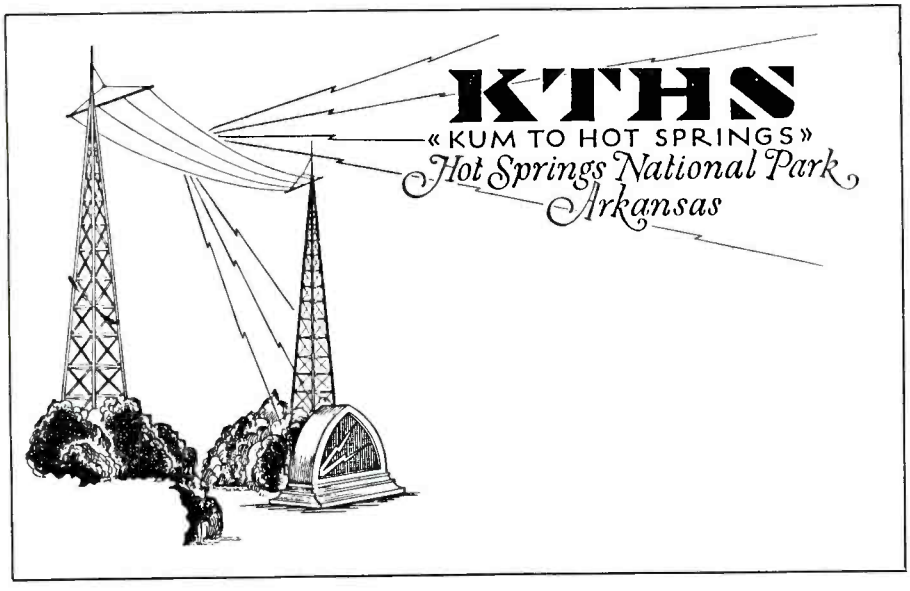
As of August, 1925, the station began sharing time on 800 kHz with KFRU in Barstow, OK. In 1926, KTHS was told by the Bureau of Standards that it had maintained the best frequency stability of any station in the South. In June of 1927, KTHS went up to 1 kW and switched to 780 kHz. By April of 1928, KTHS was told to again change frequency, this time to 600 kHz where it would split time with WBAP, Ft. Worth.

By May of 1928, the hotel's owners decided that they had enough of broadcasting. They offered the station as a gift to the Chamber of Commerce under the conditions that the station would have to remain on the air for at least three years and, should it ever be sold, the hotel would get $25,000 from the sale money. The CC quickly accepted and moved the station out of the hotel, relocating the antennas to a site three miles from the city. Two 200 ft. towers were constructed, separated by 384 ft. A ground system consisting of 15,000 of copper wire was added. KTHS's studios were installed in the CC building at 135 Benton St.

By November of 1928, KTHS was told to move its frequency back to 800 kHz. A new 5 kW General Electric transmitter was installed that brought in reception reports from forty two states, plus Canada, South America, and even ships at sea. About 1,000 reception reports were arriving per day.

In 1929, KTHS joined the NBC network. It also changed frequency to 1040 kHz and increased power to 10 kW. Two years later the station received a considerable amount of national attention by discovering two rural comics who quickly became successful as "Lim and Abner." They became so popular that their programs were carried on both the NBC red and blue (later to become ABC) networks.

In early 1934, KTHS was given permission to temporarily operate on 1060 kHz. By then, the Depression had put KTHS on a strict austerity budget. This resulted in the station's use of unpaid high-school student announcers. Not only were there money problems, but by late-summer of 1935, it was decided that magnetic mineral deposits in the soil were minimizing the antenna ground system and adversely affecting the



The KTHS logo publicized the station's location and main tourist attraction. (Courtesy Joe Hueter.)

signal. If only $25,000 could be raised, a new transmitter site could be selected. A fund-raising drive was started, and a portable 50-watt transmitter on 1160 kHz was taken from place to place in the search for a better site.

It was eventually decided to sell KTHS to Col. T.H. Barton, owner of Arkansas stations KELD and KARK. Barton wanted to move KTHS to Little Rock. The price of $75,000 was agreed upon. The Hot Springs public and business community were furious at the possible relocation of the station to another city. The mayor of Hot Springs went so far as to solicit the aid of President Franklin Roosevelt in stopping the sale and relocation. Meanwhile, the local newspaper applied to the FCC for a license for a new station on 1310 kHz (100 watts). Col. Barton attempted to appease Hot Springs by offering its people "perpetual free time" over the station after the move, and assuring them that it would still easily be heard in their city.

After many staff changes at KTHS, plus the replacement of all new members of the Hot Springs CC, stock was sold to raise money from the local community to remedy the technical problems. The transmitter was renovated and a new grounding system was put in place. These changes improved the signal. Still, court battles regarding the station's future ownership and location raged on.

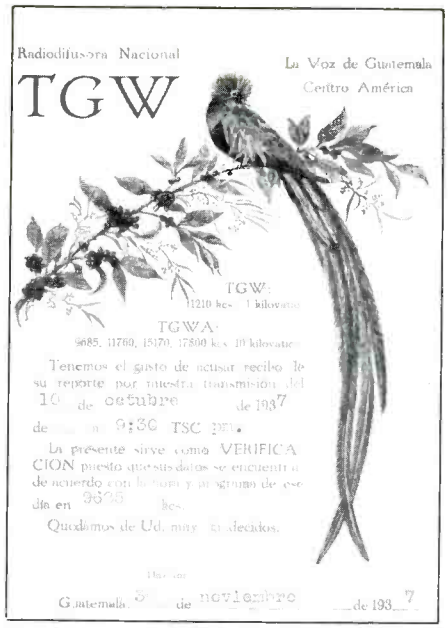
The Governor of Arkansas was drawn into the controversy by November, 1938 when a cadre of forty Hot Springs residents and an attorney journeyed to Washington, DC for FCC hearings on the fate of KTHS. During the hearing, Barton decided to discontinue his efforts to purchase KTHS, but was told that he would have first crack at buying it if it were to be sold within ten years.

Within the following few years, several proposals were advanced to increase the station's power to 50 kW on 1060 kHz. The FCC said that they would approve the idea only if KTHS was divorced from its association with the CC. Everybody agreed that this was acceptable, and RCA said it would put $90,000 towards the cost of new equipment. Col. Barton said he would purchase stock in the new corporation and stand good on $30,000 worth of overdue bills that KTHS had accumulated. Barton's ownership in KTHS was approved in the early months of 1941. Not long after, KTHS requested a shift to 1090 kHz. The FCC approved, but insisted that the daytime power remain at 10 kW, with the night power reduced from 5 kW to 1 kW from its new transmitter site at Wrightsville, AR.

Subsequently, KTHS was again sold, again changed frequencies, and again moved locations. Currently KTHS is in Berryville, AR where it runs 5 kW on 1480 kHz.

A highly detailed history of KTHS during its Hot Springs era is told in the book *Arkansas Airwaves*, by Ray Poindexter (published privately at North Little Rock, AR, 1974). Thanks to Joe Hueter, of Philadelphia, PA for furnishing the KTHS station logo for our use here.

This imposing broadcast tower is in Seattle, WA. Anybody know which station uses it, or its twin at the other side of the roof?



Dual station card for TGW/TGWA in Guatemala. This one is dated 1937.

This colorful T-shirt design shows all of the 1930's San Francisco stations and their tuning locations on the dial. It's a beauty. (Courtesy Apple Press, Sebastopol, CA.)

From Venezuela

Joe Hueter also provides us with a look at a QSL from broadcaster YV1BC (960 kHz), Caracas, Venezuela. Actually, it's more of a certificate or diploma than a traditional QSL card. This QSL is dated 1932, before YV1BC changed its callsign to YV1RC, then later to YV5RA (under different ownership). In the 1930's they ran 5 kW, but eventually increased this to 10 kW.

Seattle Mystery Photo

We know where, but we don't know *what*. Steve Lake and Mark Jarve, of Free Radio broadcaster *New World Radio* sent us a photo of a picturesque radio tower located atop an office building at the corner of First and Pike in Seattle, WA. Although only a single tower shows in the photo, a second one is located on the other side of the roof. No sign of a broadcaster seemed to be evident in the building, so they assumed that they may have been left over from an extinct station.

If any readers know what station these towers are for (or were for), your information will be appreciated.

Voice of Guatemala

Shortwave enthusiasts generally count Guatemala's TGWA as one of the first stations they hear and report. Probably few listeners realize that TGWA, also known as *Radiodifusora Nacional* and *La Voz de Guatemala* has been around for many decades.

The broadcast band outlet, callsign: TGW, was active back well into the very early 1930's when it ran 50 watts on 570 kHz. By the mid-1930's it was on 1210 with 1 kW. TGNA, the shortwave outlet, was running 10 kW on 9685, 11760, 15170, 17800 kHz in 1937 when the QSL card we show this month was issued.

These stations remain active from Guatemala City as TGW with 50 kW on 640 kHz, and two shortwave outlets, TGWB and TGWA, on 6180 and 9760 kHz respectively. Our 1937 QSL card shows the Guatemalan national bird in full color and the large letters TGW.

Radio T-Shirt

Couldn't go without mentioning that the Apple Press, 8278 Camp Rd., Sebastopol, CA 95472 has designed a colorful T-shirt showing all of the San Francisco stations and their frequencies as they were in the late 1930's and early 1940's. Above the dial is a display of many local radio personalities under the banner "San Francisco Memories." Check with George Brenegan at Apple Press regarding the availability of this beautiful T-shirt.

Gee, where did the time and space go? Tune in next month for more memories. **PC**

BOOKS YOU'LL LIKE!

BY R. L. SLATTERY

A Pirate Broadcasting Manual

The Complete Manual of Pirate Radio is most certainly an unusual book. Reminded me very much of the underground anti-establishment handbooks that abounded in the late 1960's. That is to say, it's got that definite homebrew look to it, and it presents a theme that few authors would touch—how to put a pirate broadcasting station on the air.

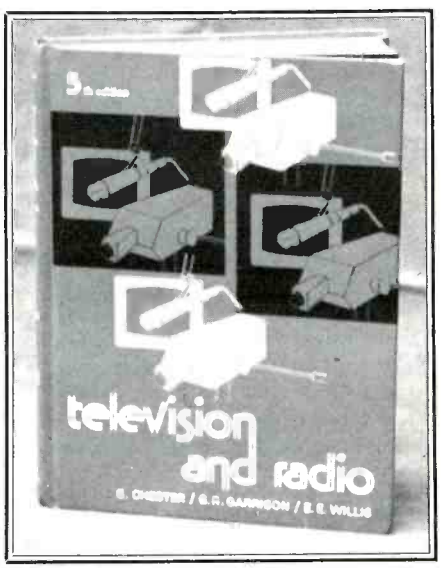
This is a 24-page booklet with a paper cover, and it's author is someone who writes under the pen name "Zeke Teflon," with a little help from "The Wiz" of KGPR, and "Little Eddie Satan" of KDIL. No publisher is listed, nor any address for where the author or publisher might be contacted. On the inside and outside of the back cover there are several irrelevant but nonetheless strident political quotations from the pen of Michael Bakunin.

The text of the book is, in fact, a manual of sorts for putting a pirate broadcasting station on the air, although the book hardly lives up to its title of being a "complete" treatise on the subject. The text is supplemented with several schematics (only one provides a parts list), and covers buying or building, converting ham gear, putting a studio together, antennas, mobile operation, frequency selection, and operating without getting caught by the FCC. Although the section on operating without getting busted by the feds is basic common sense, it is probably the most relevant material in the book for the specific topic at hand. Actually, the author provides no guidance at all on programming or what to do with the station once it is operational.

The information on frequency selection isn't too good. Zeke Teflon suggests unlicensed broadcast operation in the 540 to 1600 kHz band, a route that few pirates have selected in several decades. He makes no mention at all of possible pirate operation on 1620 kHz, long a pirate favorite. His suggestions for shortwave operating frequencies are no less unorthodox, and include ham bands. He never mentions the fact that many pirates congregate around 7400 kHz. His most bizarre suggestion is that the pirates might wish to consider operating between 29.70 and 30 MHz, because "the government reserves these frequencies for diathermy." In fact, those frequencies are *not* reserved for diathermy, and operation there would result in a smaller potential listening audience than a person could get by shouting out of a window.

It's a strange little book, a true curiosity that by its very audacity in purporting to openly instruct in something so blatantly illegal, makes it a book that has an odd appeal.

The Complete Manual of Pirate Radio, by Zeke Teflon, is only $2 (postpaid) from the Bound Together Book Collective, 1369 Haight Street, San Francisco, CA 94117.



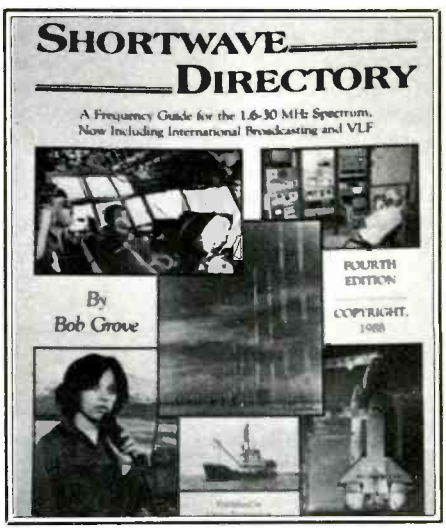
On A Higher Plane

Television and Radio, by G. Chester, G.R. Harrison, and E.E. Willis is a college-level textbook in its fifth revised edition. This is a 543-page hardcover text on broadcasting, starting off with historical information, a discussion of networks, federal regulation of broadcasting, advertisers and ad agencies, the audience, politics, shortwave broadcasting, interviews, educational stations, announcing, directing, writing, commercials, news, sports, children's programs, and more.

The book covers virtually all practical operational aspects of radio and TV broadcasting, although it mostly stays clear of engineering and highly technical matters. It's an excellent reference for the person who is working in the broadcast industry, or who hopes to find employment there, or who is just interested in knowing what goes on behind the microphones and cameras.

There are plenty of photos, a glossary of broadcasting terminology, sample scripts, a bibliography, and an extensive index. The writing is interesting, informative, and authoritative. In all, it's a thorough and comprehensive overview of broadcasting that provides many insights into its topic, attesting to the fact that (in case you didn't realize), running a successful station is a lot more work than you thought.

This book comes from Prentice-Hall, Inc., Englewood Cliffs, NJ 07632.



New Edition: Shortwave Directory

The new 4th Edition of Grove's *Shortwave Directory* is now available, and it's bigger than ever. In fact, calling it "bigger" is the understatement of the year. The previous version (3rd Edition) contained 184 pages. When the new edition was being prepared it was planned for 200 large-format (8½" by 11") pages. In actuality, the book turned out to contain 530 pages and weigh almost 3 lbs.

Covering international listings from 1 kHz through 30 MHz, it includes highly detailed information for those who monitor SSB/AM/CW/RTTY/FAX stations. The types of stations covered include military, VLF, English language, shortwave broadcast, maritime, aero, scientific, beacons, longwave broadcasting, emergency, industrial, time signals, and more.

Listings are displayed according to category, with a separate frequency cross-reference section. Separate by-frequency sections are devoted to FAX and RTTY; the RTTY section alone runs more than 270 pages and contains almost 18,000 stations including callsigns, locations, bauds/shifts, and general comments such as usage and the hour most often logged.

Covering stations in most nations of the world, this hefty-sized book is jam-packed with frequencies, callsigns, and information. The data on federal government (military/civilian) agency stations and networks for the United States, Canada, and elsewhere is especially well prepared and useful. No matter what your interest areas, in a directory containing more than 500 pages you're going to find a generous helping of new information to aid you in the pursuit of your monitoring.

The *Shortwave Directory 4th Edition* is $17.95 plus $2 postage/handling to addresses in USA/Canada/APO/FPO. It's available from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. (N.Y. residents add sales tax.) **PC**

A 1932 Radio: 1988 Version

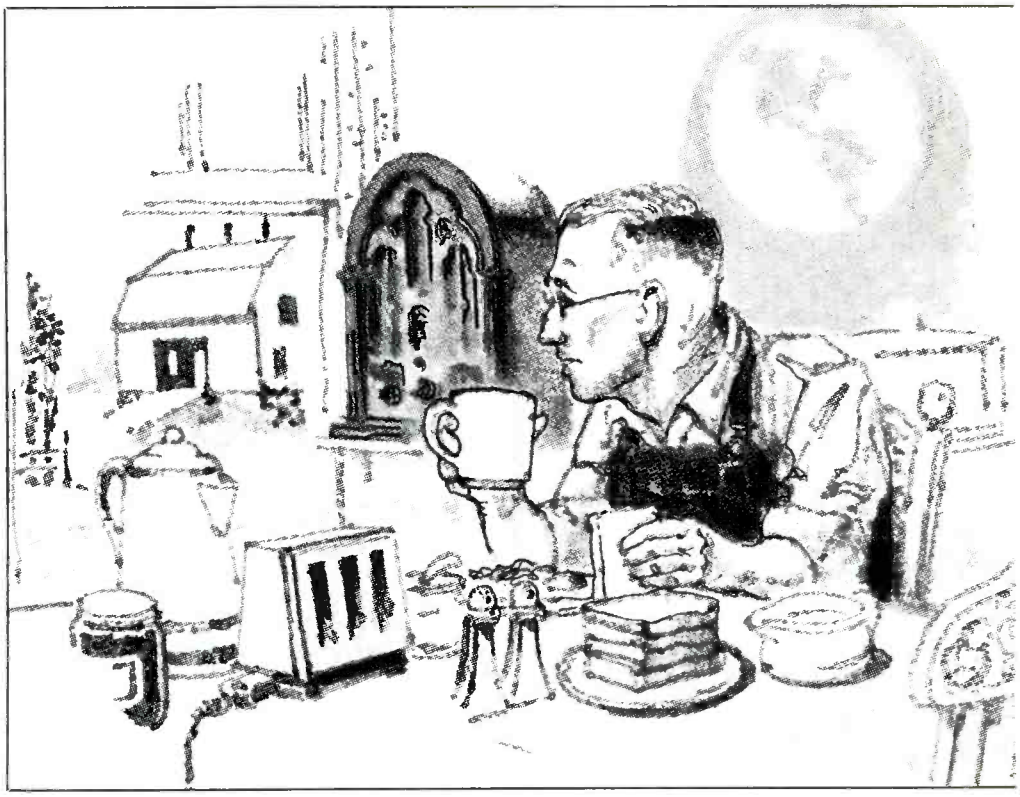
GE's Newest Radio Is A Replica of One From 56 Years Ago!

BY ALICE BRANNIGAN

In 1932, General Electric announced their now-famous J100 table receiver. The set, with its distinctive wooden cathedral-styled wood veneer cabinet with a glowing yellow dial was an instant success, inspiring a host of clones from other manufacturers. History regards the J100's cabinet as the archetype for radios of the 1930's.

GE has just brought out a three-fourths scale replica of the J100, complete with wooden veneer cabinet, glowing yellow dial, and a grill cloth. From the outside, GE's new 7-4100J looks virtually identical to its venerable ancestor. Inside, of course, it's completely different.

The 1932-edition weighed in at forty pounds, had a bevy of glass vacuum tubes that sopped up 100 watts of electricity, and required fifty feet of antenna wire to detect signals from AM broadcasters. It sold for $99 (in 1988 dollars that equals more than $800.)



The old cathedral-style radio was the mainstay of 1930's broadcasting.

The new GE 7-4100J reclaims radio's rightful place in the living room and kitchen.

We couldn't resist GE's invitation to see one of these new receivers "in the flesh." But I couldn't figure out how to tune in on Fibber McGee and Molly.

The new GE 7-4100J receives both AM and FM broadcast stations, using built-in antennas. The AM antenna is a ferrite rod, while the line power cord doubles as the FM antenna. Weighing a total of five pounds, the sensitive receiver consumes only five watts of electricity. Not only that, the sound quality of the new model is a considerable improvement over the 1932 version. The 7-4100J uses a five inch heavy magnet, hi-sensitivity loudspeaker and 700-mw RMS audio output. In addition, a loudness-type volume control boosts bass response at low listening levels. All that's left from 1932 is the external appearance and the nostalgia.

The new model is tagged at $75 (in 1932 Depression dollars that would have been the same as $9.)

GE contacted me to say that they thought the new 7-4100J receiver would be of interest to *POP'COMM* readers. After getting a look at this stunning recreation, and listening to the enthusiastic comments of everyone who has had a chance to see the set, I'd have to agree. It's a real eye-catcher. The only thing missing is *Easy Aces*, Ben Bernie, *Vox Pop*, and Joe Penner.

Whether you have first-hand memories of wood-cabinet cathedral-style radios, or if you can only imagine the golden era of broadcasting they conjure up, then the new GE 4-7100J may be for you. It's a fine gift for someone, too.

These are available from most GE radio dealers. *Wanna buy a duck?* **PC**

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

New VHF Handheld Transceiver

Fanon Courier announced its entry into the land mobile market with the introduction of a new professional handheld VHF FM transceiver, the COURIER PROCOM.

The one watt-single channel COURIER PROCOM, with its range of up to 2 miles, is ideal for use by the professional - on construction sites, in factories, on fire or disaster sites and by security personnel.

The COURIER PROCOM design specifications assures reliable performance with superior voice reproduction. PROCOM operates on business band frequencies and is available in three frequencies.

Frequency A 151.625 MHz
Frequency B 154.570 MHz
Frequency C 154.600 MHz

Each PROCOM comes with one set of installed crystals of one of the above frequencies. Also included is a rechargeable nickel cadmium battery pack, A.C. battery charger, flexible antenna and F.C.C. license application.

COURIER PROCOM features include an adjustable squelch control with tone squelch ON-OFF switch, volume control with power ON-OFF switch, jacks for A.C. charger and external antenna.

COURIER PROCOM is housed in a sturdy, high impact, plastic textured case and weighs about 1 lb. Its dimensions are 7"H × 2½"W × 1¾" deep. Suggested retail price $189.95.

Optional accessories available are:

- PRIVA-COM-1 Plug-in adjustable CTCSS tone module to exclude unwanted conversations.
- CAT-12 All leather carry case with belt loop and plastic rain shield.
- AUC-12 Auto cigarette lighter charger adaptor.

The COURIER PROCOM will be marketed through Communications Equipment Specialists and Electronics Distributors.

For information, write to Fanon-Courier, 14281 Chambers Rd., Tustin, CA 92680.

Further information available by circling 104 on our Readers' Service card.

New 800 MHz Scanning Receiver

Indianapolis: AOR, Ltd. of Tokyo, Japan has announced the introduction of a new personal receiver with 800 MHz and 20 channel scanning capabilities.

The new radio is extremely small, probably the smallest of its type available; measuring 5" in height, 2.25" in width, and 1.69" in depth. Frequency coverage of the receiver is: 30-50 MHz, 118-136 MHz, 140-174 MHz, 436-512 MHz, and 830-950 MHz. This allows coverage off all the police, fire and emergency bands, plus the new services now available above 800 MHz. Unlike comparable receivers, no frequencies have been removed or restricted.

At only 10 ounces total weight the radio, model AR800, can be conveniently carried along, and is actually small enough to fit into a normal size coat pocket. The circuitry that makes this size possible exemplifies the latest in Japanese design, yet retains the quality standards that continue to be the hallmark of the Japanese electronics industry.

A suggested retail price of $299 has been set for the unit, which includes a rechargeable battery, charger, antenna, and carrying loop.

Twenty front panel keys allow the user to operate the unit by accessing the onboard microcomputer. A sidelighted liquid crystal display shows all operating and mnemonic functions.

The new receiver marks the emergence of AOR as a brand name in the United States. The twenty year old manufacturer of high technology radio frequency devices had heretofore limited its activities to OEM contracts with U.S. importers.

For more info, circle 106 on our Readers' Service, or write to Ace Communications, 10707 East 106th St., Indianapolis, IN 46256.

Dust Cover for ICF-2010 – Now In Stock

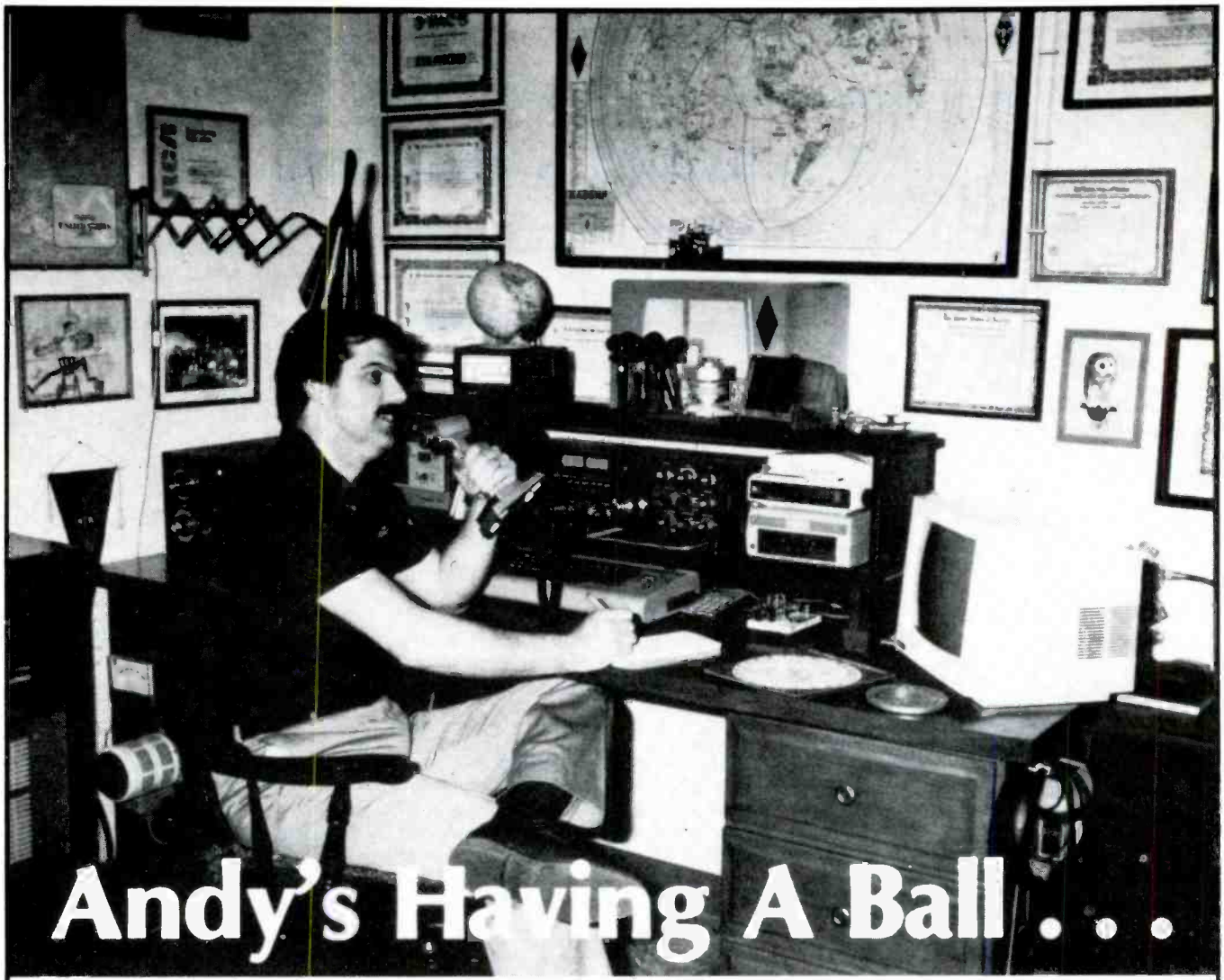
In response to requests from shortwave listeners, GILFER has designed a dust cover for the very popular SONY ICF-2010 (The Raven) and clones. The RAVEN HOOD is black, tightly woven, dustproof/waterproof, material—tapered to set over the ICF-2010 when the back is open and tilted in its operational position. Slits on the side and back of the cover accommodate the extended antenna and wire from the AC adaptor plug.

The RAVEN HOOD dust cover is a follow-on option to the popular TRAVEL CASE II which protects the Sony when in transit. The manufacture of the RAVEN HOOD follows the same quality construction. The material is so waterproof it is used as raincoats by fisherman.

The RAVEN HOOD dust cover sells for $12.95 (no shipping charge when bought with receiver, otherwise $2.00).

GILFER SHORTWAVE is located in downtown Park Ridge, New Jersey and may be reached by writing to, Gilfer Assoc., Inc., P.O. Box 239, 52 Park Ave., Park Ridge, NJ 07656.

For further information, circle number 105 on our reader's service card. **PC**



and you can too!

Andy is a Ham Radio operator and he's having the time of his life talking to new and old friends in this country and around the world.

You can do it too! Join Andy as he communicates with the world. Enjoy the many unique and exclusive amateur bands . . . the millions of frequencies that Hams are allowed to use. Choose the frequency and time of day that are just right to talk to anywhere you wish. Only Amateur Radio operators get this kind of freedom of choice. And if it's friends you're looking to meet and talk with, Amateur Radio is the hobby for you. The world is waiting for you.

If you'd like to be part of the fun . . . if you'd like to feel the excitement . . . we can help you. We've got all the information you'll need to get your Ham license. Let us help you join more than a million other Hams around the world and here at home. Who are we? We're the American Radio Relay League, a non-profit representative organization of Amateur Radio operators.

For information on becoming a Ham operator
circle number 11 on the reader service card or write to:

AMERICAN RADIO RELAY LEAGUE Dept CQ, 225 Main Street
Newington, Conn. 06111.

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

BETTER SIGNALS

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

BY ED NOLL W3FQJ

3/4 Wavelength Antenna Wires

The ¾ wavelength antenna wire, despite its limited HF use, has several helpful applications and some untried ones, too. This column introduces you to the subject of ¾ wavelength basics, some proven ideas, and some you may wish to try experimentally.

Just as a point of review, you know that a ¼ wavelength wire has a high impedance at its open end, and ¼ wavelength away from its end, a low impedance at the point of attachment of a low impedance cable, Fig. 1A. An open wire that is ½ wavelength, Fig. 1B, reflects a high impedance to its other end and is not favorable for matching a low impedance line directly. However, if you add another ¼ wavelength to the wire, you are back to a low impedance point and you can match a low impedance line. Note that the length of wire then becomes a ¾ wavelength total, Fig. 1C.

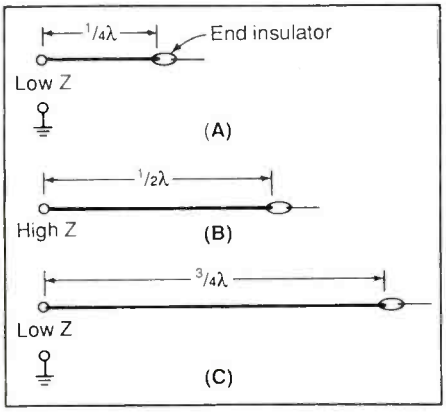


Fig. 1. Feed end impedance as a function of electrical length of antenna wire.

SHORTWAVE BROADCAST			RADIO AMATEUR		
Band	Cut Frequency MHz	¾λ Dimension	Band	Cut Frequency MHz	¾λ Dimension
120	2.4	302′	160	1.85	392′
90	3.3	220′	80	3.8	191′
75	3.95	184′	40	7.2	101′
60	4.9	148′	30	10.12	71′8″
49	6	121′	20	14.24	50′11″
41	7.2	101′	15	21.3	34′1″
31	9.7	75′	12	24.95	29′1″
25	11.8	61′5″	10	28.5	25′6″
21	13.7	53′			
19	15.3	47′6″			
16	17.7	41′			
13	21.6	33′7″			
11	25.8	28′2″			

Basic Equation

$$\text{¾λ in feet} = \frac{726}{\text{f in MHz}}$$

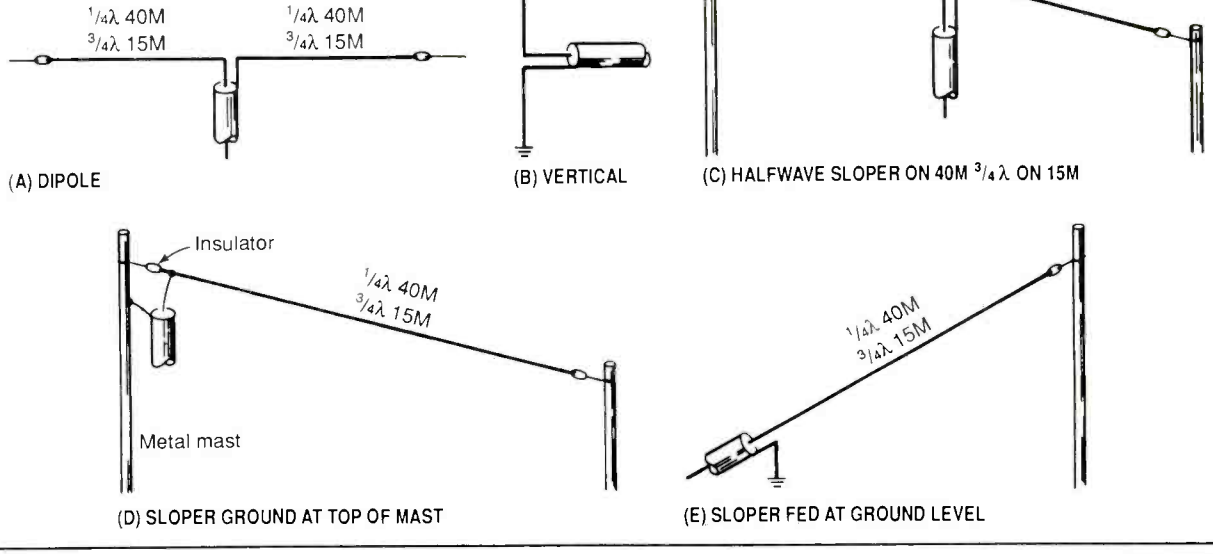
Fig. 2. Dimensions for electrical ¾λ wires on the SWB and Ham bands.

Remember, too, that a ¼ wavelength wire antenna has a physical length somewhat shorter than a ¼ wavelength in space because of end effect. The length of a ¾ wavelength antenna must be shortened in a similar manner to obtain true resonance. The standard formula to use for obtaining proper ¾ wavelength resonance is:

$$\text{¾λ(feet)} = \frac{726}{\text{Frequency (MHz)}}$$

A table of calculated lengths for the shortwave broadcast and ham bands is given in

Fig. 3. A variety of 15/40 M antennas.



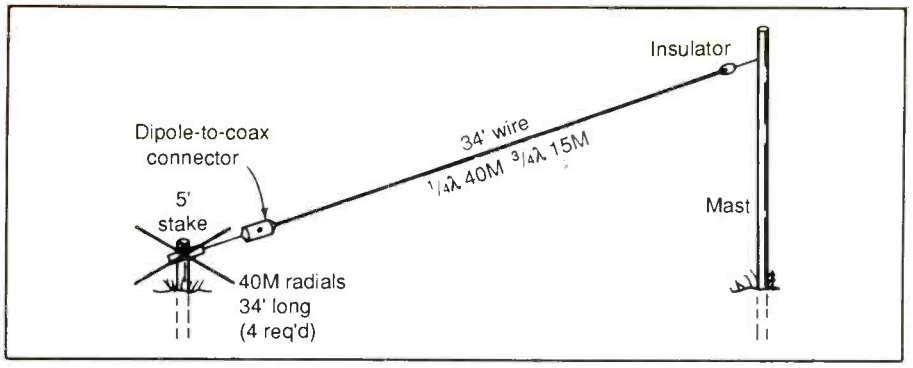


Fig. 4. 15/40 M pair, ¾λ on 15 MM.

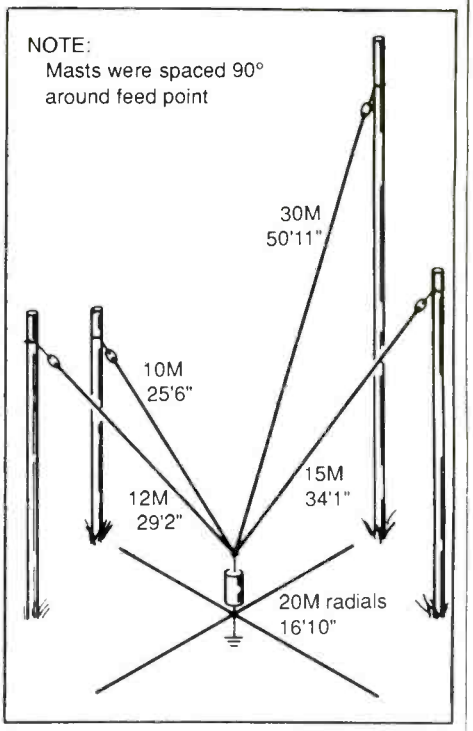


Fig. 5. Test arrangement for checking out single-feed of ¾λ wires on high-frequency bands.

Fig. 2. The approximate center frequency of the shortwave broadcast bands is given. A ¾ wavelength wire cut to this frequency also performs as a good receiving antenna over each entire SWB band. Ham antenna lengths were selected for some of the favorite sideband frequencies. Such a cut will also work well over each band for reception. Unless you use a tuner with the transmitter, it may be necessary to adjust the wire length in some cases to provide better matching if you wish to resonance on some frequencies removed considerably from the frequency given in the table.

Perhaps the most well known use for a ¾ wavelength wire is the 15/40 meter ham combination. An antenna segment cut for ¾ wavelength on 15M will also function as a ¼ wavelength element on 40 meters. This applies to a dipole, a vertical, and, to both half wave sloper and quarter wave sloper, Fig. 3. The latter can be operated with an earth ground or against the top of a metal mast which serves as a ground to which the outer conductor of the coaxial line is connected.

On the shortwave broadcast bands, there are several paired combinations that may fit some special need for you in emphasizing these special bands. These are 75M/25M, 60M/19M, and 41M/13M. At the same time, they serve as reasonable antennas on the other bands, too. If space is available, a 70-75′ single wire antenna is quite a good general shortwave receiving antenna from 3-to-30 MHz. It is ¼ wavelength on 90 meters and ¾ wavelength on 31 meters. Its length is measured from the single-wire input of the receiver or an associated tuner to the far end of the antenna wire.

The ¾ Wavelength Wire Against Ground

This year I've been doing more work with ground-level fed slopers. Results have been good, but there is still much to learn. There are ideas to be explored. The ground-level feed arrangement for a ¾ wavelength 15M sloper is shown in Fig. 4. The ground consisted of a 5′ ground stake and four 15M radials. Physical arrangement and coaxial connector can be seen in Fig. 4 for the ground feed point. This same antenna works out on 40M too, functioning as a quarterwave sloper. Four 40M radials were used. It always startles me to see just how well a simple antenna that is low and occupies so little space can work out so far and so well. The antenna of Fig. 4 fits that category.

It can be a difficult job to arrange short λ/4 antennas cut for the higher frequency ham bands in such a manner to match and feed properly a single coaxial cable with reasonable results. The ¾ wavelength wire antennas, Fig. 5, matched with ease and required no tuner. They were cut as ¾ wavelength wires on 10, 12, 15, and 20 meters. Some slight adjustments in length were needed to locate the resonant points at selected frequencies within each band. Of course the same idea can be used on the high-frequency shortwave broadcast bands.

The performance was fair to surprising, indicating a workable idea that also suggests much more can be learned about the system. What is the best arrangement for positioning the four wire relative to each other? In our case, we had them spaced at 90°. Instead of the 90° placement as shown, would it be better to close-space them in the same general direction? What influence do the radial arrangements have on the performance? Would it be feasible to support the four antenna ends with a single mast and what would be an appropriate spacing along the mast? How does the tilt of the ¾ wavelength element effect the directivity and the vertical pattern of each individual ¾ wavelength wire?

Antenna styles forever change and often old designs are rearranged for modern application. Antenna experimentation is an exciting hobby. PC

CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

Since we're at the peak of the 1988 boating season, this is a good time to mention Midland International's Model 77-157 marine CB transceiver. It's designated as a marine radio because of its specially designed waterproof seal and water resistant speaker for protection against marine environments.

The 40-channel AM rig has adjustable microphone gain, local/DX receiver sensitivity selection, a bass/treble audio switch, S/RF meter, instant Channel 9 switch, and a high-intensity green LED readout. There's also a brute force noise filter designed to deal with the copious amounts of RF noise kicked out by marine engines.

Cabinet is white with blue accents. Will look good installed in anything from a 1958 *Owens* to a 1988 *Chris-Craft*. The rig carries a suggested retail price of $169.95.

Note also that this rugged little rig is very suited to non-boating applications (even though Midland doesn't say so). Would be a good bet in dune buggies, beach buggies, or any 4WD RV that is regularly used near the beach or shore. With a power supply, it can even be used as a base station on land at locations close enough to the sea to be affected by the normal wear and tear of a nautical environment. It could also be used away from the shore in open or semi-open industrial or agricultural vehicles.

This transceiver comes from the Consumer Products Division, Midland International, 1690 North Topping, Kansas City, MO 64120.

The Midland Model 77-157 is primarily intended for maritime use, but it has other applications too.

The Ontario Provincial Police monitor CB Channel 9 along with REACT in Ontario. These nifty highway signs tell the story.

Never to Part?

In a recent column we asked for readers to let us know of parts or repair sources for older CB rigs produced by companies no longer producing 27 MHz equipment.

Mark DeBruyne, East Moline, IL wrote to suggest Tram/Diamond and Browning parts/repair sources as Satellink Communications Corp., Drawer C, Lower Bay Rd., Winnisquam, NH 03289; also Browning Factory Service, 2704 West Dunes Highway, Michigan City, IN 46360.

Ken Losey, of Ken's Electronic Parts, 2825 Lake St., Kalamazoo, MI 49001, advises that his company has an extensive inventory of CB parts. They have access to the manufacturer's inventory of *Demco*, and are presently organizing the recently purchased *Robyn* inventory. Ken has hundreds of junker rigs, too, and says he can often come up with parts substitutions if provided with a sample and enough information.

About the only rigs Ken doesn't attempt to repair are those that have illegal modifications, 27 MHz ham rig conversions, or export CB gear. Dealers can be put on Ken's mailing list upon request. Individual CB'ers can get Ken's retail flyer for $1.

D. Strom, One Space Park R9/1483, Redondo Beach, CA 90278 notes that he has schematics and servicing information on radios such as *Kris, Teaberry, Penney's* as well as others. Readers can contact him for further information. Probably a thoughtful idea to enclose a self-addressed, stamped return envelope for him to reply to you.

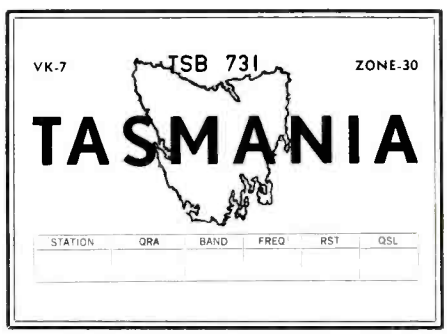
Signs of The Times

As many CB'ers know, REACT has been engaged in a long-term program of erecting CB Channel 9 emergency monitor road signs along highways. The REACT HQ's folks sent us a photo of one such sign recently erected by the Ontario Provincial Police. These eye-catching signs have been very useful in keeping motorists reminded of where to transmit in times of trouble.

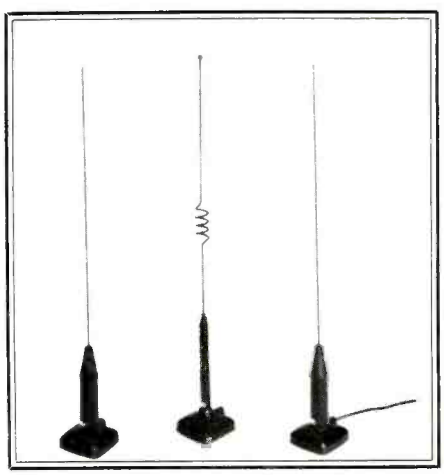
And, speaking of REACT, Geoff Goucher (4105 96th Ave. S.E., Mercer Island, WA 98040) would like to get in touch with any local REACT group in the area of Seattle/Tacoma or Puget Sound. Any local team in that area can contact Geoff directly.

Somehow, I just knew that my mention here of echo chambers was going to activate the folks who think such sounds are a joy to behold. No way of accounting for taste, but someone wrote to ask if I know where they can obtain a gadget called the *Bremi Robot Voice* that attaches to a rig and permits and operator to sound like a voice synthesizer. Ah, yes, this device is known to me, and (I believe) it comes from England. While I could provide the information requested, far be it from me to ever be cited as being the person directly responsible for getting even one of these in use on 27 MHz in the U.S. or Canada!

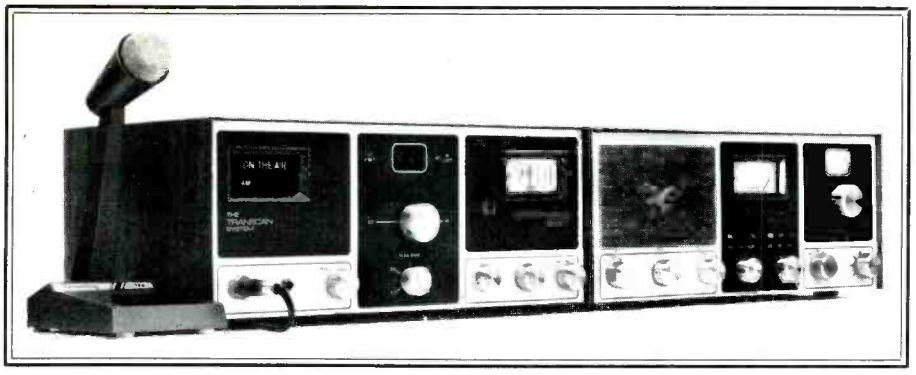
CB'ers in England, by the way are now fully authorized to operate on the same 40 CB channels used in here and in Canada, except in England *only* FM is permitted. This is in addition to the previously authorized U.K. FM channels (40 channels running from 27.60125 to 27.99125 MHz), which will probably be phased out eventually. Of course, English CB'ers have long



Bill, in Wynyard, Tasmania sends out this bold QSL card.



Three snazzy Antenna Specialists mobile jobs, the M-902, M-900, and M-904.



A rare treat, the Browning Golden Eagle Mark IV-A AM/SSB modular base station. It came out more than ten years ago and is still regarded as a classic rig. Lenny Buonaiuto has one in virtually mint condition.

been active with AM and SSB (without authorization) on the 40 American/Canadian CB channels. The U.K. also has 20 CB channels on 934 MHz, but that band never caught on with the public there.

Here 'N There

Dale Siem, SSB Network member SSB-3633B, of Wanamingo, MN writes to ask that all Sidebanders in the Rochester, MN area are welcome to give him a call. He monitors the lower side of 36. On AM, as *Country Gentleman*, he's on Channel 11. Dale has been an SSB Network member for many years.

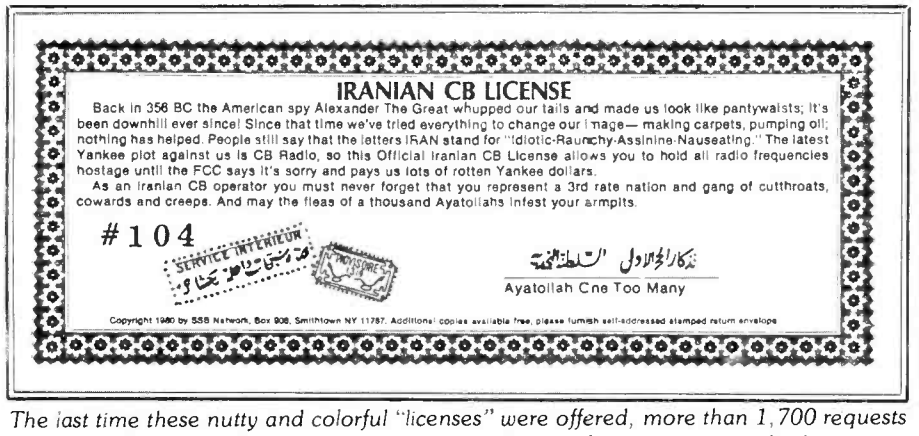
Lenny Buonaiuto, L.V. 2001, P.O. Box 212, Islip Terrace, NY 11752, is collecting older CB rigs which he hopes to eventually display. Anybody out there in readerland who has one or more 1959 to 1980 rigs, might wish to get in touch with Lenny. He's got a mint condition Browning Eagle Mark IV-A that's a real eye-catcher!

Jim McAuliff, South Bend, IN sent us a newspaper clipping relating the sad saga of an operator in Niles, MI who ran into problems with his linear amplifier ("in excess of 1,500 watts"). After interference complaints and a general community hysteria in which people were supposedly complaining that the signals had "caused some permanent damage of telephone and television equipment," the linear was shut down. The FCC asked for a fine of $1,400 but the operator has thusfar refused to pay up because he said that when his linear was confiscated, the agents also confiscated items unrelated to the linear including scanners, maps, books, and receivers. To add insult to injury, when a South Bend newspaper reported the incident, it referred to the hapless fellow as "a ham radio operator." The whole affair was a shambles from start to finish, topped off by the newspaper's badly done and confused version of the story.

The Antenna Specialists Co., 30500 Bruce Industrial Parkway, Cleveland, OH 44139-3996, was one among the very earliest companies producing CB antennas when the 27 MHz band opened for activity in the late 1950's. ASP has stuck with CB through thick and thin, always coming up with classy and efficient antennas. Recently we saw some of their newly developed mobile whips that were impressive.

The Model M-902 has a Quick-Grip trunk mount with a conventional base-loaded whip; M-900 is a Quick-Grip trunk lip mount combined with a CMT lookalike antenna; and the M-904 is a base-loaded whip on a mag mount. These all have ASP's *Black Stallion* styling. Look for these at your favorite CB dealer.

Two REACT teams have put us on the



The last time these nutty and colorful "licenses" were offered, more than 1,700 requests poured in. A new supply has not been obtained. See text for getting one to display at your station.

This QSL card came in from Lenny, LV- 2001. Although Lenny operates from New York State, the club is headquartered in Ireland.

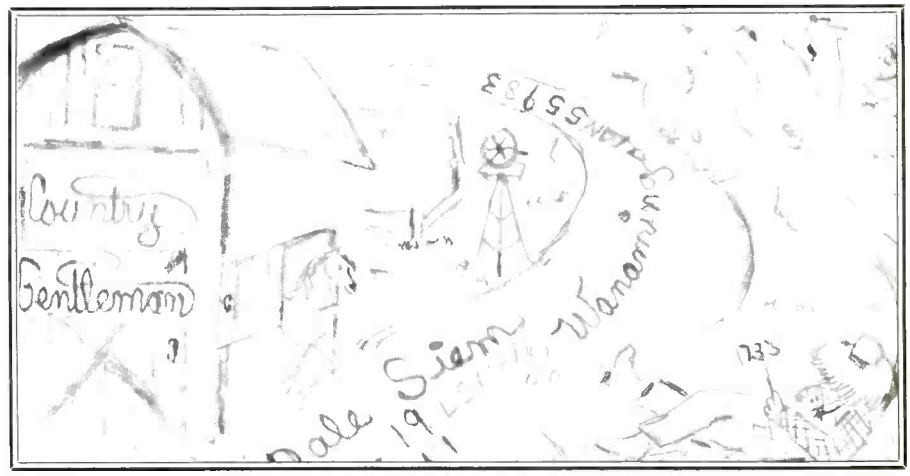
mailing list to receive their fine publications and we want to say "thanks." We are now getting *Orange County REACTivities* (from REACT of Orange County, P.O. Box 3114, Anaheim, CA 92803); and also *Radio Waves From The Garden State* (N.J. Council of REACT Teams, P.O. Box 1351, Laurence Harbor, NJ 08879). These are well-prepared and informative publications that have given us much reading enjoyment. Always pleased to be added to the mailing lists of 27 MHz groups of all kinds.

Grant Maxwell, XM-1332826, Nanaimo, BC, advises that on Vancouver Island (and Sunshine Coast Gulf Islands) there's a check-in and swap/shop at 8 PM on Sunday nights, AM-mode on CB Channel 1. Sunday nights on Channel 22 (AM mode) at 9 PM they play Trivial Pursuit. All are welcome!

We have a note from Jim, SSB-9, saying that as a result of this column's mentioning the availability of free copies of the gag *Iranian CB License* a few issues ago, they received more than 1,700 requests for them. The mail included requests from operators in many nations. The most unusual places included the USSR, Saudi Arabia, Israel, Malta, Liberia, and Jordan. Jim tells us that he's still got some on hand and will continue to send them out so long as the supply lasts. To receive one, send a stamped (U.S. 25 cents), self-addressed long envelope with your request. If you're outside of the U.S., send a self-addressed long envelope accompanied by one International Reply Coupon. Requests not accompanied by a return envelope and postage can't be honored. Send to the *SSB Network*, P.O. Box 908, Smithtown, NY 11787.

The best and only true barometer of success is the incoming mail. Now that *CB Scene* has appeared in these pages for almost a year, the volume and support of that mail has easily justified an official and permanent niche in *POP'COMM*. That's what we were just told by the boss. *Hooray!*

Got to check into a net in a few minutes, so I'll put the ribbons on it for this month. Would like to hear from you with your comments, questions, QSL's, or a photo of your CB shack. PC



Dale Seim, SSB-3633B, had this QSL card custom designed by a friend.

PIRATES DEN

FOCUS ON FREE RADIO BROADCASTING

BY EDWARD TEACH

Radio Caroline, on a ship off the British coast, has added a shortwave channel of 6210 MHz.

A major event in pirate radio broadcasting took place when the pioneering British pirate, **Radio Caroline,** began broadcasting on the shortwave band! Early reports indicate that the station is being received with very good quality in most of the eastern part of North America. Although much less strong and far less readable, **Radio Caroline's** shortwave signal is being received as far inland as Kansas, at least based upon the early reports which I have seen. The station is operating on 6210 (although this might well have changed by now) and is being heard from around 2200 and later, well into the evening. The broadcasts are coming from the MV "Ross Revenge" anchored some 14 miles off the coast of southeast England.

Radio Caroline was named after Caroline Kennedy, daughter of President Kennedy. It was the brainchild of Irishman Ronan O'Rahilly who devised the plan in a London pub. The station went on the air for the first time on Easter Sunday, 1964, featuring a pop music format which swept over England like a hurricane. That kind of radio format simply wasn't available to British listeners in those days, so within just three weeks, Caroline had an astounding seven million listeners! Naturally, many other pirates soon followed and within a short time there were several competing pirate stations in operation.

Parliament passed an anti-pirate broadcasting law in 1967 and, one by one, the pirate stations closed down until Radio Caroline was, once more, the only British-oriented pirate station on the air. It continued to operate right through the 1970's until 1980 when its ship sank.

Actually, in the earliest years, there were really two **Radio Carolines**, both with the same owner. The first on the air was **Radio Caroline North,** operating from the MV "Caroline" with two 10 kW transmitters. **Radio Caroline South**, aboard the Mi Amigo, began as Radio Atlanta in 1964 but merged with, and became Radio Caroline, a few months later. It had a 50 kW transmitter.

Caroline was silent from 1980 to 1983 when it was refitted and, in August of that year, returned to the air, building an audience of ten million in a matter of just three weeks.

The current **Caroline** is thought to be still owned, in part, by O'Rahilly. Several U.S. citizens are also thought to have investments in the station. The controlling company is Swiss, registered in Liechtenstein. To overcome British anti-pirate legislation, the **Radio Caroline** sales offices are in the United States (RSI Communications, 25 Randall Ave., Lynbrook, NY 11563). Supplies are shipped in via Spain and the Ross Revenge sports the flag of Panama.

In other pirate news and loggings, Bob Tomlin, WB1AIJ, of East Hartford, Connecticut heard **KBSA** on 7400 from 1840 to 1853 sign off. The disc jocket called himself "The Archer" and played rock. The station said it was using a new 250 watt transmitter and asked for signal reports to his column. (Use a maildrop, guys, this column doesn't forward pirate mail.)

Miss Karina Chu in Tooele, Utah hears an unidentified pirate operating around 0500 on 7450 Saturday nights. The broadcast opens with sounds like huge bells ringing (perhaps electronic) and then runs 15 minutes worth of Led Zeppelin songs and talks about halting the bombing and the U.S. war in Vietnam! Maybe you've tuned into some kind of time warp, Karina. Anyone else hearing this unusually formatted pirate broadcaster?

Rebel Radio, featuring disc jockey Dr. Klystron, was logged by James E. Crawford, NY5Y, at 0348. Old rock music was being played on 7415. The station's ID announcement at 0400 claimed a Virginia location, a 100 watt Collins transmitter running to a dipole antenna.

New World Radio checks in to say they're still operating on 102.7 FM stereo, running for a broadcast of "a few hours" three or four times per month. Address is P.O. Box 45435, Seattle, WA 98145.

James Kline of California took a log on **Radio 101** while he was vacationing in London, and sent copies of the station's QSL and background material. **Radio 101** has had a long and confusing history of start ups and close downs in a variety of different locations in several countries. And as many different addresses. Looks like they are currently operating over a transmitter in Ireland (with an address in Belgium) on 101 FM plus 7360 shortwave, though I don't know of anyone who has heard the shortwave on this side of the ocean.

Time to close the den door. Whether you are a pirate station listener or pirate station operator remember to send in your logings, QSL's, news clippings, station plans and backgrounders so more readers can hear more pirates. Thanks for your help and I'll see you again next month. PC

EMERGENCY
COMMUNICATIONS FOR SURVIVAL

BY GORDON WEST, WB6NOA

The FCC Commercial License

The Federal Communications Commission has relaxed its rules on who has to have a commercial license to repair and operate two-way radio and commercial broadcast radio equipment. If you thought about getting your commercial radiotelegraph or radiotelephone license, here's some valuable information that will assist you in your decision-making.

You *need* a commercial radio operator license to operate:

- A passenger ship boat radio,
- A boat radio in foreign ports,
- A ship radio on a vessel larger than 300 gross tons,
- A high-power commercial private or shore marine station,
- International aircraft radio,
- Civil Air Patrol stations on HF,
- AM/FM or TV broadcast station,
- Low-power TV station,
- International public radio station.

You do *not* need a commercial radio operator license to operate:

- A private ship VHF set in local waters,
- A private VHF coast station,
- A handheld VHF station,
- VHF aircraft station in the U.S.,
- Aircraft ground station on VHF,
- Two-way business radio (taxi, police & fire, tow truck, local & federal agencies),
- A CB radio station or GMRS radio station,
- Cellular radio system,
- Civil Air Patrol station if operated only on VHF frequencies.

You *will* need a commercial radio operator license to repair and maintain the following radio station:

- Ship radio and radar stations for any boat,
- Marine coast station,
- Marine handheld units,
- Aircraft radios—all types,
- AM/FM and TV broadcast stations.

You do *not* need a commercial radio operator license to repair and maintain:

- Land mobile radio equipment, including police, fire, taxi, business, ambulance & rescue squads, and local & state government radios,
- Citizens Band and GMRS radios,
- Cellular telephone systems,
- Cable TV relay stations.

No longer are you required to possess a restricted radiotelephone operator permit to operate a pleasure craft ship radio or private plane radio, including a CAP station, which operates only on VHF frequencies and does not make a foreign voyage or flight.

If you *do* plan to be the radio operator aboard a commercial boat or plane that goes into international waters, you may need the third class radiotelegraph operator's certificate. This allows you to operate certain coast radiotelegraph stations. You must pass the Morse Code examination at 16 code groups per minute and 20 wpm plain language. The written test consists of basic radio law, basic operating procedures, and basic operating procedures relating to CW.

If you're going to *work* (tune/calibrate/repair) on CW radios aboard ships and boats, you need the second class radiotelegraph certificate. You have the same code requirements and also a more technical written examination. If you wish to serve as a chief radio operator on a U.S. passenger ship, you need the first class radiotelegraph operator's certificate. This requires Morse Code at 20 code groups per minute and 25 wpm plain language, plus a battery of written examinations.

You also need the ship radar endorsement if you're going to maintain ship radar, too.

The FCC no longer issues the radiotelephone first or second class operator license. The first class license has been abolished and the requirement for holding the license for operating and maintaining all types of broadcast transmitters has been eliminated. Same thing with the second class radiotelephone operator license—it's now abolished. The third class operator permit has been converted to the marine radio operator permit.

The general radiotelephone operator license is still required for anyone responsible for internal repairs, maintenance, and adjustments of FCC licensed radio sets in the *aviation*, *marine*, and international fixed public radio services. This is a lifetime operator permit, and you must pass a written ex-

amination covering basic radio law, operating procedures, and basic electronics. The FCC has finally updated the examination for this license to repair and maintain marine and aviation radios. While there are many excellent publications that will give you the basic foundation for passing the examination, I have seen only one new Q & A book that covers the new questions on the test.

What the FCC is doing is getting out of the *domestic* licensing business. They are letting the land mobile industry do their own thing in creating their own examinations for competency. Many land mobile organizations, such as APCO, NABER, and SIRSA have their own examinations to test an applicant's capability in electronics. The FCC only wants to get involved in marine radio and aviation radio testing, and only if the applicant *works* on the equipment or operates a boat or plane outside of the domestic United States.

If you still think you want to tackle that FCC commercial radiotelephone or radiotelephone license, write the Federal Communications Commission, Field Operations Bureau, Washington, D.C. 20554, for FO Bulletin -4 and FO Bulletin -32. This contains the very latest information on who needs what to work on marine, international fixed, and aeronautical mobile radio equipment. If you are preparing for the general radiotelephone operator's permit, make darn sure you are studying up to date Q & A material. PC

BROADCAST TOPIX

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

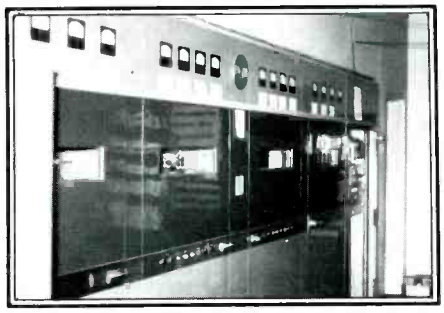
BY MARK MANUCY, W3GMG

Last February, I was driving a pickup truck between Orlando and Tallahassee, Florida, trying to gather some equipment for a job I was doing. At about 9:30 this particular Sunday morning, I was just outside Ocala on I-75, and thought I'd try the infamous 1040 frequency. There have been many changes in Florida radio during the past five years and 1040 is one of them. The Tampa and Titusville stations used to be on 1050, one has since moved to 1060, the other, Tampa, to 1040. Well, I didn't hear Tampa (WHBO) as I thought I would. This was a logical assumption since Tampa is only 75 miles from Ocala.

The North American service of Radio Moscow greets my ears with such strength that no other station is audible underneath them. The rumor was they were supposed to be running 300 kilowatts on Saturday and Sunday. Believe me, they are . . . I was a good 400 miles from Cuba and I listened on and off to their programming for the next hour. It's rather boring listening, being a somewhat modified version of the SW programming, designed for the American AM band. It does not, however, compete with what one hears on the AM band from stations around Florida. I don't know about you, but I feel if you have listened to Moscow once, you've listened for a year. The only thing that changes is the news. Nothing is ever fresh and there is never any excitement in the delivery like what you hear on some of the SW stations in the West. It was so boring, I forgot to check if I could still hear them as I got closer to Tallahassee. I do know they had signed off by the time I returned that afternoon, as I was picking up WHBO in the same area that I was hearing Cuba just a few hours earlier. I don't doubt that WHBO, WHO and others are very upset about this frequency invasion from Cuba.

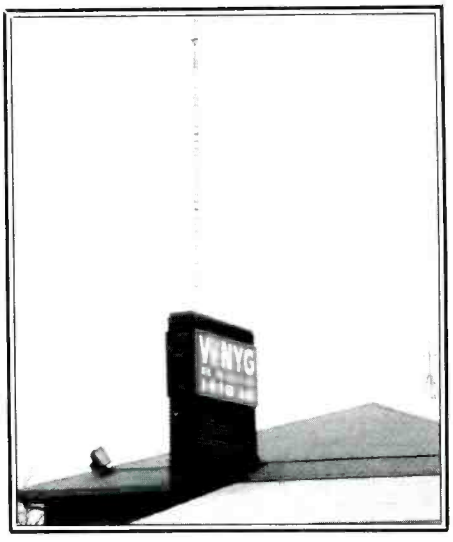
The next day I drove to Miami to visit WIOD on their "island in the sun" on Biscayne Bay. Talk about a beautiful installation! A few months ago, I spoke of the upgrading of WFIL AM in Philadelphia. WIOD and WGTR (FM) are re-doing the inside of their plant. They already have a beautiful building to work in. I have seen stations built in an areas smaller than the WIOD engineering shop alone. Amos Goble, our tourmaster and tech extraordinare, explained that WIOD is not overburdened with unlimited space and, as they prepare one area to be remodeled, they'll move one of their studio into a temporary room and then rebuild the existing studio.

As many major stations in the U.S. are now doing, WIOD has built a multi-track production room complete with MIDI equipment and a computer that allows the creative juices to flow. This has become a whole new exciting area in radio broadcasting of the 80's. With all the new computer generated music available today, the production people in radio have created their own sound beds to use with station promotions and commercial production. It is the same sort of thing the video people have done with music videos. There is not a whole lot of it on the air yet, but it is growing field that will attract a new and different blood to the airwaves. It will make the radio listening of tomorrow a little more interesting. Also, WDBO in Orlando has just recently moved into a new multi-million dollar facility built the way it is supposed to be done. I'll have photos in upcoming columns. By the way, WIOD is one of the few 10 kW stations on a regional channel (610kHz), given the extra power by the FCC to help combat Cuban interference.



WFIL, Philadelphia has three transmitters, the large RCA, a smaller Gates and a smaller yet solid state Nautel. The racks contain several systems they are experimenting with including three AM stereo systems although they have discontinued using the Kahn system.

Low power DX'ing is fun. Check the low-frequency end of the AM broadcast band at night for transmitters at drive-in theatres. (Photo by Tony Earll, KNY2AE.)



Here's WNYG (1440 kHz, 1 kW), Babylon, NY. A great 24-hour station specializing in 1950's and 1960's rock recordings. At night WNYG runs 250 watts.

During my ride to Tallahassee, I was listening to a new station in Cross City, recently on the air on 1240 kHz. The ride from Ocala to Perry used to be pretty bland back in the early sixties, as there were no radio stations on this stretch of U.S. highway 27. Today, there are several new stations, both AM and FM. Interestingly enough, the Cross City station was off the air on this particular Sunday, so I spent some time listening to WPAX, the station from Thomasville, Ga., on 1240 (see the map). It is fascinating the way the FCC squeezes stations into an area. This is not to say anything against what was done by the owners of WDFL to fit the station in on 1240.

The point I'm making, is that I listened to WPAX going into Perry, Fl., from the north and then picked them up again, briefly on the south side. Obviously, had WDFL been on the air, I would not have been able to hear either station in this area due to the interference they would have given each other. WPAX was running some sort of oldies show featuring music from the late forties and it was fun to reminisce for a short time about when I was a kid hearing these songs for the first time.

If you look at the map, several interesting things are shown: First, we have talked about conductivity before. If you follow the heavier lines, they are the breaks between the different soil conductivities. Second, the levels of 1, 2, 4 and 8 are shown on this map by the large numbers. Next, the station contour lines are not completely shown on this map because the only ones of interest are

Station Update

Call	Location	Freq	Pwr	Ant
AM STATIONS				
KOGA	Ogallala, NE	930	5/0	NDA
KXKS	Albuqueque, NM	1190	10/0	NDA
New	Hendersonville, TN	1330	.7/.5	DA-2
New	Yucaipa, CA	1530	50/0	DA-D
New	Apple Valley, CA	1550	.8/0	NDA
FM STATIONS				
New	Jeffersonville, NY	90.5	.83	620′
WMBV	Dixon Mills, AL	91.9	62	613′
New	McCook, NE	93.9	50	491′
New	Sartell, MN	96.1	3.0	328′
WRXR-FM	Aiken, SC	96.3	25.2	699′
New	Moundsville, WV	96.5	.91	595′
New	Hastings, NE	98.1	100	1968′
New	Ferndale, CA	99.3	3.0	-265′
New	Grifton, NC	99.3	3.0	328′
New	Gainesville, MO	99.7	50	1355′
New	George, CA	100.7	.085	1548′
New	Somerset, KY	102.3	3.0	328′
New	Sparta, GA	102.7	3.0	328′
New	Statesboro, GA	102.9	3.0	328′
WGBF-FM	Henderson, KY	103.1	1.7	443′
New	Bloomfield, NM	104.5	100	1087′
New	Lindsay, OK	105.1	.85	1853′
New	Winnebago, NE	105.7	1.4	479′
New	Abilene, TX	106.3	3.0	200′
New	Roswell, NM	106.5	100	1107′
New	Fort Shawnee, OH	107.5	3.0	328′
New	West Point, NE	107.9	3.0	328′
WCVQ	Fort Campbell, KY	107.9	100	903′

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

those which touch the proposed coverage of station WDFL.

The station is located pretty close to the Gulf of Mexico, notice the tremendous coverage to the 50 microvolt (.025 @ 250 W.) line. From beyond Apalachicola on the west, to Bradenton on the south. On a local channel that does not mean you will hear the station from that distance. One could hear the station beyond that distances, except for other stations operating on adjacent channels. Case in point, here is WPAX, I was beyond their 50 microvolt signal and enjoying the program. The whole time there was WMAF (1230) and WNER (1250) splashing over to some extent. Years ago I can remember listening to WFOY almost all the way to Gainesville, but today the stations on local channels are only protected to their .5 millivolt (500 microvolt) contour. That's just the way it is, but I thought you might find the chart fun to study.

I received a nice letter from Terry O'Laughlin that is both interesting and timely. He mentions a fellow worker at Wisconsin Public Radio asking about an "AM listening standard". Terry, being the astute AM DX'er he is, had several models from which to demonstrate, and says he was "floored" by this guys comment on the quality of sound from the old Collins R-390 he happened to have on the bench to show him. What can we say about Art Collins . . . when he did something, he did it right, and his legend will live in the hearts of radio buffs and ham radio operators forever. The newer radios are certainly good, however, those just starting might be able to save some big bucks by looking for the R-390's and SP-600's at hamfests. For example, the R-70 series

Call Letter Changes

Location	Old	New	Location	Old	New
AM Stations			Los Altos, CA	KLZE	KHQT
Tucson, AZ	KKPW	KFXX	Cocoa, FL	WEZY-FM	WLRQ-FM
Little Rock, AR	KLRA	KHLT	Lakeland, FL	WVFM	WEZY-FM
Oakhurst, CA	New	KTNS	Boston, GA	New	WXTR
Winfield, KS	KINC	KVFW	De Kalb, IL	WNIU-FM	WNIU
Gardiner, ME	WQZN	WABK	Galva, IL	New	WZUU
Houghton Lake, MI	WMKM	WHGR	Corydon, IN	New	WJDW-FM
Freeport, NY	WGBB	WBAB	Royal Center, IN	New	WHZR
Houghesville, PA	WBUG	WELX	N. Muskegon, MI	WAVX	WLCS
Pittsburgh, PA	WTKN	WWSW	Lakeview, MI	New	WRIZ-FM
Madison, TN	WKNZ	WWRB	Greenfield, MO	KORX	KXBR
El Paso, TX	KALY	KVIV	Miles City, MT	New	KECC
			Tonopah, NV	New	KTPH
FM Stations			Oswego, NY	New	WPZX
Cullman, AL	WKLN	WKUL	Salamanca, NY	New	WQRT
Flagstaff, AZ	KENR	KVNA-FM	Ridgeland, SC	WXRY	WZBZ
Green Valley, AZ	KFXX	KFXX-FM	Franklin, TN	WWRB	WWRB-FM
Globe, AZ	KEYX	KGRX	Murfreesboro, TN	WTMG	WQWZ
Russellville, AR	New	KXRJ	Tyler, TX	New	KGLY
Little Rock, AR	KHLT	KHLT-FM	Spokane, WA	KQSP	KKZX

from Icom is great for DX'ing but don't expect to get wide-band audio from it, but do expect to pay for it! By contrast the R-390 has a 16 kHz bandpass which works very well for AM listening. Terry also sent a fresh collection of bumper stickers which I will be sharing with you. Have you seen any of the very small stickers which are usually on the end of the larger stickers? They have been going around the outside edge of my computer monitor ever since I got the first one from WRNO and GBR radio in Milano. Terry sent the most recent one, WHAD! Have I been HAD?

And speaking of wide-band, high fidelity AM reception, I have noticed a trend in the newer radios that disturbs me. Finally we are getting some wide-band radios on the market and guess what is missing? No bass response! The low frequency response is being rolled off for some reason by the engineers. We are about to get decent radios for wide-band reception of AM signals and they roll the low end off so the stations sound thin instead of full. In the past, the bass has always been excellent. I don't understand, unless they are afraid of hearing the 25 Hz pilot tone on the stereo stations. Funny thing is, Motorola filters this tone before it leaves the chip. I'm playing with the AM response on my Dallas now, so I'll have more to say later. I am finding AM sounding as good as FM, but not on very many stations. There are some modifications for the small Radio Shack AM stereo tuner's audio section to improve the low frequency response of this set. If you want details, send me an SASE and mention the tuner so I'll know what you want. I do get envelopes with just an SASE inside and I have no idea why it was sent to me!

Randy Ward sent a letter telling about the new TIS stations on the Lake Pontchartrain Causeway in Louisiana. They have installed one at each end of the causeway to inform motorists of problems they might encounter before commencing on the causeway across the lake. They operate on 1610 kHz.

The FCC has approved higher power for FM boosters, which means by now some areas should have FM stations with additional coverage. These boosters are operated on the same channel as the FM station and are used to fill in areas that are blocked from coverage of the main antenna because of terrain or other problems. The boosters can operate with as much as 20% of the power of the primary station. That means 20,000 watts for a 100,000 watt station. Chances are, most will be much lower than that, as to avoid interference to the primary station, but there could be situations that might warrant the high power. These boosters are not to be confused with translators which operate on a different channel from the primary station and are usually restricted to one watt.

For a number of years, the FCC has not required that towers of 200 feet or less, be marked with lighting, or be painted. Being an "old school" graduate, I miss seeing towers at night that used to be visible. Along with this de-regulation, many of the multi-tower arrays are also able to reduce the number of lights required to show their arrays to air traffic. I for one miss this. I always enjoyed seeing the lights from different angles and from the air as well. Now one cannot even tell how many towers are in an array at night. I understand the savings on the part of the station and certainly do not oppose the new standards. It was always nice to see the lights reflecting off the bay at night. It added a nice landmark. And life goes on!

This fall, some of the columns will be about the new Florida Network. This network moved into all new studios in March, and installed some new and exciting equipment that not only will be fun to use, but will be fun to explain to you as well. I don't know how many of their operations are totally automated, but when something can be operated better by computers, it will be. Two computers working together with a master clock system. We're really excited about it and I hope you will enjoy a trip behind the scene in the months ahead. PC

THE HAM COLUMN

DAVE NEWKIRK, AK7M
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

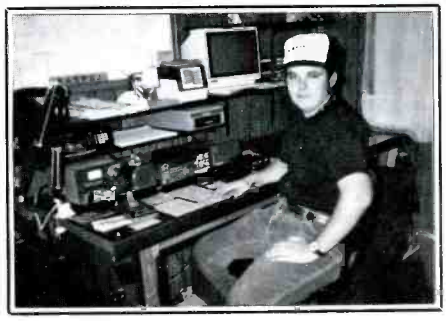
Steps To A Novice License

Seems like most people who have only *heard* of Seattle think that the Emerald City streams with continuous rain. Would you believe that New York City generally receives more precipitation in a year (on average, just over 43½ inches) than Seattle (just under 40½ inches)? Yup! But the myth continues to live on.

Ham radio has a similar myth: "Getting a Novice Ham license is tough." Like the soaked-Seattle saga, this simply isn't true. The way I figure it, getting *your* Novice ticket can be as simple as *choosing the correct answers to 29 multiple-choice questions*. Along the way, you learn a bit about basic radio and radio regulations, antenna and electronics safety, and how to send and receive Morse code at five words (only about *25 characters*) per minute. If the test you take is administered by an ARRL-registered examiner, you can qualify for your Novice ticket after correctly answering just 21 (or more) out of 29 questions on a basic-radio test, *and* by correctly answering 7 (or more) multple-choice questions covering the content of a tape-recorded CW Ham contact. That's 22 + 7 = 29 - 29 correct answers between you and talking to the world.

Like getting out of bed in the morning, the toughest step to take toward getting your Ham license is *deciding to do it*. After that, you're *not* on your own: Excellent study material is available, and thousands of volunteers in Ham clubs across the US are ready to help you study for your license. If you've already taken that first important step of deciding to be a Ham, here's what to do next:

(2) Address a postcard to ARRL, Dept N, 225 Main St., Newington, CT 06111. On the message side of the card, write "I've decided to become a Ham. Send me the goodies." (Also include your name and address so they know *who* to send the goodies *to*!) ARRL will send you a packet containing (A) a cover letter explaining what's in the packet; (B) a fact sheet about Novice/Technician operating privileges; (C) an ARRL publications order form; (D) a schedule showing when and where to tune in slow-speed code practice from W1AW, ARRL's Ham station, using your own shortwave communications receiver; (E) a fact folder called *Amateur Radio: A National Resource*; (F) an invitation for *you* to join the ARRL; and (G) *a computer printout of ARRL-registered clubs, instructors and volunteer examiners in your area*. If you don't already know any Hams personally, this last item can put you in direct touch with local Hams right quick.



Tim French, KA9WDJ, of Colfax, Indiana, enjoys working CW—and SSB too, by the looks of that mike—with his Kenwood TS-440S transceiver.

(3) Get in touch with one or more of the clubs and instructors shown in your computer printout. This is easier than it sounds because the ARRL-registered clubs named in your printout will be provided with *your* name at about the same time you get theirs. If you don't call them, they'll gladly call you!

Charles Berber, Novice KB4UWA at the time this picture was taken, is smiling because he knew he'd be Technician N4QKC by time he made it to POP'COMM! That's a Kenwood TS-830S transceiver between an SM-220 station monitor (left) and a VFO-230 remote VFO. How about send a photo of your shack to The Ham Column?

(4) Enroll in a Novice-license course or start studying on your own. Taking a licensing class costs little or nothing, and you stand to make a lot of new friends as you learn, so I highly recommend signing up for a class.

Whether you're enrolled in a class, or studying on your own, you'll need study materials. ARRL-registered clubs base their Novice courses on ARRL's *Tune in the World with Ham Radio*, available from ARRL HQ or your Amateur Radio supplies dealer. Can't buy a copy locally? Use the publications form in your goodies packet to order one from ARRL-HQ.

At this point, you're well on the way to becoming a Ham. Gee, the mythmakers were wrong: Studying and qualifying for your Ham license is no big deal. *Ham radio itself*—what you *do* with the license, and the friends you gain on the air and at Ham gatherings—is the big deal. The biggest step in getting your license is *deciding to do it*.

Keep Those Cards and Letters Coming, Folks

This column isn't getting enough mail. I need *you* to tell me what you want to see in The Ham Column. Got a Ham-radio question you'd like answered, or a Ham-related subject you'd like to read about, in The Ham Column? Write to me care of Department N, 225 Main St., Newington, CT 06111. I'll be glad to answer your questions.

In *another* magazine column, I read that columns can generally be classified as "event driven" or "data driven." (See what columnists do in their spare time? Read *other* people's columns, of course!) *Event driven* is "writerese" for "responds to events as they happen." "Data driven" means "provides useful information to people." "Useful information" is what The Ham Column should provide, so this is a data-driven ship. I'll do the writing, but I'd like *you* to do the steering. It's easy: Send your questions about Ham radio (technical, operating, licensing and regulatory matters—you name it) to me at Department N, 225 Main St., Newington, CT 06111. If your question ends up sparking a column, or part of a column, your name will make it into POP'COMM print, unless you indicate that you prefer otherwise. The address—naw, I gave it two sentences ago! PC

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Some months ago we reported on the planning for a High Adventure Ministries (the KVOH people) shortwave station which would have broadcast from a ship, beaming religious programming to China. According to the High Adventure Ministries, this proposition has proven to be too expensive. Instead, the group will build the new station on land, but they're not sure yet where that will be! It may be in the Philippines, where High Adventure sees a great religious revival waiting to happen. Or it may be on the island of Palau, about 1500 miles southwest of Guam. On Palau, says High Adventure, "we could send forth the Gospel from the old building with the *Tokyo Rose* propaganda broadcasts were beamed during World War II." We'd guess that the average SWBC DX'er wouldn't need much time to state a prefeence between these two places! The group says it is just under $350-thousand short of having all the funds it needs to put the station on the air. That's about three-fourths of the way!

You can look for improved signals from Radio Kuwait one of these months, as that station adds a pair of 500 kilowatt transmitters to its broadcasting facility.

Another station adding a half million watt pumper is Africa Number One, now working on the addition of a fifth transmitter. As can be noted from the number of other stations and quasi-stations making use of the Gabon broadcaster as a relay, they need to expand.

It's beginning to look as though the "long night" of Radio New Zealand may be about to end. Recent news items indicate that the government has, at long last, recognized the need to give its external radio service a stronger voice and there's now talk of replacing the two decrepit 7.5 kilowatt units with 100 kilowatt transmitters. There's one minor problem common to many stations: where does the money come from?

No more Radio Sweden International. Not to worry, though. The station has simply dropped the last word in its name and returned to being, as it was once, simply Radio Sweden.

Radio Lira, the Adventist World Radio station in Costa Rica, tells me that, within a year or so, they will increase transmitter power from the current 5 kW up to 35 or 40 kW. When that happens you can look for a lengthened broadcast schedule. At present, the station is broadcasting on 9725. Another transmitter is being built for use on 5970 though, due to the priority nature of the power increase, the 5970 outlet may not be finished until the end of the year or early in 1989.

This month's loggings column contains a larger than usual number of Chinese stations logged. A new Chinese broadcaster is the Voice of Pujang, beaming of Taiwan from Shanghai— where there has been no known shortwave broadcaster for many years. The Voice of Pujiang can be heard in Chinese in the mornings around dawn on 3280, 3990 and 4950, all in parallel. Watch out for other Asian stations using 4950 at the same hour. Reception on this should improve as we return to the fall/winter DX season. Reports can be sent to the station at P.O. Box 3064, Shanghai, People's Republic of China.

On to the mail: Randy King in Nebraska is one whose shack photo is featured this month and you'll note it contains some older style receivers, which Randy collects. He specializes in foreign made radios and has about thirty of them, from Germany, England, France, Sweden, Italy, Denmark, Holland and Canada.

A classic older receiver, the Hammarlund SP-600, is one of the radios in use at Kyle Franks' Fairbanks, Alaska shack. New, the SP-600 was far above the budget of most DX'ers. Randy bought it in non-working condition for $20 at a ham flea market. It shares attention with his Japan Radio Company NRD 525.

Guy Atkins in Washington state says he's making too many loggings of "Radio Bzzt Bzzt", thanks to a neighbor's electric appliances!

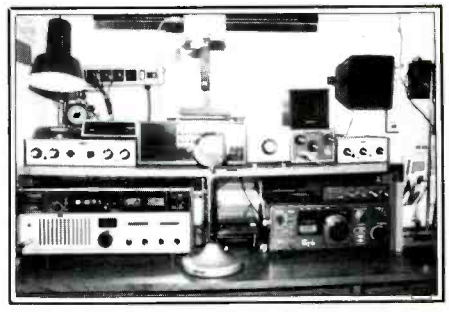
Wain Buckley in Georgia is concerned about the increasing use of higher power on shortwave, believing that such developments lessen the DX attractiveness of stations. The past World Administrative Radio Conferences (WARC) have tried to address this problem but with little result. As SWL's and DX'ers we have about as much chance of doing anything about it as we do trying to get the USPS to lower its prices for postage. There will, though, always be plenty of low power targets to chase, since many local and regional coverage shortwave stations have neither the need for high power nor the money to buy the transmitters.

WCSN and WMLK are among the stations Jerome Jacques is having difficulty QSL'ing. The addresses given in WRTH are correct, Jerome, but in QSL matters one cannot assume a reply from any station. You have to be prepared to send follow-ups, often several. It may be that your reports didn't arrive or were misplaced. Try them again.

If there were such a thing as an "S" meter which measured the quantity of log reports received by an editor, ours would certainly

This attractive card QSL's reception of All India Radio. Courtesy John Miller, Thomasville, GA.

David Cole calls his set up "the compleat program listener's shack". It's built around a Sony ICF 2010 portable.



Here's the neat, multi-mode listening post of Frank Mierzwinski in Pennsylvania, including a Kenwood R-1000 SW receiver, also an SSB transceiver for 27 MHz.

Randy King's Nebraska shack contains a number of receivers from the 1950's.

have "pinned the needle" this month. A welcome situation but with a bad side, too. It was necessary to cut a lot of more common loggings, or multiple logs of the same station on the same frequency. A few reporters did not include reception times, their last name and state abbreviation after each item so it was easy to decide what to do with those.

We do want your loggings, shack photos, QSL's (good copies or non-returnable originals), news, comments, questions and so on, so please check in as often as you can!

Here are this month's logs. Broadcasts are in English unless otherwise noted. All times are UTC.

Shortwave Broadcast Loggings

Alaska: KNLS at 0830 on 6150 w/rx mx (Carslick, GU).

Albania: R. Tirana, 6200 at 1930 in Greek (Babbis, MD); 2300 (Minard, ME); 2250 on 9480 (Benoit, MA); 0337 on 9755 (Gilbert, CA); 0250 to s/off 0257 on 9760 (Johnson, AZ).

Angola: R. Nacional, 3376 at 2340 in PP. Was //4952 (Atkins, WA); At 0355 on //7245 (Wolfish, MAN).

Antarctica: R. Nacional Arcangel, San Gabriel, 15474 in SS at 0032, clear ID & s/off (Mayo, ME).

Argentina: RAE, 0214 on 9690 (Jacques, NE); 0258 on 11710 signing off w/address & QSL info (an unknown reporter).

Armenian SSR: R. Yerevan (via R. Moscow-- Ed.) at 0357 on 11790 (Gilbert, CA); 0339 in RR, w/EE at 0353-0357 (Johnson, AZ).

Ascension Isl.: BBC relay at 1757 on 17885 in PP (Wolfish, MAN).

Australia: R. Australia, 1201 on 6060 (Mayo, ME); 0802 on 9580 (Gilbert, CA).

ABC Perth, 0330 on 15425 w/sparts (Linanis, PA).

ABC Brisbane, 0837 on 4920 w/big band mx (Johnson, AZ).

VL8K, Alice Springs, 0526 on 2486 (Garcia, MD). Are you sure about 0526 UTC?-- Ed.

Austria: R. Austria Int'l., 0445 on 6015 (Buckley, GA); 0656 on 6155 in Greek (Garcia, MD); 9550 in FF at 0235 (Johnson, AZ).

Bangladesh: R. Bangladesh, 6240 in Urdu at 0235, then open carrier to 1358 followed by IS/ID at 1400, nx & international mx. Off 1445, back on in Hindi at 1500. At 1912 on 7505 in presumed Bengali (Wolfish, MAN); 15525 at 1230 s/on (Mayo, ME).

Belgium: BRT at 0000 on 9925 in SS or II, then into EE at 0030, at 1552 on 17675 w/IS into FF (Johnsan, AZ); 1659 w/IS & Dutch on 17595 (Buckley, GA); At 1630 (Garcia, MD).

Benin: ORTB, 4870 at 0517 in FF, mention of **La Voix de la Revolucion** (Gilbert, CA); ID at 0552, off air 0544-0546 (Gaadlet, TN).

Bolivia: R. Grigota, 4830 at 0147 in SS w/mx & ID (Garcia, MD).

R. Animas, 0253 on 4991 in SS (Garcia, MD).

Botswana: R. Botswana, 4920 (you mean 4820?-- Ed.) //7255 at 0440 in presumed SeTswana (Gilbert)

Brazil: R. Inconfidencia, 6010 at 0927 (Wolfish).

R. Record, Portuguese at 0903 on 6150 (Wolfish).

R. Nacional, 11745 at 0238-0250 s/off (Rabinowitz, MI).

R. Educacao Rural, Campo Grande, 4755 at 0200 in PP (Vega-Byrnes, IL); 0715-0744 (Atkins, WA).

R. Marumby, 9665 at 0922 in PP, mx, ID (Wolfish, MAN).

R. Educadora (Guajara Mirim?-- Ed.) at 1000 in PP (Atkins, WA).

R. Excelsior, PP at 0909 on 9585. Splatter from Australia on 9580 (Wolfish, MAN).

Bulgaria: R. Sofia s/on 1930 on 6070 (Wolfish, MAN); Greek (Sundays only) at 0500 on 7115//-7255//6070 (Babbis, MD); 11720 at 2200 (Minard, ME).

Burkina Faso: R. Burkina, 4815 in FF at 0645 (Gilbert, CA).

Burma: Maymo Defence Forces BC Unit, fading in, in language arount 1200 (Mayo, ME).

Cameroon: R. Comeroan, Yaounde, 4850 in FF at 2358 s/off (Wolfish, MAN), nx at 0506 (Mayo)

R. Garoua, 5010 at 0600 in EE/FF (Mierzwinski, PA).

Canada: RCI at 1000 on 5960 (Minard, ME); 17820 at 2137 (Franks, AK).

CBC N. Quebec Svc., 2245 on 6195//9625 (Minard, ME).

R. Japan/Sackville 5960 at 0325 (Zirkelbach, CA).

Chad: Rdf. National, 4905 at 0541 in FF (Gilbert, CA).

Chile: R. Nacional, 15140 at 0300 in SS (Linonis, PA); 2312 on 9550//15140 (Gilbert, CA).

China (Peop. Rep.): Yunnan PBS, Kunming in CC at 1329 on 4760 (Ross, WA).

Guangxi PBS, Nanning, in CC at 1255 on 4915 (Ross, WA).

Fujian PBS, Fuzhou, 2340 at 1420 in CC (Kammler, CA).

Jiangxi PBS at Nanchang on 2445 at 1423 in CC (Kammler, CA).

V. of the Strait, Fuzhou, 2490 in CC at 1433 (Kammler, CA).

V. of Jinling, 4875 at 1225 in CC (Goodlet, TN).

CPBS, 5075 in CC at 1105 (Goadlet, TN).

Heilongjiang PBS, Harbin, 4840 in CC at 1335 (Ross, WA).

Gansu PBS, Lanzhou, 4865 in CC at 1432 (Ross, WA).

Xinjiang PBS, Urumqui, 5800 in CC at 1448, (Ross, WA).

Nei Monggol PBS, Hohhot, in Mongolian, 1448 on 6974 (Ross, WA).

R. Beijing (var. sites), 1130 on 6560 in CC; EE on 9770 at 0305 (Mayo, ME); 1200 on 7335 (Wolfish, MAN); 9665 at 0050 to NA (Linonis, PA); 9690 from 0500 (Buckley, GA); 11715 at 0001 (Durant, NY); 15455 at 0314 (Johnson, AZ).

Colombia: Ecos del Combeima, 4785 in SS at 2357 (Garcia, MD).

Ondas del Meta, 4885 at 1100 in SS (Gilbert)

La V. del Llano, 6112 at 0459 in SS, ID (Garcia).

Emis. Nueva Grenada, 6160 nx in SS (Garcia).

Caracol Neiva, 4945 in SS at 1135 (Vega-Byrnes).

La V. de la Selva, 6170 in SS at 1055 (Goodlet, TN); 1145 (Wolfish, MD).

R. Sutatenza, 5095 at 0115 in SS (Minard, ME).

Costa Rica: R. For Peace Int'l., 7375 at 0219 w/**New Dimensions** pgm. Into SS 0300 (Durant, NY); tech problems about 0038, apologizing for having been off the air for a few days (Atkins, WA).

R. Colombia, 4850 at 0152 in SS (Garcia, MD).

R. Reloj, 6005 (nominal 6006-- Ed.) at 0614 in SS (Garcia, MD).

TIFC Faro del Caribe, 5055 at 0537 in SS (Gilbert, CA).

R. Impacto, 5030//6150 at 1205 in SS, **Panorama** at 1300 (Vega-Byrnes, IL); 0000 w/ID giving 980 kHz MW & 6150 kHz SW. Hrd on 5030 (Wolfish, MAN).

Cuba: R. Rebelde, 5025 at 1140 in SS (Vega-Byrnes, IL); at 0329 (Garcia, MD).

R. Havana, 11760 at 2220 (Minard, ME); 9735 at 1600 in SS (Babbis, MD); 9525 at 0600 (Garslick, GU)

Czechoslavakia: R. Prague, 5930 at 0100 (Minard, ME); 0315 (Linonis, PA); 7345 at 0317 (Johnson, AZ); 11685 at 1746 (Atkins, WA); 11990 at 1538 (Franks, AK).

Dominican Rep.: R. Clarin w/CID pgms in SS, 1555 on 11700 (Goodlet, TN).

R. Amanecer, 6025 in SS at 0050 (Garcia, MD).

East Germany: RBI, 5965 to Europe at 2200 (Rabinawitz, MI); 6080 at 1914 to Europe (Wolfish, MAN); 2145 on 6125 (Gerke, OH); 9560 at 0312 (Johnson, AZ); 11875 in PP at 2300 (Gilbert, CA); 15240 at 1528 (Franks, AK).

Ecuador:R. Nacional Espejo, 4680 at 0621 in SS, mx & musical ID (Goodlet, TN).

R. Paz y Bien, 4820 at 0140 in SS (Garcia, MD).

R. Rio Amazonas, 4870 in SS at 0155 (Garcia).

R. Centinela del Sur, 4890 in SS at 0206 (Garcia, MD).

La V. de las Caras, 4795 at 0240 in SS (Vega-Byrnes, IL).

R. Catolica Nacional, 5056 in SS at 0353 (Garcia, MD).

R. Zaracay, 3395 in SS w/commercials, ID at 0353 (Garcia, MD).

La V. del Upano, 5040 in SS to 0430 s/off (Gilbert, CA).

HCJB at 0100 on 9720 (Minard, ME); 9870 at 0250 (Linonis, PA); 11910 at 0129 closing NA svc in into other pgms (Logan, TX).

Egypt: R. Cairo, 9475 at 0216-0232 (Atkins, WA); 0256 on 9675 (Johnson, AZ); 11975 in Swahili at 1712 (Ross, WA).

England: BBC on 3955 at 0600 w/nx (Logan, TX); 7175 in GG at 2330 (Rabinowitz, MI); 1610 on 9515 (Babbis, MD); 17740 at 1500 (Johnson, AZ).

Equatorial Guinea: R. Nacional, 9553 at 2157 in EE/SS w/rx pgm, s/off in SS w/anthem (Wolfish).

Falkland Isls.: FIBS, 3958 at 0746-0839, tentative, US/Brit pops continuous to fade 0839, no ID heard (Atkins, WA).

Finland: RFI, 9635 at 0332 w/nx (Johnson, AZ); 11850 at 1503 w/IS s/on (Gilbert, CA); 11945 at 1315 (Rabinowitz, MI); 11945//15400 at 1320 (Vega-Byrnes, IL).

France: RFI 4890 (via Gabon) at 0430 in FF (Buckley, GA); 11955 at 1600-1655 (Gerke, OH); 17720 in FF at 0300 (Parrish, PA).

French Guiana: RFI relay, 9800 at 0335 w/nx (Jacques, NE).

Gabon: Africa #1, 15475 at 1715 in FF (Zirkelbach, CA).

R. Japan (via Africa #1), 9570 at 0459 in RR (Wolfish, MAN); 11800 at 2320 (Rabinowitz, MI); 21700 at 1600 in JJ (Mierzwinski, PA).

Ghana: GBC, 3366 at 0646-0705 (Mierzwinski, PA); 4915 at 2245 (Miller, GA); 0610 in EE & vernaculars (Zirkelbach, CA).

Greece: V. of Greece, 7430//9395//9420 w/nx at 0130 & 0340. On 9855//15630 at 0840, nx; ditto at 1040 on 11645//15630; 1240 on 9855//11645//15630; 1540 on 9905//11645//15630; 1840 on 11645//12045 //15630; 1920 on 7430//9425//15630; 2335 on 9395// 11645 (Babbis, MD); nx at 1548 on 9815 (Gilbert).

Radiofonikos Stathmos Makedonias, Thessaloniki, regional relay of 1st pgm, 9935//15595 in Greek at 2010 (Babbis, MD).

Greenland: Gronlands R., 3999 at 0251 w/clarinet IS & anthem at 0308 s/off. IS clearly at 0300 next eve followed by anthem. Ham QRM (Wolfish, MAN).

Guatemala: R. Buenas Nuevos, 4800 in SS at 1205 (Goodlet, TN).

R. Tezulutlan, 3370 at 0140 in SS to 0154 off (Vega-Byrnes, IL).

La V. de Nahuala, 3360 at 0234 in SS (Goodlet).

TGNA R. Cultural, 0548 on 3300 w/country mx (Logan, TX).

Guam: KSDA, 17865 at 0200-0300 s/off, rx pgms to Asia (Carslick, GU); 11965 at 2200 s/on in Tagalog (Wolfish, MAN).

KTWR, 15420 at 2300 w/EE ID then nx in Hindu (Garcia, MD).

Honduras: Sani R., 4755 at 2305 in SS (Garcia)

R. Luz y Vida, 3250 at 0325 w/ID as **Radio Light & Life, HRPC...** & into rx pgm, 0355 s/off by mgr. Don Moore. Says EE 0300-0400 (Wolfish, MAN).

HRVC La V. Evangelica, 4820 at 0340 w/rx pgm (Gilbert, CA).

Hong Kong: BBC relay, 15280 at 0811, off abruptly as 0815 (Wolfish, MAN).

Hungary: R. Budapest, 2300 s/on in Hungarian (Gilbert, CA); 0300 (Miller, GA).

India: AIR Delhi (tentative), 4860 at 1418 & into un-ID language (Walfish, MAN); 9910 at 2100 w/ID **This is the Overseas Service of All India Radio,** possible //11620 (Buckley, GA); 11620 at 2206 (Garcia, MD).

Indonesia: V. of Indonesia, 11790 at 1515 w/nx (Gilbert, CA).

RRI Surakarta (tenative), 4932 at 1256 in Indonesian (Ross, WA).

Iran: VOIRI on 9022 at 2000 (Elia, FL); presumed at 0020 in language (Benoit, MA).

Iraq: R. Baghdod, 9705 at 0100 (Linonis, PA; 9785 at 2130-2200 (Minard, ME0; 11810 at 0135 (Gilbert, CA).

Israel: Kol Israel, 5885 in FF from 0230 (Atkins, WA); 7462 at 0215 (Goodlet, TN); 7463 at 0105 (Rabinowitz, MI); 9345 at 2220 (Minard, ME); 9435 at 0011 (Benoit, MA); 9845 at 2030, also 1639 on 11610 in un-ID 9855 at 0100 (Linonis, PA); 15640 at 1100, also 17555 at 1021 in Hebrew (Wolfish, MAN).

Italy: RAI, 9575 at 0103 w/nx (Gilbert, CA); 11800 at 0100 (Linonis, PA).

Ivory Coast: RTV Ivorienne, 6015 in FF at 0607 (Gilbert, CA).

Japan: R. Japan, 17810 at 0100 w/nx; 9570 in possible JJ at 0458 (Johnson, AZ); 5990 at 1105 (Buckley, GA); 11800 at 2311 (Benoit, MA). Various relays-- Ed.

Far East Network, 6155 at 0805 w/nx from US networks (Johnson, AZ).

Nihon SWBC, 3925 at 1153 in JJ (Goodlet, TN).

Kampuchea: V. of the Kampuchean People, 11938 at 1214 in FF, ID at 1226 w/times & freqs (Mayo, ME).

Kuwait: R. Kuwait, 11665 at 1900-2100 w/US pops (Minard, ME).

Latvian SSR : R. Riga, 5935 at 0759 in Swedish,

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcast/ing
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America/n
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel frequencies

guitar mx, open carrier, time sig, brief band mx, ID by YL pop/rock, then off at 0828 (Wolfish, MAN).

Liberia: VOA relay, 3990 at 0615 s/an, nx (Atkins, WA).

ELWA, 4760 at 0711 w/local songs (Kammler).

Libya: R. Jamahiriyah, 15450 at 1757-1803 in AA, 1800 clock chimes (Atkins, WA).

Lithuanian SSR: R. Vilnius, 7165 at 2300 w/mx, mailbag (Durant, NY).

Luxembourg: R. Luxembourg, 6090 at 0003 w/wx, musical ID, time ckecks, top-40 w/DJ & commercials (Miller, GA).

Malaysia: R. Malaysia Kuching, Sarawak, 4950 at at 1130, nx (Gilbert, CA); 4895 at 1337 (Ross, WA).

Mali: RTVM, 4783 at 0600 s/on in FF w/guitar, anthem, ID & freq. **Ici Bamako, RTVM** ID & into highlife mx (Atkins, WA).

Malta: DW relay, 9545 at 0300 (Zirkelbach, CA); 0104 (Gilbert, CA).

Marshall Is.: WSZO, 4940 at 0842 to 1000 s/off, island mx, OM anncr in Marshallese & EE (Atkins)

Mauritania: ORTM, 4845 at 0710 in AA (Mierzwinski, PA).

Mexico: El Eco de Sotavento, Veracruz, 6020 at 1156 in SS (Vega-Byrne, IL).

XEWW La V. de la America Latina, 0025 on 15160 w/SS commercials, ID (Garcia, MD); 1444 commercials, ID, time pips (Goodlet, TN).

R. Universidad, Hermosillo (tentative), 6115 at 0737 in SS (Kammler, CA).

R, Mexico Int'l., 17765 in SS at 2009 (Garcia).

Monaco: TWR, 7105 at 0730, mx box interlude starts at 0720 (Wolverton, AZ); 9610 at 0800 in GG (Gilbert, CA).

Montserrat: DW relay, 9545 at 0150 s/off (Gilbert, CA).

Morocco: VOA Tangier relay, 15195 in Albanian at 1700 (Walfish, MAN).

RTVM, 15105 at 2100 w/ID in AA (Garcia, MD); 15335 at 1705 in probable AA (Atkins, WA); 17595 at 1452 in AA (Goodlet, TN).

Mozambique: R. Mocambique, Maputo in PP at 0249 an 4865, multi-lingual ID's during IS, anthem 0255, s/on by YL (Wolfish, MAN).

Netherlands: R. Netherlands, 1840 on 15175 (Minard, ME); 9540 (via Madagascar-- Ed.) at 2031 (Benoit, MA); 15570 at 1702 (Ross, WA).

Netherlands Antilles: RN relay, 9590 at 0300 (Zirkelbach, CA); 21685 at 1906 (Wolfish, MAN).

TWR, 6180 at 0142 in SS (Gilson, MD).

New Caledonia: RFO, Noumea at 0701 on 7170 in FF (Gilbert, CA); 0855 in FF, ID 0900 & 0908 (Goodlet, TN).

New Zealand: R. New Zealand, 11780//15150 at 1730 w/talks (Zirkelbach, CA); 0227 on 17705 w/IS, ID, 0230 s/on (Johnson, AZ).

Nicaragua: La V. de Nicaragua, 6100 at 1210 in SS, political speech (Goodlet, TN); 0534 (Gilbert).

Nigeria: V. of Nigeria, 7255 at 0656 in FF, IS & into Hausa at 0700, IS & EE at 0800 (Johnson, AZ); 15120 at 1955 in FF (Atkins, WA); 4770 at 0516 w/nx (Logan, TX). On 4770 it's R. Nigeria at Kaduna-- Ed.

N. Korea: R. Pyongyang, 6580 at 1114-1147 (Maya, ME); 9325//9345 at 1300 s/on; also 1220 on 9600 (Maya, ME); 11735 at 2320 (Jacques, NE).

Northern Marianas: KYOI Saipan, 11900 at 1214 (Garcia, MD).

Norway: R. Norway Int'l., 9565 at 0345 in NN, 11850 at 2058 (Johnson, AZ); 9605 at 2229 (Benoit, MA); 9690//15310 at 1423, also 1320 on 15185 w/bad QRM (Franks, AK); 15180//15235//17780 at 1015 on Sundays (Walfish, MAN).

Oman: BBC relay, 9570 at 0420, 9735 at 1601 in AA (Walfish, MAN).

Pakistan: R. Pakistan, 15606 at 1104 IS, nx. Carrier off at 1120, barely audible (Walfish, MAN).

Papua New Guinea: NBC Pt. Moresby, 4890 at 1330-1400 s/off (Mierzwinski, PA).

Paraguay: R. Nacional, 0200 in SS on 9735 (Linonis, PA).

Peru: R. Ancash, 4990 at 0427 in SS (Gilbert).

R. Nor Peruana, 9655 at 1130 in SS, ID **Esta es Nor Peruana, Lo Soberano...,** QRM from Rumbos/9660 (Vega-Byrnes, IL).

R. Los Andes, 5030 at 1100 in SS (Vega-Byrnes).

R. Huancavelica, 4885 at 1110 in SS (Vega-Byrnes, IL).

La V. de la Selva, 4828 at 0145 w/sports in SS (Garcia, MD).

R. Tropical, 4935 at 0311 in SS, ID (Garcia).

Philippines: VOA relay at 0759 on 15410 in RR at s/on w/EE ID's. Was //11965//15325 (Wolfish).

R. Veritas Asia, 9560 at 2330 going into Vietnamese pgm (Gilbert, CA); 9770 at 1500 s/on (Wolfish, MAN).

Poland: R. Polonia, 7270 at 2230 (Miller, GA); 0630 (Wolfish, MAN).

Portugal: R. Portugal, 9680//9705 at 0100 in PP (Gilbert, CA).

IBRA Radio via Sines site, 9685 at 2000 Th/Fri/Sat w/rx pgm in Greek (Babbis, MD); 9675 in PP at 2320 (Garcia, MD).

Romania: R. Bucharest, 6155 at 0235 (Rabinowitz, MI); 9510 w/IS, ID & nx 0400 (Johnson, AZ); 11940 at 1503 w/nx (Gilbert, CA).

Rwanda: DW relay, 9690 at 0653 in GG (Kammler, CA); 15410 at 1497 (Garcia, MD).

Saudi Arabia: BSKSA at 2048 on 9720 w/nx (Garcia, MD).

Senegal: ORTS, 4890 w/IS at 0558, s/on in FF & into FF & vernaculars pgms (Gilbert, CA).

Singapore: R. Singapore's Radio 1 svc at 1505 on 11940, **Friends of the Airwaves** pgm (Gilbert, CA).

Solomon Islands: SIBC Honiara, 5020 at 0930 mx & airline flites info (Carslick, GU); 9545 at 0754 w/wx (Gilbert, CA).

S. Africa, Rep. of: Radio RSA, 4990 at 0346 (Durant, NY); 9580 at 0400 (Johnson, AZ); 9615 at 0200, 9870 at 0243 (Logan, TX); 11775 at 1807 (Ross, WA); 11900 at 0400, 15125 at 0629 (un-ID reporter).

Radio 5, 4880 at 0300 w/ID, prayer, pop mx, chatter (Zirkelbach, CA); Wx, commercials, etc. (Miller, GA).

SABC, 3320 at 1301 in vernaculars (Ross, WA).

S. Korea: R. Korea, 7272 at 1125 w/nx (Carslick, GU); 9570 at 1454 (Ross, WA); 9750 at 1459 (Gilbert, CA); 15575 at 0000 (Rabinowitz, MI).

Spain: Spanish Foreign R., 6125//9630 at 0154 (Franks, AK); 9765 at 1830 (Wolfish, MAN); 15375 at 1826 s/on (Johnson, AZ).

Sri Lanka: VOA relay, 15250 at 0325, off 0400 (Wolfish, MAN).

SLBC, 9720 at 1606 w/rx pgm, ID by YL, pop tunes, into presumed Hindi at 1630 (Wolfish, MAN).

Swaziland: TWR, 9550 at 1657 w/mx, ID, address, into vernacular at 1700 (Atkins, WA); un-ID language to 2015 s/off (Wolfish, MAN).

Sweden: R. Sweden, 6065 at 0130 multi-lingual ID (Benoit, MA); 9695 at 0230, IS, ID, nx (Johnson, AZ); 15345 at 1500 s/on, into FF (Gilbert, CA).

Switzerland: Swiss R. Int'l., 3985//6165 at 0800, into FF after s/on (Wolfish, MD); 6190 at 2230 (Gerke, OH); 9810 at 2215 (Rabinowitz, MI); 9885 at 0315 w/IS & s/on (Gilbert, CA); 9570//11925//11940-//11955//17830 at 1035 (Carslick, GU); 15430 at 1531 (Franks, AK).

Syria: R. Damascus, 9950 at 2133-2204 s/off (Maya, NE); 11625 at 2102 (Ross, WA).

Tahiti: R. Tahiti, 11825 at 0806 in FF (Gilbert).

Taiwan: VOFC (via WYFR), 5985 at 0312 (Ross, WA); 9555 at 0300 (Linonis, PA).

Thailand: R. Thailand (tentative), 11905 at 2337 w/oriental mx, OM in EE w/oriental accent, but no ID's (Kammler, CA).

Togo: RTT Lome, 5047 at 0545 in FF, anncts, nx, ID (Mierzwinski, PA).

Turkey: V. of Turkey, 9445 at 2303 w/Outlook & DX Corner pgms (Durant, NY); 9560 at 2223 (Garcia, MD); 9560 since replaced by 9445-- Ed.

Uganda: R. Uganda, 4976 at 0420, local nx & obits (Goodlet, TN).

Ukranian SSR: R. Kiev (via R. Moscow), 6990 at 0036, 7165 at 0305 (Rabinowitz, MI); 6200 at 0032 (Gilson, MD); 11790 at 0327 s/off (Gilbert, CA); 11860 at 0300 (Wolverton, AZ).

United Arab Emirates: UAE R. Dubai, 9640 at 0330 w/nx (Gilbert, CA).

U.S.A.: KUSW Salt Lake City, UT on 9755 at 0422 (Jacques, NE); 11650 at 0032 (Benoit, MA); 11980 at 0130 (Parrish, PA); 15580 at 2232 (Durant, NY); 17715 at 2150, 15560 at 2200 (Parrish, PA); 15580 at 2232 (Durant, NY); 17715 at 2150, 15560 at 2200 (Minard, ME); 17720 at 2135 (Franks, AK).

WCSN, 9435 at 2355 (Gilson, MD); 21515 at 1640 (Minard, NE).

R. Marti, 9525 at 2357 (Gilson, MD).

USSR: R. Moscow, 7400 at 0020 (Linoris, PA); 2000 on 7115 (Gerke, OH); 6000 at 0045 (Durant, NY); 9490 at 0452, & 17880 at 0222 (Jahnson, AZ); SS to Cuba on 7300 till 0300 (Rabinowitz, MI); 5015 un-ID site at 0525 w/1st pgm; 15420 (some say Frunze as site) at 0536 (Wolfish, MAN).

Krasnoyarsk, 5290 w/1st pgm at 0240 in RR (presumed Alma Ata site) (Wolfish, MAN).

Arkhangelsk, 5015 at 0156 in RR, test tones, into Mayak IS, ID nx in RR (Wolfish, MAN).

Tyumen (tentative), 4895 at 0234 in RR, 9780 at 0441 w/1st pgm (Wolfish, MAN).

Alma Ata, Kazakh, 5260 at 0234 in RR; 9780 at 0441 w/1st pgm (Wolfish, MAN).

Mayak pgm (via Tblisi ar Ashkhabad) at 0247 in RR (Wolfish, MAN).

Radiostansiya R., 6200//13645 at 2330 in RR (Wolfish, MAN).

R. Peace & Progress, 7195 at 2046 (Garcia, MD); 15470 at 1430 (Gerke, OH).

Radiostansiya Atlantika (tentative), 12072 at 1330 in probable RR (Rabinowitz, MI).

Uzbek SSR: R. Tashkent, 7275 at 1200 ID's as **Radio Tashkent Calling** (Buckley, GA); 9600 at 1200 (Vega-Byrnes, IL).

Vatican: Vatican R., 0050 on 9605 w/IS, ID (Johnson, AZ); 9645 at 0855 w/rx svcs, also 1530 in FF on 11810 (Gilbert, CA); 15120 at 1949 w/Latin rx svcs (Elia, FL).

Venezuela: R. Capital, 4850 w/SS at 0754 (Goodlet, TN).

R. Occidente, 0252 in SS on 3225 w/ID's, mx (Goodlet, TN).

R. Rumbos, 9660 in SS at 2207 (Garcia, MD); 4970 at 0240 in SS (Durant, NY).

R. Nacional, 5020 in SS at 0021 (Garcia, MD); 11860 at 1100 in SS (Babbis, MD); to 0105 s/off (Minard, ME).

La V. de Carabobo, 4780 in SS at 0358 to 0400 s/off (Durant, NY).

Ecos del Torbes, 4980 at 0030 w/mx + nx in SS (Linonis, PA).

R. Tachira, 4830 in SS at 0355 (Gilbert, CA).

R. Mundial Bolivar, 4770 at 1026 in SS (Gilbert, CA). Reactivated-- Ed.

Vietnam: V. of Vietnam, 9840 at 2340 (Jacques, NE); 1015 (Buckley, GA); 10010 at 1456, at 1458 in Vietnamese on 10060 (Ross, WA); 12020 w/nx 1803, ID 1811 (Wolfish, MAN), to 2057 s/off (Mayo, NE).

W. Germany: DW on 15135 at 1532 to E. Africa, 17860 at 1915 in GG, 17765 in possible AA at 1449, into EE & off 1450 (Johnson, AZ); 6040 at 0110 (Minard, ME); 15110//21650//21680 at 0930 in Asian svc (Carslick, GU).

VOA (via new Wertachtal site), listed, 9575 at 1935 in RR (Wolfish, MAN).

Bayerischer Rundfunk, Munich, 6085 at 0547 after DW off-- pap mx, nx in GG, wx, traffic for autobahns (Elia, FL).

RFE, 3970 at 0330 in tentative Romanian (Durant, NY).

Yemen Arab Rep.: R. Sana'a, 9780 at 2049 in AA w/EE ID (Garcia, MD).

Yugoslavia: R. Yugoslavia, 5980 at 2230 w/ID, nx in FF, 2243 IS & close (Wolfish, MAN); 2215-2230 (Gerke, OH); 6100 at 2130 in Greek (Babbis, MD); 11785 at 1500 s/on, into AA (Gilbert, CA).

Our thanks to this month's Good Guys: Michael Gerke, Cincinati, OH; Cliff Goodlet, Chatanooga, TN; Warren L. Gilbert, Sherman Oaks, CA; Bill Wolverton, Phoenix, AZ; Alexander Durant, Albany, NY; Mary K. Minard, Portland, ME; Gordon D. Benoit, Harwich, MA; Fernando Gardia, Baltimore, MD; Bob Zirkelbach, Pleasant Hill, CA; Jack Linonis, West Middlesex, PA; John Babbis, Silver Spring, MD; Sander J. Rabinowitz, Farmington Hills, MI; Bruce R. Gilson, Silver Spring, MD; John Miller, Thomasville, GA; Stanley D. Mayo, Westbrook, ME; Jerome Jacques, Omaha, NE; Frank Mierzwinski, Reading, PA; David Kammler, Ridgecrest, CA; Wain Buckley, Thomasville, GA; Paul Johnson, Phoenix, AZ; Tom Vega-Byrnes, Chicago, IL; Guy Atkins, Issaquah, WA; Kyle Franks, Fairbanks, AK; Bob Logan, Austin, TX; Lee Elia, Casselberry, FL; Frederick D. Carslick, Guam; Niel Wolfish, Winnepeg, MAN; and Jim Ross, Vancouver, WA.

Till next month, good listening! PC

SATELLITE VIEW

BY DONALD E. DICKERSON

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Up From The Ashes – Discovery

The most important launch of NASA's history is scheduled to take place soon. It will be the launch of the Shuttle Discovery, the first since the loss of the Challenger. This launch will test both our ability to safely launch another manned mission and symbolize our determination to challenge the Soviet Union's present dominance of outer space.

It has become apparent during the last two years that we have some catching up to do. Not only do we have a backlog of satellites and scientific payloads to launch, but we lack a reliable fleet of expendable launch vehicles for commercial and heavy government payloads.

The crew for the next Shuttle mission, STS-26 Discovery, is in training. The crew of five consists of the following: Commander Frederick H. Hauck (Capt. USN), Pilot Richard O. Covey (Lt. Col. USAF), and Mission Specialist David C. Hilmers (Maj. USMC), George D. Nelson (Astronomy Ph.D.) and John M. Lounge (Astro-Physic M.S.).

This Discovery crew will launch one of our most important satellites, TDRS. It will be launched before our newest class spy satellite, the KH-12. The latter is scheduled for the second Shuttle flight, STS-27. This satellite has been waiting for launch for two

STS-26 crew: Hauck, Covey, Hilmers, Nelson and Lounge.

NASA HF Support Frequencies

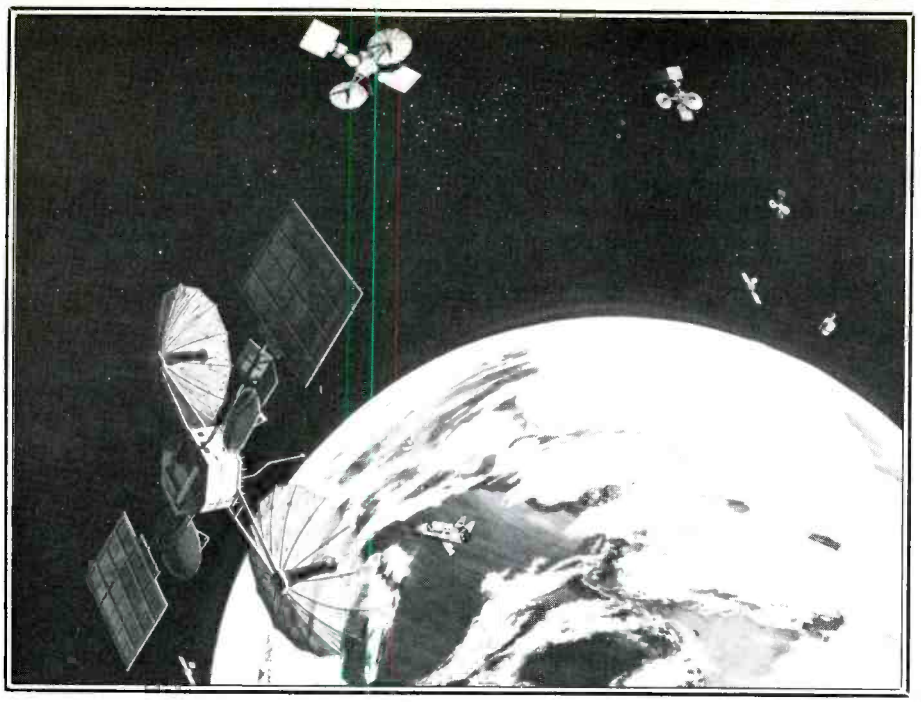
2.622 MHz	Booster rocket recovery	8.972	NAVY Atlantic support
2.678	Kennedy Operations	8.981	Support aircraft
3.385	NASA tracking	9.043	Support aircraft
3.850	Johnson Space Center	9.132	Support aircraft
3.860	Goddard Space Center	10.780	USAF Cape Radio
5.190	NASA ships	11.205	NASA Pacific support
5.810	NASA ships	11.405	Booster rocket recovery
6.693	Support aircraft	13.170	Support aircraft
6.708	Support aircraft	13.213	NASA Kennedy Operations
6.723	Kennedy Space Center	14.456	NASA tracking
6.896	Kennedy Space Center	15.015	NASA tracking
6.983	NASA tracking	18.200	Support aircraft
7.461	Support aircraft	20.186	NASA Ascension Is. relay
7.675	NASA Kennedy Operations	20.390	USAF Cape Radio
7.765	Support aircraft		

TDRS Shuttle Frequencies

downlink	uplink	Shuttle back-up
2287.5 MHz	2106.5 MHz	296.8 MHz
2250.0	2042.0	279.0 (EVA)
2217.5	1831.5	259.7
2205.0	1775.5	

NASA VHF Support Frequencies

Kennedy	Aircraft	Ships
162.6 MHz	117.8 MHz	148.5 MHz
164.1	121.5	149.0
170.2	126.3	162.0
171.2	164.8	

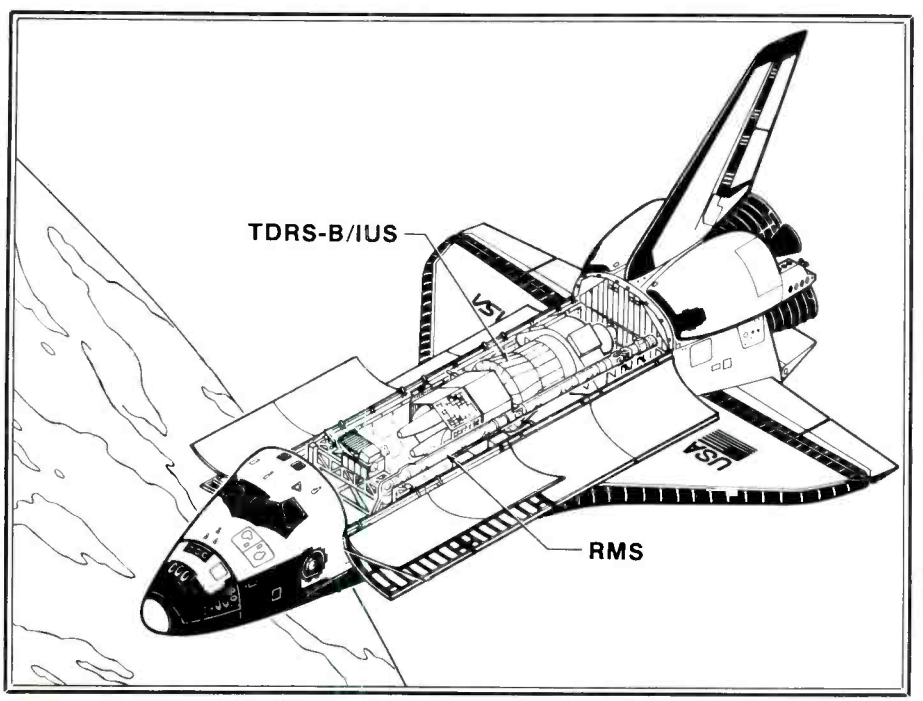


TDRS satellite system deployed.

years. The reason TDRS will be launched first, is that it is needed to help relay data from the KH-12 and other spacecraft in our spy satellite network. TDRS will, of course, keep the Shuttle in continuous contact with ground stations. This is something which is now not possible. The TDRS spacecraft can coordinate and relay communications from twenty three other spy, military and scientific satellites simultaneously. The next launch will be the second in a series of six planned for the TDRS system. The third is scheduled for launch on February 2, 1989, again from Discovery.

The crew will also carry out a wide variety of experiments while in space; from growing protein crystals (this seems to be the standard shuttle experiment), to a photographic survey of lightening phenomenon during severe weather. There are two other experiments whose purpose escapes me, though I am sure they are both worthy subjects for study, one is on electro-osmosis and the other is on the viscosity of red blood cells in space.

The most interesting experiment during the STS-26 mission will be the Infrared Communications Flight Test. NASA is test-



TDRS ready for deployment in cargo bay.

ing the infrared spectrum's characteristics for crew communications onboard the Shuttle. The original Shuttle system consisted of standard boom mike headsets, connected to the intercom and radio systems by a long cord. The headset is connected to a control box worn on the astronaut's belt. It allows the crew to switch between intercom and radio, vox or push-to-talk. They also have an assortment of channels to choose from. This hardware was used for all crew communications with ground control. UHF channels are used for EVA and back-up radio communications, in case the S-band communications through TDRS are lost.

The new cordless infrared system which NASA has designed will attempt to provide reliable two-way communications on a diffused light beam system. This should prove to be a simple enough task. Several high tech government communications centers, including those used by the FBI, deploy a one way infrared voice communication system. These centers usually dump up to 12 radio channels into a room simultaneously via an infrared feed horn, usually mounted in the corners of the room near the ceiling. Each operator or Task Force member can select the channel they wish to listen to by simply changing the channel selector on the side of their cordless infrared headphones. The crew will no doubt enjoy their new mobility.

Backlog

Because of the backlog of military payloads, the DOD will monopolize the Space Shuttle through 1990. A second military satellite, a DOD payload, will be launched from STS-26. It is unclear exactly what satellite will be launched, but it could be a DSCS III or military recon satellite. STS-27 Atlantis is scheduled for launch on September 9, 1988 and is a classified DOD mission. It is expected to be carrying the first of the new class KH-12 spy satellites. The next mission, STS-28, will see the Shuttle Columbia carry the first of the Navy's new ocean recon satellites, code named Teal Ruby, into space. STS-29 will carry another TDRS, STS-35 will be our first full scale SDI mapping mission and STS-38 will test our first space based laser weapons. This experiment may now be in question if the next President wishes to comply, or continue to comply, with the 1972 ABM treaty. This is a real possibility if the recently signed INF treaty is ratified by Congress. Of course, if the military is able to force its hand, the test may proceed on schedule in spite of the treaty.

With the backlog of DOD payloads to launch, NASA, out of necessity has become militarized. Hopefully, this will not be a permanent change in the nature of our civilian space agency, but considering the historic and continual competition between NASA and the Air Force for control of the nation's space program, it is unlikely the Air Force will loosen its grip on the Agency once it has secured a stronger position. There are also forces behind the scene working for the militarization of NASA, no less than former Secretary of Defense Weinberger and President Reagan. Both openly support the militarization of NASA and space in general. This would expedite SDI research and deployment. Both the militarization of NASA and space could be stopped by political means if Congress, with the support of the electorate, have the will to do so. The reason we have been dragging our feet in negotiations with ESA on the proposed US/ESA space station, and causing its delay, is that the Reagan administration wants the Europeans out of the project. They are seen as an inconvenience and a security risk. They could hinder SDI research onboard the station; national security interest, you understand (that is newspeak and is used when a better reason cannot be found.)

The major disadvantage for taxpayers is, if the ESA is cut out of the project, we will be stuck with the entire bill for the space station. Official estimates of the cost are $6.5 billion (that is with a "B") and with the usual cost overruns, it will come closer to $10 billion. We have already spent $10 billion on SDI research. Deploying even the primitive Asat systems we now have would cost several times that.

You may think NASA wil never be militarized, and you may be right. The old battles between NASA and the Air Force may be a thing of the past. The military look of NASA's new uniforms may simply be for the psychological comfort of the astronauts or just coincidence. If our space program does become a military one, it will change our priorities and all future plans for the use of space, for good or ill depending on your point of view.

No matter what the future holds for the US space program, I am sure you will join me in wishing the crew of STS-26 Godspeed. The world will be watching. **PC**

CLANDESTINE COMMUNIQUÉ

WHAT'S NEW WITH THE CLANDESTINES

BY GERRY L. DEXTER

The clandestine file has a lot of interesting and useful information in it this month.

Sander J. Rabinowitz in Michigan heard what he feels was surely *Radio Venceremos* playing its game of hopscotch around 0200 UTC. Between 0208 and 0246 he found them on the following frequencies: 6650, 6663, 6640, 6623, 6575, 6585, 6615 and 6633. Seven minutes was the longest the station was heard on any one frequency, under a minute the briefest. You have to be on your toes to stay on top of this station when it decides to go on the move!

Joseph Saldana in New Mexico has been keeping an ear on this station since he first heard them in 1962. He has a tape of a broadcast back then, complete with machine gun fire in station breaks, appeals to villagers to save old maps and spare food for collection by guerrillas and, advice not to seek refuge in their homes if their houses are being strafed by helicopter gunships! Now, Joseph notes, they announce a nightly schedule of 0200 (and other hours) and say they can be heard between "6.5 and 7.0 Mc." Joseph says he's heard them as low as 6.5 and as high as 6720. He says the 0200 transmission is also carried on a transmitter operating between 3.5 and 4.0. Robert Ross in Ontario heard the station between 0046 and 0054 on 6637 with an ID, march music, ID again, station jingle, patriotic song and sign off. Venceremos usually puts in fairly good signals but one has to be careful of all the other stuff frequently this area—counterfeits ID'ing as Venceremos and apparent jammers who never quite hit their mark and play only music.

Robert Ross reports receiving a QSL from *Radio Iran*, the station of the Iranian National Resistance, heard on 9400. A partial data letter and informational sheet was received from 17 Blvd. Raspail, 75007 Paris, France. 9400 is one of the better received frequencies for this station, which is on the air in Farsi for one hour broadcasts at 0230, 0400, 1330 and 1830.

Robert also reports a tentative logging of *Radio Halgan*, the station of the United Somali Opposition, heard on 9590 (via the Voice of Ethiopia) at 1738 to 1753 with local string and flute music and vocals. It was QRM'd by Radio RSA at 1753.

The anti-Castro clandestine, *La Voz de Alpha 66* was logged by Fernando Garcia in Maryland with "war bulletins" at 2324 on 6640, moving to 6690 at 2328. Also heard by Saldana on 6669 at 0225.

La Voz del CID's Radio Camilo Cienfuegos was found by Saldana on 6305 at 0145. And heard at 1220 and 1330 on 9940 by Tom Vega-Byrnes with music, news and commentary in Spanish. Tom notes that, on one occasion, a tape from Radio Mambi in Miami was aired. That's a legit Miami AM broadcaster, but very much an anti-Castro station, nonetheless.

The Voice of Unity - Radio Muslim Mujahideen of Afghanistan, sent a QSL card to Ed Kusalik in Alberta. The card quotes a schedule in Dari and Pushtu as 0130 to 0230 on 11490, 12230 and 15685, 1200 to 1300 on 15685 and 1515-1615 on 12230, 15685 and 17840.

Radio Caiman, the anti-Cuban with the unknown sponsors, was noted by Vega-Byrnes on 9960 at 1240 in Spanish. This is likely the unidentified reported by Saldana on 7470, only prior to the station's leaving this frequency. Also heard on 9960 by Garcia in Maryland around 1004.

The contra station, *Radio Liberacion* (an ID that has pretty much replaced *Radio 15 de Septiembre*) was heard by Vega-Byrnes on 5930 at 1210 in Spanish with music, features and commentary. The ID mentions "Sistema Radial de la Resistencia Nicaraguense". Also heard one day around 6210-6215. (Nominally 6214, editor).

In France, Jean-Jacques Bloch sends some notes made in monitoring the *Voice of Ethiopian Unity*, which opposes the government in Addis Ababa. They announced a schedule of 1800 to 1830 in Tigrignya, 1830 to 1900 in Oromo and 1900 to 2000 in Amharic. Jean-Jacques hears them on 9425 and 11180. The station was also announcing meter band and frequency usages, but the announced frequencies seemed not to be in use. More recent mention of specific frequencies has been dropped, though the 19, 25, 31, 42 and 60 meter bands are still mentioned, 9425 and 11180 are the only channels heard.

Takashi Kuroda in Tokyo hears the anti-Kampuchean station *Voice of the National Army of Democratic Kampuchea* on 5199.7 from 1330 to 1430 sign off. The broadcast is in Kampuchean to 1400, then Vietnamese to sign off.

On the surface, at least, *Radio Impacto* of Costa Rica, is a legitimate shortwave broadcaster, even though a number of shortwave monitors (including your editor) have had questions about the station's connections almost from the time it went on the air. It's one of those "commercial" stations that airs few, if any, commercials. Saldana in New Mexico says he's heard this station called *"La Voz de la C.I.A."* (though he doesn't mention who is calling the station by that name). He says he hears *Impacto* air both sides of the struggle in Central America and mentions that they have a three country correspondent's report (from Nicaragua, Honduras and Guatemala) which is aired regularly. Joseph notes the new 5030 frequency (parallel to 6150) is well received at his location. We'd like more info on this station from anyone who can supply it. Incidentally, a *Radio Impacto* reporter was among those journalists, accused by the Sandinistas last fall of working for rebel stations and/or collaborating with the rebels (along with reporters from the *VOA*, *Radio 15 de Septiembre* and *Radio Liberacion.)*

That's all we have room for this month and thanks to everyone who sent in data. Let's do it again and again. Your loggings, observations, schedules, news clippings and so on related to clandestine broadcasting are both sought and welcome.

Good hunting! PC

SCANNER SCENE

BY CHUCK GYSI, N2DUP

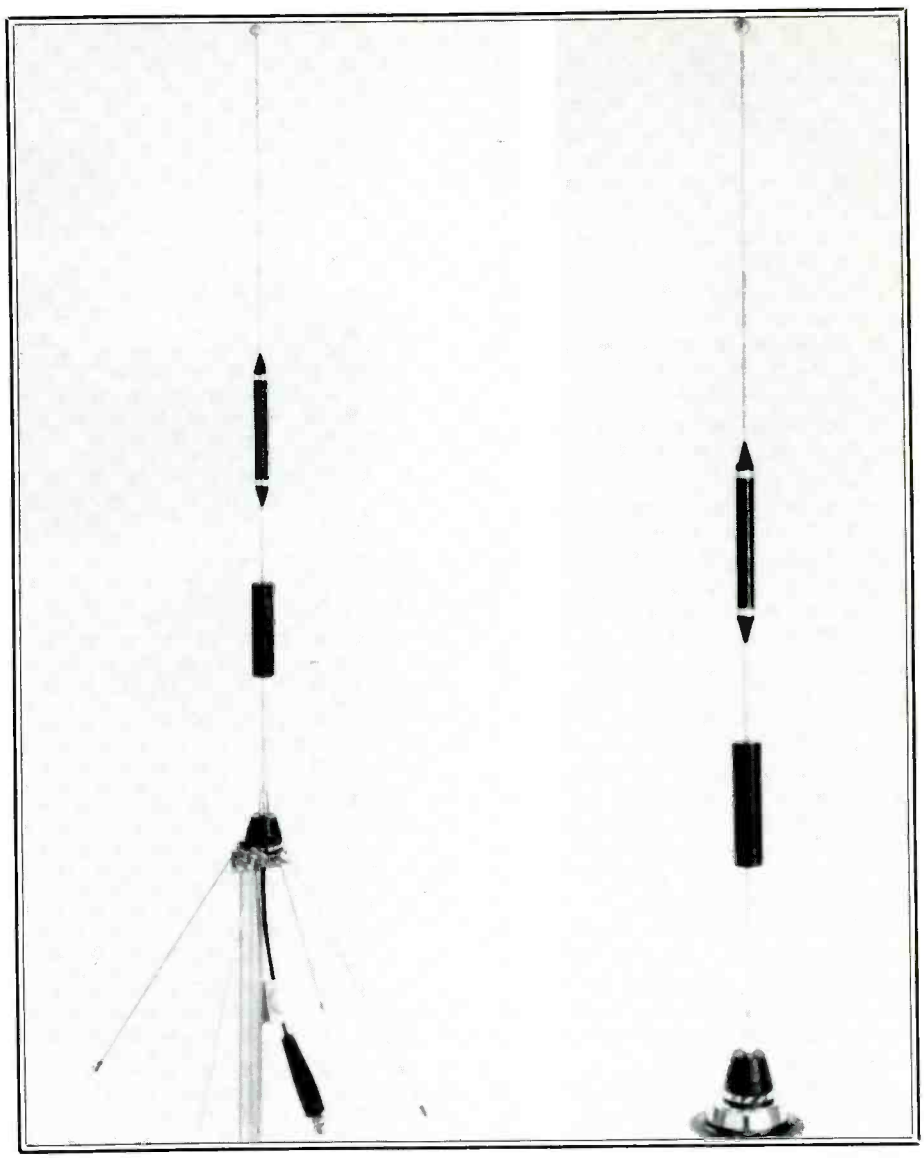
MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It's the peak of the summer season, and for scanner listeners with families, it usually means a trip to an amusement park for a fun-filled afternoon. And if you're smart—and the family is willing to persevere (at least use an earphone)—take along the pocket scanner to keep in touch with what's going on.

From Disneyland to your hometown park, if amusements are in gear, then chances are radio is being used. In fact, not only do amusement parks use two-way radio, but county and state fairs and even zoos also use radio to coordinate events. In most amusement parks, security, concession operators and ride coordinators use business band radio. Unless the park is big and repeaters are required, most parks will be using simplex communications (the same channel is used for base and mobile operations.)

To search for the channels being used by the park you are visiting, first check the VHF high-band business band channels: Search from 151.625 to 151.955 MHz. The frequency 151.625 is an itinerant channel that is used by businesses that travel from area to area across the country and is often found in use by ride operators and other operations at county and state fairs. In fact, several people may be using the frequency at a fair or in an amusement park. Another place to check would be the other VHF business band channels: 154.515 to 154.625 MHz. The frequencies 154.515 and 154.540 can be used for base and mobile communications, while 154.570 and 154.600 can be used only by handheld radios. In addition, 154.625 can be used for paging only.

If the high band channels don't turn up anything, then check the UHF business band channels. Basically, set your scanner to search between 461 and 465, and 466 and 470. The upper group of frequencies may reveal handheld communications for operations such as security. If a repeater is being used in the amusement park, chances are it will be operating its output on a pair in the 464-465 MHz range. Don't overlook the possibility of the amusement park using 12.5 kHz offset channels on UHF business band: These are frequencies such as 463.6125, which is offset 12.5 kHz from regular channels such as 463.600 and 463.625. Another place to be sure to look is the general mobile radio service frequencies from 462.550 to 462.725 MHz, and the corresponding mobile channels 5 MHz higher. Some older radio systems at amusement parks may be using the GMRS channels. It's also possible that business band frequencies on the UHF-T band might be used in larger cities that have access to this band.

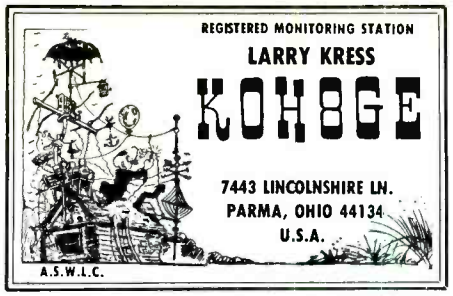


Antenna Specialists' new all-band scanner antennas are designed for improved 800 MHz performance. The round Micro-Choke device on the antennas provides pinpoint resonance at 800 MHz and concentrated beam focus at low radiation angles. The antennas are designed for 25-1000 MHz coverage.

On frequencies you might find, communications heard might relate to security finding lost children, a ride operator reporting an inoperative amusement, a concessionaire ordering supplies from an associate, a first-aid detail being dispatched to help an injured patron, or the coordination of a stage show. In fact, in most larger amusement parks, several frequencies will be used to coordinate the various activities.

If you can see the handheld radios in use, a short, stubby antenna about 2 inches tall or a slender, skinny and flexible antenna about 5 inches tall indicates UHF usage. If the antenna is about 6 inches tall on the walkie-talkie, then VHF high band is being used. If the rubber antenna is much longer, then citizens band or VHF low band business band radio channels might be used.

If you come across any frequencies at your favorite amusement park this summer, jot them down and send them in the Scanner Scene so we can let other amusement



Larry Kress, registered monitor KOH8GE, of Ohio uses this attractive QSL card.

park scanner buffs know what you are hearing. And don't forget the earphone!

Race To The Finish

It's an election year—so that will mean plenty of activity for the Secret Service and other protective agencies. As the candidates wind down for this summer's political conventions, be sure to keep an ear to your scanner when the various candidates come to your region. Not only will the candidates themselves be campaigning, but other officials, including the president himself, will be on the campaign trail stumping for their own favorite choices.

If you hear a candidate, or other dignitary, is heading to your town, be sure to start listening several days in advance. Chances are that advance team staffers are checking out accommodations and other facilities potential safety problems. On the day of the visit, various channels may spring to life and you need to plan in advance to know what channels to consider tuning in.

First of all, while there are many channels used by the Secret Service, there are only a few that you need to keep an ear on. Channel Baker, 165.7875, and Channel Charlie, 165.375, are the two primary frequencies used for protective details on the campaign trail. Check these frequencies several days in advance of a visit and chances are you'll hear agents checking out the scene. Other Secret Service channels to check out include 166.5125, which is used for protective details, especially the President, and is called Channel Sierra. In addition, your local Secret Service office may have their own repeater on the air for their own intra-office operations: Check 164-167 MHz for any possible repeaters.

If a presidential visit is planned, White House advance team staffers usually can be heard on Channel Sierra, which is their primary channel, or Channel November, 167.025 MHz, the secondary channel. You'll hear press representatives as well as Secret Service people planning for the visit several days in advance. But on the day of the visit, don't be surprised that those clear-voice transmissions become static-filled scrambled signals.

In addition to Secret Service and White House channels, be sure to check frequencies used by the local police agencies (in addition to local police, county sheriffs and state police also may be called to help on a protective detail.) You'll hear most communications on police channels during motorcades as the candidate or dignitary is traveling from one point to another. If a campaign event is being held at a hotel, be sure to check out the VHF and UHF business band channels (especially the ones listed above in the section on amusement parks) for a bevy of activity from the head chef to the director of security for the hotel.

And least, but now last, check out news media frequencies. In addition to frequencies used by your local TV stations and newspapers, reporters from out of town and the networks also probably will be in town following the event. Be sure to search out frequencies in the 161.640-161.760, 450-451 and 455-456 MHz bands for these national news teams.

Questions

Michael Pantze of Minneapolis, Minnesota, wants to know the approximate range of frequency counters advertised here in POP'COMM. I assume by range, you mean distance, rather than the frequency range, which is stated in the ads. In order to get a good reading on a frequency counter, my experience has been that to check the frequency on a walkie-talkie, you need to be in at least the same room, let alone be within 10 and 20 feet tops to get an accurate reading. Keep in mind, too, that while the walkie-talkie may be transmitting on 464.675 MHz, the counter may show a reading of 464.67482 or something similar. That's all within range. For more powerful base station transmitters and repeaters, if you're near the tower, you should be able to get a reading on the counter. However, don't expect to sit home with the frequency counter and expect to get a readout whenever a radio is keyed up on the other side of town. You have to be near the radio to get an accurate reading.

If you have a question, a comment, suggestion, tip, modification, frequency list, photograph, etc., we want to hear from you at POP'COMM's Scanner Scene. PC

RTTY

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

BY ROBERT MARGOLIS

News broadcasts via RTTY are commonplace on HF radio 24 hours a day, seven days a week. They are aired in many foreign languages and are sent by press services, maritime coastal stations, the military, and government agencies.

Noted in this column have been news in English, Spanish, French, Turk, Portuguese, Russian, German, Dutch, Arabic, Swedish, Norwegian, Danish, Serbo-Croat, Polish, Czech, Korean (Romanized), and Vietnamese.

A broadcast in Afrikaans was found recently. It was on 12693 kHz at 2000 UTC, 170/75R, along with news in English, and was sent by ZRQ5, Cape Town Navrad, South Africa. It was a broadcast of "news flashes" taken from Cape Times, a South African daily newspaper. ZRQ5 also runs plaintext and coded weather reports, and NAWS messages with the news, and the entire broadcast is repeated.

There's another news broadcast that uses Japanese characters, but you'll need a FAX demodulator to read it. At around 2130 and 2330 UTC, JJC, Tokyo Radio, Japan, sends a multi-page newspaper in Japanese text, with the masthead reading "Kyodo News Service" in English. Tune to 17069.5 kHz and set your FAX decoders to a setting of 120/288.

Have you ever heard of a news agency called Palestine Press Services? It's been around since 1977 and is owned and operated by Palestinians from Jerusalem, Israel. I don't know if it broadcasts over HF radio, it may do so by landline. A New York Times article about PPS says that "most major Western news agencies and embassies subscribe to its daily telex service."

If you happen to tune to a PPS transmission over HF radio, please let us know the time, frequency, and RTTY decoder setting.

Pan African News Agency (PANA) of Dakar, Senegal, which you'll find on 16117 kHz from about 1300 to 1800 UTC, was criticized recently for excessively relying on government handouts of news instead of going after the news itself.

I viewed a PANA RTTY transmission for two days to determine the validity of the criticism. There were many news items issued by various cabinet ministers in several African countries. It was a raw diet of budget figures, economical/agricultural statistics, and a smattering of political speeches that PANA had pooled from other African news agencies. It was news geared more toward the financial section rather than the travel or feature pages of your local newspaper.

One event you won't see during the Summer Olympic Games is the monitoring of RTTY stations. But you can read the results of those endeavors here. They're all gold-medal winners.

News photo sent by FAX from Buenos Aires, Argentina. Submitted by Joe Payer, WA9EMY, Schererville, IN.

RTTY Intercepts
(Settings= Hz/Baud/Polarity)

2197: 78LYQ, Spanish Navrad w/RYRY & SGSG at 0442, 850/75N (Dallas Williams, CO).

2690: NOJ1, USCGAS Kodiak, AK w/tfc at 0445, 170/75R (Williams, CO).

2697: GLD, Land's End R., England w/ARQ phasing sig & ID in CW at 0141 (Ed.).

2700: Dakar Meteo, Senegal w/coded wx at 0529 on circuits to Mauritania, TDM 425/96A&B (Ed.).

2750: DyN Buenos Aires, Argentina w/nx in SS at 0051, 850/75R (Richard Gleitz, PA).

3172.5: IMB1, Rome Meteo, Italy w/coded wx at 0343, 850/50N (Gleitz, PA). Beamed to N. Africa & Middle East-- Ed.

3196: Prague Meteo, Czechoslovakia w/coded wx at 0125, 425/50R (Gleitz, PA).

4002: YRR2, Bucharest Meteo, Romania w/coded wx at 0132, 425/50R (Gleitz, PA).

4018: ZRO5, Pretoria, RSA w/coded wx at 0402, 425/75N (Gleitz, PA).

4230: 78IJU, Ceuta Navrad, Spain w/RYRY & SS tfc, also encryption to 75RQA, Santa Maria Navrad, Spain, 850/100R at 0023 (Ed.).

4234: 71HGE, Spanish Navrad w/RYRY at 0834, 850/75R (Gleitz, PA).

4482: BJZ25, Wuhan Meteo, PRC w/coded wx at 1235, 350/50N (Ed.).

4512.5: ETD3, Addis Ababa Aero, Ethiopia w/coded wx at 2324, 425/50R (Ed.).

4570: HZN46, Jeddah Meteo, Saudi Arabia w/coded wx at 2320, 850/100N (Ed.).

4583: DDK2, Hamburg Meteo, FRG w/coded wx at 0253, 425/50R (Gleitz, PA); Plaintext wx in GG & EE at 0821 (Ed.).

4605: OST, Oostende R., Belgium w/ARQ phase sig & CW ID at 0819 (Ed.).

4607: 78YLQ, Zaragoza Navrad, Spain w/RYRY & SGSG + SS/tfc to 74DEL at 0420, 850/75R (Ed.).

4982: Y2L (loc unknown) w/RY's & foxes to 7YX from 0748, then crypto at 0802, 500/75R (Ed.).

Abbreviations Used In The RTTY Column

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

5117: STK, Khartoum Aero, Sudan w/RYRY at 0037, 425/50R (Tom Kneitel, NY).

5301: VEV, Canadian Forces, Valcartier, PQ w/foxes w/o ID at 1309, 170/75N (Ed.).

5315: BJZ27, Wuhan Meteo, PRC w/coded wx at 1248, 350/50N (Ed.).

5398: WUH, U.S. Army Corps of Engineers (loc unknown) w/tfc for WUD6 at 1531, 170/45N (J.M., KY). WUH is Missouri River Division at Omaha, NE-- Ed.

5421: NMG, USCG New Orleans, LA w/tfc re budget cuts in CG, 170/75R at 1840. Sent to NODW, **USCGC Sundew (WLB 404)** (Ed.).

5442.5: 7OC, Khormoksar Aero, S. Yemen w/RYRY at 0240, 425/50N (Ed.).

5640: WWV45, USIA Rabat, Morocco w/Near East File nx in EE at 2342, 425/75N (Ed.).

5683.5: Un-ID sta w/msg saying something re "country and visas will negotiate...arrange on lease that..." in ARQ at 0033. QRM'd by USAF's USB ops on 5683 kHz (Ed.).

5684.5: "Book Shelf 02" w/encryption to McDill

AFB at 0048, 850/75. By this time the ARQ xmsn on 5683.5 had faded to almost zip (Ed.).

5730: 5UA, ASECNA Niamey, Niger w/coded wx at 0136, TDM 425/96A&B (Ed.).

5740: HZN, Jeddah Meteo, Saudi Arabia w/caded wx at 0341, 850/50N (Ed.).

5783: 5TY, ASECNA Nouakchott, Mauritania w/caded wx at 0407, TDM 425/96A (Ed.).

5787: Un-ID (poss US Navy) w/"test de H1F" + faxes at 1556, 850/75R. Off at 1558. Then another sta came on at 1601 w/faxes & "de H1N pse QRK" fallawed by exchange af tfc (Ed.).

5803.5: 9GC, Accra Aera, Ghana w/RYRY at 0452, 425/50N (Ed.).

5814.4-5815.7: MKK, RAF Landan, England w/RYI's & faxes on 5 freqs, 170/50N & R at 0457 (Ed.).

5848: TUH, ASECNA Abidjan, Ivory Coast w/RYRY at 0557, 4525/50R (Ed.).

5868: Y7B23, GDR embassy, Moscow, USSR w/5L tfc at 0514, 425/50N (Ed.).

6739.7: MFA Cairo, Egypt w/tfc in AA for embassies in Western Hemisphere, ARQ at 0039 (Ed).

6772: TNO, ASECNA Pte. Naire, Congo w/RYRY at 2248, 425/50N (Ed.).

6795: LZM7, Sofia Meteo, Bulgaria w/RYRY at 0005, 425/50R (Kneitel, NY).

6963: NBEI, **USCGC Maui (WPB-1304)** & NMG passing tfc at 0002, 170/75R (J.M., KY).

6992.8: AP & UPI radio wire nx feed for AFRTS stas at 0035, FDM 85/50R. Was //10257.8 & 11006.8 (Williams, CO).

6993.2: AP sports results in EE at 2337, FDM 85/50R (Kneitel, NY).

6993.9: UPI sports results in EE at 0026, FDM 85/50R. Badly QRM'd by USAF MARS sta AFB1HH ops in CW only a few Hz away (Kneitel, NY).

7402.5: Tokyo Meteo, Japan w/caded wx at 1425, 850/50R (Ed.).

7487: NIID, **USS Recovery (ARS 43)** w/faxes (170/75R) & tfc (850/75R) to NAO at 1414 (J.M., KY). This is a salvage ship-- Ed.

7502: Un-ID USNAS w/plaintext wx synap for Rockies to Pac coast + aero wx at NAS's w/callsigns: NZY, NFG, NYL, NZJ, NIV, NZQ, NTD, & NXP. Info repeated as a tape loop 0457-0515 then into encryption. Was 850/75N (Ed.).

7512: XVN, Hanoi Metea, Vietnam w/caded wx at 1426, 425/50N (Ed.).

7524: TYE, ASECNA Cotonau, Benin w/coded wx at 2248, TDM 425/96B (Ed.).

7535: NZGW, **USS Sumter** w/RYRY to NAM at 1633, 850/75R (J.M., KY). The Sumter is LST 1181, a tank landing ship-- Ed.

7555: Y2V34, ADN Berlin, GDR w/nx in SS at 2300, 425/50N (Fred Hetherington, FL).

7560: RPT30, TASS Moscaw, USSR w/TASS & ADN nx in FF at 1337, 425/50R. Also at 1147 w/RYRY (Ed.).

7565: YIX75, INA Baghdad, Iraq w/nx in AA at 1450, 425/50R (Williams, CO).

7585: 6VY41, Dakar Meteo, Senegal w/coded wx at 2308, 425/50R. Also logged on 7593 as 425/50N (Ed.).

7604: "GI" clg PS, SS, AL, AN, LR & YU at 2223. Was 45N w/bit inversion (A. Nonymous). This is the FCC. GI is Grand Isle, NE; PS is Powder Springs, GA; SS is Sabana Seca, PR; AL is Allegan, MI; AN is Anchorage, AK; LR Laurel, MD. Don't know where YU is. Kneitel's Top Secret Registry shows this freq as FCC channel #3A-- Ed.

7610: MENA Cairo, Egypt w/nx in FF at 2233, 425/50R (Ed.).

7625: HZN47, Jeddah Meteo, Saudi Arabia w/caded wx at 1951, 170/100N (Ed.).

7658: YZD, TANJUG Belgrade, Yugaslavia w/nx in EE at 1954, 425/50R (Ed.).

7681.5: GXQ, British Army, Landan, England w/RYI's & faxes at 2046, 170/50N (Ed.).

7695: 3MA26, CNA Teipei, Taiwan w/RYRY at 1537, 850/50R (Ed.).

7715: RCU71, Novosibirsk Metea, USSR w/caded wx at 1357, 425/50R (Ed.).

7792: GYA, Royal Navy, London w/freq chart test tape at 2216, 850/75R (Ed.).

7795.5: LMMM, Luqa Aero, Malta w/RYRY at 2329, 425/50N (Ed.).

7808: 4UZ, UN Geneva, Switzerland w/RYRY to Cyprus at 2159, 425/75R. At 2205 says "NIC de GVA have some tfc for u mate" & sends until 2213 when s/off w/ZNN now mate tks (Ed.).

7850: ZAA, ATA Tirana, Albania w/nx in FF at 1917, 425/50N (Ed.).

7855: ROK24, Moscow Metea, USSR w/caded wx at 1050, 1000/50R (Hetherington, FL).

7863: BJZ21, Wuhan Meteo, PRC w/RYRY at 1200, 375/50R (Hetherington, FL).

7890: ROQ3, Novosibirsk Meteo, USSR w/caded wx at 1344, 525/50N (Ed.).

7933.6: VDD, Canadian Forces, Debert, NS w/faxes, no ID's, at 1924, 170/75N (Ed.).

8146: TNL, ASECNA Brazzaville, Congo w/RYRY at 0000, 425/50N (Ed.).

8152: HMF86, ATCC (a/k/a KCNA) Pyongyang, N. Korea w/nx in FF at 1200, 535/50N (Hetherington, FL).

8299: UJOC, 515 ft. long Soviet flag fish carrier **Khibinskie Gory** sending RYRY & calling URB2 at 0310, 170/50N (Kneitel).

8748: "Echa Ocha Foxtrot" w/RYRY to "Tango Uno Hotel" at 0358, 850/75N (J.M., KY).

9117.7: PCW1, MFA The Hague, Halland w/FEC phase sig + CW ID at 2054 (Ed.).

9118.5: GPA4, Portishead R., Englond w/ARQ phase sig at 2053 & ID in CW (Ed.).

9136.4-9139.9: MKD, RAF Akrotiri, Cyprus w/RYI's & faxes on several freqs here at 2057, 170/50 N & R (Ed.).

9145: RDZ76, TASS Moscow, USSR w/nx in EE at 1351, 425/50R (Ed.).

9190.5: RDZ75, Moscaw Metea, USSR w/caded wx at 1341, 950/50R (Ed.).

9193: BAA23, Beijing Meteo, PRC w/caded wx at 1334, 750/50N (Ed.).

9213: ZLK47, Christchurch Meteo, New Zealand w/caded wx at 1130, 850/75N (Hetherington, FL).

9223: TJK ASECNA Douala, Cameroon w/RYRY at 2127, 425/50R (Ed.).

9255.5: SPK72, SPK Phnom Penh, Kampuchea (a/k/a Cambodia) w/RYRY at 1100, then nx in EE, 170/50R (Hetherington, FL).

9280: RUZU, SAAM Molodezhnaya, Antarctica w/caded wx at 1511, 425/50N (Ed.).

9375: RFHJ, French Navrad, Papeete, Tahiti w/tfc to RFHI, Noumea, New Caledonia at 1424, TDM 850/86B (Ed.).

9395: HMF84, KCNA Pyangyang, N. Korea w/nx in EE at 1501, 170/50R (Ed.).

9402.5: OST, Oostende R., Belgium w/ARQ phase sig + CW ID at 2119 (Ed.).

9420: RMD57, TASS Moscow, USSR w/nx in EE at 1506, 425/50R (Ed.).

9430: ZAT, ATA Tirana, Albania w/RYRY & nx in EE at 1459, 425/50N (Ed.).

9867: YIZ74, INA Baghdad, Iraq w/nx in AA at 1400, 425/50R (Ed.).

10105: VMA, RAAF Melbourne, Australia w/faxes at 0907, 850/75R (Ed.).

10122: AWC, Calcutta Aero, India testing & w/RYRY at 1310, 350/50N (Ed.).

10137: TNL97, ASECNA Brazzaville, Congo w/CQ & RYRY at 2110, 425/50N (Ed.); same at 0302 (Kneitel, NY).

10144: Un-ID sta w/ID af DKI sending RYRY at 2128, 425/75N (J.M., KY). This is in the 30-meter ham band-- Ed.

10153: 9KT281, KUNA Safat, Kuwait w/nx in EE at 1300, 425/50N. Same sta sends nx in AA on 10157 at same time (Ed.).

10162.5: YIL71, INA Baghdad, Iraq w/nx in AA at 1525, 425/50R (Ed.).

10169.5: HSW63, Bangkak Meteo, Thailand w/coded wx at 1309, 425/50N (Ed.).

10214.5: HZN48, Jeddah Meteo, Saudi Arabia w/coded wx at 2123, 850/100N (Ed.).

10248: LUB, un-ID sta, w/RYRY & 5L msgs to Managua at 2240, 425/75N (J.M., KY).

10297.3: NAYM, w/USCG boarding reports to NMG at 0035, 170/75R (Harold Monthey, NY). NAYM is the **USCGC Magaorda (WPB 1303)**-- Ed.

10410: VOA Kavala, Greece testing & RYRY at 2203, 550/75R, then ID'd as VOA Washington DC w/RYRY at 2204 (Ed.).

10440: Y3A5, DP Berlin, GDR w/RYRY at 1342, 425/50N (Ed.).

10518: 5AQ56, JANA Tripoli, Libya w/nx in AA at 1510, 425/50R (Ed.).

10595: CNM36X9, MAP Rabat, Morocco w/nx in FF at 1717, 425/50R (Ed.).

10670: CLP1, MFA Havana, Cuba w/tfc to CLP2 (Panama) at 1525, 425/50N (Ed.).

10708: EDZ, Aranquez, Spain idling in ARQ w/CW ID at 1720 (Ed.).

10740: RKA72, APN Moscow, USSR w/nx in EE, 425/100R at 1330 (J.M., KY).

10759.2-10761.4: VER, Canadian Forces, Ottawa, ON w/crypta tfc on 10 freqs, 170/57 at 1642 (Ed.).

10805: NA Buenas Aires, Argentina w/nx in SS at 0000, 850/75R (Kneitel, NY).

10893.5: LRB39, TELAM Buenas Aires, Argentina w/nx in SS at 0006, 850/50R (Kneitel, NY).

11006: NGD, USN McMurda Sta., Antarctica w/plaintext wx at 0133, 425/75N (Ed.).

11010.9: ZLO29, Irirangi Navrad, New Zealand w/faxes, no ID, at 1057, 170/75N (Ed.).

11013: DyN Buenos Aires, Argentina w/nx in SS at 0145, 850/75N (Ed.).

11027.5: 9PL, Kinshasa Aero, Zaire w/RYRY + Zaire Centre Line Test ID at 0500, 425/50N (Ed.); same at 2312 (Kneitel, NY).

11030: AXM34, Canberra Meteo, Australia w/coded wx at 1640, 850/50R (Ed.).

11070: 5L tfc at 2314, 85/75N (Kneitel, NY).

11109: RFLIA, French Navrad, Ft. de France, Martinique w/tfc in FF at 2055, TDM 850/96B (Ed.).

11124.5: DFL26, DPA Hamburg, FRG w/nx in EE at 1700, 425/50N (Ed.).

11144: Encrypted msg at 1933 that ended w/"QRU QSL CQ" and "702 TT ??? FB OZ OK" and "737373 SK." Was 425/75N (J.M., KY).

11149: DFZG, MFA Belgrade, Yugoslavia w/tfc at 1510, 425/75N (Ed.).

11423.5: SPW, Warsaw R., Poland w/telegrams in Polish to ships at 1703, ARQ (Ed.).

11481.6: XBRA af Mexican Navy w/tfc in SS, ARQ at 1530 to & from XBRJ an 11551.5 (Ed.).

11574: 9KT29, KUNA Safat, Kuwait w/nx in EE at 1651, 350/50N. Gets clobbered by SWBC sta WYFR an 11580 (Ed.).

11621.5: SPW, Warsaw R., Poland w/nx in Polish at 1806, FEC (Ed.).

12229.5: CLP2. Embacuba Panama City, Panama w/medical tfc in SS to Havana at 2210, 500/75N (Williams, CO).

12454: Un-ID sta w/plaintext wx in FEC at 1738 (J.M., KY).

12521: NMG, USCG New Orleans, LA & NRDC **USCGC Campbell (WHEC 32)** passing tfc at 1815, 170/75R (Ed.).

12551: EOGO, un-ID Soviet ship w/RYRY & calling UFB at 1229 in unusual 170/50R made (Kneitel, NY).

12693: 78IJU w/tfc to 75RQA similar to that on 4230 kHz. Was 850/100R at 1750 (Ed.).

12729: UFL, Vladivostak R., USSR w/plaintext RR wx at 2305, 425/50N, then telegrams to ships at 2015 (Ed.).

12770: GKS5, Portishead R., England w/ARQ phasing sig & CW ID at 2321 (Ed.).

12786: NMO, USCG Honolulu, HI & NCRB **USCGC Eagle (WIX 327)** passing tfc at 1848, 170/75R. The USCGC Eagle is a sail training ship that is based at the CG Academy in CT (Ed.).

13097: LGJ4, Rogaland R., Norway w/tfc list, FEC at 1611 (Ed.).

13400//15555: LZG3/LZP2, BTA Sofia Bulgaria w/nx in EE at 1330, 425/50R. Announced freq as 13480 kHz (Kneitel, NY).

13406: MAP Rabat, Morocco w/nx in FF at 1622, 425/50R (Ed.).

13496.5: SPW, Warsaw R., Poland w/ARQ phasing sig & CW ID at 1619 (Ed.).

13502: YWM1, Maracaibo Navrad, Venezuela w/RYRY & SGSG at 1614, 850/75N (Williams, CO).

13523.5: YIO72, INA Baghdad, Iraq w/RYRY at 1451, 425/50R (Ed.).

13532: Un-ID sta sending nothing more than binary #'s at 2002, 425/50R (Kneitel, NY).

13540: LRO81, TELAM Buenos Aires, Argentina w/nx in SS at 0258, 850/50R. S/aff 0300 (Ed.).

13545: Un-ID w/2 5F-grpd msgs, 425/75N at 1805 (Ed.).

13751: HBD20, Bern R. Switzerland w/tfc in FF at 1739, ARQ (Ed.).

13597.5: OLI2, CTK Prague, Czechoslovakia w/RYRY at 1800, then nx in EE, 425/50N (Ed.).

13602.5: SON260B, PAP Warsaw, Poland w/nx in Polish at 1405, FEC (Ed.).

13673: 6VU73, Dakar Meteo, Senegal w/RYRY at 2202, 425/50N (Ed.).

13737: 5YD, Nairobi Aero, Kenya w/coded wx at 2328, 170/50N (Kneitel, NY).

13777: ZRO3, Pretoria Meteo, RSA w/coded wx at 1910, 425/75N (Ed.).

13830: FCC stas KGA93 (Washington, DC); KOA56 (Ferndale, WA); KIA84 (Powder Springs, GA); KAA60 (Grand Island, NE); KQA62 (Allegan, MI); & KKA59 (Douglas, AZ) w/tfc at 1800, 425/75N w/bit inversion (J.M., KY). Kneitel's Registry lists this freq as FCC Channel #5-- Ed.

13840: RKFUJ repeated continuously at 2006, 850/75N. Also noted at 1440 on 15598, but 850/75R (Kneitel, NY).

13895: Y2V47, ADN Berlin, GDR w/RYRY at 1345, 425/50N (Ed.).

13920.3: AXM35, Canberra Meteo, Australia w/wx for bases in Antarctica at 1700, 850/50R (Mathey, NY).

13941.6: Un-ID sta w/FF text + 5F grps, FEC mode (Kneitel, NY).

13980: AGA8HI, USAF MARS Hickam AFB, HI w/telegrams at 2105, 170/75R (Kneitel, NY).

13995: 5LA, VOA Monrovia, Liberia w/nx in FF at 0156, 425/75R (Ed.); same at 2324 (Kneitel).

14356: GFL24, Bracknell Meteo, England w/coded wx at 2255, 425/50R (Kneitel, NY).

14460: Y7A57, MFA Berlin, GDR w/RYRY at 1233, 425/100N (Kneitel, NY).

14542: MKK, RAF London, England w/RYI's & faxes at 1750 (Ed.).

14600.5: CAK, Santiago Aero, Chile w/aero wx at 0016, 850/50N (Ed.).

14632: YZC2, TANJUG Belgrade, Yugoslavia w/nx in EE at 1318, 425/50R (Kneitel, NY).

14649: Czech embassy, Havana, Cuba w/tfc in Czech at 1449, 425/75N (Ed.).

14719: OST, Oostende R., Belgium w/tfc list at 1620, FEC (Ed.).

14797: PL Havana, Cuba w/nx in SS at 2050, 170/50R (Kneitel, NY).

14817.5: INTERPOL stas in ARQ-- IPOV marker at 2052 followed at 2054 by IPRV marker (Kneitel).

14824: XVH, Hanoi Meteo, Vietnam w/RYRY & CQ at 0030, then coded wx at 0053, 425/50N. Was //7512//7972//12096 kHz (Ed.).

14880: JMG4, Tokyo Meteo, Japan w/coded wx at 0039, 850/50R (Ed.).

14937.5: 5UA, ASECNA Niamey, Nigeria w/tfc

re transportation matters, EE & encrypted at 2019, 600/50N (Kneitel, NY).

14945: CLP1, MFA Havana, Cuba w/crypto & Telexes in SS to CLP65 (Embacuba, Managua) at 1625, 425/75N (Ed.).

14984.3: VOA Kavalla, Greece at 1332 w/RYRY & calling Greenville, 85/75R (Kneitel, NY).

14977.8: OLM4, PTT Prague, Czechoslovakia w/RYRY at 1253, 300/50N. Announced //OLG4 (Kneitel, NY).

15480: APS Djaza'ir, Algeria at 1308 w/nx in EE, 425/50N (Kneitel, NY).

15508.5: SOP250, PAP Warsaw, Poland w/RYRY at 1644, 425/50R. Was //SOT265 on 18650 (Ed.).

15555: LZP2, BTA Sofia, Bulgaria at 1310 w/nx in EE, 425/50N (Kneitel, NY).

15618: CLP1, MFA Havana, Cuba at 1303 w/5F grps to Embacubas, 525/50N (Kneitel, NY).

15628.8: RPFN, Lisbon Navrad, Portugal w/RYRY & foxes in PP to PWZ at 0110, 850/50R (Ed.).

15647.2: Un-ID w/text in AA, ARQ at 1434. Also found a 5L msg on another day at 1452 (Ed.).

15667: FDY, French AF, Orleans, France w/RYRY & le brick at 1449, 425/50R (Ed.).

15670: HGM36, MTI Budapest, Hungary w/nx in SS at 1621, 425/50N (Ed.).

15693.5: ISX56, ANSA Rome, Italy w/world nx at 1444 in FF, 425/50N, into nx in EE at 1517 (Ed.).

15705: YZJ6, TANJUG Belgrade, Yugoslavia w/RYRY at 1458, then nx in FF at 1502 (Ed.).

15710: RED52, TASS Moscow, USSR w/nx in FF at 1503, 425/50R (Ed.).

15715.5: VOA Greenville, NC calling VOA Tangier at 1507, 85/75N. At 1514 told Tangier to "close shop and go home" (Ed.).

15716.3-15717.6: MKK, RAF London, England w/RYI's & foxes on 4 freqs, 170/50N&R at 1454 (Ed.).

15752: PTT Havana, Cuba w/"please send us your TLX and FAX numbers for further information." Sent to PTT Shanghai, PRC, 850/50R at 2241 (Ed.).

15780: Un-ID w/tfc in ARQ, 1836-1857. Some words in EE, but msg was badly garbled (Ed.).

15816: Encrypted tfc, mixed grps at 1344, ARQ (Kneitel, NY).

15832: Un-ID w/msg beginning "Tsumpostelco 530Gpelikatim Directeur General Office Pastes Polynesie Francaise R. Loridan..." Was 170/50N at 2349 (Ed.).

15876: Un-ID w/faxes 2226-2303, 425/50R. (J.M., KY). This one is CLN488, PTT Havana, Cuba--Ed.

15930: RBI78, TASS Moscow, USSR w/nx in FF at 1443, 425/50R (Ed.).

15940: ELE25, USLRC (Firestone Rubber Co.), Harbel, Liberia w/msgs in EE at 1820, ARQ (J.M., KY); At 1255 here what appeared to be diplo Telexes in crypto & possible Czech. A number of mentions of Teheran & Bank Tejorat. Was 425/75N (Kneitel, NY).

16090.5: Un-ID Brazilian sta w/reams of Telexes in PP at 2251, 425/50R. Could be MFA Brasilia because "MIX EX" noted in many msgs, or could be mil because names of army officers were often seen. Many refs to money noted as "CZS" which is the symbol for the Brazilian cruzeria. Further info or ID from readers appreciated (Ed.).

16106: FPQ, DIPLO Paris, France w/nx in FF at 0156, 425/50N (Ed.).

16117.5: 6VK317, PANA Dakar, Senegal w/nx in FF at 1304, 425/50R (Kneitel, NY).

16119.8: Un-ID sta w/5L grps at 1306, ARQ (Kneitel, NY).

16134.1: CNM71-9X, MAP Rabat, Marocco w/nx in EE at 1354, 425/50R (Kneitel, NY).

16136: BZR66, XINHUA Beijing, PPC w/nx in EE at 1309, 425/50R (Kneitel, NY).

16165: Havana, Cuba w/Telexes in SS regarding shipping, at 1936, 525/50N (Kneitel, NY).

16332.8: FZS63, Saint Denis Meteo, Reunion w/wx rpt for China at 2222, 425/75R (Manthey)

16356.5: Possibly GDR embassy in Mexico City w/5L grps at 2058, 425/50N. Y7A67 (MFA Berlin) has been noted here but time/freq factor would eliminate it as a possibility (Ed.).

16392: Czech diplo tfc at 1318, 425/75N (Kneitel, NY).

16397.5: FTQ39, DIPLO Paris, France w/nx in FF at 1321, 425/50N (Kneitel, NY).

16663: UNMK, un-ID Soviet ship w/RYRY at 1458, 170/50N (Kneitel, NY).

16671: SVIJ, Greek cargo ship **M/V Elize** (ex-Polydora, ex-Cypria) w/pos report at 1411, ARQ (Kneitel, NY).

16673: Y5CC, GDR ship **Arkona** w/Telexes to Ruegen R. at 1435, ARQ (Kneitel, NY).

16694.5: ATVC, Indian cargo ship **Vishva Parijat** w/Telex to Bombay at 1841, ARQ (A. Nonymous).

17134: UNM2, Klaipeda R., Lithuanian SSR at 1430, 170/50N w/tfc for Soviet ship **Akademik Boris Petrow** (Kneitel, NY).

17181: UDH, Riga R., Latvian SSR w/RR texts & wx at 1457, 170/50N (Kneitel, NY).

17198.1: GKE6, Portishead R., England at 1500 w/tfc list, FEC (Kneitel, NY).

17203.5: KPH, San Francisco R., CA w/wx in SS at 2250, ARQ for HJNM, the Colombian general cargo ship **Ciudad de Papayan** (Ed.).

17204: VIS69, Sydney R., Australia in ARQ at 0125 wkg VSHF, An Aussie ship (Ed.).

17426: GPA6, Portishead R., England idling in ARQ at 1544 (Ed.).

17463: CLP23, Embacuba Lagos, Nigeria w/African nx in SS to Havana at 1537, 500/75R (Ed.)

17468: PWZ33, Rio de Janeiro Navrad, Brazil w/RYRY & SGSG to HDN at 2214, 850/75R then "Exercicio X" msgs in SS (Ed.).

17472.2: RPFN, Monsanto Navrad, Portugal calling RPTI w/RYRY & foxes at 1512, 850/75R. Went into hand-typed tfc at 1517 (Kneitel, NY).

17488.5: 5KM, Bogota Navrad, Colombia w/RYRY & SGSG at 1829, 425/75R (Ed.).

17529: EBA, Madrid Navrad, Spain w/tfc in SS to LOL at 1830, 850/75R; also on 17659 at 1815 with RYRY/SGSG + foxes to LOL, then into crypto at 1830 (Ed.).

18242: ZRO4, Pretoria Meteo, RSA w/coded wx at 1810, 425/75N (Manthey, NY).

18268: VOA Kavala, Greece at 1335 w/RYRY for Greenville, 85/75N (Kneitel, NY).

18278: 9KT351, KUNA Safat, Kuwait w/nx in EE at 1337, 425/50N (Kneitel, NY).

18279.3: Un-ID w/msg in AA at 1440, ARQ (Ed.); 5L tfc in ARQ at 1323 (Kneitel, NY).

18310: RDT57, APN Moscow, USSR w/nx in PP at 1254, 425/100R (Kneitel, NY).

18550: NBA, USN Balboa, Panama w/sea condition info at 1512, 850/75R (Ed.).

18570: Un-ID sta w/comms in Italian, ARQ at 1339. "Passiamo su normale sana lunghi K?" also "Pse QSY norm OK" then s/off & probably moved to another freq (Kneitel, NY).

18690: Un-ID sta w/RYRY at 1258, 425/45R w/o any ID's (Kneitel, NY).

18697.5: DFS70L3, DPA Hamburg, FRG w/nx in EE at 1342, 425/50N (Kneitel, NY).

18785: FTS78, DIPLO Paris, France w/nx in FF at 1327, 450/50N (Kneitel, NY).

19438.5: LOR, Pto. Belgrano Navrad, Argentina w/tfc in SS at 1936, 170/75N (Ed.).

19505: RCD36, PL Moscow, USSR at 1332 w/nx in SS, 425/50N (Kneitel, NY).

19690: AXM37, Canberra Meteo, Australia w/wx for Antarctic at 1635, 850/50R (Manthey, NY).

19747: 6VU79, Dakar Meteo, Senegal w/coded wx at 1635, 425/50R (Ed.).

19945: CLP1, MFA Havana, Cuba w/Prensminrex nx in SS at 1411, 500/75N (Ed.).

20078: FTU8B, DIPLO Paris, France w/nx in FF at 1355, 425/50N (Ed); same at 1336 (Kneitel, NY).

20095.5: N. Korean embassy somewhere w/5F tfc + telegrams in Korean at 1823, 1000/50N (Ed.).

20114.5: FDY, French AF, Orleans, France w/RYRY & le brick at 1612, 425/50R (Ed.).

20187: IRS41, IINA Rame, Italy w/nx in AA at 1350, 425/50N (Ed.).

20204: YZJ, TANJUG Belgrade, Yugoslavia w/nx in EE, 425/50R at 1348 (Ed.); same w/RYRY at 1304, announced //YZI4 on 16343 (Kneitel, NY).

20312: AFP Paris, France w/nx in FF at 1400, 425/50N (Ed.).

20327.5: 6VK221, PANA Dakar, Senegal w/nx in EE at 1547, 425/50R (Ed.).

20430: IRS24, ANSA Rome, Italy w/RYRY & nx in FF at 1410, 350/50N (Ed.); same at 1509, announced was //4804/8062/14630/15693.5/20085 (Kneitel, NY).

20472: CXR, Montevideo Navrad, Uruguay telling 5KM "Colega QAP en frequencias primaria y secundaria ZA12 pls." Was 850/75R at 2021 (Ed.).

20483: Possibly CLP1, MFA Havana, Cuba w/SS hand-typed tfc at 1313, 425/50N. "Sombra" calling "Jaguar" then mixed crypto after ZZZZZ.. header as usually used by MFA Havana (Kneitel, NY).

20494.5: 5KM, Bogota Navrad, Colombia w/RYRY & SGSG at 1749 then tfc in SS at 1753 to PWZ, 425/75R (Ed.).

20717: Embacuba Harare, Zimbabwe w/crypto after ZZZZZ at 1715, 500/75N (Ed.).

20863: FDY, French AF, Orleans, France at 1320 w/RYRY & le brick, 425/50R (Kneitel, NY).

20960: Un-ID sta at 1341 w/text in Dutch _ 5L grps, 425/75R (Kneitel, NY).

22197: Un-ID sta at 1515 w/msgs in RR. Each msg had header reading "RTM EJSK NWR" (Kneitel).

22948: MKD, RAF Akrotiri, Cyprus at 1343 w/RYI's & foxes, 300/50N (Kneitel, NY).

FAX Intercepts (All FAX listings by your columnist.)

2120: NPM, USN Pearl Harbor, HI w/wx charts at 1049, 120/576.

4271: CFH, Canadian CG, Halifax NS, w/wx charts at 1105, 120/576.

4516.5: NPM, USN Pearl Harbor, HI w/wx charts at 1157, 120/576.

4570.5: DHJ51, Grengel Meteo, FRG w/wx charts at 0827, 120/576.

4704: AOK, USN Rota, Spain w/wx charts at 0459, 120/576.

5405: JMJ2, Tokyo Metea, Japan w/wx charts at 1324, 120/576.

5785: NGR, USN Kato Soli, Greece w/wx charts at 2230, 120/576.

6874: LRB79, AP Buenos Aires, Argentina w/press pix at 0018, 60/288.

7530: NMF, USCG Boston, MA w/wx charts at 1739, 120/576.

7710: VFF, Frobisher Bay Meteo, Canada w/wx charts at 1403, 120/576.

9045: 5YE, Nairobi Meteo, Kenya w/wx charts at 2100, 120/576.

9157.5: WLO, Mobile R., AL w/plaintext wx at 2114, 120/576.

9230: RXO70, Khabarovsk Meteo, USSR w/wx chart at 2128, 60/576.

9460: ZKLF, Aukland Metea, New Zealand w/wx charts at 1509, 120/576.

10520: Murmansk Meteo, USSR w/wx charts at 1429, 120/576.

10865: NAM, USN Norfolk, VA w/wx charts at 1619, 120/576.

10980: Moscow Meteo, USSR w/wx chart at 1457, 60/576.

11087: KVM70, Honolulu Meteo, HI w/wx charts at 1258, 120/576.

12730: NMC, USCG San Francisco, CA w/wx charts at 1517, 120/576.

13855.5: OXT, Copenhagen Meteo, Denmark w/wx charts at 1321, 120/576.

13883: DDK6, Hamburg Meteo, FRG w/wx charts at 1348, 120/576.

14693: JMJ4, Tokyo Meteo, Japan w/wx charts at 0116, 120/576.

15615: AXI35, Darwin Meteo, Australia w/wx charts at 2252, 120/576.

15644: AOK, USN Rota, Spain w/wx charts at 1501, 120/576.

16115: GYA, Royal Navy, London, England w/xmsn sked at 1507, 120/576.

16135: KVM70, Honolulu Meteo, HI w/wx charts at 2325, 1290/576.

16340.5: ZKLF, Aukland Meteo, New Zealand w/wx charts at 1623, 120/576.

16410: NAM, USN Norfolk, VA w/wx charts at 1901, 120/576.

17146: CCS, Santiago Navrad, Chile w/wx charts at 2325, 120/576. New freq. ID on charts is "Armada de Chile."

17151: NMC, USCG San Francisco, CA w/xmsn sked at 2020, 120/576.

17585: AOK, USN Rota, Spain w/wx charts at 1718, 120/576.

17672: LQZ67, AP Buenos Aires, Argentina w/press pix at 2024, 60/288.

18093: LRO84, Buenos Aires Meteo, Argentina w/wx charts at 1420, 120/576. PC

ON THE LINE

NEW AND EXCITING TELEPHONE TECHNOLOGY

BY JULIAN MACASSEY, N6ARE

On The Road With Your Phone

In these hurried times with overnight mail, cellular phones and satellite terminals in every backwater, we are expected to keep in touch. In some remote spots this still can be difficult. But wherever you are, it can take only minutes to discover the condition of the Dow Jones Index whether you want to know it or not. Your access to news, or a simple response of "I'm here, everything is OK", is now instant. No one sends postcards announcing safe arrival anymore, they phone.

Think about it, with phones on every corner, it is faster and more efficient to use the phone. In airports and hotels, there are phones that accept Visa and Master Charge credit cards, besides the phones that read the magnetic stripe on telephone credit cards. If you have an AT&T credit card it will work from any phone in the U.S.A. and in many Western countries. The operator in a foreign country may be slightly non-plussed by an AT&T cardit card number, but with persistence, it can be done.

The big block to simple phone use on the road is the programming of PBX's in some hotels. To make a credit card call can be tricky if it is an AT&T call. Most hotels allow you to access an outside trunk to dial your own long distance calls which they then bill you for. For a credit card call, you have to start with an O. Operator calls (dialing "O") is often blocked, or intercepted, at the switchboard. They do this to prevent you from making an operator assisted call that they can not bill you for. There is usually a way out of this dilemma. Often the hotel operator will give you an outside line to allow you to dial the credit card call yourself. If you can not use your credit card to make the call, complain to the management. If enough customers complain, the software will be fixed.

Should the hotel use another long distance carrier other than AT&T, you will have to make the call using the 10 XXX number. This is pronounced "Ten Triple EX". This number allows you to directly select the Long Distance carrier of your choice. The number to dial to use an AT&T line is 10 288. Yes, if you look at your dial, you will see that 288 corresponds to the letters ATT. See Table 1. for a list of 10 XXX numbers of major Long Distance carriers.

The question that often arises in the mind of travelers as they check out of a hotel at six in the morning is: "How do they know what my phone bill is?" The answer is SMDR (Subscriber Message Detail Recording). At one time, only large systems had this feature. But, with the microprocessor revolution, even the smallest system has the capability. There is usually a serial port on the side or back of the phone system that puts out lines of data stating the following: The extension and room number, and the originating, or receiving, of a call. The trunk (Phone line) that the call was made on. The number that was dialed in an outgoing call. The duration of the call. The start and stop times of the call.

This raw data is then fed into a computer that has the phone rates or "Tariff" in a program. It looks at the data and figures what the cost of the call would be. Many establishments pad the cost a bit. Some pad a lot. When getting a phone bill, look it over carefully. The system can only tell what number was dialed and how long the call lasted. The hotel has no way of telling if the call was ever answered. If you have been calling home every ten minutes all evening, don't be surprised if you are billed for all of the "Call Attempts". Challenge them, and as a matter of principle, refuse to pay any call of less than one minute's duration. The phone company won't charge the Hotel for call attempts, so why should they charge you?

Bear in mind that the SMDR phone records generated by an hotel phone system become part of the record of your stay, and that you are entitled to a copy for your own records. Investigating agencies and courts can also gain access to those records, and so to can unauthorized prying eyes. If you want to make confidential calls, use the coin phone in the lobby, not the convenient phone by the bed.

With your own phone credit card, you can make a call from any phone. If you are visiting another company on business, or staying with a friend, it is only considerate to use your credit card for long distance calls. These will then be billed back to your own phone with a note on your itemized bill that it was a credit card call.

So, you are on the road and trying to maintain a small business or social life from a distance. No longer do you have to be incommunicado while on safari. Being "Out of Town" no longer means you are "Out of Touch". Get a phone answering machine with "Remote" capabilities. Callers will leave messages and you can answer them from anywhere in the world. The simplest answering machines with remote capabilities enable the caller to listen to messages and leave or delete the calls. The more sophisticated and expensive machines also announce the number of messages received and the time they were received. On the really fancy machines you can also change the announce message. Should you be in Rio de Janeiro and decide to stay there for another week, you can leave a message on your machine announcing this to callers.

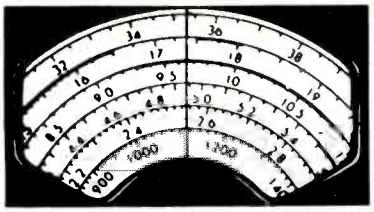
TABLE I
LONG DISTANCE COMPANY ACCESS NUMBERS (TEN TRIPLE X)

ALLNET	10-444
AT&T	10-288
ITT	10-488
MCI	10-222
RCI	10-211
SBS	10-888
SPRINT	10-777
USTEL	10-333
WESTERN UNION	10-220

These numbers will work from all areas that have Equal Access.

With simple planning and a small investment, it is possible to be in constant touch wherever you are in the U.S. by taking advantage of time zones, it is possible to make your calls at off peak rates. Obviously, it makes sense to call an answering machine to pick up messages during the cheap off-peak hours between 11 P.M. and 7 A.M. local time. Business calls from the West Coast to the East Coast are best made before 8 A.M. if left much later, not only do the charges go up, but those East Coasters tend to go to lunch at 9 A.M. West Coast time!

Keeping in touch by phone overseas can be an adventure and, it is difficult to give general guidelines, as each country is different. There are some points worth bearing in mind. First of all, nearly every foreign phone company is Government owned and part of the post office. This usually means that the cheapest and easiest place to make an international call is the local Post Office. Be very wary of making international calls from foreign hotels. Some hotels, and the large well known American chains can be the worst offenders, charge enormous sums of money as "House Charges". It can be hard to argue about phone charges with a hotel receptionist who speaks broken English, especially if your plane leaves in an hour. By the way, some foreign hotels will even charge guests for incoming calls. When abroad, remember that whereas in the U.S. phones are essential tools, in many countries they are considered a privilege, or as an emergency communications system. When in foreign cities do not expect phone service above the quality of service that you would barely tolerate in rural parts of the U.S. PC



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Two readers, Frank Swiderski, OH and Perry Crabill, VA both wrote in concerning the synthesized voice weather broadcasts from the USCG Radio Station NMN at Portsmouth, VA.

NMN is soliciting listener comments regarding the synthesized voice broadcasts and reports can be sent to:

Commanding Officer US Coast Guard
Communications Station Portsmouth—NMN
c/o Naval Security Group Activity—Northwest
Chesapeake, VA 23322

One remark I have regarding these broadcasts is that while it is possible to keep up with the narration when typing, it is difficult to copy the broadcast by hand. The narration is a little too fast to keep up with and consequently solid copy is not possible.

Frequent contributor, Patrick O'Connor, NH offers the thought that the 4020 kHz logging in the February column might have been MARS calls with the first letter dropped. He pointed out that 4020 is a US Army MARS frequency. Thanks Patrick.

David Sabo, CA tells us he is back home after a year in Korea. He is monitoring with a Panasonic RFB-300 hooked up to a 60′ longwire. David added that his wife is starting to take an interest in the hobby; "at least to the extent that she's asked about the differences between the expensive toy I already had and the one I just bought, and she noticed that the sound of a SW transmission when I'm tuning in a signal is sometimes similar to the theme music on the 'Doctor Who' TV Series."

George Osier, NY reports unidentified station VEB2 has settled in on 4624 kHz and is on an evening sked. Still no identification for this station.

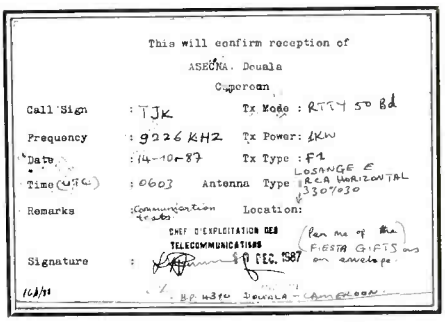
Stephen Carmin, AZ recently added a Kenwood R-5000 to his equipment. He uses an 80′ longwire and a "Noll" 25-meter vertical (described in 1/87 *POP'COMM*).

Adam Aronson, NJ says he has upgraded his Hallicrafters S-120 to a Yaesu FRG-8800. He started out listening to SW Broadcasts and then with the new receiver he became a "serious Utility DX'er" concentrating his efforts on coastal telephone and Coast Guard stations.

Chris Gay, KY says he spends most of his time hamming, but does tune his Drake R-4C to other bands occasionally. He enjoys reading the loggings sent in by column contributors.

SPECIAL EVENT STATION

KELLEYS ISLAND, OHIO: Members of the Ohio Underwater Research Association (OURA) will operate N8HHG June 29th to July 1st, 1500 to 0100UTC, from beneath the surface (underwater) of Lake Erie aboard a shipwreck and other submerged as well as surface locations within the Lake Erie Islands area. Suggested frequencies: 7.230, 14.245, 28.450 & 146.475 MHz (all ± 10 kHz). For special photo QSL card for SWL's and monitoring enthusiasts, send a letter or postcard detailing what was heard along with a SASE to: Paul Buescher, N8HHG, 1752 Stone Creek Ln., Twinsburg, Ohio 44087.



This will confirm reception of
ASECNA. Douala
Cameroun
Call Sign : TJK Tx Mode : RTTY 50 Bd
Frequency : 9226 kHz Tx Power : 4KW
Date : 14-10-87 Tx Type : F1
Time (UTC) : 0603 Antenna Type : LOSANGE & RCA HORIZONTAL 330°/030
Remarks : Communication tests Location:
CHEF D'EXPLOITATION DES TELECOMMUNICATIONS
Signature : 10 DEC. 1987
(Pen pal of the FIESTA GIFTS on envelope)
BP 4370 Douala - Cameroon

A real curiosity is the way Hugh Hawkins, TX explained this QSL card. The card was typed on a light pink thin card stock and appeared to have been folded and torn to size as it had ragged edges. It had been mailed surface mail as a Post Card. The PFC provided by Hugh had apparently been discarded by the station.

Lee Elia, FL uses a Sony 2010, Realistic DX-160 and has plans to acquire a Kenwood R-5000 and a Yaesu FRG-9600.

From Brazil, Roberto Benevolo tells us he uses a Sony ICF 7600D receiver for monitoring.

"About six weeks ago, I started listening to utility stations." So wrote Aren van Waarde, CT. He said he previously listened only to SW Broadcast stations. His receiver is a Sony ICF-2003 type with a wire out the window for an antenna.

Listening to utility and SW Broadcasts, plus being an active ham, are part of the activities of Bill Wolverton, AZ. Bill indicated he has just bought a new Sony ICF-2010 and he uses three different lengths of wire for his antennas.

I wonder if any readers have heard any of these signals? They consist of various combinations of dots, pauses and dashes repeated over and over. On 13255 & 5340 kHz—19 dots 1 dash; 13233.3 kHz-6 dots pause 2 dots 1 dash; previously observed 13233.3 kHz with 7 dots 1 dash. Similar signals (different combinations) also heard on 13671, 4704 and 5174 kHz. I have not determined the purpose of such transmissions.

"Ute" Intercepts
(All Times Are UTC)

162: Noise-burst type signals on AM at 0124, 1 long burtst every 2 secs, also on 169 kHz (Vendetti, NJ).
187.7: Lowfer sta "SD," E. Haven CT in CW at 1540 (Van Waarde, CT).
212: Beacon AWW, Winchester, IN at 1643; Beacon DCY, Washington, IN some time (J.M., KY).
219: Beacon BA, BWI Apt., Baltimore, MD at 2330 (Ed.).
225: Beacon BPX, Barger, TX (Pearce, TX). Time not specified-- Ed.
252: Beacon LQV, Pennington Gap, VA at 1650 (J.M., KY).
265: Beacon XPZ, Winchester, VA at 0028 (Ed.).
272: Beacon YQA, Muskoka, ONT at 0537 (J.M.).
281: Beacon HP, White Plains, NY (Meyer,NY). No time given-- Ed.
284: Beacon UYF, London, OH at 0538 (Miller, WI).
285: Beacon EUD, York, PA at 0035 (Ed.).
313: Beacon Z, Cape Canaveral, FL at 0406 (Pat O'Connor, NH).
323: Beacon BSD, St. Davids Head, Bermuda at 0420 (O'Connor).
347: Beacon PNJ, Paterson, NJ (Meyer, NY).
360: Beacon PN, Pt. Menier, PQ at 0528 (Miller).
360: Beacon KIN, Kingston, Jamaica at 0431 (O'Connor, NH).
371: Beacon GT, Gt. Falls, MT at 0436 (Miller).
380: Beacon BBD, Brady, TX (Pearce, TX).
392: Beacon ML, Charlevoix, PQ & Beacon MM, Morristown, NJ (Meyer, NY). No times shown-- Ed.

TRANSMISSION SCHEDULE

UTC	kHz
0400, 0530, 1000	4428.7, 6506.4, 8765.4
1130, 1600, 2200, 2330	6506.4, 8765.4, 13113.2
1730	8765.4, 13113.2, 17307.3

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

DATE: Jan 17, 1988

IN REPLY REFER TO: William J. Hoyle
Elect. Tech.

SUBJECT: Reception report of "EW"

TO: Mr. Patrick O'Connor

Dear Pat;

Thank you very much for your SWL report, it comes at a time when it is most needed. For the past two years, we have been having a major problem with the coverage by station "EW". We have checked all the electronics; even to the point of tearing down the antenna and re-making all connections, and still we were having a weak pattern, especially during bad weather days. Since it was worse on bad days, we even went so far as to have the trees removed for two hundred feet around the antenna, assuming that they might have a shielding effect when wet....Still not reliable coverage - we were only good to about 4 miles out -and in the air!

The problem finally started to resolve itself, when we discovered the digging equipment had chopped through better than half of our underground counterpoise system, when installing another facility (a 75 MHz marker xmtr) on the same site. They had not told anyone, and had just covered over the damage, with backfill. Engineering drew up some prints, and we contracted the job of replacing the counterpoise. (The counterpoise consists of about 12 copper lines running out from a mid-point under the antenna, like the spokes of a wheel, and each terminating in a 10' ground rod) The counterpoise is required, to stabilize the ground effect, and thereby keep the impedance of the antenna constant. If the impedance of the antenna varies, it has a very negative effect on the tuning of the antenna matching unit and the radiated power out.

With this job completed, we thought our problems were solved, and we called for our aircraft to check it. Still no good! To Shorten up the story a little - it finally worked out that everyone overlooked the fact that when the new prints were drawn up - they omitted the wire connecting the counterpoise to the transmitter. The old wire was still in place, going out of the building, but it dead-ended about 3 feet outside the wall, so the entire new counterpoise was sitting there doing nothing. With this connection made, our coverage returned to normal(25 miles)and all are happy. I've been asking pilots to check it for distance, but have received few reports - This is the point when your report arrived, and you have made my day, Thanks again! Continue your hobby, and don't be afraid to send your reports out, you may never know what effect they have on the receiving end.

Feel free to stop by, if you're ever in the area, and I'll be glad to show you around the different facilities here at New Bedford.....

William (Bill) Hoyle WA1ICV
Federal Aviation Administration
AFSFU 8224, Municipal Airport
New Bedford, Mass. 02746

Patrick O'Connor, NH received this interesting letter in reply to his reception report.

Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identifier/ied/ication
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)

404: Beacon YSL, St. Leonard, NB at 0538 (Tom, Kneitel, NY).

417: Beacon RGB, Rifle, CO (Pearce, TX). Time not given; this one ex-298 kHz-- Ed. ; Beacon EOG, Greensboro, AL at 0523 (Miller, WI).

521: Beacon GM, Greenville, SC at 0448 (J.M.).

1722: Beacon T, un-ID at 0730 (Van Waarde, CT).

1912: Beacon V, un-ID at 0735 (Van Waarde).

2182: Halifax/Sydney CG stas in USB 0730-1000 w/ship on-scene of burning ship Panther, 550 mi N E of Boston. Fire put out by crew at 0800. Ship dead in water & drifting S E at 13 kts (Fernandez, MA).

2670: NMF4, USCG Point Allerton, MA in USB at 2109 wkg CG Boston (O'Connor, NH).

2697: GLD3, Land's End, Penzance, Cornwall, England in CW at 0735 w/CW marker & ARQ phasing sig (Van Waarde, CT).

2714: NZGW, **USS Sumter (LST-1181)** clg Pier 16 Sentry at 0920; NXSF, **USS Edenton (ATS-1)** clg Little Creek Harbor Cntrl at 2330 (Gardon, CT).

2716: NIQC, **USS MacCandless (FF-1084)** clg New York Harbor Cntrl & Earle (NJ) Harbor Cntrl at 0940; **HMCS Margaree (DDH-230)** wkg QHM Halifax at 2215; **HMCS Saskatchewan** wkg San Diego Cntrl. 1 at 0955; NOHP, **USS Oliver Hazard Perry (FFG-7)** clg Newport Port Cntrl. & Newport Pt. Cntrl. Secondary at 0315; Seattle Port Cntrl. w/radio check w/Esquimalt (BC) Cntrl. at 1100; all USB (Gordon, CT).

3117: Several OM's w/EE comms, USB at 2350. Some pretty salty language (Kneitel, NY).

3130: Hotel 1 Juliet & Tango 4 Echo + other similar calls, USB at 1145 in what sounded like a training net (Fernandez, MA).

3170: WNEC703, Technical Systems En., Overbrook, KS, USB at 0000 in comms w/"706"(?) (George Osier, NY); OLB5, Czech Institute of Technology, in CW at 0419 w/time sigs (Osier, NY).

3170.7: Beacon X, un-ID in CW at 0213 (Kneitel, NY).

3226: YL in a Slavic language, AM-mode at 0341. 5F grps, each grp rptd X2. Believe this is //4030 kHz. "D'bach, spiri, otro, fir, she..." etc. (Kneitel, NY).

3230: YL/RR in AM mode at 2130 rptng "Eradnodze" + 5 digits then into 5F grps (Mason, England).

3390: USN MARS net w/many stas passing routine tfc. One sta asked for QSY to alternate freq 7393 kHz, USB at 0205 (Elia, FL).

3413: EIP, Shannon Aeradio, Ireland w/VOLMET bc by OM, USB at 0006 (Fernandez, MA).

3460: OM/SS in AM-mode at 0107 w/5F grps (Ed.).

3480: DMZ DE LGA, COC, PDR, all un-ID stas in CW at 0215 (Ed.).

3516.5: GNII, Niton, Ventnor, Isle of Wight, England at 0626 w/CW marker (Van Waarde, CT).

3610/3620: GHD2, Gallan Head, England; GND1, Stonehaven, England; GCD1 & GBZ1, both un-ID, in CW at 0030 & 0300 (Wenig, PA).

3678: Mil net, all stas except one were scrambling (must have forgotten to flip the switch); USB at 0120 (Elia, FL).

3810: OM/SS w/time anncts on the minute. No ID hrd, AM-mode at 0649 (Kammler, CA). This is HD210A, Guayaquil, Ecuador-- Ed.

3820: 5F grps at 2019 by a very young sounding YL/GG (Skornia, England). AM or SSB?-- Ed.

4066: NTMV, **USS Patterson (FF-1061)** clg Norfolk ICSB at 0040; NAMU, **USS Roanoke (AOR-7)** clg San Diego CSS1 at 0930, then San Diego CSS2 on 8247.7 kHz at 0935; **USS Oklahoma City (SSN-723)** clg ICSB & NAVCAMSLANT at 1305. The sub ID'd as "precommissioned unit Oklahoma City" (Gordon, CT).

4221.2: GYU, Gibraltar Navrad in CW w/call marker at 0227 (Osier, NY).

4235: EAD2, Aranjuez, Spain w/CW marker at 0230 (Osier, NY).

4255.2: KLC, Galveston, TX clg CQ in CW at 0718 (Wolverton, AZ).

4271: YL rptng "Papa Charlie Delto 2" in AM mode 2332-2335. Notable in that this is usually PCD-1 (Sabo, S. Korea). This is an xmsn from Mossad in Israel. The #2 indicates "no messages"- Ed

4285: XFU, Veracruz, Mexico w/CW marker at 0842 (Osier, NY).

4314: LZW2, Varna R., Bulgaria calling CQ in CW at 0101 (Kneitel, NY).

4355: HEC, Berne, Switzerland in CW + ARQ phasing sig at 2140 (Skornia, England).

4364: WOM, Miami, FL in USB at 0321 cruise ship **M/V Song of Narway** w/'phone patches (Miller, NY).

4395: ENTEL Argentina in USB w/SS annct consisting of music foll by "de Buenos Aires transmite General Pacheco Radio LPL." Sta used for high seas 'phone patches. Also ops on 9380, 17285, 22605 kHz (Benevolo, Brazil).

4416: Z4J to H5P re D0O's req for contact on Circuit LP-176. USB at 0109. This is a USN Pac Fleet freq (Sabo, CA).

4448.5: Beacon U, un-ID in CW at 0252 (Kneitel).

4508: 45 DE 28, both un-ID (believe possible Soviet). Passed strings of chatter or pos reports in 18L msg foll by RPT & 18L sequence sent again (Ed.).

4525: Y3S, Zeitsignal Nauen, GDR in CW at 0720 (Van Waarde, CT).

4581.5: ONY27, NATO Rouveroy, Belgium in CW at 0303 clg ONY24 (Kneitel, NY).

4585: CAP Texas Wing stas Eagle 590/598 in USB at 0310 discussing weekly net; Northwind stas in CAP Nevada Wing also hrd checking into net w/o tfc (Kammler, CA).

4590: YL rptng Zulu Tango in AM-mode at 1930. At 1933 changed to Victor Oscar, at 1933 a YL/GG began 5F grps (Mason, England).

4594: AIR, USAF MARS, Washington, DC w/telegrams, USB at 0120 (Kneitel, NY).

4599.5: Pikes Peak 217 wkg 462 in USB at 0126. These are of CAP Colorado Wing (Carmin, AZ).

4623: 5F grps in CW at 0309 (Kneitel, NY).

4640: YL/EE & 3/2F grps in AM-mode at 0012 (Vendetti, NJ).

4734: At 0934 intercepted JJO4 w/rptd callups to L08 interspersed w/short RTTY bursts. Went on till 0951 when L08 finally answered. JJO4 replied in JJ & for next several mins the 2 stas exchanged some sort of odd raspy-sounding data sigs before s/off 0955. Next day same stuff on 6730 kHz when hrd JJO4 to HW9 from 0326-0341; all USB (Sabo).

4770: YL/Korean in AM-mode at 1530 w/5F grps. These bc's open w/R. Pyongyang IS (a lengthy instrumental piece) & then a YL who anncs pgm sked to include msh #'s & grp counts.

4830: 4F grps in CW at 2055; 5F grps at 2110. Msg header was CN-CN-CN-N-C-N-T (Parrish, PA).

4884.6: THL, un-ID calling CQ in CW at 2158 (Vendetti, NJ). Believe this is a Cuban naval net. Have hrd PFB, TVW, CZN, THL, FYM, MCG, & PHN here-- Ed.

4910: KWS78, US embassy, Athens, Greece in CW at 0400 w/QRA marker (Osier, NY).

5062: CMU967, Santiago Navrad, Cuba clg ship w/callsign UDPQ in CW at 0237; 10 mins later call it again on 5258 kHz (Osier, NY).

8984: 6YX, Kingston Coast Guard, Jamaica in USB at 2040 wkg USCG a/c #2121 (O'Cannor, NH).

9011: B6J asking 7T to "Say your grid coordinates for your light & heavy pontoons." Also noted 2X & 8N here, USB at 1834 (Carmin, AZ).

9023: Dragnet Tango, Guardian, Old Salt, confirming links between stas. Salt suggested trying Jupiter freq. This is a NORAD freq. USB at 1748 (Carmin, AZ).

9147.2: YL/EE in USB at 2115 sending 3/2F grps (Kneitel, NY).

9234: CW xmsn from un-ID sta at 2124 repeating M over/over then switching to repeats of W (Kneitel, NY).

9996: RWM, Moscow time sta, USSR in CW at 0616 w/pips on each sec, double pips at 10-15 sec marks (Fernandez, MA).

10194: Calm Lake telling Snow Drop to implement Item 118, USB at 1814 on FEMA freq Apparent SAC/FEMA exercise since many SAC & FEMA freqs in use. Freqs included 10194 (F-27); 10493 (F-28); 14450 (F-35); 14776 (F-36); 5700 (Bravo Quebec); 11118 (Foxtrot 315); 11408 (Yankee Quebec); & 13211 (Bravo Whiskey). Calls logged: Calm Lake, Snow Drop, Bush Pilot, Dumpling, Relegate, WAR46, Ankle Bone, Out Curve, Sanitary, Diplomat, Yard Bird, & Post Hok. Snow Drop & Bush Pilot used only FEMA freqs so may have been FEMA stas. Some other calls also hrd on UHF 235.85 & 246.95 MHz **wideband FM**. Exercise ran till about 2200 (J.M., KY). Nice catches!-- Ed.

10451: YL/CC w/4F grps in LSB at 0110. Each grp passec X2 (Sabo, S. Korea).

10494: WGY908, Denver, CO, also WGY910, Bothall, WA w/comms checks, USB at 1927. These are FEMA stas (Green, CO).

10538.6: Iron Leader repeatedly clg Lima Charlie 2 in USB at 1919. Upon making contact, Iron Leader announces "feet dry." LC2 acknowledges then nothing (Carmin, AZ).

11076: Atlas wkg a/c 92C in USB at 2326 during anti-smuggling (Hall, WA). Kneitel's Top Secret Registry lists this as "Echo" freq-- Ed.

11118: Deadball (in AM-mode) asking Abundance (USB mode) for current tfc at 2308. Never hrd AM mode on an SAC freq before (J.M., KY).

11169: YL/CC in AM-mode 0005-0015 w/#'s (Parrish, PA).

11267: 4DW, 3PZ & others in USB at 0049. This is USN day primary freq (Carmin, AZ).

11396: Bison 05/Trenton Military re coded data relayed by gnd sta, which was about exercise in progress. B05 was 150 mi E of Halifax, NS. USB at 1955 (Fernandez, MA).

11429: YL/SS at 0313 w/5F grps. Very strange distorted modulation could be copied poorly at best by carefully tinkering in LSB mode. Very broad sig (Kneitel, NY).

12090: Crypto tfc between J0C & Q2P. Also on this freq "Local N" & "Distant N" troubleshooting microwave radio malfunction, USB at 1854 (Elia)

12429.3: Tug **Mariner** in USB at 2100 wkg un-ID shore sta re radio repairs (Fernandez, MA).

12943: CUL, Lusbon, Portugal clg CQ in CQ at 1811 (Skornia, England).

13113: NMN, USCG Commsta Portsmouth, VA in USB at 1751 clg **USCGC Northland** (Wolverton, AZ).

13250.3: Un-ID sta at 1448 w/Vietnamese PT msgs. Other end not hrd (Ed.).

13330: Houston Aeradio to a/c N345PA w/wx. Spoke of alt freq as being 10075 kHz. USB at 1550 (Sabo, CA).

13374: YL/SS w/Atencion Nueve Siete Tres, Cero Cero (973-00) foll by Uno Seis Cero (group count 160) & into 5F grps at 1804. Tones sent at end of msg, pause, then YL started again w/callup but carrier cut off abruptly (Ed.).

13414: PCW1, MFA The Hague, Holland in CW at 1740 w/marker (Vendetti, NJ); same at 2057 (Kneitel, NY).

13425: Several OM/EE on LSB at 2230 discussing electrical problems on boat (fishing boat?). Brief SS exchange also. Same guys prev intercepted on 8826 kHz (Ed.).

13528.5: NNN0CBD, USN MARS abd **USS Thomas S. Gates (CG-51)** wkg NNN0NHA, CINCLANT Norfolk at 1920 (Gordon, CT).

13543: Mil scrambling in USB at 1822 (Elia, FL).

13616: SPW, Warsaw R., calling CQ & sending tfc list in CQ at 2057 (Kneitel, NY).

13871.3: Un-ID sta w/CF CF CF at 0038 (Parrish, PA).

13992.7:7L1, Czech MFA Havana, Cuba clg OMZ (MFA Prague, Czechoslovakio) in CW at 1534 (Ed.).

14361.6: Auto sent 5F grps in CW at 1527. All #'s sent full, none cut (Ed.).

14400: LDK clg YFH (both un-ID) in CW at 2016. LDK sends VVV's then into 5F grps. Poor copy due to QRM from another sta tuning up (Ed.).

14441.5: NNN0CVX, USN MARS sta abd **USS El Paso (LKA 117)** clg any stateside MARS sta at 1500; NNN0CRL, USN MARS sta abd **USS Coronado (AGF-11)** at 1740 w/same request (Gordon, CT).

14449: Someone that sounded British told Donald to whistle 3 times if he could go to the alternative. There was a lot of whistling hrd so I guess he went there. USB at 1903 (J.M., KY).

14467: NNN0NXJ, USN MARS on **USS Barney (DDG-6)** wkg shoresta NNN0FMN; NNN0CUX, **USS Nassau (LHA4);** NNN0CVL, **USS Shreveport (LPD-12);** NNN0CVU, **USS Saginaw (LST-1188);** NNN0CRH, **USS Manitowoc (LST-1180)**-- all vessels in an amphib "float" located in Atlantic (Hall, WA).

14469.7: 2 OM/SS in USB at 0047. Just below on 14459.7 there are several OM/SS & a YL/SS in conversation. ID's hrd were Negro, Tony, Blanco, Viejo (Ed.).

14758: MKL in CW at 1302 w/VVV marker. Possibly RAF, Edinburgh, Scotland (Kneitel, NY).

14927.8: C3N, un-ID but it's a call allocated to Andorra, in CW w/marker at 1451 (Ed.).

15048: Andrews AFB, MD wkg VIP a/c Spar 76. This is Foxtrot 20 in the Mystic Star network. Spar is a VIP mission with lower priority than a SAM. USB at 1941 (Sabo, CA).

15075: Beacon U, un-ID in CW at 1258. At 1300 the rate of sending sped up and after several U's were sent there was some 5F tfc, then dropped back to slower speed for resumption of beacon (Kneitel).

15084: Iraqui warble jammer at 0223 (Parrish)

16932: 7TF, Boufarik R., Algeria in CW at 1421 calling CQ (Kneitel, NY).

16952.5: 6WW, Dakar R., Senegal in CW at 2015 w/VVV marker (Aronson, NJ).

17007: KLB, Seattle R., WA in CW at 2014 clg CQ (Vendetti, NJ).

17227: UAT, Moscow R., USSR w/CW marker at 1138 (Skornia, England); call marker & ARQ phasing sig at 1504 (Kneitel, NY).

17230: UHK, Batumi R., Georgian SSR w/call marker & data burst in CW at 1321 (Kneitel, NY).

17426: GPA6, Portishead R., England w/CW marker & ARQ phasing sig at 1325 (Kneitel, NY).

18019: A/c Zombie 72 w/patch to Pope CP via Albrook Fld (Panama). Pilot didn't want to declare an emergency but was concerned re loss of fluid to engines caused by booster pump failure. CP told them to land at nearest base. USB at 2018-2036 (Sabo, CA).

18100: 586 (X2) 538 (X6) 3T marker in CW at 1317. The T in 3T is a cut 0 (Kneitel, NY).

18210: Danish tfc net in USB at 1536 (Vendetti)

18414.3: 5YC, Nairobi, Kenya in CW w/marker at 1554 (Ed); also noted here in CW at 1450 was C3N (see 14927.8 kHz intercept) w/VVV tape & "BZ3/099/023/455" (Kneitel, NY).

18666: 15 Alpha, 93 Delta, Marlin 935, Atlas, also Flints (a/c's) & Sharks (ships) in Gulf of Mexico area. Anti-smuggling ops in Gulf of Mexico area, USB at 1820 (Fernandez, MA). This is called "Hotel" freq according to Kneitel's Registry-- Ed.

19177: Net ops in LSB at 1548, un-ID African lang, maybe a few FF words mixed in (Vendetti)

21272: WGY910, Bothell, WA & WGY909, Santa Rosa, CA FEMA stas exchanging comms checks (Green, CO). Presune USB, but what time?-- Ed.

22411: UJQ7, Kiev R., Ukranian SSR in CW at 1332 clg 4QA (Kneitel, NY).

22667: EHY, Pozuelo, Spain w/patches at 1401 in USB (Skornia, England).

23408: WAR, Army MARS HQ, Washington, DC w/CW tfc at 1347 (Kneitel, NY).

TABLE 1
SOVIET JAMMERS (CW)

kHz	UTC	Identifier	kHz	UTC	Identifier
6146	0423	Warble jammer	11826	1926	RB
6170	2023	MG	11826	0141	SU
6170	0005	BR	11877	1623	LR
7122	0434	BR	11886	2005	KV
7180	0010	SU	11886	0143	MG
7180	0145	NA	11886	1635	ND
7190	0146	DA	11886	1621	SU
7190	0013	LK	11901	1633	Warble jammers
7221	0014	UR	11901	1619	SV
7243	0435	SU	11909	1629	MG & ND
7246	0015	SR	11911	1608	KV
7246	0148	LF & SU	12026	1934	UA
7255	0016	KV	15130	1635	KV
7286	0438	BP	15130	1612	GV
7295	0439	DA	15130	1629	VR
7295	0150	DK	15288	1614	LF
7295	0018	LK	15290	1631	IA & SU
8990	1855	ND & VU	15290	1615	HT
9520	0031	CL	15341	1630	SK
9520	2018	MG & KV	15356	1615	RM
9540	0448	MG	15356	1631	BT
9566	2017	KV	15356	1629	ZN & GV
9682	2013	MG	15370	1628	DT
9685	0429	Warble jammers	15381	1625	XX & BT
		modified-lower	15383	1626	SU & XN
		pitch	15383	1617	SU & LF
9726	2012	KV	17727	1622	LV
9817	1919	LF & SU	17760	1629	WV
9846	1920	SV & LF	17866	1619	LF
11770	1621	RP	17895	1627	MV
11770	1625	IL	21736	1553	RD
11823	0002	MV			

Here are some Soviet CW Jammer frequencies with their identifiers. Gary Vendetti, NJ prepared this list for readers. Thanks Gary.

This photo shows the monitoring position of Andy Gordon, CT. Andy likes to monitor U.S. Navy HF communications. His main receivers are the NRD-515 and the SONY ICF-2010.

5208: FSB, INTERPOL HQ Paris, France w/CW marker & data bursts at 0041 (Kneitel, NY).

5305.6: Beacon D in CW at 0343 (Kneitel, NY).

5315: Several OM/EE in informal net, USB at 0327. Ham-type chatter, no formal ID's used, just names like Billy, John, Charlie, etc. They were also using 6315 kHz. Talking about repairing generators, etc. (Kneitel, NY).

5374.6: AFRTS broadcast feeder, LSB at 0354 w/NBC Radio Net pgms (Kneitel, NY).

5500: YL/CC w/4F grps, each passed X2 in USB at 1110-1114 (Sabo, S. Korea); YL/GG rptng 883 'stish' 55 in very high voice at 2100-2105 (Mason, England).

5547: Down 54, a USAF C-130 transport, at 0414 w/in-flite emergency. Wkg Honolulu re engine trouble (O'Connor, NH).

5574: NASA 714 to San Francisco Aeradio w/change of flite plan to Moffet NAS in CA, USB at 0659 (Sabo, CA).

5616: Southern Air Transport 520 in USB at 1636 w/pos rpt to San Juan Aeradio; act is Lockheed L-382 "stretched" civilian C-130 transport (O'Connor, NH).

5643: Tahiti Aeradio to New Zealand 18; Honolulu to United 816, USB at 1052-1055 (Sabo).

5922: Beacon X, un-ID in CW at 0306 (Kneitel).

5696: Poston/Portsmouth CG stas having problems with 'copter comms 0300-0500 due to sweeping jammer from 5500-5800 kHz. When jammer left, found AM SS-lang bc sta on 5700 kHz. Prev noted bc sta on 5680 kHz also w/jammer on it. Jamming went on for 1+ hr.; Also vessel **Mohawk** wkg Miami CG Commsta re standing by a sinking Kuwaiti tanker after collision w/freighter **Panamanian Explorer**. Rescue 1714 also on scene, **USCGC Alert** enroute. This was 440 mi ENE Bahamas. Tanker was down in the bow w/holds 1 & 2 flooding. Helo dropped pumps. Comms went on all nite. Both ships were towed, no injuries (Fernandez)

5742: OM/RR w/5F grps in AM-mode 1433-1442, ended w/000-000 (Sabo, S. Korea).

5763.5: 5L grps hand sent CW at 1544, no ID's (Ed.).

5806.8: ZKLF, Aukland Meteo, New Zealand in CW at 0900 w/marine wx bc (Aronson, NJ).

5815: 4F grps in SS at 0610 (Van Waarde, CT).

6020: Apaloosa w.war game tfc (Soviet T-728 BMP locations) for Lovejoy, USB at 1836 (J.M., KY).

6200: NWHE, CGC **Spencer** in USB at 2116 wkg CG Commsta Bostan (O'Connor, NH).

6328: OST32, Oastende R., Belgium w/VVV marker in CW at 0300 (Paterson, KY).

6338.4: ZRQ2, Simonstown, RSA w/CW marker at 0333 (Osier, NY).

6348: HWN, Paris Navrad, France w/CW marker at 0310 (Paterson, KY).

6389: CTP, Lisbon Navrad/NATO, Portugal in CW at 2122 (Skornia, England).

6393.5: CUL6, Lisbon, Portugal in CW at 0301 w/marker (Osier, NY).

6464: VIS3K, Sydney, Australia w/CW marker at 0945, foll by tfc (Aronsan, NJ).

6484: WIC, Tulsa, OK calling CQ in CW at 1719 (Vendetti, NJ).

6507: NMN, USCG Commsta, Portsmouth, VA in an experimental USB xmsn w/wx using a synthesized male voice (Rabinowitz, MI). Time?-- Ed.

6560: Galeao Airport, Rio de Janeiro, Brazil in USB comms at 0120 w/VASP jetliner about to take off (Benevolo, Brazil).

6604: New York R. in USB at 0200 w/wx (Rabinowitz, MI).

6675: 2R2 762 47 being rptd in CW at 2200; at 2205 began 5F grps, //5500 kHz. This is a Czech #'s sta freq (Mason, England).

6678: OM/EE aboard an un-ID ship somewhere stated he was worried about "load" & that 500 lbs was better than 100 lbs; at 2152 (Vendetti, NJ).

6720: U6E & Y1W w/comms re shifting being completed, then into scrambled mode, USB at 1120. This is a USN ASW/Scrambled freq (Sabo, CA).

6730: Andrews AFB, MD & SAM-60200 in USB at 1933 (Anon, MO).

6746: Halifax Military, NS at 0001 in USB calling Juliet 54 Tango w/"Do not answer" (Kneitel).

6750: CUW, Lajes Field, Azores in USB at 0802 w/flite & runway info (Kammler, CA).

6761: A/c 0188 in comms w/Blackwater, USB at 0124 re refuel arrangements. Skybird in camms w/Pele 23 req 'phone patch (Kammler, CA).

6776: OM/RR w/5F grps ending 000-000. AM-made 1419-1422. Same op intercepted on 5742 (Sabo, S. Korea).

6801.4: Beacon D, un-ID in CW at 0009 (Kneitel, NY).

6803: Beacon C, un-ID in CW at 1947 (Skornia).

6840: YL/SS w/mixed 3F, 4F & 5F grps from 0300-0310 (Parrish, PA); YL/EE in USB at 2309 calling 409 & counting 1-0. At 2310 there were 10 CW pips, group count 219, then into 3/2F (Kneitel).

6998: 5F grps in CW at 0017 to off 0020 (Kneitel, NY).

7380: CW letter N on an AM-carrier, foll by YL/EE w/5F grps, each grp X2. Then entire msg rptd again, 0204-0217 (Gay, KY).

7485: NIID, **USS Recovery (ARS-43)** in CW at 1408 sending VVV to NAO (J.M., KY).

7540: Brazilian Post Office (ECT-Empresa Brazileira de Correios e Telegrafos) w/telegrams in USB at 1830 in PP (Benevolo, Brazil).

7574: Beacon H, un-ID at 2305 (Parrish, PA).

7662: YL/GG w/4F grps in AM at 2008 (Fernandez, MA).

8015: Brazilian commuter airline TAM offices at Aracatuba, Pocos de Caldas, Sao Paulo, San Jode de Rio Preto exch info in PP, USB at 1910 (Benevolo).

8136.3: Beacon U, un-ID in CW at 0319 (Osier).

8175: YL/EE in AM w/1-0 count & 383 383 383. At there were 10 CW pips but no tfc foll. Also hrd on 4540 kHz at 0100, & 5415 at 2000. Each time no msg foll after pips. Carriers off H+12 (Mason, England).

8294.2: WJK, Belcher Towing Co,., Miami, FL in USB at 1529 wkg ship **Mobile Bay** (ex-Western Sun) (O'Connor, NH). KSW, Oakland, CA wkg the vessel **Sealand Hawaii** (KIRS) in USB at 1805 (Carmin, AZ).

8431: 3EBN4, the ship **Bark** in CW at 2042 wkg LGB (O'Connor, NH).

8449.6: VRT, Bermuda R. in CW w/tfc at 0309 (Osier, NY).

8498: SAG8, Goteborg R., Sweden in CW at 2048 w/marker (Osier, NY).

8547: OFJ, Helsinki R., Finland in CW w/marker at 1633 (Skornia, England).

8602: CWA, Cerrito R., Uruguay in CW at 0415 w/VVV marker (Patterson, KY).

8625.2: GYU, Gibraltar in CW at 0900 w/marker (Aranson, NJ).

8611.5: TAH, Instanbul R., Turkey in CW at 0051 w/marker (Osier, NY).

8722: BDA, Taipei, Taiwan w/voice mirror, YL w/ID in EE & CC, USB at 0102 & 0700 (Sabo).

8727: Pozuelo, Spain in USB at 1642 w/patch to vessel **Kapitan Moneno** (Skornia, England).

8753: WTEW, NOAA ship **Whiting** in USB comms to KVH re parts needed (Williams, SC). No time-- Ed

8780: Monaco R. w/patches in USB at 1959 (Skornia, England).

8828: KUM70, Honolulu, HI in USB at 0429 w/aviation wx (Wolverton, AZ).

8942: Hong Kong & Ho Chi Minh City (ex-Saigon) ATC both wkg KLM #882 & Cathay #712 in USB at 1221 (Sabo, S. Korea).

8972: Woodpecker 712 to 8ME w/sig checks. This is a USN ASW freq. USB at 1013 (Sabo, CA). PC

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Imposition Of $1,450 Forefeiture For Improper Operation of Amateur Station

The FCC affirmed the Field Operations Bureau's (FOB) imposition of a $1,450 forfeiture on David G. Ackley for improper operation of amateur station W4UWH at St. Thomas, U.S. Virgin Islands.

Ackley, holder of a Technician Class operator license, was assessed the forfeiture for violating FCC rules by transmitting on a frequency unauthorized for holders of Technician Class operator licenses; failing to give his station call sign; and causing interference to another amateur station.

On September 9, 1986, FOB personnel conducted off-the-air monitoring to confirm continued interference on the 40-meter amateur band by a station in St. Thomas. Ackley had retransmitted voice recordings of another amateur station which was receiving the interference caused by Ackley's retransmissions. Using sophisticated direction-finding techniques, the interference was traced to Ackley's residence. Ackley's amateur station was then inspected by an FOB engineer and found capable of producing such interference.

Upholding the forfeiture, the FCC said the use of direction-finding equipment by Commission engineers is an acceptable means of establishing the source of objectionable interference. Moreover, nothing in Ackley's application for review, or elsewhere, warranted cancellation or reduction of the forfeiture.

Marine Channel 13 On The Great Lakes

The Commission amended Part 80 of the rules by designating VHF marine Channel 13 (156.650 MHz) in lieu of Channel 16 (156.800 MHz), for vessel bridge-to-bridge (navigational) communications on the Great Lakes.

The Vessel Bridge-to-Bridge Radiotelephone Act requires that a means of communication be provided between operators of approaching vessels to advise one another of their intentions. The FCC designated Channel 13 for this purpose. The Great Lakes were exempted from the Act, however, because under the Great Lakes Radio Agreement with Canada, Channel 16, the distress, safety and calling Channel, served the purpose.

Increased congestion on Channel 16 in the Great Lakes has resulted in the channel becoming unreliable for bridge-to-bridge communications.

Inquiry Into Domestic Broadcasting In 1605-1705 kHz Band

The Commission began an inquiry, the fourth in this proceeding, into the domestic issues for the introduction of AM broadcasting services in the 1605-1705 kHz band in preparation of the second session of the expanded band conference of the International Telecommunications Union (ITU) Region 2 Administrative Radio Conference (RARC).

The FCC noted that by discussing these issues now, rather than waiting until the second session of the conference is concluded this June, the Commission can foster the earliest introduction of broadcasting in the expanded band. The Commission is committed to a prompt and effective use of this newly available spectrum. It expects to move quickly to formulate specific rulemaking proposals in line with the results of the expanded band conference. Furthermore, discussing these issues now will send a clear signal to receiver manufacturers that the Commission intends to move expeditiously on this matter, a step which should encourage the early design and production of new receivers.

This proceeding was begun in 1984 to develop a record to assist the FCC in its preparations for the first session of the international conference on the use of the expanded AM band. Two reports concluded with FCC recommendations for technical criteria for broadcasting in the expanded band, as well as the method for planning the band. A third report will deal with FCC recommendations for U.S. proposals for the second session.

The central issue dealt with in the Fourth Notice of Inquiry is the type of regulatory approach to take regarding the use of the expanded band. The Commission noted the fact that AM stations currently face many problems in being able to compete effectively in the marketplace. In addition, the Commission pointed out that it is dealing with a small group of frequencies in a band for which receivers are not yet available. For these reasons the Commission decided to explore various regulatory approaches to the use of the expanded band. Although it is keeping open the possibility of following a traditional approach in this regard, the Commission indicated its intention to explore the national licensing of facilities in the expanded band. Under this approach, a single entity would be able to guide the development of a channel on a nationwide basis. Such a national licensee could operate the stations itself or could lease the frequency to others.

Some of the other issues that need discussion include: Who will be eligible to use the 1605-1705 kHz band? What technical criteria will be required for operating in the expanded band? What procedures should the FCC adopt to efficiently and fairly implement use of the expanded band?

Since the demand for the expanded band is likely to far exceed its capacity, the Commission requests comments as to whether certain groups such as daytime-only AM licensees seeking fulltime operation and public and minority entities should be given preference to operate on the expanded band. Another issue raised involves what rules should govern Travelers Information Stations currently operating on 1610 kHz.

The FCC also seeks specific information on technical criteria such as the class of station, minimum and maximum power, protected contours, groundwave propagation, skywave propagation, coverage and daytime skywave propagation. If national licensing is not adopted on at least some channels, specifics on what procedures (an allotment or assignment system) should be used to implement use of the expanded band need to be considered. Under an assignment plan, an assignment for each station is entered into the plan with a specific location, power and other pertinent characteristics, whereas an allotment plan makes designated frequencies available for use anywhere within a specified area. There are benefits and detriments from using either the allotment or assignment approach, and the FCC, in this proceeding, must balance the benefits against the detriments to determine which approach is more appropriate for the expanded band.

The Commission also asks whether a processing system consisting first of a one-time filing period, to be followed by a "first-come, first-served" procedure would meet the objectives of essential fairness and reduce any potential processing delays. Also, the issue of what procedure should be used to choose between mutually exclusive applications should be addressed.

New Experimental Licenses

The Commission licensed these new experimental stations:

KA2XIC, HAZELTINE, CORPORATION, Commack, New York station to operate on 162.0 & 408.0 MHz for testing microwave landing systems under US Government contract.

KA2XOY, OHIO UNIVERSITY, Albany, Ohio, station to operate on 5061.0 & 5090.1 MHz for testing microwave landing system under U.S. Government contract.

KA2XTJ, MOTOROLA, INC., New York, New York and mobile within 20 mile

radius, station to operate on 849.6125 MHz fixed and 894.6125 MHz mobile to evaluate the field performance of a new radio communication system now under development.

KA2XTK FAIRFAX VIRGINIA, COUNTY OF, Mobile Within Fairfax County, Virginia, station to operate on 915 MHz for communication link to robot being developed.

KA2XTL GENERAL ELECTRIC RADIO SERVICES, INC., Lynchburg, Virginia, station to operate on 2121.60 MHz for development of equipment for use in linking sites with digital microwave.

KA2XTM GENERAL ELECTRIC RADIO SERVICES, INC., Lynchburg, Virginia, station to operate on 2121.60 MHz for development of equipment for use in linking sites with digital microwave. Verify performance and check maintenance requirements.

The following Stations were granted. Using GOES Satellite transmit collected weather related information in remote areas.

KE2XCJ, NEBRASKA, UNIVERSITY OF, Walsh, Colorado.

KE2XDB, NEBRASKA, UNIVERSITY OF, Stratton, Colorado.

KE2XDC, NEBRASKA, UNIVERSITY OF, Sterling, Colorado.

The following station was granted to conduct simple propagation experiments. The information collected will be used to further educate engineering students and to demonstrate to the staff and general public satellite communications using the ATS Satellite.

KE2XDA, BRIAN D. JUSTIN, JR., Burlington, Vermont.

The following station was reinstated:

KM2XNB, LITTON SYSTEMS, INC., Van Nuys, California.

Propose Allocating Spectrum For Air-To-Ground System

The Commission proposed allocating four megahertz of reserve spectrum in the 849-851/894-896 MHz band for an air-to-ground telephone service interconnected with the Public Switched Telephone Network (PSTN).

The Commission stated that since spectrum has been allocated to other candidate users of this four megahertz, including cellular radio, private land mobile radio, public safety mobile satellite, and Basic Exchange Telecommunications Radio Services, it believes the best use of this spectrum is for an air-to-ground service.

The FCC requested comment on whether the public interest would be better served under a more general mobile service allocation. It said such an allocation could permit air-to-ground or other types of mobile communications. The Commission asked for comments favoring such an approach to address licensing policies, technical restrictions, etc. that would apply to such an allocation, and also requested comments on whether a combination of approaches would be appropriate; e.g., an allocation of two megahertz each to an air-to-ground service and a general mobile service.

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The Commission noted that the considerable marketing information gained from GTE Airfone, Inc.'s experimental air-to-ground service has indicated that the service would be highly attractive to consumers. However, implementation of an air-to-ground service presents several questions on how it will be structured and how many licensees are to be selected to provide the service, the FCC said. Because overall spectrum efficiency might be reduced if the spectrum were divided among several licensees, the Commission tentatively proposed authorizing two megahertz each to two separate nationwide air-to-ground systems, adding that while it might be more technically advantageous to authorize only a single system, two competing systems would likely produce a more desirable service to consumers. Comments are requested specifically on any technical difficulties that might be caused by establishing two systems and on whether two systems of two megahertz each can generate enough revenue to be

economically viable in view of research and development costs and the need for two different ground networks.

While it appears that air-to-ground PSTN interconnected service could be offered either as a common carrier or private telecommunications service, the Commission proposed that in either case the offerings would not be subject to state entry or rate regulation. Depending on the way it is structured, the service could be construed as non-essential, available only to a limited group of users; and therefore, it might be considered private rather than common carriage. Commenters are requested to address whether the service should be treated as common carriage under Title II of the Communications Act or as private carriage.

The Commission pointed out that because aircraft may pass over several states during a flight, it appears impossible to separate the interstate and intrastate air-to-ground messages for purposes of assigning federal and state jurisdiction to regulate rates, conditions of entry and exit and technical and operational standards. Accordingly, the FCC said, if the service were to operate as a common carrier service, it proposed to preempt state authority over rates, conditions of entry and exit and technical and operational standards. Comments are requested on the practicability of separating interstate and intrastate air-to-ground messages for regulatory purposes. Commenters recommending common carrier treatment should address whether the FCC should forbear from rate regulation or apply streamlined regulation established in the *Competitive Carrier Rulemaking* (CC Docket 70-252).

Since the plan is to issue only two air-to-ground licenses, the Commission said, it does not appear necessary to establish in-band technical standards, which can be determined better by the licensees. The FCC noted it was concerned particularly with potential interference to the cellular and private land mobile services which operate on frequencies adjacent to those being proposed for air-to-ground service. In order to minimize potential interference caused by government ship stations operating in the radiolocation service in the 890-928 MHz band, the FCC proposed using the 849-851 MHz band for the ground-to-air link and the 894-896 MHz band for the air-to-ground link.

The Commission also asked for comments on the option of permitting air-to-ground licensees to offer ancillary services, such as paging, digital and other services. Air-to-ground licensees would be responsible for all ancillary operations and would be required to eliminate any interference caused to other services.

In selecting qualified applicants to operate the service, the Commission said it would consider three specific areas: 1) financial qualifications, 2) technical qualifications, and 3) service availability. The Commission stated that it intends to solicit applications at the time final rules are adopted for the service. **PC**

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE

BY JANICE LEE

South Carolina Charges Higher Speeding Fines For Radar Detector Owners

Even though using radar detectors is legal in South Carolina, a Charleston judge is adding an extra $10 to the fines imposed on drivers caught speeding with radar detectors in their vehicles.

A national radar detector rights organization called the practice "unjustified and discriminatory."

Saying that he considers the presence of a radar detector an "aggravating circumstance" in speeding violations, Municipal Court Judge Joseph Mendelsohn claimed, "Whether the piece of equipment is legal or not, the fact of the matter is that it is used for the purpose of violating the law."

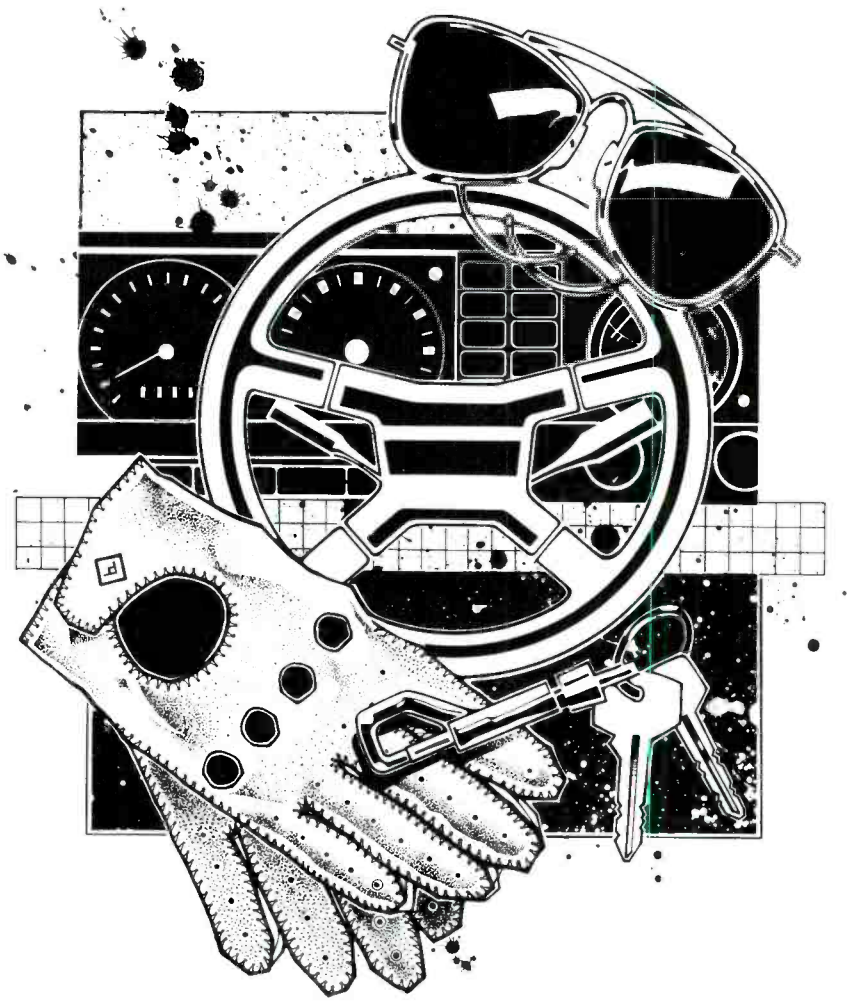
However, the Radio Association Defending Airwave Rights, Inc., an organization concerned with the rights of radar detector owners and the abuse of police radar, said it believes the judge is not making a proper application of the law.

"The state's legislature has not acted to prohibit radar detectors, so we cannot understand how Judge Mendelsohn thinks he can penalize drivers for possessing something that's perfectly legal," said RADAR President Janice Lee. "We find his action unjustified and discriminatory."

Agreeing with RADAR's contentions was state Sen. Glen McConnell, who said "it bothers me when the court superimposes its judgement over the legislative body." He added that such actions "make a hazy line between the legislative and judicial branches."

The Judge's information about radar detector use comes from notations on speeding tickets, but police officials said officers don't always indicate whether a speeding vehicle is equipped with a radar detector.

RADAR's Lee said police radar is prone to bad readings, and that most radar detector owners are law-abiding drivers who use the devices to protect themselves from undeserved tickets. "We pity the radar detector owner who winds up in Judge Mendelsohn's court on a bad speeding ticket," she noted. "That person is likely to be in for two unpleasant surprises."



Texas Study Shows Radar Presence Does Slow Traffic

A study conducted by the Texas Transportation Institute confirms what many radar detector proponents have long contended. Police radar increases the "visibility" of law enforcement and indeed slows traffic.

Work by TTI researchers Val Pezoldt showed that on rural interstate highways the presence of detectable radar slowed traffic from an average speed of 60.8 mph to 58.7 mph.

Though the slowing effect was most pronounced among vehicles traveling faster than 65 mph, Pezoldt said his research did not suggest that radar detectors cause people to drive faster.

"It's conceivable people who buy radar detectors and use them might be driving that speed anyway," he said. "This data really doesn't answer that question."

In the absence of detectable radar, Pezldt found 22.5 percent of the passenger cars and 19.3 percent of trucks traveling more than 65 mph. Once the radar was switched on, 19 percent of the automobiles continued driving about 65, but only 5.6 percent of the trucks did.

"We don't know what proportion out there have radar detectors," he said. "We do know that for the number of over-the-road trucks—semis—the proportion is quite high. Even if a trucker doesn't have a detector, he does have a CB, and he's influenced by someone broadcasting his perception of enforcement."

The technique the TTI researchers used was to use a car equipped with normal police radar and another equipped with radar using a frequency other than X or K band. The car with the undetectable radar drove down the road measuring the speed of oncoming traffic, while the second vehicle followed about five miles behind and measured the same traffic with detectable radar. The first vehicle also carried a radar detector to make sure their observations weren't being influenced by real police radar.

Pezoldt believes his work, indicates police could slow traffic just by broadcasting radar signals from an unmanned transmitter, though Federal Communications Commissions regulations prohibit such tactics. PC

Janice Lee is the Editor of Monday A.M., *the newsletter of Electrolert, Inc.*

CIRCLE 39 ON READER SERVICE CARD

SCAN Photo Winners

(From page 23)

this exciting equipment set-up, he is part of a group that mans a disaster canteen for the Salvation Army and Dallas Fire Department, is a disaster volunteer and a weather spotter for the National Weather Service.

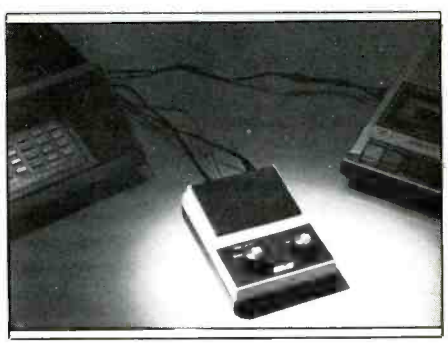
John uses a Regency M-400 scanner, Bearcat 100 and Two-Four scanners, and a Midland 13-525 marine VHF transceiver to keep up with local happenings.

A licensed amateur with the call letters WA5RSS, John also has a Kenwood TS-520 transceiver and R-2000 receiver along with a Realistic CX-200 receiver, Hallicrafters S-380 receiver and Yaesu 227R two-meter transceiver.

His antenna lineup includes a Mosley tribander, two-meter Ringo Ranger, inverted V, Archer all-band scanner antenna and a longwire.

John also has a Westrex fax weather recorder, CU-89 RTTY terminal, KB-2100 monitor and a Heath SB-210 scope.

When he's on the road, John's mobile set-up includes a Regency R-7000 scanner. Congratulations, John!



Winners in the Photo Contest this month receive the BMI "NiteLogger" tape recorder activator. Plugged into a cassette recorder and a scanner, it gives a complete record of all communications with no "dead time" on the tape. If you would like to enter the contest, just send a sharp black/white print to SCAN Photo Contest, P.O. Box 414, Western Springs, IL 60558.

SCANNING TODAY

(From page 9)

could quite literally be putting your life in danger. The enforcement people in Washington also feel that the best action to take is to call your nearest Federal drug enforcement office, even if it is several hundred miles away. They tell me that most local law enforcement agencies are not particularly ready to handle these situations, simply because they come up so seldom and the local agency has many other critical duties. They will be notified by the drug enforcement people if police assistance is needed.

The Feds know who they are dealing with and want to take maximum precaution in keeping you isolated from the situation. You do not need to give your name or phone number. They may, however, give you a registration number to use if you call back with any further information. They also stress that it is important that you call on slightest suspicion. Don't feel guilty that you may be sending them off to investigate something that is probably not drug smuggling at all. They know that 98% of the time it will be a false lead. But as one agent told me, "If we didn't investigate that 98% we'd never get to the 2% we're after." So be alert and call!

Frequency Update Applications Now Being Received

We are very pleased to see the number of volunteer applications being received for our latest frequency file update. As we mentioned in an earlier column, each of these updates usually has a special focus. This update we are concentrating on the new 800-900 MHz band and the many new trunked radio systems coming on line around the country. The SCAN frequency file is unique in that it doesn't rely on FCC licensing data, which often does not reflect the "real world" on frequency usage. Listener reports are the only way to verify that an authorized system is actually up and operating.

If you would like to participate in the latest update, have 800-900 MHz receiving equipment, and are willing to donate 40 or more hours of work to the project, we'd like to hear from you. Why would anyone want to do it? Certainly not just for the commendation certificate and their name listed in the latest edition of the directory. Comments like, "It was a lot of work, but I found out so many interesting things to scan in my area it was well worth it" probably sum it up best. There are a number of participants in past updates who wrote to say that they couldn't wait for this latest update project to begin. It does take a considerable amount of time and commitment, but if you'd like to be part of the project this time around please drop us a note listing the equipment hou have (including 800-900 MHz monitoring capability), the number of years you've been scanning, and any special qualifications, etc. Send to: SCAN Frequency Update Project, P.O. Box 414, Western Springs, IL 60558. You could be selected to join the elite group of SCAN Frequency Project Volunteers!

COMMUNICATIONS SHOP

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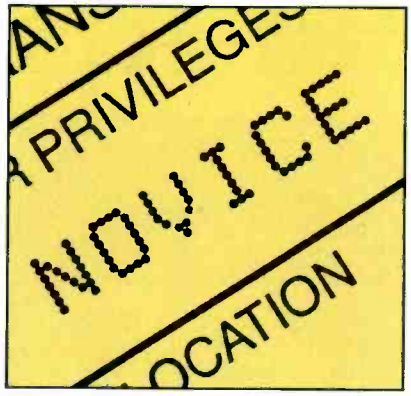

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- **Selectable AGC, RF attenuator, record and headphone jacks, dual 24-hour clocks with timer, muting terminals.**

Optional Accessories:

• VC-20 VHF converter for 108-174 MHz operation • YK-88A-1 6 kHz AM filter • YK-88S 2.4 kHz SSB filter • YK-88SN 1.8 kHz narrow SSB filter • YK-88C 500 Hz CW filter • YK-88CN 270 Hz narrow filter • DCK-2 DC power cable • HS-5, HS-6, HS-7 headphones • MB-430 mobile bracket • SP-430 external speaker • VS-1 voice synthesizer • IF-232C/IC-10 computer interface.

More information on the R-5000 and R-2000 is available from Authorized Kenwood Dealers.

R-2000 150 kHz-30 MHz in 30 bands • All modes • Digital VFOs tune in 50 Hz, 500 Hz, or 5 kHz steps • 10 memory channels • Programmable scanning • Dual 24-hour digital clocks, with timer • 3 built-in IF filters (CW filter optional) • All mode squelch, noise blanker, RF attenuator, AGC switch, S meter • 100/120/220/240 VAC operation • Record, phone jacks • Muting terminals • VC-10 optional VHF converter (118-174 MHz)

Specifications and prices are subject to change without notice or obligation.

KENWOOD

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CIRCLE 64 ON READER SERVICE CARD