Broadcast Jamming: Is It Over?

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- Risky Air Rescue Comms
- WBTP: The Station That Wasn’t Found: 1 Spy Radio!

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This month's cover: VOA transmitter site south of Munich at Holzkirchen, Germany. Photo by Larry Mulvehill.

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THE MONITORING MAGAZINE

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Moon, June, Ruin

For those who were too clumsy to let near the high school woodwork shop's bandsaw, and who couldn't be trusted not to burn down the building while attempting sweat soldering in the metalwork shop, there was an alternative. When all else failed, there was always Mr. Costa's electrical shop. This was the shop class of last resort where the school probably figured the worst things that could happen were a few shocks and popped fuses, although the teacher wasted no time in assuring us that the hope was that at least some of us would get electrocuted since there weren't any other shop courses in which to enroll us.

For me, in 1949 at age sixteen, I looked forward to Costa's class. He was a crusty character who promised to teach us something about radio. I was a confirmed radio nut. This was my kind of class.

The first couple of weeks we spent making different splices and learning how to use a soldering iron. Then came the good part. Costa invited each shop student to purchase a Meissner receiver kit and we would build them. This is what he had become famous for. If you took woodwork shop, you emerged with bookends and a useless (in New York City) birdhouse. The metal work shop ended you up with a pair of hideous tin candlesticks. But when you got out of Costa's electrical shop, you had a working radio, albeit a simple circuit with plug in coils.

Each of us built our own regenerative receiver with loving care. After several weeks they were all finished. A few actually worked on the first try. Those that didn't work, Mr. Costa would tinker with until they'd begin to work. As little, basic, and dinky as these receivers were, when you built one and finally got it working you really felt a sense of accomplishment. It was as if you had assembled some major piece of highly sophisticated electronic hardware and were well on your way to being admitted to M.I.T.

One of the things about these regenerative sets was that they were prone to interacting with other receivers. Sometimes, I'd be minding my own business, sitting with my headphones on, listening to Casey, Crime Photographer or Mister District Attorney, and I'd suddenly find myself listening to the squeal sent out by one of those receivers in the neighborhood.

That's the way it was one June evening when I became aware that someone had tuned their receiver so that the program I wanted to hear was buried under a terrific howl. After a few minutes of trying to endure this mess, I retaliated. Grasping the tuning control, I swept it back and forth in the hopes of giving the other set owner a dose of his own medicine.

As soon as I stopped, the owner of the other set responded by doing the same thing. Just to confirm that it wasn't an accident, I tried it again. Same response. Primitive two-way communications had certainly been established. But with whom? And where? I was on the fourteenth floor of an eighteen story building, with other tall buildings all around.

For several subsequent nights I was able to engage in this same contact, either initiating the exchange or responding to the wavering invitation signals from the other station. While there wasn't any sense at all to these communications, to a sixteen year old who was fascinated by radio, it was enough to maintain some level of interest. Then, something amazing happened. One evening, the other station didn't do its usual wavering. Instead, the signal went on and off, slowly, and in a pattern. It was CW, just one letter repeated several times. I responded as soon as it stopped, but all I could do was vary my set's tuning knob in reply.

The following day, I hooked up a CW key to the receiver's longwire antenna. I didn't know a dit from a dah, but the other operator didn't seem any to be any more proficient than I was. When the other station began sending its single letter to me, I repeated it back. We then went on to the other letters at random, ending the evening's communications with a recap of all of the letters and numbers that had been sent.

Within a couple of days, we began attempting to exchange very simple messages in slow, faltering, error-ridden CW. I was holding a CW chart in one hand while this took place. The other operator was obviously doing the same. Each simple exchange of information those first few nights seemed to take forever.

The other operator provided the handle Mickey. I had gone through school with a guy everybody called Big Mickey. He was the class dork, the kid who ate pencil erasers, library paste, even gerbil food. This guy was two years older than everyone else in the class, he could turn his eyelids inside out, and had an aversion to tying his shoelaces. This was the only Mickey known to me and there was a horrible thought that I had just devoted all of this time exchanging
Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted for consideration must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Knettel, Editor, Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801.

An Alice By Any Other Name
Recently, at a social gathering, I met your columnist, Alice Brannigan. I found her to be a very pleasant person, and was surprised when she told me that more than a year ago she had OK'd the magazine's use of her real name on bylines, but that you had turned down the idea. I hadn't heard this before and am curious as to why the change has not been made.

Vendel Boeree, WA2LIP,
Bay Shore, NY

What, and spoil everybody's fun? That she had approved our (optionally) using her actual name isn't any big secret. I even spoke about it over the air months ago when I was on Pat Murphy's program over WNIS in Portsmouth, VA — Editor.

Armored DX
I'm a POPCOMM subscriber and wanted to let you know about a strange contact recently. I was in a USMC armored vehicle engaged in a training exercise at Fort A. P. Hill, VA. Our callsign was "Green 2." At this time, I heard a station calling itself "Skywatch" coming through on our frequency of 38.35 MHz. "Skywatch" told us his location was Fort Collins, CO and said something about the frequency being authorized by the FAA. This contact was at 1200 local time. Would appreciate if any reader could provide any specific information on this unusual skip contact made from a USMC armored vehicle on the high ground at Fort A. P. Hill.

L/Cpl. Tietman Leavy,
P.O. Box 147,
Jacksonville, NC 28540

The 30 to 50 MHz "low band" is getting really hot these days. If any reader has information on the Fort Collins station, contact L/Cpl. Leavy directly — Editor.

Skippin' On Towards France
Skip DX reception above 30 MHz has captivated me! I have managed to identify commercial, public safety, and federal government stations in many states, Canada, and throughout Latin America in the "VHF Low Band." Can anybody help me identify an apparent broadcast station (French speaking) operating on 50-10 MHz in the 6 Meter ham band? Sometimes that comes through during band openings, along with European hams.

L. J. Ricks, KR1IKG,
Pawtucket, RI

Your mystery station on 50-10 MHz is the studio/transmitter link used by an FM broadcaster in France. That station is "Radio France Bordeaux Gironde," which runs its regular broadcasts on 100.1 MHz. Their address is Post Office Box 585, 33006 Bordeaux Cedex, France — Editor.

Card Quest
After sending out exactly 100 SWL cards containing detailed reception reports to American and Canadian ham operators, I must sadly report that I got back a total of 17 ham QSL cards. While I didn't expect a 100% return, I thought I'd receive 75 to 80 QSL's in return. This was certainly a very disappointing experiment for me. You'd think that a QSL card in response to a SWL card would be regarded by most hams as a wonderful encouragement to join the ranks of ham radio. It sort of discouraged me about getting into that hobby.

Bill Christiansen,
Wausau, WI

By "that hobby," I'm not sure whether you mean ham radio or sending out SWL reports to ham stations. Years ago you might have been able to expect about a 60% return, with the majority of QSL's containing a few words suggesting that you get yourself a ham ticket and join the fun. These days, printing costs and postage rates are such that many hams don't even seem to QSL 100% on their actual contacts anymore, saving their pasteboards and postage only for those whose cards they need to qualify for awards. Chances are that 15 of the 17 QSL's you got came from oldtimers who got started in radio by sending SWL cards to hams. So, I wouldn't let your low response discourage you about getting into ham radio. You might, however, wish to reconsider your participation in the hobby of sending SWL cards to North American hams in order to acquire some decorations for your radio room walls. You'll get a better return from Shortwave broadcasters — Editor.

Pirate QSL Problem
A number of months ago, per announced instructions by pirate station WROX, I sent a reception report for the station in care of Popular Communications. The hope was that I would receive a QSL in return. For my troubles I received nothing. If POPCOMM is going to make these kind of arrangements with such stations, then I would expect that you'd take your responsibilities with some diligence or else provide a better address for QSL requests.

Ted Orjelick,
Hamden, CT

We have never agreed to act as a mail drop for any pirate station or stations. Still, many stations have advised listeners to send reception reports to them in care of our offices. It's rather a cruel deception to hobbyists who are so anxious to get the rare pirate QSL's that they're often willing to use any mail drop address that's announced. As we have mentioned numerous times in the magazine, all such letters are thrown out when they arrive here. Although we don't keep any totals, last year alone we tossed out well over a hundred letters sent to us for forwarding to pirates WFIX, KBFA, WROX, Wabbit Radio, and several other stations. Pirate station addresses, when known, are presented in our "Pirate's Den" column. — Editor.

Would Get A Ham Ticket, If Only . . .
With regard to the question of whether the code (CW) requirement for a ham radio license should be retained or dropped, I'd like to offer my opinion. Nothing I've yet read on this debate has pointed out that inasmuch as keyboards can be interfaced with amateur equipment to send code, and many CW "reading" terminals are available, these devices have relegated manual telegraphy transmission and reception to that of a non-essential curiosity. Under the circumstances that a person is still being compelled to demonstrate a working knowledge of CW, even if they never intend using the mode, they should also require a person to pass a spelling test! I'm an avid scanner monitor. By profession, I'm an engineer with a major electronics firm. I would very much like to obtain an Amateur Radio License. However, just as a matter of principle, I refuse to waste my time learning and then demonstrating the knowledge of a mode in which I have no interest, and which is not even used in the UHF portion of the spectrum where I would be operating. I applaud the position Popular Communications has taken on this matter.

Thad Deveroux,
Chicago, IL
A Worthy Cause

It has been three years since I became aware of Popular Communications through the article you ran in the June '85 issue entitled “Father Murgas: Radio's Forgotten Genius.” The article has been very helpful in drawing attention to this inventor whose wireless patents from 1903 predate Marconi’s. We have been endeavoring to convince the U.S. Postal Service to issue a commemorative postage stamp for Slovak Heritage which depicts Fr. Joseph Murgas. Two Pennsylvania State Resolutions (SR 82 of 1985, and HR 25 of 1987) have recognized Fr. Murgas, but we still have not been successful with the Postal Service. We invite all of your readers to write to the U.S. Postal Service on behalf of this unrecognized genius. We can use all of the help/support we can get. Readers wishing additional information may contact our organization.

John J. Kovalic, Chairman
Slovak Heritage Stamp Committee
739 Deutch Ave
Middletown, PA 17057

This is a worthwhile cause which we at POPCOMM wholeheartedly support. Murgas had to show Marconi how to send wireless messages over land. Murgas did it all before Marconi—a documented fact. Now let’s help to finally get this good man the recognition he deserves. —Editor

Scare Tactic

Your thoughts on instituting a ham license without the code requirement posed worthwhile food for thought. From what I understand, though, there is some concern that such a move could cause the ham bands to become inundated with outlaw operators moving out of their present 27.415 to 27.995 MHz band.

Laurence Hotchkiss
Little Rock, AR

I’ve heard that, too, although I don’t see any particular reason why instituting a no-code ham ticket would trigger such a calamity. Outlaw operators have been using 27.415 to 27.995 MHz for many years now and they seem quite happy there chatting with others of their ilk. Only rarely have any of these people wandered above 28 MHz to attempt bootleg ham communications, although their equipment is easily able to do so. The truth of the matter is that a considerable number of these people already have ham licenses, but operate on “Freeband” simply because they like the people who operate there. While a no-code ham license would probably cause many “Freeband” operators to obtain such licenses, “Freebanding” appears to have a loyal following of operators who will remain there because they have no interest in becoming involved in ham radio. Basically, my own views of the concerns you mention are that they are without merit and are grasping at straws by those who don’t want to see a no-code ham license, and who have absolutely no knowledge at all of the “Freebanders.” Between you and I, Larry, other than the fact that “Freebanders” are operating without licenses, they seem to be reasonably good folks who are hardly the wild eyed and irresponsible crazies that some folks would have you believe. When the FCC catches these people they put them through the wringer, which is a chance they have elected to take for their own reasons. For the most part, however, they mean no harm to ham radio. The only real threat they pose is to the FCC’s regulations and to themselves. —Editor

RTTY A La Mode

The RTTY section often contains listings of stations utilizing ARQ-E mode. I have tried tuning in these stations, but my RTTY terminal doesn’t appear to be able to copy this mode, even when set to copy ARQ stations.

Sandy Bucznynski, KOR7RB
The Dalles, OR

ARQ-E is a synchronous single-channel full-duplex mode that is different from what your unit identifies as “ARQ” mode. Until now, you only certain European-made RTTY readers could copy ARQ-E signals. Inasmuch as the mode is beginning to gain in popularity, it (and another mode known as ARQ-E3) is included in the features of the Universal M-7000 Version 2. Owners of the original M-7000 (Version 1) can retrofit their units by changing a single chip, which is available for relatively low cost from Universal Amateur Radio in Ohio. —Editor

Hard Cell

You have taken frequent digs at cellular telephones, yet in the December issue, you said that you have a cellular telephone. Me-thinks I detect doublespeak.

Anthony Beneggia
Winchester, IN

I have two cellular ‘phones, one aboard my boat and the other in one of my cars. These have been mentioned in these pages several times and they’re extremely useful. My quarrel has never been with the technology. I do, however, think that there is a definite sleazy factor involved in other some aspects of the industry behind CMT’s. I don’t like the smell of the Electronic Communications Privacy Act and the way the industry slipped past politicians who hadn’t the foggiest notion of the true issues involved. I think the cost of the equipment is twice what it should be, as is the cost of air time to use the equipment. Furthermore, I feel that the practice of telling the public that they have a CMT for “99 cents a day” without stating that using the thing may add as much as $200 (or more) per month to the tab, is really raunchy.

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Victory In Scanner Labeling/Manufacturing Ruling!

To those who are skeptical about how your government agencies work—especially in cases where commercial interests with almost unlimited resources are involved—take heart! The Federal Communications Commission has proven again that it does listen to organized citizen groups and is willing to make fair rulings in the face of enormous opposing pressure influential special interests.

For those of you unfamiliar with the background of this case, the FCC action culminates years of action by SCAN to protect the traditional American right to free access to the airwaves. Beginning with efforts by some interests in the cellular telephone industry to ban scanners, or at least restrict their frequency coverage, SCAN was successful in having any manufacturing ban included in the Electronic Communications Privacy Act. Having been defeated in the Congress, these same interests began pressuring the FCC to ban manufacturing. In an effort to head off this attempt, Regency Electronics in 1987 suggested that the FCC require warning labels on scanners.

A special acknowledgement should be given here to the many SCAN members who donated money to the SCAN Legal Defense Fund, allowing us to obtain top-notch legal assistance in Washington. The pertinent parts of the FCC Report and Order are reproduced below . . . .

Introduction

1. By this action, the Commission is terminating this proceeding without adopting the proposed rules to require advisory labeling of scanning radio receivers and manually tuned radio receivers that are intended for use by the general public and are capable of receiving communications protected by the Electronic Communications Privacy Act of 1986 (ECPA).1

Background

2. The ECPA was enacted expressly to extend the protections of the Omnibus Crime Control and Safe Streets Act (Safe Streets Act), 18 U.S.C. Sections 2510-2520, to radio communications. Generally, the Safe Streets Act, as modified by the ECPA, now prohibits, unless one party consents or a court order has been obtained, the interception of all forms of common carrier communications, expect cordless telephones and tone-only paging communications, and of any non-common carrier or private radio communications when they are encrypted, scrambled, or “transmitted using modulation techniques whose essential parameters have been withheld from the public.”2

3. On March 31, 1987 Regency Electronics (Regency) submitted a petition for rule making requesting that the Commission amend Part 15 of its rules to require the following advisory label on radio frequency scanning devices: “Improper use of this device may violate the provisions of the Electronics Communications Privacy Act of 1986 through the intentional unauthorized interception of protected radio communications.”3 Regency stated that requiring labeling would help educate the public that certain uses of scanners could be illegal in light of the ECPA.

4. In response to the petition, the Commission, on May 27, 1988, adopted a Notice of Proposed Rule Making (Notice) in the above-cited proceeding.4 The Commission observed in the Notice that, while the ECPA placed no direct obligation on the Commission, the Senate Report that accompanied the ECPA indicates that labeling of devices might be an acceptable method of fostering compliance with the law.5 Moreover, the Commission tentatively concluded that a label appeared to be the simplest and least burdensome method of advising general radio receiver and scanner users of ECPA prohibitions.6 The Notice proposed that scanners and manually tuned receivers intended for use by the general public and capable of receiving protected communications be required to bear an advisory label concerning the ECPA. The Notice did not propose specific wording for the label, but instead requested comments as to the appropriate wording and message content of the label. Comments were also requested regarding the appropriate location for the label as well as the possibility of requiring not only a label but some accompanying instructive material pointing more specifically to communications intended to be protected by the ECPA.7 The Notice also addressed the possibility of technically “blocking” frequencies which carry protected communications. The Commission noted, however, that this approach may not be practical because many frequencies are used for both protected and unprotected communications. Comments were filed by ten parties and reply comments were filed by four parties. A list of the parties filing comments and reply comments is contained in appendix A.

Comments

5. The comments received in response to the Notice were primarily from two groups, cellular radio telephone interests, and organizations whose members have a common, active interest in the recreational monitoring of the radio spectrum.8 All of the comments oppose the specific proposal set forth in the Notice, but for different reasons. The cellular radio telephone group believes that labeling is an insufficient means for ensuring the ECPA intended protection of cellular communications. Some commenters argue that a warning label, by calling attention to the prohibited activity, might actually encourage violations of the ECPA. Other commenters argue that compliance with an advisory labeling requirements may shield manufacturers from liability for violations of the ECPA. Telocator expresses this concern when it states that, “by reducing the manufacturers’ risk of liability the Commission, may in turn, also reduce the economic incentive of the manufacturer to modify its receivers in a manner that will prevent the unauthorized interception of protected communications.”9

6. The recreational radio monitoring interests agree that some communications should be protected, but disagree with our proposed method. The Scanner Association of North America (SCAN) in its comments asserts that if labeling requirements for receivers are adopted, then transmitters capable of transmitting protected communications should also be labeled to alert users that their conversations may be monitored. SCAN suggests that, in addition to the advisory label, a clear explanation be contained in the owners manual or elsewhere defining “protected communications.” SCAN goes on to explain that, without such an explanation, the label may merely serve to disturb the consumer, or might convey the wholly unwarranted and highly objectionable impression that the mere possession of the device is a violation of the ECPA. The Association of North America Radio Clubs (ANARC) agrees with SCAN that information sufficient to deter violations of the ECPA cannot be contained on a label and suggests at least a full page statement devoted to explaining the provisions of the ECPA contained in the instruction manual accompanying the device.

7. Two commenters, Telocator and ANARC, contend that it is premature to consider actions concerning the ECPA since the law has been in existence for only a short time.10 Telocator and ANARC argue that there has not been a demonstrated need for the Commission to take any action concerning the provisions of the ECPA. They indicate there was no evidence supplied in support of Regency’s petition nor any evidence submitted that the ECPA is in-
Uniden Corporation of America has purchased the consumer products line of Regency Electronics Inc. for $12,000,000. To celebrate this purchase, we're offering our largest scanner sale in history! Use the coupon in this ad for big savings. Hurry, offer ends September 30, 1989.

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CIRCLE 92 ON READER SERVICE CARD
The Jamming Stops—Free Air At Last

What's Behind The Recent Cessation Of International Broadcast Jamming? Is It Too Good To Be True. What's Next?

BY GERRY L. DEXTER

We all know that elephants are mighty heavy creatures. But the fact isn't really brought home to you unless one of these Dumbos happens to step on your toe. We all know that Washington is crammed with thousands of lobbyists, but most of us never really felt their presence until some among them brought about the Electronic Communications Privacy Act.

The steady stream of news about the new openness in the Soviet Union and the remarkable changes in its stance on the world stage, again, may have been noted, but not really have sunk in with many of us. Not until one such change hit us right in the shortwaves. Over a few weeks' time in late 1988, the Soviet Union and its East Bloc friends ceased virtually all jamming of western shortwave broadcasts.

Sign some treaties, let some dissidents leave, permit commercial advertising in state newspapers—that's all wonderful—but the end of jamming touched us directly. Even if we had heard or read absolutely nothing about all the other changes the end of jamming, in and of itself, would speak volumes.

Since the early 1950's, when the communist world got into the practice in a really big way, they've been condemned for it again and again. Various world agencies and international agreements including committees of the United Nations, the UN's International Telecommunications Union, the Helsinki Conference on Security and Cooperation in Europe and, of course, the nations and broadcasters which were targets of the jamming effort all raised protests. On a very much smaller scale, so did various hobby groups.

In the 1950's and 60's, Arthur Bear, head of the England's International Shortwave Club waged a one man campaign—to the point of obsessions—to try and bring an end to jamming. Members were asked to have no correspondence with stations in countries engaging in jamming—indeed, to boycott listening to broadcasts from the guilty countries. Like the other efforts by hobby groups, Bear's campaign, even though it ran for years, had all the effect of a flea taking a bite out of a rhino.

Who Started It All?

The Soviets did not invent jamming. The Germans did, and well before World War II. The first use of jamming is generally thought to have occurred in 1915, during the first World War when the German Post and Telegraph Office put a 5 kW station on in order to jam coded messages being transmitted between Paris and St. Petersburg (France and Russia were allies against the Germans). In 1934 the Austrian government jammed propaganda broadcasts from Nazi Germany. Once World War II got going, nearly everybody was jamming everybody else, using various methods and for a multitude of reasons, including a desire to block the enemy's broadcasts and the hope of disrupting his battle communications.

The end of the war saw jamming nearly vanish from the airwaves, however briefly. The defeated enemy was hardly in a position to be concerned about such things and the US and USSR were enjoying an all too brief period of more or less friendly relations.

It did not last. In 1948, the Soviets placed a dozen or so jamming stations on the air in an effort to block reception of the Voice of America's Russian service.

Getting Serious

Then they got serious. Just two years later the Soviet Union was estimated to have some 400-500 jamming stations in operation. Another year later, the USSR's East Bloc friends joined the campaign and, by 1952, there were an estimated 1,000 active jammers. By the mid-1950's that figure had been raised to between 2,000 and 3,000! Fortunately, it was never revised upward any further.

The dramatic increase in the jamming effort in the early 1950's was a direct result of the start up of Radio Free Europe. RFE, initially, was cloaked as an independent station but was actually a CIA operation though it later became an open and directly funded US government station. RFE beams broadcasts to the Eastern Europe countries, serving as a sort of surrogate home service.

In 1953, a sister station, Radio Liberation (now Radio Liberty) began broadcasts in native languages (mostly Russian) aimed ex-
clusively at the Soviet Union and jamming efforts against that station began immediately.

All along, the Soviets have had a particular hatred of RFE/RL. The stations have been denounced on numerous occasions by official Soviet media. A few years ago a movie about the station—"Can Can in An English Garden," played to packed movie houses in Moscow. The plot had a KGB agent infiltrating the station's Munich headquarters and discovering it to be a tool of the CIA, run by drug dealers and perverts.

Ebb And Flow

There have been many ups and downs in jamming efforts over the four decades its been used by the USSR and its satellite nations. In 1956 the Poles lifted jamming against RFE's Polish service. But in 1970 they resumed it when worker riots hit several cities. The international service of Radio Warsaw, as it was called then, had to be cut back so some of its transmitters could be used for the task.

Jamming fell off somewhat in 1963, after a nuclear test ban treaty was signed and oth-
er east-bloc nations eventually began to reduce their efforts here and there—some experts think that was due as much to the expense involved as anything else. Jamming jumped up again in 1968 after the Soviet invasion of Czechoslovakia. Another significant upsurge occurred around 1980, after the USSR invaded Afghanistan. Charted with a rising/falling red line, jamming activity over the last ten years or so might give the appearance of a business with a declining sales trend.

The Voice of America and RFE/RL certainly haven’t been the only one’s on Moscow’s hit list. The BBC, Voice of Germany, Voice of Israel—even Radio Peking (Beijing) was a target for much of the period during which the two nations were most at odds. In fact, the well known Radio Mayak (Lighthouse) service is said to have had its origins as a jamming operation against the Chinese. Moscow also used a technique in which it simply rebroadcast China’s own programming on frequencies which carried Beijing’s Russian service.

Many of the Russian jamming stations “identified” themselves—sending a double letter or letter/number combination every minute or so, so that Soviet engineers could track the effectiveness of the stations. Often there would be a number of jammers on a single frequency, all of them targeting the same service. Western experts have estimated that there were anywhere from 5,000 to 15,000 people employed in the Soviet jamming industry, an effort said to have cost as much as $1 billion a year in recent years.

Even with all of that effort, some broadcasts got through. Stories of city residents driving into the country to hear the broadcasts, of various programs being transcribed and passed around, are common.

No “All Clear” . . . Yet

The Russians and East Europeans have hardly been the only guilty parties in recent history. Many countries have used jamming as crises developed or pocket wars flared up. England has jammed the Voice of Greece and the offshore pirate radio station Radio Northsea International (around 1969-70). Greece and Turkey jammed each other’s broadcasts to Cyprus, Israel and Egypt have both jammed broadcasts from various Arab nations at various times.

Please send all reader inquiries directly.

The Smith regime in Rhodesia (Zimbabwe) jammed broadcasts from the BBC’s Botswana relay station, far right regimes in Chile have jammed Radio Moscow and Radio Havana Cuba.

Actually, the jamming has not fully stopped, even today. Voice of America broadcasts in Dari and Pashtu, beamed to Afghanistan, are still jammed (though the “Radio Free Afghanistan” service being carried on RFE/RL facilities is apparently clear.) Deutsche Welle’s broadcasts to Afghanistan are also still being jammed.

Bulgaria religiously jams the Bulgarian language program from Vatican Radio, along with those from Radio Tirana, the Voice of Greece, Italy’s RAI, Radio Beijing and the Voice of Turkey. China—despite the occasional hand of friendship offered to Taiwan, still attempts to block broadcasts from Taipei. The Iraqi “bubble” jammers are still at work against Iran, music jammers and other techniques are used against the FMLN’s clandestine Radio Venceremos and there are a number of other instances of this type. This sort of thing is always going to be with us, no matter how cozy relations between the big powers may become.

This end, or near-end, to jamming is creating some additional benefits besides a reduction in interference. It’s not necessary to employ so many transmitters to get the program through to the target area now so the VOA, at least, is cutting back on the number of frequencies it employs for certain services.

The end of jamming also raises an eyebrow in another area: what use, if any, will Moscow now make of all those jamming transmitters? If you are reading this in the embassy, comrads—more Radio Moscow—Radio Peace and Progress-Radio Atlantika—Radio Mayak—Radio Rodina frequencies we don’t need.

For the moment, at least, things from a jamming standpoint are better on the short-wave dial than they’ve been in 41 years. For that we can only say “Thank you, Mr. Gorbachev!”

And, goodnight Arthur Bear, wherever you are!

Red Letter Dates On The Road To Jamming’s End

May 25, 1987—USSR stops jamming nine regional VOA broadcasts directed to the Soviet Union and those of RFE in Russian and Baltic languages.

January, 1988—Soviet Union discontinues jamming the BBC’s Russian broadcasts.

November 29, 1988—Soviet Union discontinues virtually all jamming efforts against western nations including those of Radio Liberty Voice of Germany, Voice of Israel.

December 16, 1988—Czechoslovakia stops jamming RFE.

December 23, 1988—Bulgaria, last to jam Western broadcasts, ceases jamming against RFE.
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.
If you've been paying attention to your scanner, you may have noticed that this time of year the 30 to 50 MHz "low band" is hopping with distant stations—police, fire, federal agencies, forestry, industrial, military, and transportation. Mixed into this orderly assortment is yet another group of stations, an eerie and bizarre collection of unlicensed and unauthorized stations that may or may not be used in conjunction with legitimate activities.

This is what I call the Bandido Band. Inasmuch as the stations have no band plan and just spring up anywhere between 29.70 and 50 MHz, the whole 20 MHz is included in my definition. Seeking out and spotting these stations as they play hide and seek amongst the licensed stations is a truly exciting challenge, made even more so by the fact that their signals are skipping in from hundreds and then thousands of miles away, thanks to seasonal factors.

For example, from my location in Illinois, I often hear a Spanish speaking drug trafficker in Miami, Florida. He's running his own private full-duplex mobile telephone system on 29.825 MHz. Sometimes there's a little English sprinkled in to the conversations between his base and one mobile unit. Many addresses in Miami and Key West are openly mentioned.

While the operator of this unlicensed system seems to be a wildly exuberant party animal, many of the folks he calls up on his bootleg car phone are either circumspect or downright paranoid. Still, in all, his system is easily the most exciting "commercial" pirate system I've yet cracked.

**Miami Bandidos**

Miami and its environs has become a city of international intrigue of the highest magnitude. It's every bit what Hollywood said of Morocco of the 1930's, or West Berlin of the late 1940's. Drug smugglers, industrial spies, organized crime, competing paramilitary groups, and vaguely connected federal agents are as common as coconuts. Very strange communications, both legal and otherwise, pour out of Florida in a never-ending stream.

Privately operated telephone systems seem especially popular throughout Florida, like the full-duplex mobile telephone comms on 47.65 MHz (English) from the Tampa area. The frequency drops neatly between FCC allocations for industrial and highway systems but is, itself, a phantom.

On 47.83 one fellow was recommending his bootleg telephone to a pal, explaining that if it set him back "$2,800 U.S." Other Florida duplex telephone systems (English) have also been logged on 47.47 and 47.77 MHz, all bootleg.

No shortage of full duplex Spanish systems either. Since they are heard along with other skip reception from Florida, I assume that at least some are from Florida. Some may possibly be from Cuba or the Dominican Republic. Check these telephone systems out on 47.53, 47.59, 48.93, 48.95, 48.97, 48.99 and 49.11 MHz.

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The AS-1729/VCR is a surplus whip antenna assembly that provides for transmission and reception between 30 to 76 MHz, in ten selectable bands. RF power-handling capability is 70 watts. It also makes a good scanner antenna in high-noise areas where RFI rejection is desirable. Bands may be selected manually by a switch on the antenna's base, or remotely by a 24VDC solenoid. Available from Fair Radio Sales, Lima, OH.
Table I

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Receiver 1</th>
<th>Receiver 2</th>
<th>Receiver 3</th>
<th>Receiver 4</th>
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<tr>
<td>29.7*</td>
<td>30.96</td>
<td>32.96*</td>
<td>35.12</td>
<td>35.88</td>
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<tr>
<td>30.71*</td>
<td>30.98*</td>
<td>33.00*</td>
<td>35.14</td>
<td>35.90</td>
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<td>31.10*</td>
<td>34.98*</td>
<td>35.72</td>
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<tr>
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<td>31.16</td>
<td>35.00*</td>
<td>35.74</td>
<td>35.98</td>
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<td>35.76</td>
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<td>35.02*</td>
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<td>32.00*</td>
<td>35.10</td>
<td>35.86</td>
<td>42.96</td>
</tr>
</tbody>
</table>

New York City taxis use many frequencies, some legally, others illegally. Radio pirates are marked with asterisks.

High Seas Bandido

Two unidentified vessels in the Gulf of Mexico have illegally set up shop on the Forestry Conservation Radio Service frequency of 31.70 MHz. Conversations in both Cajun and English and low signal levels are the earmarks of these ship-to-ship comms.

The vessels travel to some point in the Gulf where they rendezvous with another vessel, then they return to port (possibly on the Louisiana coast). What the operators of these vessels are up to, or why they are operating without authorization on this frequency, remains a tantalizing question. Punch up 31.70 MHz and drop anchor there until the next time skip comes rolling in from the Gulf. What are these secretive vessels all about?

Of course, you could speculate that these vessels are smuggling some sort of contraband since there's lots of it going on in the Gulf. Ships show up from various Caribbean ports and lie about 200 miles offshore. Smaller, faster vessels leave from Gulf ports and load up from the offshore vessels, then try to slip back to port without being noticed or caught. If you listen on 37.00 MHz, you can sometimes hear the USCG board and search operations in the Gulf ("Deathdealer Base").

Another Forestry Conservation frequency, 31.22 MHz, is being used by an air conditioning service near a place with a name that sounds like Plum Grove. Listen to the good ol' boys use colorful language and brag how they're soaking their customers: "Get $120 for the job and put $50 in your pocket."

San Francisco Bandido

A Bay Area bootleg mobile telephone system has been using full duplex for years on the creative frequency of 30.225 MHz. The professional sounding chap who uses this telephone often calls his wife and also a traffic report phone-in service.

Los Angeles Bandido

A plumber in the L.A. area seems to be running standard high power base/mobile operations on 35.02 MHz, which is supposed to be used only for low power (2 watt) comms.

New York City Bandido

New York City has more bootleggers in this band than anywhere else. So called "gypsy cabs" (that is, unmetered taxis, usually operated without benefit of the proper licenses required by the Taxi and Limousine Commission) are apparently the sources of most of these signals. Listen for Spanish language communications from the gypsy cabs.

While, at first hearing these stations, you might think you were picking up skip from Latin America, listen more closely. Even if you can't understand the language, you notice mentions of destinations that are strictly from the Big Apple, such as Brooklyn, Bronx, Kennedy (International Airport), LaGuardia (Airport), Broadway, Washington Heights, Jackson Heights, flushing, Jamaica, etc.

Frequencies already logged as used by New York gypsy cabs include those shown in Table 1.

Another taxi fleet operates on 38.00 MHz.
MHz, a frequency reserved exclusively for radio astronomy monitoring. The communications are a combination of Russian, Yiddish, and English. The presumption is that this fleet is operated in and around the Brighton Beach area of Brooklyn since many recent Soviet immigrants have settled there.

A Korean language base/mobile system is regularly monitored on 35.05 MHz. Possibly it is a food delivery service. The frequency falls between FCC business allocations and doesn't officially exist.

A wrecker service (English language) operates on 30.71 MHz. A parcel delivery service is usurping the Forestry Conservation channel 31.30 MHz. The parcel service has its base station in Manhattan, but dispatches trucks to all areas and airports.

A novel twist by Big Apple is the use of AM instead of the usual FM. Like the Spanish dispatcher running AM on 31.10 MHz—a frequency authorized for FM use by the N.Y. City Transit Authority.

The low power (2 watt) frequency of 30.84 MHz has a high powered Spanish language business station in residence. Another similar frequency, 33.14 MHz, has an English/Spanish taxi service operating full time with high power.

One cab service is on the Forest Products Service frequency of 29.79 MHz. No less creative are cabs that operate on federal government channels such as 32.00, 32.96, 33.00, 34.98, 35.00, 36.02, 36.04, 36.92, and 38.00 MHz.

One even suspects that actual FCC-allocated business frequencies even host their own share of piggybacking Bandidos. Frequencies 31.20 and 31.24 MHz are used by three or more competing dispatchers who never offer any callsigns or ID's. It's impossible to sort out who's legal and who's not.

A Brooklyn bootleg duplex mobile phone system operates on 34.95 MHz with much casual chatter and talk of blueprints. Another system is on 46.65 MHz, and is most definitely not a cordless phone base.

Some youngsters have set up a full duplex pirate telephone system on 30.05 MHz and mostly discuss partying. Dial tones are heard on 31.06 MHz, where they don't belong.

**Canadian Bandido**

Although Canadian frequency allocations march to a vastly different drummer than those in the U.S., legitimate maritime mobile comms in Canada don't take place in the VHF low band. Yet, when the skip begins rolling in from Canada, the frequencies produce their share of Canadian fishing boats.

Some of these stations use speech inversion scramblers, or (as on 31.38 MHz) time to main scrambling. You somehow get the impression that this band is a paradise for unauthorized communications of the Canadian fishing fleet. No doubt about the fact that commercial fishing is highly competitive, so offbeat frequencies and voice scramblers probably give sure some degree of message security. Frequencies in Table II have produced much of this Canadian fishing fleet traffic, which comes from both the Atlantic and Pacific areas, as well as the Great Lakes.

Those frequencies sent in the clear (unscrambled) reveal lots of salty chatter while waiting for the "smilies" (fish) to be hauled in. Sometimes it sounds like there are liquid refreshments available while waiting.

**Discovering New Bandidos**

Bandidos can turn up anywhere, but some frequencies are better bets than others. For instance, 30 to 32 MHz channels allocated by the FCC for State Conservation agency use. FCC license records indicate that there are relatively few stations licensed on these frequencies anymore. They are listed in Table III for your reference.

Their somewhat inactive status seems to have acted as an implied invitation to Bandidos, even those channels 31.14 and below...
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Telephone (415) 591-1400
Outside CA (800) 233-5973 Telex: GRE BLMT 17-2069 Fax: (415) 591-2001

(Which are shared with city buses and therefore do show a little legal activity).

U.S. Government bands have also been exploited by Bandidos. This, despite the fact that the legil military and other federal stations are logged there when skip comes in. I am always amazed at how pirate comms systems operate year after year on these federal channels without getting noticed or caught. Put your set into search/scan operation and check this out on: 30.00 to 30 55; 32.00 to 33 00; 34.00 to 35 00; 36.00 to 37 00; 38.00 to 39.00; 40.00 to 42 00; 46.60 to 47.00; and 49.60 to 49.95 MHz.

A favorite Bandido tactic is to show up on split frequencies. These are phantom frequencies they find between FCC allocated channels. They apparently feel that this will cause no interference, avoid FCC detection, and also provide uniquely private communications. The flip side of the coin is that, since they're not on normally used frequencies, they stand out rather glaringly from legil stations.

Low power frequencies are sometimes used by Bandidos with equipment running power that far exceeds the FCC limitations. Their hefty signals drown out the low power units and provide with little signal competition. These frequencies are: 30.84, 33.12, 33.14, 33.40, 35.02, and 42.96 MHz.

Standard FCC channels shelter countless Bandidos. While a taxi dispatcher might stand out on a Forest Products frequency, a regular FCC Business Radio Service channel is a spot where it will blend in with other miscellaneous dispatchers. It's called "Hide in plain sight."

When To Listen

June and July are hot months for Sporadic-E type skip DX reception. It can come in any time of the day or night, but mid day (10 AM to 2 PM local) and again in the evening (6 to 10 PM local) are especially good. Skip distances are from 450 to 1,500 miles, with multi-hop skip extending out to 2,500 miles.

As we head into the peak years of Solar Cycle 22, look for long hop (E layer) skip openings into early summer, although it's usually best in fall, winter, and spring during daylight hours. This type of skip extends from 2,000 to more than 5,000 miles for multiple hops.

Tropospheric DX occurs in the spring, mostly in the evening and morning. Unfortunately, tropo doesn't have much effect on the frequencies discussed in this story, and it's mostly a matter of 300 miles maximum involving high powered base stations with good antennas.

There has been a definite increase in illegal comms in this band. There are many more bootleggers operating on low band today than there were five years ago. Whether it's because of a general change in the public, or a lack of FCC enforcement, or other factors, I can't tell. But if you've got a scanner, you can hear it all!
Remembering Radio

The Days of Coils, Sparks, Tubes, Cats’ Whiskers, and Coherers.

BY ALICE BRANNIGAN

Long before the era of the Mexican “border blaster” stations pushing 100 kW powerhouse signals for the purposes of selling medical cures and spiritual salvation, there were just average local broadcasters. One of the early stations there was Mexico City’s CYL.

Operating with 500 watts on 588 kHz, CYL began its career under joint ownership of a radio supply shop called La Casa Del Radio, and also the newspaper El Universal. The station was inaugurated on September 15th, 1923 by broadcasting the returns from from the Dempsey-Firpo fight as received by telegraph directly from ringside in New York. At any time it looked as though CYL’s career wasn’t going to last much longer than the two round fight itself. Problem was that CYL’s engineers were very disappointed in the station’s signals. They tweaked and returned everything several times, but it still wasn’t what they had in mind. On October 10th, less than a month after CYL began operation, it was decided to shut it down in order to make major changes in the antenna system.

CYL didn’t return to the air again for another two months. On December 7th it came back with a test that brought in reception reports from throughout the United States and Canada, from Cuba, and throughout Central America. By 1926, CYL had moved to 750 kHz. It was out of business by the end of the 1920’s.

Early FM’caster

One of the very earliest FM broadcast stations in operation was the Zenith high-fidelity operation that, in 1940, was operating on 42.8 MHz under the experimental callsign W9XEN. Operation was from the Chicago Towers Club using a 1 kW transmitter located on the 37th floor. W9XEN’s antenna was a halfwave coaxial type mounted atop the building (490 ft. above street level) for the experiments, which began in February, 1940.

The biggest problem encountered by W9XEN was that the building was located in the d.c. area of downtown Chicago. Arrangements had to be made to furnish three-phase, a.c. power to the transmitter. Another difficulty was in getting the turntables to operate properly without easily available 60 Hz a.c.

A number of improvements had been made in the facilities, and on March 1, 1940 the FCC authorized the station to operate with 5 kW under the callsign W9XZR. Tests began on November 11th, with regular programming commencing on February 10th, 1941.

On February 26th, 1941 the station facilities were moved to the Field Building, a tall structure that was in an area having a.c. power available. On March 31, 1941, the station’s operating frequency was shifted to 45.1 MHz and its callsign was changed to W51C. At this point, a new antenna system was put into use, being a pole 14 inches in diameter at the base and tapering to 8 inches in diameter at the top. It was 45 feet tall. The antenna elements and coaxial feeders were fastened to the pole in such a manner to give the distinctive “turnstile” appearance (and that became the name for this type of FM broadcast antenna). The antenna made W51C’s 18 kW transmitter have an effective radiated power of 50 kW. This antenna was placed in full operation in October, 1941.

After WWII, the FCC changed the FM band, and also the callsign formats used by FM broadcasters. W51C emerged as WWZR on 98.5 MHz in 1946, but by 1948 it had further changed to WEFM on 94.7 MHz, a spot later filled in turn by WENR-FM, WBAI, WLS-FM, and WYTZ.

The First Rock Station?

Hard to believe that Rock Radio goes back 45 years, but it does. This was more
than ten years before Bill Haley's Rock Around The Clock. The first station to call itself Rock Radio was located on the island of American Samoa in 1944. It was powered by by 2.5 watts worth of salvaged radio tubes, and some assorted bed springs and other junk scrounged up by its owners, three American sailors who happened to be stationed on Samoa during WWI. The station was called Rock Radio because the island was called "The Rock" by the many sailors and Marines stationed there. American military personnel comprised Rock Radio's audience.

The builders, owners, and operators of Rock Radio had all been radio buffs before the war, so they saw the station as a form of relaxation. There was Radio Tech 1st Class Ken D. McCoy, of Salem, OR who was an announcer at station KWIL, Albany, OR before he joined the Navy. Then there was Diomman 1st Class Stan T. Dixon, of San Francisco, CA. Finally, there was Radio Tech 1st Class Charlie H. Wilson, of Stuebenville, OH. Before the war, he had been an announcer at station WKST, New Castle, PA.

They carefully pieced together the entire station from odds and ends. The microphone had once been the receiver in a USMC field telephone. The turntable was an antiquated hand-wound Victrola purchased from a Samoan resident for $3.

Nevertheless, the homemade station pieced together from discarded and make-shift parts managed to operate on a daily basis, be heard over the entire island, draw lots of fan mail, and do it all with the bless-
ings of the military authorities.

Mostly, Rock Radio was operated by whichever of the three owners was not on duty at the time. Programs featured recordings (requests and dedications), jokes, wise-cracks, sports scores, local talent, and news of the world as well as local happenings around the island. This filled up several hours of air time with the audience constantly asking for an expanded schedule.

Of course, broadcasting by and for American military personnel within a localized area has continued through the years. Among the more interesting modern-day stations that, I suppose, might regard Rock Radio as an ancestor of sorts, would be the station operated by the U.S. Navy Broadcasting Service Detachment at “Gitmo” (Guantanamo Bay, Cuba). They have a TV station on Channel 8, a 250 watt AM station on 1340 kHz, as well as an FM transmitter on 102 MHz (400 watts, stereo), and 103 MHz (500 watts, mono). Rock Radio was a far cry from Gitmo’s station, but we felt it should be recognized for its novel and historical significance before it became totally forgotten.

Matter of FAX

Ed Bowsky, of North Platte, NE wrote to say that he recalls that many decades ago there were plans to have special medium wave receivers available for home use that would provide a FAX printout of a daily newspaper during the night. When you got up in the morning, you’d have the latest copy waiting for you without having to dig around in the shrubs for the copy tossed there by the delivery boy. Ed asks we check into this seemingly clever scheme and try to find out why it never came into being.

From what I can find out, it did happen, but only on a trial basis. Throughout the late 1930’s, this seemed to be one of the most practical uses anybody could come up with for FAX (radiofacsimile) technology. In 1939, Crosley produced a Model 758 “Reado” receiver that was intended to be used for this purpose.

The Mutual Broadcasting System had some of its key stations (such as WOR in New York, and WGN in Chicago) sending out a weekly FAX program. This transmission, for instance, was sent out between 1 and 2:30 a.m. every Friday night over WGN. Crosley “Reado” receivers had built-in automatic timers that would operate them for this broadcast.

FAX quality was good, however, the experimental nature of the FCC license grant restricted the information sent out to be such that it might be of interest only to someone checking on the technical quality of the FAX reception. There were some weather maps, sports scores, drawings, cartoon strips, test charts, public service health information, and similar. There was virtually nothing of any substantive value to capture the public’s imagination as being something they really

Note the old-style three-letter ship’s call sign. WRN, on the bulkhead of the S.S. Si- boney’s radio shack.

Until late 1932, Shreveport’s KRMD was still running only 50 watts. This was unusually low power for a station in a large city at that late a date. This QSL from KRMD was received by DX’er Joe Hueter, of Philadelphia, in 1932.
needed at that point; and it happened only once per week, anyway.

There are probably a dozen other reasons why the idea never took off. An hour and a half of air time at night over 50 kW clear channel AM broadcast was many times more valuable than broadcasters saw themselves earning for years with something as experimental as FAX newspaper transmissions. A full FAX newspaper at that time might have required up to six hours of air time, and on a nightly basis. That's what it would have taken to get the public to buy the receivers. Broadcasters wanted to transmit programming, not FAX signals, for some highly speculative premise. These reasons immediately come to mind, there may have been others.

Another FAX experiment of the late 1930's was tried in order to demonstrate public usage of the medium in connection with criminal identification. Philadelphia's WCAU set up a FAX receiver at their studios during Radio Open House Week. The receiver reproduced FAX transmissions sent out by an RCA station at Camden, N.J. Daily transmissions of "wanted" posters and other police information were sent, as supplied by the Philadelphia Police Department.

**Ship Shape Shack**

In response to many reader requests, its time to return to the sea again for a look at one of those great floating shipboard radio shacks. This time, we'll inspect the S.S. Siboney, a 6,937 ton twin-stack, 443-foot passenger liner. When she was launched as the Ward Line (New York and Cuba Mail Steamship Co.) vessel S.S. Oriente in August of 1917, she was given the callsign WRN. A mere six months later, the ship was acquired by the U.S. Navy and commissioned as the wartime transport U.S.S. Siboney (ID-2999). Her new USN callsign was became NZM.

The Siboney came under fire several times, eventually making a total of seventeen round trips across the Atlantic, and ferrying a total of 50,000 military passengers during and immediately after the war. In September, 1919, she was returned to the Ward Line and went into civilian service as the S.S. Siboney on the popular New York-Havana tourist and honeymoon route. Her former callsign (WRN) was restored. By the mid-1920's, however, ship callsign formats were all changed to four letters and she was given the callsign WECZ.

Although the Siboney was neither the largest nor handsomest liner on the seas, she was always booked solid and remained in passenger service until 1941, when she was again acquired for wartime transport duty. At that time the vessel was assigned the Army callsign AMOF. In 1944, she was converted into an Army hospital ship and renamed Charles A. Stafford.

After WWII, the vessel was simply too tired to refurbish for a return to civilian duties. She was laid up and, in 1957, scrapped.

We have a photo of the radio shack in the S.S. Siboney taken during the early 1920's just after she had been put into passenger service. In the photo, you can see the ship's callsign on the bulkhead. The transmitter at the time of the photo was taken was a 2 kW arc type.

**Low Power Station**

In the early to mid-1920's, the airwaves were crowded with numerous backroom, garage, and front parlor broadcast stations running as little as 5, 10, 15, and 50 watts. Most "serious" commercial broadcasters scraped up enough money to get on the air with a minimum of 100 watts. By the time the 1930's rolled around, the vast majority of the stations running less than 100 watts were gone. Either they had quit, been kicked off the air, absorbed into other stations, or else increased their power. To be sure, there were still a few feeble powered stations still operating, but they were getting scarce by the 1930's.

One such station was KRMD, which first appeared in June of 1928 with only 50 watts on 1360 kHz. This station was in Shreveport, LA and operated by Robert M. Dean from 504 Wall Street. Within five months, the Federal Radio Commission moved the frequency to 1200 kHz.

Not long after, KRMD was again shifted, this time to 1310 kHz and, by 1931 had changed its location to 1445 Claiborne St. The station was still running its 50 watt rig. Its slogan was "We Cover The Buying Radius." In late 1932, however, the station upgraded its power to a modest 100 watts.

Not long after, KRMD moved its studios and transmitter into the New Jefferson Hotel, 901 Louisiana Avenue, in Shreveport. The antenna was a 176 foot vertical on the hotel's roof. Just before WWII, the FCC reassigned KRMD to 1340 kHz and permitted it to raise its power to 250 watts. As late as the postwar years, Robert Dean still owned the station.

Presently, KRMD still operates on 1340 kHz, although now it runs 1 kW. Since October of 1985 this has been owned by AmCom of Louisiana, Inc.

DX'er Joe Hueter, of Philadelphia, tuned in KRMD in 1932 when it was still running only 50 watts. A good catch, and we have a chance to ogle his QSL letter here this month.

**A Station Evolves**

In 1926, broadcasting (or a sort) began in Georgetown, British Guiana, South America. That is, persons who had telephones could arrange for BBC programs received by shortwave from London to be played through their phones for a few hours each day. The following year, though, the British Guiana Broadcasting Co. of Georgetown, built an experimental low power shortwave transmitter that operated for two hours daily on 6300 kHz, later switching to 6840 kHz.

In 1935, the British Guiana Broadcasting Company's new station, VP3MR "The Voice of Guiana," with 150 watts on 7080 kHz, replaced the low power station. The frequency, however, had too much ham interference. In 1936 the station shifted to 6010 kHz, then 6079 kHz, in the search for

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**VP3MR evolved into ZFY, Radio Demerara, The Voice of Guiana. This is the station's Studio B as it looked in the mid-1940's. Announcer Ulric Gouveia is at the mike in the photo.**
a clear channel. In 1938, another local broadcaster, VP3BG, and VP3MR merged. Although the combined station was known as the "The Voice of Guiana," only the call sign VP3BG was retained. The year 1939 saw the start of mediumwave service.

In 1946, VP3BG was running 65 watts on 6130 kHz, however, a year later it opened up its new facilities, station ZFY, on 6000 kHz with 1 kW. The year 1955 saw new studios built in Georgetown, and in 1957, a large transmitting facility in Sparendaam. The station became known as "ZFY, Radio Demerara, The Voice of Guiana," with 500 watts on 1230 kHz, and 2 kW on 3255 and 5981 kHz. The mediumwave operations soon changed to 10 kW on 660 kHz.

In 1961, that frequency was dropped in favor of 560 and 760 kHz, plus the shortwave frequencies. The mediumwave antenna was a vertically mounted 180-ft. wire with a capacitance hat. For shortwave, there were two spaced vertical dipoles fed by 600-ohm open line.

In May of 1966, British Guiana became the independent nation of Guyana. The GBC broadcasting station became known as "The Voice of Guiana." Presently, it remains on 560 and 760 with 10 kW, on 100 and 104 MHz FM, plus irregular broadcasts with 10 kW on 5950 kHz.

Tracking "The Voice of Guiana" through its early history we get a chance to see a rare 1936 VP3MR veri with the 6010 kHz frequency written in by hand. Probably not too many of these cards still floating around, eh? We also have photos from the mid-1940's and late 1950's to round it all out.

Java Jive

Before we go "30" for June, let's get out of the Western Hemisphere and drop in on Java. Hard to believe, but there was a time when if someone in Java wanted to place a phone call to a person in California, the call went westward "the long way round" by way of Amsterdam, to London, then New York, and finally to California.

In 1934 all of that changed when the Netherlands Indies Telephone Administration opened up its new point-to-point shortwave facility at Malaban (near Bandoeng), Java. Via radiotelephone stations PLE (18830 kHz), PMC (18370 kHz), and PMY (5170 kHz), all calls went eastward, 8,700 miles directly to the Bell System receiving station at Point Reyes, CA.

We have a photo showing the buildings at Malaban, along with the antenna. The primary wires appear exaggerated because they've been retouched to make them clearer. A second group of wires (which don't show up) were also part of this interesting station in the Dutch East Indies.

Your continuing submissions of photos, QSL's, books, station directories, postcards, and other items relating to wireless and broadcasting in days gone by are appreciated. This material is considerable help in the preparation of these pages for POP COMM. See you next month; same time, same station!
Virginia State Trooper Lewis Shelton was in the right place at the right time after a highway accident in James City, Virginia. A 10-year-old boy was pinned under an overturned pickup truck and had no pulse. Rather than wait for a wrecker, Shelton enlisted the help of several passersby and lifted the truck off the boy. Then he administered CPR.

Shelton was investigating a minor accident on the opposite side of the Interstate 64 overpass when the crash occurred. He rushed to the scene and found Ronald A. Abbott Jr. of Croaker, Virginia, pinned underneath the 1986 Ford Ranger pickup, according to State Trooper P. M. Russell, who later arrived at the scene. Ronald's mother, Brenda Abbott, was driving the pickup when it flipped over, pinning him to the pavement. She was suspended in the pickup by her seatbelt.

Ronald didn't have any pulse, and Shelton gave cardiopulmonary resuscitation until a rescue squad arrived. Shelton continued administering CPR en route to Williamsburg Community Hospital. According to an account of the incident in the Daily Press, cardiopulmonary technician Tom Eckenfels said that Shelton and another volunteer were able to revive the boy. Ronald's mother was not seriously hurt in the accident.

Fellow trooper Russell wrote a letter about the rescue to the colonel of the Virginia State Police.

"When he talked to me on the radio, he was extremely upset that the child was pinned and that the wrecker would not get there for a while," Russell told the Daily Press. "And, as a matter of fact, the wreckers didn't get there for a good period of time and if Trooper Shelton had to wait until that wrecker had gotten there, that child would have been dead."

Shelton, a 12-year veteran with the state police, has seen a number of tragic accidents. He last administered CPR some eight years earlier to an 11-year-old girl whose mother had fallen asleep at the wheel. The girl didn't make it.

"I just thank God that I was in the place I was when I was," Shelton told the Daily Press. I truly believe I was there for a reason, to be as close as I was."

Trooper Russell feels that Shelton could be described as a hero for his actions. "Without a doubt, I do feel that is an appropriate work," he said. "Maybe not in the sense of what most people determine as heroes, but anytime you can go above and beyond the call, it fits. I don't know what I would have done in that situation."

Shelton himself doesn't feel that he was a hero. "I did what I had to do and what I was trained by this department to do," he says. "I was the one who was there and had to react."

For his selfless actions, State Trooper Lewis Shelton will receive the SCAN Public Service Award. The award consists of a special commendation plaque and a cash prize. For making the nomination, Robert L. Price of Tabb, Virginia, will also receive a plaque. Congratulations to both of you.

---

**Best Equipped**

Dan Altenhof is only 15 years old, but he's already assembled quite an assortment of equipment. He has been interested in scanners, citizens band radio and electronics for more than three years, and is capable of making minor repairs on CB radios, videocassette recorders and televisions.

The equipment shown here includes a Regency HX-1500 scanner, 2-45 scanner, and Realistic TRC-219 handheld citizens band transceiver and TRC-30A base station. Other citizens band equipment consists of a Fanon 195PLL and 330, and Messenger 323A rig. Dan also has a Sony ICF-2100 shortwave receiver and a 75-meter amateur transmitter. A 5/8 ground plane and 75-meter longwire antenna are used with this equipment.

The St. Clair Beach, Ontario, monitor has also built several pieces of equipment, including an antenna checker, antenna switcher and phone patch.

**Best Appearing**

Gino Manucos of New Kensington, Pennsylvania, writes that his favorite sections of the radio spectrum are high frequency radioteletype, local public service and federal government bands.

He scans these bands constantly with a variety of equipment which includes a number of Bearcat scanners, such as the 200XLT, 210XLT, 260, 800XLT and 950 XLT mobile. A Realistic PRO-30 and a Regency 10-channel scanner are also used. For shortwave and amateur monitoring, Gino has a Realistic DX-150A, Kenwood R-2000, Heathkit HF-1424, Yaesu FRG-9600, Universal M-7000 and a Uniden CR-2021.

Gino uses several antennas with all of this equipment, including a Diamond discone 130, Ants 801, ANT-6, Realistic UHF-TV antenna converted to a vertical, and 50 and 100-foot longwires. Keeping track of frequencies is no problem because he has a Commodore 64 computer with Epson LQ-1050 and Amdek 300 video monitor.
prospect and, according to the author of the book, protected the WWII codebreaking secrets to the point where Welchman’s life was, essentially, a shambling. It’s a tragic story that hasn’t been told before in print, accompanied by the complete correspondence file between the NSA and Welchman.

The book covers WWII interception efforts by ham operators in Britain, it lists the names of the various WWII enemy codes and how they were used, and all sorts of fascinating aspects of 1980’s signals intelligence. You’ll be surprised to find out that a great many WWII codes have yet to be cracked! There are some photos in the book, too. In all, well done and most engrossing from start to end. Nigel West spins some eerie tales here.

The SIGINT Secrets, by Nigel West, is a hardcover book published at $22.95 by William Morrow and Company, New York. It should be available through most bookstores.

Signals Intelligence

The SIGINT Secrets, by Nigel West, is a new 347-page book by British historian Nigel West. As you may know, SIGINT is the acronym for “signals intelligence,” perhaps the most hush-hush and least understood weapon in the modern espionage arsenal.

In West’s book, he traces the origins of England’s signal intelligence efforts and provides a detailed account of SIGINT developments up to today. Here are all of the people and personalities, their techniques, their successes, failures, the misinformation, disinformation, and the personal enthusiasms that created the highly secret British Government Communications Headquarters (GCHQ); the apparent model for our own NSA.

Here is the world of our secret communications operations and organizations that deal in encryption, decryption, censorship, interception, and analysis. In many ways, The SIGINT Secrets is a handbook of the methods of modern electronic espionage techniques and how it is based upon a solid historical background and painstaking research. There are plenty of anecdotes here, too, such as the unfortunate attempted muzzling and eventual persecution of one of Britain’s most prominent WWII codebreakers, Gordon Welchman.

After the War, Welchman moved to the U.S. and became an American citizen. Some years later he decided to criticize America’s SIGINT operation during WWII. The NSA was decidedly unflattered at the charts, diagrams) book entitled Standard Radio Communications Manual, by R. Harold Kinley. The author has written this book for communications technicians (he is one, himself) in order to provide a fully up-to-date guide for measuring the performance of SSB, FM, and AM transmitters and receivers, as well as antennas, transmission lines, and remote control lines.

Eleven in-depth chapters, plus six appendices, provides some basic ground rules and thoughts on measurements in general, and then heads straight into highly detailed practical information for producing results. There are plenty of formulas and block diagrams for these tests, and they all seem to be between the pages of this book, which presumes that its readers have at least some working knowledge of communications electronics (the more the better).

For many of the testing tasks, several different procedures and approaches are provided. Doesn’t look like the author left anything out in his very comprehensive book, and its well written.

Standard Radio Communications Manual, by R. Harold Kinley, was published at $16.95 by Prentice Hall, Inc., of Englewood Cliffs, NJ. Should be available through the many PH dealers, or from local bookstores.

Taking Stock

There has always been a certain amount of confusion and (as J.R. “Bob” Dobbs would say) slack when it came to testing and evaluating communications equipment, stations, and systems. You never knew if there were any recommended standard reference points for the various things that needed to be checked out. And, when you came to think of it, exactly which components and functions needed to be put to the test, and using what equipment for obtaining the results?

All of these, and many more, questions should now finally be put to rest thanks to a 420-page illustrated (photos, graphs, New AM/FM Station Listing

William J. Stank’s new 1989 edition (just out May 1) of Highway Radio is primarily intended as a station guide for “tuning in on America’s Highways.” Well, at least on the AM and FM broadcasters you’re most likely to pick up while driving along the primary Interstates.
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This valuable new master directory and buyer’s guide will serve you day in and day out in searching out new gear, comparing new models, locating dealers near you and mail-order retailers around the country. It will help you buy more wisely with its multi-reference concept to help you wend your way through the buying maze.

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BUYING TIPS FROM THE EXPERTS

Great articles on the in’s and out’s of purchasing Amateur equipment. The experts give you the inside scoop on everything from antennas to transceivers to making your first packet contact . . . and lots more.

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76 North Broadway, Hicksville, NY 11801
When 26-year old Goronwy Morris was ploughing the land on his father's 600 acre farm in Wales, he made a rather startling discovery. In addition to the usual assortment of roots and stones turned up by the plough blade, this time it also produced what looked like a carrying case for a portable typewriter. That 1980 find kicked off an incident that seems to have been embarrassing to the British Government and has been a continuing mystery shrouded in a disinformation campaign.

The evening of the day that Morris came upon the mysterious case, he took it with him to a meeting of the Denbigh branch of the National Farmers' Union (NFU). According to the NFU's branch secretary, Meurig Voyle, "Everyone agreed that it was a spy radio. But we weren't quite sure what to do with it next."

Just to be on the safe side, Voyle took the box to his office and the next morning had it photographed. Then he called in the local press. After that, he told the police, explaining, "Farmers in this area tend to trust their own first. After I made a public record that the radio had been found, I handed it over to the police."

A police officer from Colwyn Bay, headquarters of the North Wales Constabulary, took charge of the equipment and gave Mr. Voyle a "miscellaneous property receipt" that described the equipment as a "brown box 14½ inches by 10½ inches containing radio equipment. That was the last anybody in Wales was known to have seen the radio, but not long afterwards, things began to happen fast. Police and Home Office officials began to appear in large numbers at the farm at Pant y Maen, Llanrhaidr ym Mochnant.

Farmer Morris said that the Home Office people were all carrying equipment that they claimed were metal detectors. He said, "I showed them where I'd found the box and they sent me away and did whatever they do with these things." A week later, more Police and Home Office people were still arriving at the farm. Finally, they produced a letter that they told Goronwy Morris to sign. It was a disclaimer that said he had no right to the radio he had found on his property. He said, "I signed it without really thinking about it. Wish I hadn't now. But they were the authority. What else can you do?"

That was in September of 1980. Three months later, the Denbigh Free Press began demanding some answers, but without much luck. The North Wales police claimed that they turned it over to the Home Office. The Home Office said they didn't have it. Scotland Yard denied any knowledge of the radio, neither did the Special Branch nor the Anti-Terrorist Squad.

Detective Chief Superintendent Eric Evans from Colwyn Bay guessed that it was unlikely that anyone would ever reveal
He Aubrey German.

Goronwy Morris felt it had something to do with the Special Air Service, the British commando unit. He said that the SAS have long used the area for training purposes, and that SAS items had been previously found within 150 feet from where the radio had been located.

Sidelights

Oddly enough, despite the speculation about where the radio might have been made, the photo of the unit that NFU's Voyle had taken shows a box of spares that included vacuum tube cartons from Mullard and Sylvania. Mullard is a British manufacturer, Sylvania is American. When you combine this with the English language microfilm, and that there had been SAS activity in the area. you would tend to seriously suspect that any information attempting to imply that the equipment is Eastern Bloc is pure disinformation. More likely it is an example of 1960's British technology.

Other disinformation includes mention of a wire recorder, since they were generally replaced by tape recording technology by the 1950's. The components in the lower right of the picture are obviously some sort of keypad, but who knows for what? I'm guessing that some SAS exercise lost the secret device (and you can imagine the panic when news of the find was announced in the press, and a local newspaper began demanding answers).

One might speculate that the mystery set is perhaps an early version of the CoderBurst Transmission Group AN/GRA-71 solid state crypto device. It's still all guesswork, since whatever it was that Farmer Morris' son found, it conveniently vanished; buried more deeply under disinformation than it was under the surface of the topsoil of his field.

There's no more radio, there are no answers. If they ever figured out who lost it in the first place, the only thing we can be relatively certain of is that he finished out his enlistment peeling potatoes or mopping the barracks. But nine years later, they won't even confirm that.

The Disinformation Campaign

In a brief reply to Mr. Ellis, The Home Secretary stated that the device was "of foreign origin" and was being examined by security service experts. "Beyond that I'm afraid I can't go," explained Mr. Whitelaw. Mr. Ellis' opinion of this response was, "There is something very fishy about this."

Rumors about an examination of the box said that there weren't any clues as to its origin other than some bolts with "USA" stamped on them. The electronic equipment was said to be a transmitter capable of sending coded signals using a wire recorder at ultra high speed. There were 40 metal-cased, crystal-type valves (vacuum tubes) in the box, which was like a portable typewriter.

By early February of 1981, a new twist was added to the mystery. NFU's Voyle was straightening up his cluttered desk when he noticed a two and a half inch strip of microfilm. He felt that it was something that had fallen from the mysterious case, so he had it copied. It turned out to be five pages of working instructions entitled, "Transmitter Handling and Maintenance," and referred to the device as being housed in a "dead box."

A communications technician looked at the instructions and guessed that the radio was from about 1965, and could have been used to communicate over distances sufficiently to reach Eastern Europe. He felt that the set might have been buried by a sleeper operator, a non-operative espionage agent, who could be activated at some future time when needed.

Language experts saw the document, proclaimed them to have been poorly translated from a foreign language, probably German. This explanation made sense to Aubrey Morris, who is Goronwy's father. He said, "A lot of Germans come here for their holidays. One of them could have buried it."

Goronwy Morris felt it had something to do with the Special Air Service, the British commando unit. He said that the SAS have long used the area for training purposes, and that SAS items had been previously found within 150 feet from where the radio had been located.
WBTP: The Radio Station With Almost Everything

What A Promo! The New “FM 104” Was Throwing A Party To Give Away $500 Gift Certificates, T-Shirts, and Five $2,000 Cash Prizes. But The Winners Weren’t Quite Ready For The Signal WBTP Was Sending Out!

BY TOM KNEITEL, K2AES, EDITOR

When a new broadcaster arrives in town, it hopes folks will notice. But when rock music station WBTP (“FM 104”) announced its arrival on the Central Illinois scene, eleven billboards went up around Springfield, Decatur and Jacksonville. Best of all, 545 people received letters inviting them to the Prairie Capital Convention Center in Springfield for WBTP’s gala ‘Prize Give Away Party.’

With WBTP due to begin operation last January 2nd, the party was scheduled for December 17th so that winners could use their prizes for the Holidays. Winners, the WBTP invitation letter explained, were “selected at random from a computer clearinghouse list of Central Illinois residents within our broadcasting area.”

The party promised food and drinks, $500 department store gift certificates, and T-shirts to all who were invited. No less then five Grand Prize winners would receive $2,000 in cash. All they had to do is show up at the Convention Center for the 11 a.m. party, and be able to prove their identity in order to collect.

Operators of some of the other area radio stations reacted with concern at the pending arrival of such an aggressive and well-heeled newcomer to the Springfield area airwaves. One member of the local news media took the trouble, it is said, to call the FCC about the identity of WBTP ‘s licensee. The FCC checked its records and insisted that there wasn’t any new FM station authorized in Springfield, and the callsign WBTP was already issued — to a ship!

The Station That Never Was

WBTP was a unique operation. The prize winners weren’t the ones doing the collecting, it would be WBTP’s operators, namely the U.S. Marshal and the Sangamon Coun-

An attractive letterhead and warm invitation told 545 folks to come to the party celebrating the opening of anew broadcast station, WBTP.
Police play Scrooge in area sting

by Anthony Heffern

A rather unique premise in a radio station's annual Christmas promotion has Sheriff's Department. Despite the discouragement and the promotional party, WBTP was a covert sting operation of the Fugitive and Investigation Strike Team (FIST).

WBTP, it turns out, stood for the initials Wanted By The Police, and the station's 104.4 frequency was simply concocted from the popular "104.3" sound. The WBTP operation was a complex plan intended to lure into police custody many fugitives who had successfully evaded the law for periods as long as four years.

The invitations sent to the fugitives told them to call WBTP in advance "so that accommodations could be made" for the winners. When they called the number given, they were told to show up alone at the party. From the seventy one calls received at the number, it was determined to position six FIST officers outside the Convention Center, thirty nine inside the hall.

**Meanwhile, Back At The Party**

When it came time for the WBTP party, it was noted that many winners had shown up with friends and family members (including small children), despite all early efforts to discourage this. In all, fifty five prize winners showed up at the WBTP party.

Inside, the hall was festively decorated and the FIST officers served food while dressed as clowns. One was wearing a Santa Claus suit. An hour later, the WBTP people began to call out the names of winners and ask them to come to the stage. In keeping with the party's festive mood, they started to head to the stage, some carrying balloons along with their invitations and proof of identity. Each winner was helped to the stage by a FIST officer wearing a Santa's Helper costume.

When all of the winners were assembled on the stage, uniformed officers came out and announced they were all under arrest. Some winners were speechless, others said they figured it might be a sting, but they took the chance in the hopes that it might not. Several still wanted to know the status of the prizes that were announced and if they would later be awarded.

The winners were checked for weapons and drugs (no weapons were found, but some drugs were) and taken away in vans and buses. Family members and friends who were left in the hall were confused or angry. Several small children were upset and crying.

In all, thirty nine fugitives were arrested at the WBTP party, most for failing to have appeared at court to face a variety of misdemeanor and felony charges including DWI, aggravated battery, fraud, retail theft, forgery, aggravated criminal sexual abuse, criminal trespass, drug possession, and others.

The U.S. Marshal and the Sangamon County Sheriff considered the WBTP sting a definite success, as did many within the community. Some criticism about the pre-holiday timing of the sting, and the fact that the fugitives had been humiliated in front of family and friends, appeared later in The State Journal-Register newspaper.

There was never another station, though, like WBTP. In fact, there never was a WBTP! Yet, it could be said that for a radio station that didn't exist, it met the FCC's requirements of meeting the public's interest, convenience, and necessity. Furthermore, even though it no transmitter, nor an antenna, it sent out a message.

Not a single FCC fine was filled out, not a single dollar was spent on equipment, nor even one watt's worth of signal was emitted into the airwaves. Yet, WBTP managed to get far more media coverage and headlines than any broadcaster that has gone to great effort to announce its arrival.

Although a number of fugitives were rounded up at the headline-making WBTP party, there was criticism of the pre-holiday timing of the sting.
The Merchant Marine Radio Officer Versus “State Of The Art”

Superseded By Hi-tech, “Sparks” Tries To Prove He’s Still Necessary

BY RICHARD E. DIXON

Several sea tragedies early in the century, including the sinking of the S/S Titanic with the loss of 1512 lives, prompted the compulsory installation of safety radiotelegraph equipment and radio operators aboard all merchant vessels. Hundreds of thousands of passengers and crewmen have since been spared watery graves. Recently, though, faced with skyrocketing costs, ship-owners have added radiotelegraph equipment and radio operators to their list of non-essentials. Alternatives? So-called state-of-the-art electronic systems.

The FCC and USCG now grant waivers allowing US merchant vessels fitted with marine satellite systems (marisat), SSB and VHF transceivers and EPIRB’s (emergency position indicating radio beacons) to operate without radio officers if sailing within 150 miles of the US coastline. Similar waivers are being considered for ships on the Alaskan run. US merchant ships on foreign voyages must still carry radio officers, though the United States has indicated it will disregard a 1987 Geneva decision requiring them. The present outlook for “sparks” is bleak, but don’t count him out!

With each day comes more proof that solid-state electronic components can’t stand up to the rugged duty they encounter on ships. Power surges, spikes, heat and vibration all contribute to frequent failures. Things happen very quickly during emergencies at sea. Fires break out and main power is often lost, cutting off or damaging communications equipment. With no radio officers aboard it will be up to captains or chief mates to make repairs and do the communicating (When and if they are able to get the gear back on the air). Meanwhile their ship is sinking slowly in the west or dumping goo all over the ocean!

Marisat terminals are the main communications systems used on ships which don’t carry radio officers. They’re quite remarkable, innovations and easy to operate. Tapes containing the information to be sent are pre-punched off the air and placed in the tape transmitter. The Marisat operator is then signaled. After she gives the go-ahead indicating that a line is clear, the ship operator punches a key and the contents of the tape appears instantly on the addressed shore telex. Incoming traffic doesn’t even require an operator. The terminal is activated ashore, the message(s) transferred, then the ship terminal is shut off by the shore operator. Worldwide coverage is possible through three satellites located 24,000 miles above the Pacific, Atlantic and Indian Oceans. Voice calls may also be made via Marisat, but they’re costly, $10.00 per minute, 3-minute minimum call.

As marvelous as Marisat systems are they are not dependable! They contain thousands of the fail-prone solid-state components mentioned earlier. Also, they are very easy to jam. Marisat terminals, by the way, are included in the distress network set up for non-radio officer ships.

EPIRB’s are also included in the vessel distress systems. These are radio beacons which, when immersed in water, emit siren-like signals on 121.5 and 243.0 MHz aircraft distress frequencies. Theoretically, EPIRB signals are picked up by special satellites and relayed to monitoring shore stations, giving pin-point positions of distressed ships. Here again, harsh shipboard usage does nasty things to electronics. Often during annual FCC inspections, EPIRB’s have failed to activate when test-dunked. The false alarm rate of EPIRB’s is nearly 100% according to FCC and USCG reports. While the CW equipment being superseded has a range of several hundred miles (more when propa-
The radio officer's nemesis, a marine satellite terminal (Marisat). The tape transmitter is on the left edge of the keyboard, the controls for calling the Marisat operator on the right. World-wide telex is the terminal's main use, but voice calls may also be made, at $10 per minute.

Korean bone-yard. The last, and sometimes premature, voyage for many good ships. Less than half a mile to the left is the Hyundai automobile factory. Handy.

gation is good), search aircraft would have to be almost directly overhead to pick up EPIRB signals.

A tabulation of the failures of Marisat systems and other shipboard electronics is being compiled by two radio officer unions in hopes of getting the message across to the FCC and USCG (and ship-owners) that regardless of expense or state-of-the-art, modern electronic systems are not completely dependable.

Initially, the prime duty of the "sea-going wireless operator" was to listen for distress signals on 500 kHz, the international distress frequency. He had other duties, too, including sending and receiving CW messages pertaining to the operation of his ship, copying weather broadcasts, etc., but mainly he was an important safety factor. Not only for his own vessel, but for others within radio range who might come in harm's way. All ships were equipped with auto-alarms which responded to distress signals by jangling loud bells on the ship's bridge and in the radio operator's cabin, providing constant monitoring of 500 kHz, even when the operator was off watch. In those days, radio operators didn't hold officer status. Having no in-port duties, "sparks" was usually the first ashore with the gangway and the last aboard before sailing.

During the 50's, sea-going wireless operators became "radio officers," thanks to unions, and wages and benefits improved tremendously, as did technical proficiency. The two radio unions operate excellent schools which turn out competent techni-

Coastal Stations and Frequencies

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Ship Calling Frequencies:

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*Shipping charges $2 per order. Orders processed day received, but please allow 30 days for delivery.

High costs, competition from cheap foreign flags, loss of government subsidies and no cargo preference (even on US imports/exports), have reduced the American merchant marine to a skeleton of its former self. Lately, ships in good shape, some less than ten years old, are being broken up and made into razor blades and Hyundais in the bone yards of Taiwan and Korea. It's scary to think that if a war came along, heaven forbid, US troops might have to be supplied, maybe even transported, by Liberian, Panamanian or who knows what brands of foreign-flagged ships.

In an effort to prove their worth and save what few jobs remain, radio officers are upgrading technical skills, preventing shipowners from having to hire expensive shore techs. Aboard some ships they're taking on purser duties at no additional pay. A bit offbeam, but nevertheless a fact, US radio officers from the Radio Officer's Union are manning the Kuwaiti tankers now under American-flag protection in the Persian Gulf. Above all, they have dedicated themselves to convincing all concerned that safety of life at sea will be compromised without them. Will their efforts succeed? Time alone will tell.

Anyone with a CW speed of 10 to 20 words per minute, or who has one of those neat new computer interfaces or CW readers may monitor the comings and goings of US merchant ships. Hear 'em while they're still around!

It makes it handy to have two receivers, but one with memory capability will do.

First, tune in one of the coastal stations listed below. If you chose KFS on 12695, for example, and don't hear anything, KFS is probably receiving traffic from a ship. Or you may hear, "CQ CQ CQ DE KFS KFS," with channels KFS is currently monitoring for traffic. This is the station I.D. tape which all coastal stations have. Presence of an I.D. tape indicates no traffic at the moment.

Tune in a ship now on your second receiver or memory, using one of the calling frequencies listed below. (12 MHz). You might hear "KFS" being sent over and over. With two receivers you'll be able to hear KFS's I.D. tape pause when he hears the incoming ship call. The ship operator will then send his or her call-sign and working frequency. (There are lady radio officers, too. Good ones!) If the ship sent "596" to KFS, the ship's actual working frequency is 12596 kHz, which you should now tune to on the second receiver or memory. You have them both now and will hear either a message(s) sent to the ship by KFS, or traffic from the ship to KFS. The ship's name is always included in the message address. Many of the messages you copy will contain the ship's position in the text, which you can pinpoint on your map or globe.
Amplified Speaker

Naval Electronics, Inc. introduced the HTS-1 Amplified Speaker with special features for use with handheld radios. The HTS-1 is very compact yet offers big radio sound from its 3.5 inch oval speaker and 10 dB internal amplifier.

Powered from internal batteries or any external voltage from 6-15 VDC through a DC jack, the HTS-1 is truly versatile. It even has a built in Ni-CAD battery charger and a special "automatic shut-off" feature that kills power to the amplifier whenever there is no input audio (receiver squelched) to conserve batteries. When manually switched off, the amplifier is by-passed and the input jack is connected directly to the speaker.

The HTS-1 has a tilting base for desk mounting and a special mobile harness is available for mounting the unit on the inside of a car door. A 5 ft. cable with mini-plugs and a stereo to mono converter is included. A free stereo cable is available if two units are ordered together for use with a walkman or personal stereo system. Cost $29.95.

For further information contact Naval Electronics, Inc., 5417 Jetview Circle, Tampa, Florida 33624, or circle 101 on our Readers Service.

Signal Intensifiers Remote Mounted

Electron Processing, Inc. announces a remote-mounted version of their signal intensifier receiver preamplifiers. The RFP-50 model answers the need for a high-quality, yet inexpensive, preamplifier where the amplifying stage mounts at the antenna to take full advantage of potential signals. The separate power unit can be conveniently located inside, near the receiver. RFP-50's provide 15 dB of gain from 1 MHz-1300 MHz with a low 2.8 dB noise figure. Available with choice of BNC, UHF (SO239), or F connectors and powered by choice of either 110 VAC or 12 VDC ($4 extra), these models are easily tailored to almost any installation. For an additional $25 per unit, type N connectors are available.

Housed in two rugged 1.25" x 1.25" x 3.5" cast aluminum enclosure and equipped with improved lightning/static protection, the RFP-50 is designed to provide the utmost in reliable service. A one-year RFP limited warranty reflects EPI's assurance of quality.

Prices for RFP-50's start at $99.95 (BNC, SO239/UHF, and F connectors) with quantity discounts available. For additional information, contact the Sales Department, Electron Processing, Inc. at PO Box 708, Medford, NY 11763, or circle 102 on our Readers Service.
Recently, the Soviet Military journal Krasnaya Zvezda (Red Star), which is the official unclassified publication of the Soviet Ministry of Defense, carried an article entitled, "The Hour Before Immortality."

This article details the shooting down and death of Soviet pilot Konstantin Pavlyukov at the hands of Afghan "Rebels". It is important to note that Pavlyukov survived the "shoot down" of his SU-25 ground attack aircraft, but was killed while defending himself and awaiting rescue by the same type of airborne air rescue system currently in use by the U.S. Army and Air Force. This system relies on nonsecure voice and continuous wave (CW) ground to air radio transmissions broadcasting on "international" rescue frequencies to coordinate and guide an airborne (helicopter) rescue force to the downed aviator.

The officer's death was the direct result of an electronic warfare attack (or in Soviet terms, Radio Electronic Combat (REC) on the radio communications equipment used by the technically unsophisticated Afghan "Freedom Fighters" who, using crude but effective methods, were able not only to confuse the airborne rescue force as far as the actual location of the downed pilot (resulting in his death in the ensuing ground fight), but were also able to lure the rescue force via the radio, into a ground air "kill zone" so that the rescue force also did not escape without casualties.

Operating on well known international rescue frequencies, these same tactics were used effectively against U.S. forces during the Vietnam War and show again how vulnerable a means of communications the nonsecure single fixed frequency radio is. It is time for us to learn again from our own and from the Soviets' experiences (mistakes?) in this area.

The tactics employed against downed flyers and their would be rescuers by both the Vietcong/NVA and the Afghans consisted basically of the following:

a. Capture (or construct) identical or compatible radio equipment to the equipment being used by the opposing force.

b. Monitor the opposing forces radio nets in order to attain knowledge of operational procedures, pro-words methods of employment and language. Well trained linguists are very useful for this purpose and all major intelligence organizations have them. Monitoring itself is a very simple matter in this case since there is only one fixed frequency to monitor and no encryption to deal with. Searching of large portions of the radio spectrum is simply not required, due to the construction of our present air rescue radio equipment.

c. Supplement the knowledge gained by monitoring the rescue radio traffic with information obtained from common intelligence sources such as:

(1) unclassified/classified doctrine and tactics documents gathered by spies, and sympathizers within the enemy force.

(2) Captured documents and manuals.

(3) Prisoner interrogation.

(4) Knowledge of enemy doctrine and tactics gained from combat experience.

d. Set up "Kill zones" (which are basically a box in space covered by hidden ground weapons) and await the opportunity to lure the opposing force into the zone with bogus radio transmissions that match similar
transmissions from actual downed flyers, or as in this case, wait for an actual shoot down in the area and use the situation to best advantage by diverting and attacking the rescue force. This is done by transmitting voice traffic and direction finding signals simulating the downed airmen in accordance with the knowledge gained from the intelligence effort.

This process is made very easy for our potential enemies to use against us since U.S. forces have used and continue to use the AN/PRC-90 emergency locator transceiver to rescue downed airmen and have used the potential that tended to result from colored smoke, flares, transmissions, and other means or imitators to divert the enemy's fire.

It is very simple for the aircrew member who is not well trained in radio techniques to use since it has only two fixed channels and three modes of transmission. It is obvious from the experience of Lt. Pavlyukov and many other flyers (including U.S. personnel) that this type equipment must be replaced with tunable secure radio equipment for military use or the results will be fatal.

Until this happens, U.S. aviators must be well trained (which they are not now), to take a few simple precautions that will increase the probability of being rescued after a "shoot down" by reducing the threat of electronic warfare attacks. They are:

a. Do not use the radio (in any mode) until the last possible moment. Remember modern direction finders work quickly on almost any form of transmission, and jammers or imitators must first acquire the operational frequency before they can operate.

b. When using the radio keep all transmissions as short as possible.

c. Supplement radio transmissions with visual signals such as colored smoke, mirror flashes, flames, flags, markings and light if possible.

d. Coordinate prearranged "pick up" points with rescue forces if possible so little actual communications is necessary.

e. Get off radio communications and on some other means as quickly as possible.

While all of the above actions will help increase the probability of downed flyers being rescued using present known fixed frequency equipment, it is still no substitute for proper technology and radio procedures as the death of Lt. Pavlyukov attests. The AN/PRC-90 is not suitable any longer for its intended mission. (At least not for U.S. Army airmen.) Its replacement must have at least the following characteristics:

a. A wide selection of available channels that can be changed very easily and often just as we do in all other tactical radio nets so that specific nets and their uses will be hard to identify by unauthorized stations.

b. A speech security capability in order to deny intelligence to unauthorized monitoring stations.

c. A rugged and reliable construction capable of surviving in the aircraft even after crash landing.

d. Compatibility with current airborne speech security and radio equipment that also have a direction finding capability (i.e., AN/ARC-114 and KY-58).

e. Simple to operate by non-communications personnel under high stress situations.

Fortunately, we do not have to look far for equipment with this capability, it is already in the inventory. The AN/PRC-68 small unit transceiver (SUT) and its derivative, the AN/PRC-126, has the capability now. At present, this radio is being used by infantry squads and platoons for low level communications. It weighs just 46 ounces and can be tuned to any one of 2000 channels, 920 of which are compatible with the current family of FM airborne transceivers (more with SINCGARS).

With the addition of the SVM-2 or SVM-2A, crypto device speech security is achieved that is compatible with already on board aircraft COMSEC equipment (KY-57). The signals can also be located accurately using the FM homing circuits in these same aircraft radios (i.e., the AN/ARC-114) on the same number of different channels (920). The radio is also fully compatible with all current and future and ground FM tactical radios which is a significant advantage over the AN/PRC-90 which does not have this capability.

Who says that all rescue efforts will come from the air? The ability to coordinate ground and airborne rescue forces simultaneously, and to aid in reinfiltion of our own lines by being able to contact ground forces on their radio nets is critical to a downed flyer, as is the ability to call for direct or lift covering ground fire support.

The direction of signals from the AN/PRC-68 can also be determined by our ground forces using standard radio (i.e., the AN/PRC-77 and the standard AT-784/PRC direction finding loop antenna). This cannot be accomplished when the downed flyer is using the AN/PRC-90 radio set that only operates on a fixed frequency in the international aircraft bands. Lack of capability is certain to cause tragic and unnecessary losses in combat situations because the downed flyer could not coordinate with ground and airborne forces in the area.

The use of the standard existing AN/PRC-68/AN/PRC-126 as an aircrew survival radio while it may not solve all of the similar communications problems that U.S. Army pilots have that caused the death of this Soviet pilot, is certainly an improvement over current equipment with an even greater potential to increase aircrew survivability. Not to use this equipment for this purpose leaves our airmen in an extreme risk situation that we cannot afford. The Signal Corps must do all in its power to make sure no airman's life is lost because his rescue communications could not do its job. We must also see that forces engaged in rescue operations cannot be lured to destruction by a clever enemy understands our communications equipment and its weaknesses better than we do.

Lt. Col. Fiedler, a member of the National Guard, has served in Regular Army and National Guard Signal, Infantry, and armor units in both CONUS and Vietnam.

Fiedler is presently the chief of the Fort Monmouth Field Office of the Joint Tactical Fusion Program, and is the assistant project manager for Intelligence Digital Message Terminals. He is also the director of systems integration for the JTFP. Concurrently, he is the chief of the C.E. Division of the New Jersey State Area Command, NJARNG.

Courtesy Army Communicator.

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**CIRCLE 52 ON READER SERVICE CARD**
New Experimental Licenses

The Commission, by its Office of Science and Technology, Frequency Liaison Branch took the following actions:

KA2XVI, Chromatics International, experimental operations—to train Avon representatives prior to certification of Class B computing device known as Avon Colormate II system. In area of Springdale, OH.

KA2XWC, Woodward-Clyde Consultants, on various frequencies at 100 kHz intervals beg. 158.720-158.920, 159.020-159.920, 160.120, 216.500, 217.700, and 217.800 MHz to provide communication essential to seismic studies. Mobile in all areas of the U.S.

KA2XWU, Antenna Products Corp., on frequencies 230.0, 352.975 and 399.975 MHz—for use in connection with U.S. gov't contract. In Mineral Wells, TX.

KA2XWV, Contraves Goerz corp., on frequencies 34000, 34100, 34200, 34300 and 34400 MHz for testing radar under development. In Pittsburgh, PA.

KA2XWW, Femco, on frequencies 286.45, 286.50, 286.80 and 286.90 MHz for development of 286 MHz radio transmitter module for shipment to Republic of China. Located in High Point, NC.

KA2XXW, Insurance Institute For Highway Safety, on frequencies 24150, 24500, 10525 and 10000-10500 MHz to research high speed radars. Throughout U.S.

KA2XXY, Northrop Radio Services, Inc., on frequencies 314.6 and 382.6 MHz under U.S. govt in Mojave, CA.

KA2XXZ, Panasonic Industrial Co., on frequencies 151.715, 151.775, 169.45 and 171.905 MHz for pre-production testing of low power wireless microphone radio system. Used at Lancaster, OH; Farmers Branch, TX, Wilmington, DE.

KA2XXA, Rockwell International Corp., on various frequencies between 2810 and 23404.0 kHz—experimental operations required by the Drug Enforcement Administration in Richardson, TX.

KA2XXB, National Association of Broadcasters, on frequency 1660 kHz for testing of medium wave directional antennas for broadcast use in Beltsville, MD.

KA2XXD, Northrop Radio Services, Inc., on frequencies 118-136, 225-339.9, 960-1215, 1090, and 915-9500 MHz for purpose of modifying F-86 aircraft as required by U.S. gov't contract. Airborne in U.S.

KA2XXE, Robert Bencivenga, on frequencies 2.3, 156-162, 2900-3100, 5460-5650, 9300-9500 MHz, 14-14.05 GHz, 4134 kHz and 8241.5 kHz—to test equipment after repairs. In Smithtown, NY.

KA2XXF, John Nagle, on frequency 1258.25 MHz to provide video while developing robots essential to research project.

KA2XXG, Antenna Products Corp., on frequency 2.165, 8.050, 15.620 and 29.800 MHz for use in connection with U.S. gov't contract in Mineral Wells, TX.

KA2XXH, TRW Electronic Products, Inc., on frequencies 3.206, 6.950, 10.182, 13.930, 20 950, 38.50 MHz—to technically demonstrate equipment, testing of equipment prior to type acceptance and to perform limited market studies of tactical HF/VHF equipment.

KA2XXA, State of Alaska, on frequency 148.000-148.490 MHz, station for radiotelemetry to monitor the locations of movement of wild animals for management research project.

KA2XXB, Hewlett Packard Co., freq: (various), station for the development and experimentation of a medical telemetry system in Waltham, MA.

KA2XXC, Digital Radio Networks, Inc., freq: 928.0125-928.3375 MHz and 928.00625-928.3375 MHz, station for the development of a new nationwide network system. Mobile within U.S.

KA2XXF, CNR, Inc., freq: 2.30 MHz to perform on-the-air tests to verify performance of HF-frequency hopping communication system. Station in Needham, MA.

KE2XEO, State of California, freq: 401.7895 MHz, station used for the GOES Satellite Data Collection Platform. Located in Chico, CA.

Permit Additional use of VTS Channels in New York and New Orleans

The Commission amended its rules to allow Vessel Traffic Services (VTS) channels in the port areas of New York City and New Orleans, LA, to be used by eligible users for other than VTS operations, pending possible future use for VTS communications.

Operated by the U.S. Coast Guard, VTS systems are ship movement reporting systems designed to prevent damage to ships, bridges, and other structures in U.S. navigable waters. These systems are also used to minimize environmental damage associated with navigational accidents.

Effective July 30, 1988, the Coast Guard discontinued its VTS systems for the port areas of New York and New Orleans, thereby leaving VHF marine channels 11 and 14 in New York, and channels 11, 12, and 14 in New Orleans, idle. The Coast Guard continues to use channel 12 in New York for anchorage management services. Since the Coast Guard took this action because of budgetary constraints, it stated that it might re-establish the New York and New Orleans systems if funding becomes available.

In the meantime, the Commission will allow eligible users to be licensed on channels 11 and 14 in the New York VTS radio protection area, and channels 11, 12 and 14 in the New Orleans VTS radio protection areas. Channel 11 is designated for commercial communications and channels 12 and 14 for port operations communications. Since the Coast Guard still uses channel 12 in the New York VTS area for anchorage management services, it remains unavailable for port operations communications in the port area of New York.

Because re-establishment of the two VTS systems is a possibility, licenses for Coast stations will be granted only on a provisional basis, contingent on a continuation of current Coast Guard policy. The Commission emphasized that it may rescind or not renew such licenses if the VTS systems are re-established.

The Commission said that this action was in the public interest because it permits greater use of the maritime VHF spectrum in two busy port areas, and promotes safety and other public benefits.

Non-Commercial Communications on Channels 79 and 80 on Great Lakes

The FCC amended its maritime rules to permit noncommercial vessels to share the maritime commercial channels 79 and 80, on the Great Lakes only.

The original proposal called for this shar-
K

RH50 and KRH51 are callsigns for the U.S. Embassy in London, England. The first callsign is used with Morse Code transmissions over shortwave radio, and the second, with radioteletype transmissions.

On a recent trip to London, I paid a visit to the embassy at Grosvenor Square (figure 1) wanting to learn some details about its radio stations. I entered the embassy lobby not expecting much in the way of information. But what the heck, I thought it would be worth a try anyway.

When asked about the embassy's HF radio stations, a spokesman in the embassy press office said, "We consider that to be sensitive information... We don't divulge details." I heard what I expected to hear.

Fortunately, I had my camera with me (not inside the embassy, where it was checked with security guards), and I snapped some photos of the antenna system on the roof. The views (figures 2 and 3) were of the front and rear of the embassy building. Thinking that the camera might not be able to capture the wires of the shortwave antenna, I drew it (figure 4).

The embassy is divided into six sections, Political, Economic and Commercial, Consular, Public Affairs, Administrative, and Defense.

Two of these sections, Political and Defense, would appear to have need for a shortwave radio facility at the embassy. A brochure about the embassy building says the Political Section "observes, analyzes, and reports on political, labor and political-military developments in the United Kingdom, and on Britain's relations with other countries. These reports, sent to the Department of State as well as all other interested agencies in Washington (note these words — Ed.), are a basic ingredient in the formulation of American's foreign policy."

In reference to the Defense Section, the brochure says it is headed by the Defense Attaché along with the representatives from the Air Force, Army, and Navy. It "is responsible for liaison with British Defense and military leaders and with the U.S. military commands in the United Kingdom."

During the week I spent in London, on a personal tour not in conjunction with POPCOMM, I saw many embassy buildings, most of which appeared to be devoid of rooftop antennas.

I walked past the Omani Embassy and saw the log periodic beam antenna that was pictured with this column in the February 1988 POPCOMM. This antenna was very wide when seen from the east side of the building. It appeared to be much bigger than in the magazine photograph that was submitted by a reader from London.

A few blocks away was the Bulgarian Embassy, which has a dense antenna farm atop the roof. I saw more antennas here than I spotted anywhere else and I wondered why any sane bird would want to fly overhead and risk crashing into one of them. I have drawn arrows on the photograph (figure 5), showing the ends of the longwire antenna as seen from the rear of the building. This antenna was similar in appearance to the one spotted above the U.S. Embassy.

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Figure 1

Figure 2
Dallas Williams of Colorado, a longtime contributor of loggings to this column, intercepted a RTTY broadcast last January of "Radio Truth," a pirate HF radio station that claimed to be broadcasting from somewhere off the coast of America. "Radio Truth," a pirate HF radio station now defunct. This editorial "has been a reply to letters to Radio Truth," the printout read.

The transmission continued with, "This is the teletype broadcast of Radio Truth, broadcasting from somewhere off the coast of America. Radio Truth is part of the Voice of Democracy and the satire broadcast of The Voice of Communism."

Radio Truth than provided a Post Office Box address in Battle Creek, Michigan for replies. This address had been popular in the past as a mail drop for several AM HF pirate stations, but it is now defunct.

The RTTY broadcast was intercepted by Dallas on 13998.2 kHz at about 0615 UTC on a Friday (2315 MST, Thursday, where he lives), with a setting of 425/60N. he said the signal "was quite strong," but "the shift varied a bit as the mark signal drifted up and down." Terrific logging, Dallas, and a ribbon of TTY tape to you for sharing it with us.

Tom Kneitel reports picking up a test transmission in FEC from station KMI, operated by AT&T in Dixon, CA. This was at

JRC NRD-525 "No. 1 receiver outside the commercial/military bracket...way ahead of the competition...outstanding in all modes...a best buy." — R. Lichte. CPU control, 0.15-30MHz, computer interface, 200 memories, PBT, blanker, notch, scan/sweep, clock. DATONG FL-3 AUDIO FILTER (atop NRD 525) Automatic, tunable 12 pole filter makes weak signals audible, removes noise, heterodynes, dual notch plus hi/lo pass filters.

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THE MONITORING MAGAZINE 41
0249 while the station was checking out its new Sitor equipment by calling CQ, sending foxes, etc on 8086 kHz. Announcement said that the station was being put into service to send info to ships and aircraft, presumably similar in intent to east coast counterpart service on 8053 kHz. Asked for reception reports and comments on KMI's sigs to be sent to Paul Newland. AT&T Bell Labs. Room 1G623. Crawford Corner Road, Holindel, NJ 07733.

J.M. of Kentucky always sends us loggins that are quite out of the ordinary. This month is no different. One of his unusual intercepts he reports is a transmission at 150 bauds. See his logging at 8302. He remarks, "This is the highest speed baudot I've seen," to which I agree.

One day recently, Kenneth MacLeod of Washington State turned on his ICOM IC-R7000 scanning receiver and tuned to 171.155 MHz, where he picked up a 1200-baud packet radio transmission of the U.S. Coast Guard. He monitored NAVH, USCOC Point Benett and NMM47. USCOC Bellingham, WA, exchanging traffic between 0130 and 0200 UTC.

Ken would like to hear from any of you who may have picked up similar transmissions on 171.155 MHz where you live. You may write to him at P.O. Box 2495, Friday Harbor, WA 98250.

The ARRL has complained to the USN about their encrypted RTTY signals on 14024 kHz in the 20 meter band. The USN has apparently been unresponsive to the complaints.

Abbreviations Used in the RTTY Column

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RTTY Intercepts

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<td>3248.8</td>
<td>LRB83, TELM Buenos Aires, Argentina</td>
<td>w/in wx at S5 at 0115, 850/50R (Hetherington, FL)</td>
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<tr>
<td>3517</td>
<td>GGE, Ntg, R., England w/ARQ phase sig &amp; CW ID at 0157 (Ed.).</td>
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<tr>
<td>3844</td>
<td>Un-ID w/RYRY, 50 bauds at 2250. Any idea why? (Wales, England). In NA this freq is inside a crowded ham band and that's mostly what can be heard between 3.5 &amp; 6 MHz. -- Ed.</td>
<td></td>
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<tr>
<td>4006.5</td>
<td>LRG2, TELM Buenos Aires, Argentina</td>
<td>w/in wx at S5 at 0115, 750/50R (Hetherington, FL)</td>
<td></td>
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</tr>
<tr>
<td>4178.5</td>
<td>3UP big JMM on ship channel w/multiple callups for 1 hr. Semi RYRYS/SSG on S5 at 0115, 750/50R (Michael Rick, PA).</td>
<td></td>
<td></td>
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<tr>
<td>4343</td>
<td>WLO, Mobile R., AL w/Hz list in FEC at 0142 (L.M., KY).</td>
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<tr>
<td>4482</td>
<td>RGC72, Kai, Mevco, USSR w/coded wx at 0217, 170/50R (E.I.).</td>
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<tr>
<td>4554</td>
<td>FDY, French AF, France w/RYRY &amp; le brick at 0609, 375/50R (Richard Gleitz, PA).</td>
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<tr>
<td>4569</td>
<td>ESO, un-ID Danish sta, w/RYRY DE OWE ZA1J at 0430, 850/50R (Gleitz, PA). It's Korsor R., Denmark. -- Ed.</td>
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<tr>
<td>4600</td>
<td>ESO, un-ID sta, w/RYRY at 0705, 375/50R. Will you say? (Gleitz, PA). YO' got me!!! -- Ed.</td>
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<tr>
<td>5034.6</td>
<td>Un-ID w/ID &amp; counts at 0140, 850/50, Nigeria. Believe it or NOTY2, NATO in Belgium (Hetherington, FL).</td>
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<tr>
<td>5160</td>
<td>IERP, Italian financial guard, Rome w/TTY in 1.30, 50 bauds (Wales, England).</td>
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<tr>
<td>5171.7</td>
<td>5AF, Tripoli Aero, Libya w/RYRY at 0220, 350/50R (Hetherington, FL).</td>
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<tr>
<td>5235</td>
<td>RDM75, Tripoli, Libya w/RYRY, USSR w/coded wx at 0410, 425/50 (Monthey, NY).</td>
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<tr>
<td>5247</td>
<td>400C, TANJUG Belgrade, Yugoslavia w/tx in EE at 0041, 425/50 (Ed.).</td>
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<tr>
<td>5371.7</td>
<td>5AF, Tripoli Aero, Libya w/RYRY at 0220, 350/50R (Hetherington, FL).</td>
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<tr>
<td>5403</td>
<td>400C, TANJUG Belgrade, Yugoslavia w/tx in EE at 0041, 425/50 (Ed.).</td>
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<tr>
<td>5457</td>
<td>Un-ID w/RYRY at 0359, no ID, 500/50R (Dudley Williams, CA).</td>
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<tr>
<td>5460</td>
<td>VQA Tongier, Morocco w/tx in AA at 0345, 425/50R (Ed.).</td>
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<tr>
<td>5504.6</td>
<td>Un-ID w/tx in S5 at 1045, FEC (Hetherington, FL).</td>
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<tr>
<td>5574</td>
<td>RFLG, French mil., Capetown, French Govea w/ARTFUX (Mauritania) at 1035, ARQ 850/72 (Hetherington, FL).</td>
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<tr>
<td>5740</td>
<td>RHMM, Jeddah Mevco, Saudi Arabia w/coded wx at 2337, 850/50 (Ed.).</td>
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<tr>
<td>5789</td>
<td>COU, un-ID Cuban w/RYRY at 0250, 350/50R (Gleitz, PA).</td>
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<tr>
<td>6330</td>
<td>CFH, Canadian Forces, Halifax w/coded wx at 1325, 425/50R (Art Blair, CA).</td>
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<tr>
<td>6340</td>
<td>NOJ, USCG Kodik, AK &amp; NM, Juneau, AK w/tx at 1819, 170/50N (Ken MacLeod, WA).</td>
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<tr>
<td>6455.5</td>
<td>LUC20, Munmunk R., USSR w/wings in RR at 1010, 170/50R. Usually runs CW, 1st time noted w/RYRTY (Hetherington, FL).</td>
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<tr>
<td>6495</td>
<td>WNU, Stellor R., LA w/Hz list at 1401, FEC (Blake, CA).</td>
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<tr>
<td>6833</td>
<td>GFL/2, Blackwell Mevco, England w/coded wx at 1900, 425/50R (Ed.).</td>
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<tr>
<td>6902</td>
<td>KAWN, Carvill ABF, TX w/coded wx at 0720, 850/750 (Blair, CA).</td>
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<tr>
<td>6915</td>
<td>BAP74, KINLH Beijing, PR w/tx in EE at 1512, 100/25R (Blair, CA).</td>
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<tr>
<td>6943</td>
<td>STX, ASECNA Nouadhibou, Mauritania w/TTY at 2100, 20 bauds (J.C.B., England).</td>
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<tr>
<td>6963</td>
<td>NBTN, USCOC Aquaduek mng NMG at 0130, 170/50R (Daryl Symington, OH). Welcome back, good to see your loggings here again! -- Ed.</td>
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<tr>
<td>6972</td>
<td>YOG9, Agecous, Bucharest, Romania w/tx at 1935, 475/50 (J.C.B., England).</td>
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<tr>
<td>6976</td>
<td>4UXB, ASECNA Dakar, Senegal w/RYRTY at 0900, 425/50 (Ed.).</td>
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<tr>
<td>7040</td>
<td>70ZC, Kharomakas, Aero, S. Yemen w/RYRTY at 0420, 700/50N (Williams, CO).</td>
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<tr>
<td>7042.5</td>
<td>JMCG, Tokai Mevco, Japan, w/coded wx at 1148, 850/50R (Blair, CA).</td>
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<tr>
<td>7043</td>
<td>5PMM, PTT Havana, Cuba w/tx &amp; count at 0209, 425/50R (Kreitzel, NY).</td>
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<tr>
<td>7046</td>
<td>Un-ID w/fox to TAA/A54, RFR/727, etc. at 0443, 850/50, (Bob Logan, TX). That S/F fox was wx data &amp; AAT/14 was the circuit ID &amp; w/fox seq. The DAA indicates it's 6VY41, Dakar, Mevco, Senegal. -- Ed.</td>
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<tr>
<td>7792</td>
<td>4YA, RN London, England w/fox ch on 2055, 850/50R (Ed.).</td>
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<tr>
<td>7897</td>
<td>4ZY, UN Geneva, Switzerland w/fox to UN in NY City at 0034, 425/50R (Gleitz, PA).</td>
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<tr>
<td>7898</td>
<td>ROQ3, Novosibirsk Mevco, USSR w/coded wx at 0434, 500/50R (Gleitz, PA).</td>
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<tr>
<td>7935</td>
<td>LRN6S, Cyx-Buenos Aires, Argentina w/fox in S5 at 2345, 850/50R (Ed.).</td>
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<tr>
<td>7961.3</td>
<td>FF/14, Un-ID w/tFAX at 2350, 250/50R (Ed.).</td>
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<tr>
<td>8070</td>
<td>7FB, Cape Town Naxrad, RSA r. 0021 w/foxes at 0943, 425/50R (Kreitzel, NY).</td>
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<tr>
<td>8135</td>
<td>KM2, Hanoi, Vietnam w/RYRTY at 1539, 500/50R (Rich, CA).</td>
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<tr>
<td>8187.5</td>
<td>7Q232, Libongwe Aero, Malawi w/RYRTY at 0442, 400/50R. Sometimes uses collsion FELW (Williams, CO).</td>
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PIRATES DEN
FOCUS ON FREE RADIO BROADCASTING

Just when I was beginning to think that all the pirate variations had been done comes a letter from Dallas Williams in Colorado who reports on his reception of a station calling itself "Radio Truth," broadcasting from somewhere off the coast of America" and continuing that it was "part of the Voice of Democracy and the satellite broadcast of the Voice of Communism" and giving the now defunct Battle Creek, MI mail drop address. The kicker was the transmission was in radioteletype! (0617 to 0632 close on 13998.2. The transmission talked about terrorist acts in recent years and noted that voice versions were aired between 5.8 and 5.9, 7.4 to 7.55, 15.4 to 15.6 and 21.450 to 21.6. Single sideband voice broadcasts were also announced for 14335, 15040, 21455 and 28995. The Voice of Communism/ Voice of Democracy are, indeed, pirate stations which have been active in the past. Most interesting! If you are equipped to monitor RTTY I suggest you watch 13998 for possible future activity. And thanks to Dallas Williams for sending this in.

WOLF is the call of the new station which is supposed to go on the air sometime this spring in Western New York. Initially, Saturday and Sunday evening programming is planned over a low power FM band transmitter. Format will be largely soft rock.

I've been absolutely deluged with reports this month (that's not a complaint!) and the only way I can get everything in is to condense them.

Voice of Tomorrow, the half pirate/ half clandestine racist station, was noted by Stu Nadd (NY) around 2110 on 6240, announcing 1616, 7410 and 15040 as well. Claimed the studios were in Providence, RI, transmitter in Baltimore. Announced its address as P.O. Box 314, Clackamas, OR 97015. Heard at 1940 on 7410.5 by Brian Breton (NH), on 7410 at 1918 by Fraser Bonnett (OH), 6241 at 2229 by Pat Murphy (VA). The usual "Tomorrow Belongs To Me" theme and wolf call interval signal.

The Voice of Elmer Fudd was heard by Murphy (VA) on 26.086 at 2010-2142 with humorous songs on the "Uncle Stevie Show." Said they'd be on every weekend.

United World Radio was found at 0315-0344 on 7412 by Dave Molinelli (IL) with rock music and spoofs. Address was given as c/o T.A.G.A.R., Room 258, Union Building, Stony Brook, NY 11794.

WJBI was heard by Steve Rogovich (VA) to 0629 closing on 1620 with old rock. Played the national anthem at sign off. Ray Babecki (NJ) heard the station at the same time, claiming 1,000 watts and announcing a location on Staten Island. Noted with ID as "WJBI, 1620, the Voice of New York, broadcasting on 1,000 clear watts. We are conducting equipment maintenance tests." Claimed to be located in central New York state with directional north-south antennas, reports Jim Kalach (CT). Jim says the station requested reports be sent to the National Radio Club but I would very much doubt the NRC is involved in any way. William Wyllie (MA) heard them at 0546 and Zachary Bortolot (CT) at 0519.

WROX was logged by Nick Terrance in New York on 7415 LSB at 2345. Many ID's as "WROX from the Northeast to the world." Format of satire and folk music.

WRFT—Radio Free Texas was heard by Jim Smith (MO) at 0413-0430. Jim didn't mention a frequency, but I'd guess 7415. That's where Robert Ross (ONT) heard them on 0430. Jim says they announced a schedule of Sunday and Thursday nights (Monday/Friday UTC) and Grant Barrett (MO) says they have a nice yellow and blue QSL card.

Seems virtually everyone heard WENJ. Stu Nadd at 2045 on 7415 announcing an 800 number. Dan Spooner (MA) had them on 6240 at 2341 also mentioning 1620 and 108 FM. Robert Ross had them at 1933 on both 6240 and 7415. Joe Burke (NY) found them on 7417 at 2240 giving a phone number. Pat Murphy called announcer Jack Beane and subsequently got a QSL for his 7415 reception. So did Gene Fuller (CT). Steve Rogovich had them from 0200-2100 and Stephen Naylor (NH) at 2200. Steve checked his phone bill and found his call went to Perth Amboy, NJ. Joe Wright (MA) had them at 2125 on 7416 and notes the use of the "J-rock" slogan. John Bensch (NJ) also QSL'd them and wonders if the call may stand for West Edwin New Jersey." Walter R. Talbot II (PA) had them at 2015 on 7410. Address given as P.O. Box 5074, Hilo, HI 96720.

Steven Naylor (NH) found Radio Con dolish at 0200-0230 on 27.035 (CB Channel 7) with the "Lucky 7 Show" which Steve says has been going out on Sunday nights for some months. Rock, rhythm, comedy records and ad parodies, but no ad dress given.

Falling Star Radio noted by Pat Murphy at 0507 on 6242 with requests for dossi ons and "counterculture" materials to the Hilo, HI address. Heard by Dan Spooner (MA) a few times on 7415, mostly between 0400-0600. Address given as P.O. Box 1659—Gracie Station, NYC, NY 10028. Steve Rogovich heard them on 6240 from 0422 to 0500 sign off with a "theme" broadcast on preventing and avoiding violence. Signed off with the William Tell Overture. Robert Ross had them from 0000 sign off at 6242.

Radio Clandestine showed up on the unusual frequency of 6110 noted by Joe Wright (MA) from 1947 to close at 2013 with late 60's rock and comedy; hosted by R.F. Burns.

Weekend Music Radio from Scotland was heard by Steve Rogovich from 1853-1940 on 15045.

It's obvious the pirate world has been busy at both ends—transmitting and receiving!

Pirate fans may be interested in the 1989 Pirate Radio Directory, written by George Zeller. This 56-pager has details on about 50 North American shortwave pirates active last year, including frequencies, formats, addresses and how to DX and QSL pirates. Price is $6 (plus $1 shipping) from Tiare Publications, P.O. Box 493, Lake Neeva, WI 53147.

Keep those reports flowing in and I'll see you again next month!
The Sparkomatic RA-400 CB rig is a good, basic, no-frills mobile unit selling at a relatively low price. Still, it's not all that much of a barebones unit as you might imagine a rig with a list price of $59.95. It's offering all-channel, full-power operation, extremely compact size, LED digital channel display, plug-in microphone, received signal and modulation indicators, and an instant Channel 9 pushbutton. You can also buy this unit complete with a mag mount antenna (Model RA-500, $69.95 list price).

Looks like a good little rig for any number of mobile applications where you need quick, full-power comms and don't want to shell out a lot of greenstamps. Comes from Sparkomatic Corporation, Milford, PA.

You Wrote To Say

From Cheyenne, WY comes a note from John Gardner who recalls that in the column last September we mentioned using a Valor 300 rubberized shortie antenna for roof mounting on metal-skin motor homes in order to avoid tuning problems with antennas located on the mirror mounts. He liked our suggestion and asked if we had any further thoughts on such an installation.

The Valor 300 (which fits into standard mounts) can be placed on the RV's roof railing towards the rear of the vehicle so that it cuts down on engine hash. Although the antenna is amazingly flexible (Valor describes it as "literally unbreakable"), it will nevertheless shear off at the base if a low hanging tree branch whacks it within its bottom inch or two. Best way to reduce this possibility is to mount it towards the rear on the driver's side.

Also note that, being only 15 inches tall, the trade off with this flexible antenna is that it is neither going to receive nor send out a signal as well as a standard mobile whip. On the other hand, being mounted on top of a vehicle that's almost 11 feet high offers some advantages. So long as you're mainly interested in using your CB for getting traffic conditions and smokey reports, or shout up a REACT team, within a five mile radius, then it should prove satisfactory. If you're looking to work DX, you'll be disappointed.

Many dealers sell Valor antennas. The company's address is 185 West Hamilton St., West Milton, OH 45383.

On the subject of mobile antennas, G.L. Milner, Providence, RI wrote to say that he's seen the manufacturers' literature on the Wilson 1000 and Signal Engineering Gold-enrod 45 mobile antennas and they both appear to offer dazzling results. Wants to know if anybody has reported in with first hand field reports on either or both. I can report that thusfar we have heard from several readers who have had glowing words of praise about the Wilson 1000. You can take that to the bank!

Richard S. Grove, SSB-36V, of San Francisco asks us to remind you to shop around carefully and not to forget mail order dealers when pricing CB rigs and accessories. He notes that prices can vary widely. In fact, Richard had purchased a Cobra 2000 locally, only to find one that could have been obtained from several other sources for less. One mail order dealer was offering it for $50 less than he paid.

Operating and Operators

Mel, HI-321, of Honolulu, HI comments on our January mention of the Botswana...
Grounding your antenna against lightning strikes.

DX'pedition. He reports that he copied that station (105-AT-0) last October and did receive the QSL from this rather rare African location.

Speaking of DX, the column received a lengthy letter from CB'ers Adelheid and Michael Schrotner, P.O. Box 884, Berlin 1064, German Democratic Republic. We are always amazed to find where this magazine has readers! The ID's used at the station there are 46-CDR and also 46-AT-102, monitoring 27.555 MHz USB. These folks belong to almost 200 QSL and DX groups from 39 nations, and have collected more than 8,000 QSL's over the last ten years. In addition to 27 MHz operations, they are avid SWL's.

Andres J. Garcia, SSB-36H, of New York City, NY was surprised to read in the February column about the operator in Alberta who was asking about the mystery station on CB Channel 6. This is the station with the OM operator that appears to be talking to himself. Andres observes that he has a vacation home overlooking Lake Bomoseen, VT and where he copies this same station with an amazing signal at times, both AM and SSB. He agrees that the guy just babbles on, and on, and on, in a monologue containing occasional pauses!

Gregg A. Pohl, the Information Director of the Southern Oregon Rural Radio group tells us that they are looking for area operators (SSB) to hold roll calls on behalf of the organization. Contact Gregg and the SORR at P.O. Box 227, Chiloquin, OR 97624. Or look for them on the lower side of 39 at 8 p.m. (local) on Sunday nights.

We never cease to hear from folks who enjoy card swapping, although they don't always seem to be all set to go into action along those lines. Recently, though, a good looking QSL showed up from Tom A. Love III, SSB-92D and 10 X-Ray-2, P.O. Box 278, Green Bay, VA 23942. He's got the cards plus a ham in to exchange them with other operators. You're invited!

Sorry to have to note that longtime 27 MHz operator Herbert J. Durnavent, SSB-3245A, of Sacramento, CA passed away recently. Herb had been a member of the SSB Network since 1977. He will be missed.

Grounding

Guess I don't have to point out that during this time of the year the weather tends to produce lightning. Since lightning wants to strike the highest grounded point in a given area, a CB antenna could be a prime target, which could result in a fire in your home, or loss of your home's electrical system, damage to your equipment, and (most importantly) harm to persons in the home that received the unexpected lightning bolt.

The electrical path can occur from the antenna elements, through a coil at the antenna base, down the shield of the coaxial cable, then to the transceiver chassis. Unless the electrical path is detoured to a path other than that just described, there's a problem that's sure to happen. There are several ways to provide for ground protection from lightning.

In the most simple grounding arrangement, a heavy wire is run from the transceiver case (if it is metal) to a cold-water pipe or to the screw that holds on the cover plate of the a.c. wall outlet. This is, if your CB rig doesn't have a 3-prong wall plug that accomplishes this on its own.

Commercially available lightning arrestors are available from several sources (Alpha-Delta, Radio Shack, and Cushcraft immediately come to mind). These will divert any direct strike on your antenna to a point outside of your home. A homebrewed ground can also be made and should do a good job.

Items are available where electrical supplies are sold. First is a length of bare wire, like #8 aluminum or #10 copper. One end of the wire is attached to the lower end of the antenna mast with a grounding clamp (see diagram). The wire is led down, as straight as possible, towards ground below. Avoid kinks as well as unnecessary turns or loops.

The wire will be fastened to a ground rod after some preparation. The rod is a standard 8-ft. copper rod driven into the earth (as shown in the diagram) at least two feet away from the house. Furthermore, the top of the rod should be buried at least one foot below ground level. For this reason its convenient to locate the point where the rod will be driven into the earth, and (before the rod is hammered in) first dig a hole just over a foot in depth. Then, hammer the rod down until its top is barely visible in the hole. This permits the ground wire to be attached. If the rod has no provision for fastening a wire, a grounding clamp should be used. Finally, fill in the hole and pack down the earth until firm.

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CIRCLE 49 ON READER SERVICE CARD

THE MONITORING MAGAZINE
June 1989 / POPULAR COMMUNICATIONS / 47
Intruder alert! Intruder alert! Nonamateuer transmissions have been detected on all HF ham bands. Request immediate mobilization of nationwide monitoring network. All nonamateur transmissions shall be catalogued, analyzed and summarized regularly.

Sound like something from one of the latest techno-thrillers? Well, it's not. It's all in a day's work for the 30-or-so hams who are a part of the ARRL Interference Reporting System, AIRS for short.

AIRS started operations in 1983, replacing the old "Intruder Watch" program. AIRS has three main objectives: (1) to report nonamateur stations causing harmful interference to amateurs; (2) to establish a record of vigilant protection of the amateur bands; and (3) to develop band occupancy data and accommodate an occasional special study.

Nonamateur transmissions do show up on all HF ham bands on a daily basis. With the amount of "assignable" radio spectrum dwindling fast, it's important that we not create the impression that the ham bands are up for grabs. Hams have lost frequency allocations in the past. Just last year, the FCC took steps to reallocate 220 to 222 MHz to land mobile interests (as this column is being written, the FCC action is being actively fought by the ARRL and others).

What kinds of nonamateur signals find their way onto the amateur bands? Shortwave broadcasters, military RTTY, fishing beacons, marine transmitters, over-the-horizon radar, open carriers, free-band type SSB conversations, spurs from malfunctioning transmitters, and many others. Fig 1 lists a few recently-reported suspect signals. Several hundred nonamateur transmissions are reported to the FCC every month through the AIRS program.

Because the International Telecommunication Union (ITU) divides the world into three regions (see the Ham Column, February 1988 for a complete description of ITU regions and frequency allocations), and some ham bands share frequencies with other interests in some regions, weeding out unauthorized nonamateur transmissions is difficult. Some high frequencies, however, are allocated exclusively to the amateur service on a worldwide basis: 7050 to 7100 kHz, 14,000 to 14,250 kHz, 21,000 to 21,450 kHz, and 28,000 to 29,700 kHz. Intruder hunting in these segments is more clear cut.

A Day In The Life

Gib Gibson, W7JIE, is a typical AIRS monitor. He's a retired government worker who lives in Washington—an active ham with a passion for the challenge, mystery and "clandestine feel" of intruder hunting. Gibson, pictured in Fig 2, starts each monitoring day at 5 am. First he gets in a quick read of the morning paper, and then it's time to go hunting! Gibson's favorite bands are 40, 20, and 10 meters. As shown in the photo, he uses Kenwood R-5000 and R-2000 receivers, and a Yaesu FT-757 amateur transceiver in his listening efforts.

During our morning conversation, Gibson was simultaneously monitoring two nonamateur RTTY stations. I could hear them "deedle-eedle-eecling" in the background. "They're probably Soviet maritime RTTYS," he says, "and probably won't be on frequency for more than a few days." It's tough to track them that way. Because ITU member countries are essentially free to commence military communications on any frequency, they often "plop" down a signal in the ham bands, stay for a while, and then move on. Some out-of-band shortwave broadcasters (clandestine broadcasters, for example) behave similarly.

In addition to the frequencies listed in Fig 1, Gibson offers POPCOM a builders these frequencies: 14, 141, 1470, 21,032, and 21,284 kHz. These are usually occupied by Soviet maritime RTTY stations. Other commonly-occupied frequencies (mostly RTTY) include: 14,024 kHz (Moscow), 14,180 kHz (Tashkent), and 18,154 kHz (this Cuba-to-Angola piccolo will not be an official "intruder" until the 17-meter band is no longer a shared band).

Because international cooperation in matters of radio spectrum allocation is so touchy (and involves many governmental agencies and diplomatic channels), it's often difficult to see the positive results that come from all this monitoring. Two recent successes include: the silencing of some illegal fishing beacons off the coast of Florida, and "long-distance" engineering assistance to a Tahitian shortwave broadcaster. In the first example, authorities clamped down on several fishing beacons operating in the 160-meter ham band. The beacons, used by commercial fishing operators to mark fishing areas, had been imported from Japan, where the beacons are perfectly legal. In the second example, an out-of-band signal was traced to a Tahitian shortwave broadcaster. Several components in the transmitter were damaged, causing the unit to emit spurious signals on the 40-meter ham band. As soon as the transmitter was fixed, no more phantom signal. Incidentally, I think you'll be interested in tracing the "chain of command" necessary to correct the problem. They are, in order: monitor, coordinator, FCC Treaty Branch, US State Department, London, Singapore, Tahiti, station attendant, blown filter in transmitter replaced, and finally, a thank you note! That's a lot of shuttle diplomacy!

More direct intruder monitoring methods may evolve in the future. For example, according to Gibson, the New Zealand government has authorized one ham station, ZL6IW, to transmit on any ham band, using any emission (for the purpose of tracking nonamateur signals). When a nonamateur signal is detected, ZL6IW can do more than just monitor the station—he can usually talk back, thanks to his sophisticated array of transceivers, RTTY decoders/decrypters, and other gear. This contact is often enough to drive away most of the squeamish nonamateur stations. The tactic has also been

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<table>
<thead>
<tr>
<th>Selected AIRS Interference Reports</th>
<th>FREQ (kHz)</th>
<th>UTC</th>
<th>CALL/ID</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1804.27</td>
<td>0052</td>
<td></td>
<td></td>
<td>CW, Beacon-like signal with letter &quot;O&quot;.</td>
</tr>
<tr>
<td>7000</td>
<td>1431</td>
<td></td>
<td>UMS</td>
<td>Israeli wobble jammer.</td>
</tr>
<tr>
<td>7007</td>
<td>1625</td>
<td></td>
<td></td>
<td>CW, RTTY. Maritime station signing normal traffic.</td>
</tr>
<tr>
<td>7019.7</td>
<td>0425</td>
<td></td>
<td></td>
<td>Encrypted RTTY, unprintable.</td>
</tr>
<tr>
<td>7070</td>
<td>0230</td>
<td></td>
<td></td>
<td>Wobble jammer.</td>
</tr>
<tr>
<td>7082</td>
<td>2245</td>
<td></td>
<td></td>
<td>Broad warble jammer on top of weak AM broadcast.</td>
</tr>
<tr>
<td>14,074</td>
<td>1414</td>
<td></td>
<td>VRQ</td>
<td>CW, traffic handling.</td>
</tr>
<tr>
<td>21,032</td>
<td>0450</td>
<td></td>
<td>UMS</td>
<td>CW, RTTY from eastern Siberia.</td>
</tr>
<tr>
<td>21,255</td>
<td>0150</td>
<td></td>
<td>WNU</td>
<td>US maritime coastal station running CW traffic. Probably a harmonic.</td>
</tr>
<tr>
<td>28,058</td>
<td>2118</td>
<td></td>
<td></td>
<td>LSB, Spanish CB-type QSO.</td>
</tr>
<tr>
<td>28,125</td>
<td>1500</td>
<td></td>
<td></td>
<td>SSB, truck drivers talking, profanity.</td>
</tr>
</tbody>
</table>

Fig 1 - A small sample of an AIRS interference report. Some information has been intentionally left out.
effective on foreign military and maritime stations.

Gibson has this parting advice for hams who encounter nonamateur signals: "Don't waste your time trying to jam nonamateur transmissions. A 1500-W ham signal, although powerful in its own right, is no match for a 50-kW RTTY signal. Besides, you'll probably create some interference of your own." (Not to mention that jamming any signal, intruder or otherwise, violates FCC rules for amateurs!)

For an application, or detailed information on the ARES program, contact Luck Hurder, KYIT, at ARRL HQ. And don't forget to write me at ARRL, Dept. PCN, 225 Main Street, Newington, CT 06111. Keep your letters and photos coming. I'll be using a lot of the latest material in future columns.

**Fig 2** - Gib Gibson, W7JIE. Gib is an active AIRS monitor. He tries to get in a little "regular hamming" every day. Gib has been running QRP, or low power (about 10 watts output).
Single-wire indoor antennas can be resonated with an antenna bridge to better match the wire to the receiver and obtain the most favorable pick-up on a given band, or several bands. Reception can be further improved by finding the most favorable physical location for the antenna by moving it about and checking results against a reference. Sometimes, the resonant frequency changes as you shift the physical position of the antenna wire, but usually not enough to have a serious effect on signal level. Indoor performance is often influenced by the surroundings of the antenna wire. Watch out for any significant change in level up or down as you seek the best spot for a permanent installation. Don’t forget, if you have enough space, a longer wire can be resonated on two bands, fundamental and third harmonic. Also, the added length quite often helps on adjacent bands as well.

By proper connection of the antenna meter, such single-wire antennas can be resonated with, or without, a ground attached to the receiver. The receiver finds a ground by way of its power cord when a more direct ground is not available. This article demonstrates how the antenna bridge can be connected to make resonant measurements for both single-wire against ground as well as dipole-connected indoor arrangements.

**How To Connect The Antenna Bridge**

A two or three position coaxial switch is an effective device to use in making the right connections for the resonant measurement of a single-wire antenna, Fig. 1. Use about a 2-foot length of coaxial cable that can be connected between the coaxial switch and the receiver antenna terminals, Fig. 1. The output terminal of the coaxial switch connects to the bridge while the single-wire antenna is connected to input terminal B and, the switch is set to position B, Fig. 2A. The other end of the short, two foot, length of coaxial cable that attaches to terminal A is connected to the antenna input of the receiver. This cable’s sole purpose is to bring the receiver ground up to the switch and antenna bridge. Its inner conductor is out of the circuit because the coaxial switch is set to position 2, not position 1. Remember, the coaxial switch must be set to position 2 to make the antenna measurement between the antenna wire and receiver ground. Also, to test antenna on the receiver you must go back to a coaxial switch normal connection position, Fig. 2B.

More details on antenna bridge use for receiving and transmitting antennas is given in my book, “Easy-Up Antennas for Radio Listeners and Hams,” which can be purchased from the Popular Communications Book Shop. Refer to the advertisement in this issue.

The quarter wavelength and three-quarter wavelength dimensions for the various shortwave broadcast bands are repeated again in Table 1. Perhaps, if you have already installed one of the single-wire antennas as described in recent issues of POP COMM, you can now check out the resonant frequency with the use of an antenna bridge. If the reading is more than 10-15 percent off, it could be helpful to lengthen, or shorten, the wire accordingly.

An interesting harmonic antenna is one that is cut into the 41 meter band which has a near third harmonic resonance on the 13 meter band, Fig. 3. I usually strive for a quarter wave resonance on 7.2 MHz, especially for good nighttime listening on the 41 meter band. This is a relatively short antenna. The 13 meter band is becoming more active because of more favorable sunspot conditions. After sunrise signals are good on the 13M band and results often extend well into the day depending upon propagation conditions. When the band is open some early evening signals are also readable. You may wish to favor the 13M performance by setting it to exact resonance in the 13 meter band if you find the resonant point too far off. Usually the addition of a short length will not have any adverse results on the 41 meter band pick-up.

You can make something of a universal single-wire antenna by adding a clip-on section of approximately 15 feet. To obtain third harmonic resonance on 19 meters, which is an excellent all-day DX band, trim the add-on with the use the antenna bridge for a 15.3 MHz dip. This antenna length is close to a quarter wavelength on the 60 me-
ter band. Wire works well on 16M, too, another good DX band. Thus, with the single clip-on, you can obtain multi-band resonant results and come up with something of an all-band antenna with the exception that the clip must be opened or closed depending upon which pair of bands you wish to favor.

**Combined Use For Bridge, Tuner and Loading Coil**

An antenna bridge in conjunction with a tuner and/or loading coil can be used for a variety of functions in all-band reception. One application is to come up with a reasonable system to improve low-band results without making the antenna wire excessively long. In a test we laid down, an antenna that resonated on the 75M band, by adding to a 48-foot length wire in use; kept adjusting until we hit 3.9 MHz using the antenna bridge. Because of the apartment plan, the wire had an odd configuration as shown in Fig. 5. Keep it hidden and positioned mostly along the base of walls.

The antenna wire did not resonate close enough on 75M using the quarter wavelength dimension listed in the table. A cut-and-try procedure was needed and a section of wire had to be added. Just how much change is an unknown quantity depending upon your own apartment plan. Certainly the antenna bridge was a big help in obtaining good resonance right on the band. The presence of the DW German station on 3995 verified the results. There was a general improvement in performance on the tropical bands. The higher-frequency bands were good and little different from that noted with the 48-foot length.

**Tuner Helps**

It is on the tropical bands and lower fre-

The resonant frequency of the 75M wire I found a good source for such coils in the Radio Shack inductor packet 273-1601 ($1.98). It contains a set of 9 single-layer coils about 1 inch long and \(\frac{3}{8}\) inch in diameter that can be used singly or in series groups to resonate the single 75M wire on lower frequencies even up into the high-frequency end of the broadcast band. In our test a single coil loop, Fig. 6, moved resonance to the low frequency end of the 90 meter band. The coil was connected between 48" point and the wire added for 75M resonance. Three of them connected in series, Fig. 7, placed resonance at the center of the 120 meter band. More on using these loading coils for various purposes will follow.
If you want to really DX television, get out your scanners! It could be the TV DX opportunity of a lifetime!

This year, we will reach a sunspot maximum, predicted to be the strongest since the 1600's. In days of old, olden times reigned, because even the finest castles did not have DX haxx. But you do, so enjoy.

The sun has not been very active since 1980. The earth is now being bombarded with particles from the sun that are activating the ionosphere more than any time in recent history. Last month, we talked about the effects of TV and FM skip off the ionosphere's E layer. When the sun is incredibly active, the next highest region, the F2 layer, becomes active, sometimes enhancing reception up to 60 MHz or higher. When this happens, television can skip from 2000 or more miles away. But why do you need a scanner to DX television?

No Standard Is Standard

Unfortunately, there are four major standards of broadcasting television: NTSC (North America and Japan), SECAM (France and the Communist bloc countries), and PAL, and its sister PAL-M (in Britain and many places in the rest of the world.) To add to the confusion, TV channel frequencies are not standard, either. Channel 2 in the USA is on 54 to 60 MHz, but in Western Europe, it is found on 47 to 54 MHz. This is why your scanner might be the key to your finest TV DX.

Wait For The Buzzer

Since your North American NTSC standard television receiver cannot tune European and Australasian TV channels, the next best thing is to intercept the signals with your scanner. The sound carrier, thankfully, uses FM modulation worldwide. The video signal will sound like the familiar buzz you might hear if your TV is not tuned in, and the station transmits something white, like lettering. This buzz will probably be your first indicator of F2 skip. Enter the picture and sound frequencies of the area you would like to catch, and be very patient. An efficient antenna wouldn't hurt.

Broadband Yagis, cut for the 6 meter ham band, or 30 to 50 MHz public service band, might be good choices. Your best chances are the lower video frequencies, especially 48.25 MHz. Due to transmission offsets, these may vary slightly. West Germany has been found on 48.245 MHz, and other Europeans show up on 48.255 MHz. Norway has been received on 48.26 MHz. When these video carriers start to show strength, try the matching sound frequency, and roll your tape recorders.

The best time to listen is between 0900 and 1300 Eastern time, when the sun is shining over Europe and North America. West Coast DXers have a much longer haul to Australia, New Zealand, and possibly Korea. Japan is out of the race because its lowest TV channel is broadcast between 90 and 96 MHz, way out of the range of F2 skip. This frequency allocation might have been intentional.

Japan and its surroundings, for unknown reasons, are most susceptible than any other place in the world to the effects of E skip, and higher transmission frequencies would avoid its effects. All those Japanese DXers must hate this! West Coast DXers, watch from dusk, to an hour or two later, local time, and pray. It's a long way to Sydney, but it can happen!

If you want to actually see what is coming in, there are several ways to do it. Possibly the best, most frequently agile, way is to use a communications receiver with a video output option, such as the ICOM R-7000. This would provide you with continuous tuning.

There are several domestic sources of multi-standard television services capable of overseas TV DX'ing. Apple Labs, of Jackson Heights, New York, and Instant Replay, of Miami, Florida, both offer TV's and VCR's capable of handling almost any TV system and frequency standard. The Unisonic 2 inch micro TV is another multi-system set, and probably the most available. It has even been offered on The Home Shopping Club on TV.

Large cities, like New York and Los Angeles, have electronics specialty stores that sell televisions and appliances for export, and they should have televisions for foreign standards as well. A few domestic TV's and VCR's will tune to frequencies below our channel 2. Experiment in showrooms by switching a cable-ready set to the HRC channel standard (used in some cable TV systems), and see if it will tune channels zero and one. These are channels below our channel two, useful for foreign DX.

Varactor tuners are best, because unlike digital tuners, they can be continuously tuned and do not automatically chase other signals, like an automatic fine tuning circuit does. Always turn your AFT switches off! Also, keep in mind that this frequency range is used by cordless telephones that are often not frequency stable, and they may become your worst enemy!

Be patient and watch consistently. Rich Turcansky, of Stratford, Connecticut, has already logged several European signals this season, using a scanner and a Unisonic XL-990 multi-standard portable TV. Although it's rare, Korea has been seen on the West Coast. Another idea: look for a tag sale by some one who has lived in Europe. If they brought their TV from the homeland, and found they could not use it to watch North American television, you could pick up a receiver for a song! Look out for F2 TV skip! Don't miss this rare DX action that only comes once a decade!
Co-Channel Eliminators

In the February issue of POP'COMM, I mentioned a method of eliminating co-channel interference by using two antennas and a phasing unit, on TV and FM frequencies. Your letters poured in asking for more details, so here they are! If you have trouble eliminating a nearby local station from your DX, this could be the answer.

Microwave Filter Company of East Syracuse, New York, makes such a unit, their model 2903. It comes in six versions: Channels 2-6, FM, Channels 7-13, UHF channels 14-48, UHF channels 49-83, and a model for cable TV channels A through L (120-174 MHz) that you could use for aircraft and VHFC public service high-band DX'ing. The unit has two controls: one for attenuation and one for phase. Using this device, you invert the phase of the incoming offending signal from one antenna. It is combined with your master antenna, aimed at the signal you want to see or hear, with the use of a directional coupler, like a Jerrold DC-8. These are available through electronics stores specializing in wiring commercial buildings, like hotels and offices, for television.

As you manipulate the phase cancellation device, you will see the offending signal get cancelled from the final product, and you'll have a nice clear picture, or sound, of your wanted station. Not only can you eliminate co-channel and some adjacent channel interference with this system, you can also eliminate ghosting and noise sources as well. It's only drawback is its steep purchase price of about $500.

There Is Hope

There are other ways of inverting phase, to create the same effect, without re-mortgaging your home! General Radio used to manufacture phase inverting "trombones" which are now available on the surplus market. Although these are much larger in size, and need an outboard attenuator to feed the right amount of cancelling signal to your master antenna, they can provide the same effect for less cost.

Picture one element of an FM double folded dipole turnstile antenna, with an added slider that can be moved up and down the element to find resonance. To find the point of all 180 degree phase reversal, you would aim two antennas at the same source and combine them. One antenna would have the trombone in line with the "hot" side of the feedline, before being combined with a directional coupler to the master antenna. Move the slider very slightly up and down the trombone until you find the maximum amount of phase cancellation for that particular frequency. Then add an attenuator to the phase reversed signal, so you can control the amount of cancellation to the master antenna, and point that antenna toward the offending source and adjust for clearest signal. You'll like what you see and hear . . . and you created the system!

Strange Signals

Interesting things are going on via AM radio too. The National Association of Broadcasters (NAB) is testing two new types of anti-skywave antennas on 1600 kHz, using the callign KA2XXB, and powers of up to 5 kW. They are searching for methods to decrease or eliminate skywave propagation on the new 1600 to 1700 kHz AM expansion-band that will be occupied with broadcasters in the next few years. These antennas are designed to maximize the power transmitted via groundwave, for local reception. Unfortunately, they will eliminate, at least in theory, the skywaves that produce great DX'ing fun when conditions are right. They are a potential good QSL'er, because their entire project depends on receptions from distant places, so keep listening!

If you live nearby the nation's capitol, check out WWHD-TV on UHF Channel 58. Operated by The Advanced TV Test Center, Incorporated, this special experimental station is the first place you can see a high definition television (HDTV) system being tested on the air in North America. It is compatible with current television sets, but you need a special set to see the improvement of this new system.

Another strange way to DX is by harmonics. You'll bag stations you could never hear on their primary frequencies. Taylor Haynie, of Belton, South Carolina writes that he received WPHB, Philadelphia, PA on 2520 kHz, and WAOC, St. Augustine, Florida on 2480 kHz. I've heard WVP, Mt. Kisco, New York on 2620 kHz, and WCOU, Lewiston, Maine on 2480 kHz. It's possible to hear second harmonics between 1080 and 3200 kHz, and although they are much weaker than the primary signal, they make great DX catches.

What Goes Up . . .

DX can happen at the strangest times. Howard Johnson, of Hazleton, PA, sent in a newspaper clipping about WBRE-TV, Channel 28, in Hazleton-Wilkes Barre-Scranton, PA. During repairs, their 749 foot tower fell and crumbled, leaving Channel 28 open to DX'ers.

Similarly, Channel 68, in New York City, had a failure of their transmitter's overload protection circuits, and their transmission line melted and took the station, and most of the FM radio stations also transmitting from The Empire State Building, off the air for hours due to heat damage.

Temporarily open frequencies often mean new DX loggings, if you are ready for

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**Call Letter Changes**

| WWSF  | AL | Andalusia         |
| WZRR  | AL | Birmingham       |
| KNYG  | AK | Anchorage        |
| KFFN  | AZ | Sierra Vista     |
| KXMX  | CA | Madera           |
| KXPT  | CA | Santa Paula      |
| KZRR  | CO | Castle Rock      |
| KCCN  | HI | Honolulu         |
| WMCI  | IL | Mattoon          |
| KDST  | IA | Dyersville       |
| KAPH  | KS | Kingman          |
| WCMC  | KY | Catlettsburg     |
| WWPN  | MD | Westminster      |
| WCCT  | MA | Harwich          |
| WGFN  | MI | Cheboygan        |
| KTLW  | MT | Great Falls      |
| WVIL  | NJ | Villas           |
| WPLJ  | NY | New York         |
| WYTN  | OH | Youngstown       |
| WYNN  | SC | Florence         |
| WBPR  | SC | Georgetown       |
| WYKD  | KS | WYKD             |
| KKKY  | KY | KYKL             |
| KHAZ  | AZ | KAIG             |
| WHB  | CA | WCHU             |
| WWOU  | PA | WWOO             |
| WNRR  | FL | WNRR             |
| WTP   | FL | WTP              |
| KAFX  | TX | KAFX             |
| WORL  | FL | WORL             |
| WYAK  | SC | WYAK             |
| KOTY  | WA | KOTY             |
| WIFS  | CO | WIFS             |
| WAID  | FL | WAID             |
| WEEED | NC | WEEED            |
| WSPB  | FL | WSPB             |
| KXKL  | MT | KXKL             |
| WWHT  | SC | WWHT             |
| KSLL  | UT | KSLL             |
| WVBS  | NC | WVBS             |
| WLXR  | WI | WLXR             |

Sherman 104.1 new
Provo 94.9 was KTOU
Pullman 104.3 was KQQQ
Gretna 750 was KKKO
Philadelphia 900 was WFLN
Destin 1120 was WBRZ
Hamden 1220 was WXTX
Charleston 1240 was WSRV
Huntington 1260 was KDFX
Eatonville 1270 was WBSZ
Surfside Beach 1270 was WMBX
Kennewick 1340 was KTCR
Pueblo 1350 was KRYT
Gainesville 1390 was WZRX
Rocky Mount 1420 was WEDD
Sarasota 1450 was WWKY
Bozeman 1450 was KUUB
Charleston 1450 was WXCH
St. George 1450 was KSGI
Burgaw 1470 was WXBG
La Crosse 1490 was WFLN

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THE MONITORING MAGAZINE
June 1989 / POPULAR COMMUNICATIONS / 53
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Zap The Dog!!

Probably the strangest signal I've ever DX'ed was for the dogs, literally! I heard an unidentified signal around 555 KHz day and night. I traced it to a house nearby, and after further investigation, learned that what I was hearing was a system called "Invisible Fencing." This is a device that transmits a signal, from a piece of wire buried in the ground, on an "unused" frequency, between 500 and 600 KHz. Your dog wears a special collar that emits a tone when the signal strength reaches a certain level due to the dog's proximity to the transmitting antenna wire buried around the edge of your lawn. If the dog goes further, it gets a "restraining correction" shock via electrodes on a special collar it wears. Let's hope that when AM skip comes in the dog doesn't get zapped endlessly!

I want to hear your comments and print what you send in, but you have to write me! If you want a personal reply, please enclose a self-addressed stamped envelope or postcard. Write to Karl Zuk, Popular Communications, 76 North Broadway, Hicksville, New York 11801. Bumperstickers, photos, coverage maps, QSL's, logos, clippings and stories are all welcome. Until next month, good DX and happy trails!
Telephone Fraud, Scams

Advice that has stood the test of time—if it sounds too good to be true it probably is—is the basis of a public education campaign led by the Alliance Against Fraud in Telemarketing.

The AAFT, coordinated by the National Consumers League, emphasizes that consumers can take some simple steps to avoid being a victim of telemarketing fraud, according to NCL Executive Director Linda Goldner. Goldner said consumers should know the organization they are dealing with on the telephone and understand the offer being made. That kind of checking around will help the consumer avoid becoming a victim of one of the AAFT’s list of top ten telemarketing fraud scams. The list, starting with the most common fraudulent offer, includes:

1. Offers of prizes to get consumers to buy water purifiers or vitamins;
2. Penny Stocks;
3. Office supplies;
4. Subscriptions;
5. Credit Repair;
6. Precious metals including rare or other coins, and “gold in the ground” schemes;
7. Travels scams;
8. Business ventures and;

Goldner said, “The variety of these top nine scams demonstrates the scope of fraud in telemarketing. Consumers need to be aware that these boiler room operations exist and how to deal with them so that they can reliably conduct business on the telephone when they want to. That is why the Alliance Against Fraud in Telemarketing came together—to teach consumers safeguards against fraud while working to eliminate as many of the scams as possible.”

The AAFT is a cooperative effort among consumer groups, trade associations, consumer protection offices, labor unions, industry and state and federal agencies to combat fraud through combined efforts and education.

James Baldwin, president of the North American Securities Administrators Association, said, “Estimates show that small investors lose $40 billion a year to con artists and swindlers. An increasingly large portion of these ripoffs are being committed over the telephone.”

Those sentiments were echoed by James H. McIlhenny, president of the Council of Better Business Bureaus. McIlhenny said, “Telemarketing has become a large and important part of the American marketing system.”

McIlhenny continued, “While the vast majority of those engaged in telemarketing are honest and legitimate, it has unfortunately attracted numerous scam artist and swindlers who, through high pressure tactics, dishonesty and outright lying, manage annually to steal millions of dollars from consumers.”

Chief Postal Inspector C.R. Clauson said the postal inspection service is working with AAFT because some of the telemarketing fraud schemes are initiated through the mail. He said the USPS inspectors have been “cracking down on boiler room operations resulting in more arrests of individuals than in the past for violations of the mail and wire fraud statutes.”

Credit cards are a popular medium of payment for telemarketing scams, according to AAFT member Dennis Brosan, security director of VISA International. He estimates annual losses of VISA member banks to be as high as $40 million.

“Unfortunately, legitimate telemarketers are painted by the devil’s brush in this type of fraud,” said Brosan. “These are complex law enforcement issues and VISA is working closely with the U.S. Secret Service, FBI, Postal Inspectors and other federal agencies to put a stop to this criminal activity.”

Telemarketing fraud is a serious concern of members of the Direct Marketing Association who do business via the mail, telephone and through magazine, newspaper and broadcast advertising, according to Richard Barton, DMA senior vice president.

Because fraudulent telemarketers reach consumers the same way DMA members do, Barton said the organization provides guidelines for “screening of advertisements and ethical business practices for telemarketers and direct mailers and we enforce those guidelines among our members.”

For more information about AAFT, write to Alliance Against Fraud in Telemarketing, 815 15th St. N.W., Suite 516, Washington, D.C. 20005.
We've received some interesting letters at Scanner Scene this month, but the most interesting was literally an "inside" look at communications at a state prison in Virginia. One of our readers, Bill, who is incarcerated at the Augusta Correctional Center in Craigsville, Virginia, sent in a list of frequencies used by guards at the lockup. Unfortunately, prison officials learned of his knowledge of their radio system and he was placed in isolation and classified as an "escape risk." Prison officials also confiscated all his notes on correction frequencies as well as surrounding towns' frequencies. He's filing in court a violation of his rights, contending that the frequencies are public information.

In any event, here is a look at the radio system at the Augusta Correctional Center in Virginia. The facility's F-1, 460.530 (an odd assignment, but possible if only low power is used in accordance with an FCC rule for surveillance communications), is used by "master control," which is the dispatch center. F-2, 453.050, is used by personnel for non-priority traffic. F-3, 453.050. F-4, 458.050, and F-5, 458.275, are used by various personnel such as maintenance, administration, security and wardens. In addition, 39.12 is used for communications from one prison to another.

William says that the Department of Correction uses five-channel General Electric portable radio for "master control," control booths in cellblocks, guard towers, administration, security, maintenance and outside security "gun gangs." Department vehicles use two Motorola multichannels mobile radios, one for facility communications and the other for a statewide radio system. "Master control" has two base stations, too. One is for regular facility communications on UHF and the other is for statewide radio systems, probably the 39 MHz frequency. Officers at the facility also have "man-down" alarms on their radios. If an officer has an accident, the system relays to "master control" the location of the officer and his or her identity. If you'd like to write to William about scanners, or other radio-related topics, write to: William K. Smith, KA3MFN, Augusta Correctional Center - 152541, P.O. Box 1000, Craigsville, VA 24430.

Steve Fleckenstein of Middletown, NY has started a scanner and shortwave oriented computer bulletin board that he's calling the Red Onion Express, after a freight train that passes through his area. The BBS has separate scanner and SWL conference areas as well as file areas that contain receiver reviews, modification tips, local and federal frequencies and logging programs. In addition, the BBS carries current copies of "Sweden Calling DX'ers" and bulletins from the American Radio Relay League. The system, which can be accessed at (914) 342-1819, uses a "ringback" system. To access, call the line and let the phone ring twice, hang up between the second and third ring. Wait twelve seconds than call back.

David Wyatt, the President of Benjamin Michael Industries, Inc., said POP'COMM had an incorrect address in a recent issue for their firm, which sells the BMI Nitelogger automatic tape recorder activator for unattended scanner listening. If you want to find out more, send a self-addressed, stamped envelope to: POP'COMM, 1139 E. Tower Road, Schaumburg, IL 60173.

M.L. Stuycyk of Baton Rouge, LA, said he bought a handheld scanner for listening to race communications at NASCAR stock car races in the Southeast. He said he is trying to find a list of frequencies used by racing crews as well as race officials. POP'COMM has covered race communications in the past, however, the frequencies used by race crews changes from season to season and even from race to race sometimes. Most crews use UHF business band channels, but some crews are starting to use 800 MHz business band channels as well. There is a good source of race frequencies. I've been a member of the Frequency Fan Club for more than a year, as I like to listen to various
races in New Jersey and Pennsylvania. Frequency Fan Club is strictly for auto racing fans who like to listen with their scanners at races. The club publishes periodic update sheets after major races and has been doing so for more than two years. In fact, the club now has about 1,500 members across the country. The club also operates a 24-hour member-only frequency hotline number for updates between issues and during speed weeks. Handheld scanners and accessories, such as special headsets, are also sold by the club. For more information on this group, write to: Frequency Fan Club, P.O. Box 991, Mulberry, FL 33860. Oh, and by the way, the club says NARC uses the following frequencies: Channel 1, 464.500; Channel 2, 464.775; Channel 3, 464.900; Channel 4, 469.500; Channel 5, 462.025; Channel 6, 467.025; and scoring, 467.800.

George E. Speck of Fort Worth, Texas, wrote to say that in his area, the hospital used to be heard on one MED channel, while the ambulance would be heard on another frequency on emergency calls. However, he said he started hearing both the hospital and the ambulance on the same MED frequency which was once used just by the hospital. Apparently, a repeater was placed on the air. George, a repeater relays what it hears on one frequency onto another, which allows extended mobile to mobile coverage. In most areas of the United States, the MED channels are used on a simplex basis. The hospital operates on the base frequency, 462.950-463.175, and the ambulances operate on the mobile frequencies, 467.950-468.175. Some areas do use repeaters for MED operations. Be sure to check both the base and mobile frequencies in your areas; otherwise you may be hearing only half the action. George also advises that the CareFliite helicopter in Dallas uses MED-10, 462.975, as its dispatch channel.

Scott A. Halligan of Hyannis, Mass., has been enhancing his 800 MHz listening with some add-on help he'd like to pass along. He added a Winegard UHF-TV distribution amplifier to his cable, in addition to the extended UHF reception technique mentioned in the November 1988 issue of POP-COMM. He says that he can hear the Boston police and fire department, which are 80 miles away with a readable signal of +3 to +5 on his ICOM R7000. He also can hear the Metropolitan District Commission Police out of Boston on 858.725 and 800 MHz frequencies out of Plymouth, Mass., about 40 miles away, with a +7 on the R7000's S meter.

We'd like to hear from you here at Scanner Scene. Send along photos of your shack, dispatch offices, towers or antenna farms, as well as QSL cards. We welcome your questions, comments, listening tips, frequency lists and updates and code lists. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801.
The National Weather Service blankets our hemisphere with up-to-the-minute weather broadcasts. These transmissions may take many forms of reception:

- **FM voice**—Popular 24-hour VHF weather broadcasts
- **SSB voice**—High frequency long-range broadcasts
- **SITOR**—Digital mode—simplex Telex for mariners
- **CW**—Morse Code broadcasts at approx. 15 wpm
- **Facsimile**—Weather charts on high frequency long-range frequencies
- **AM**—Double sideband voice on WWV time tick frequencies
- **Radio teleprinter**—RTTY on high frequency long-range channels

Three principle VHF weather channels are found in the United States:
- **WX1**—162.550 MHz
- **WX2**—162.400 MHz
- **WX3**—162.475 MHz

These are easily tuned in with many ham 2-meter sets, inexpensive weather cubes, and most programmable scanners. Most of these 24-hour weather stations offer a range of 75 miles.

Long range SSB voice weather warning transmissions are broadcast daily by United States Coast Guard stations. You will need a shortwave set capable of upper sideband reception. Any worldwide ham rig with a general coverage receiver will tune in these Coast Guard channels clearly:

- 4393.4 kHz
- 8760.8 kHz
- 13,144 kHz
- 17,290 kHz

Weather reports are also broadcast by the long range AT & T high seas radio service:

<table>
<thead>
<tr>
<th>Frequency (kHz)</th>
<th>Location of Transmitter</th>
<th>UTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>4403.9</td>
<td>San Francisco</td>
<td>0000</td>
</tr>
<tr>
<td>4403.9</td>
<td>San Francisco</td>
<td>1200</td>
</tr>
<tr>
<td>13,107</td>
<td>San Francisco</td>
<td>0000</td>
</tr>
<tr>
<td>13,107</td>
<td>San Francisco</td>
<td>1200</td>
</tr>
<tr>
<td>4363.6</td>
<td>Miami</td>
<td>1300</td>
</tr>
<tr>
<td>8722</td>
<td>Miami</td>
<td>1300</td>
</tr>
<tr>
<td>13,116.3</td>
<td>Miami</td>
<td>1300</td>
</tr>
<tr>
<td>17,232.9</td>
<td>Miami</td>
<td>2300</td>
</tr>
<tr>
<td>8722</td>
<td>Miami</td>
<td>2300</td>
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<tr>
<td>13,116.3</td>
<td>Miami</td>
<td>2300</td>
</tr>
<tr>
<td>17,232.9</td>
<td>Miami</td>
<td>2300</td>
</tr>
<tr>
<td>4388.4</td>
<td>New Jersey</td>
<td>1200</td>
</tr>
<tr>
<td>4749.9</td>
<td>New Jersey</td>
<td>1200</td>
</tr>
<tr>
<td>4388.4</td>
<td>New Jersey</td>
<td>2200</td>
</tr>
<tr>
<td>4749.9</td>
<td>New Jersey</td>
<td>2000</td>
</tr>
</tbody>
</table>

The following equipment would allow you to receive weather reports digitally:

- **AEA PK-232 packet controller**
- **MFJ #1278 multi-mode data controller**
- **Universal Radio data controller**
- **Kantronics digital-mode controllers**

These companies are the leaders in amateur radio shortwave controller—there are literally hundreds of manufacturers of devices, but these are the least expensive, easiest to operate, and simplest to hook up to a shortwave receiver or ham set.

These digital controllers may allow the following reception of high frequency weather reports:

- **SITOR**, simplex telex over radio
- **CW**, continuous wave Morse Code
- **Facsimile**, charts and photos
- **RTTY**, radio teleprinter
- **NAVTEX**, RTTY printouts

There are hundreds of frequencies in the high frequency spectrum for digital weather reception, using your home computer, for
these broadcasts. The National Oceanic & Atmospheric Administration, Suitland, Maryland 20233 is your best source for information about a specific mode of weather information you may wish to receive.

Because of budget cuts, this agency, under the direction of the U.S. Department of Commerce, may no longer send out that 200+ page book entitled "Worldwide Marine Weather Broadcasts", listing radiotelegraph, radio telephone, radio facsimile, VHF, and radio teleprinter broadcasts for the entire world. However, NOAA, or your local National Weather Service office, may provide you with the frequency data books you need that will give you the low-down on where to tune in for digitized weather charts and printouts.

WWV Time/Weather. I bet many of you didn't know that you can pick up regional weather broadcasts on the WWV time tick service on the following frequencies:

<table>
<thead>
<tr>
<th>Frequency (MHz)</th>
<th>Time Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5 MHz</td>
<td>15 minutes past the hour, every hour.</td>
</tr>
<tr>
<td>5 MHz</td>
<td>15 and 20 minutes past the hour, every hour.</td>
</tr>
<tr>
<td>10 MHz</td>
<td>45 and 50 minutes before the hour, every hour.</td>
</tr>
</tbody>
</table>

Impending storm warnings are broadcast between 15 and 20 minutes past the hour, and between 45 and 50 minutes before the hour—every hour.

These broadcasts are so strong, you can tune them in with almost any kind of shortwave receiver. Give it a try.

If you live near a seacoast, the United States Coast Guard is also a valuable reference source for marine VHF weather broadcasts. Tune channel 22A, 157.100 MHz. Contact your local U.S. Coast Guard agency for a schedule of VHF weather reports in your area.

If you live near an airport, you may receive airmen's weather, plus aviation advisories, constantly. An inexpensive scanner, capable of AM aircraft band reception, is all you need. Begin searching up from 108 MHz to 130 MHz, and chances are you will lock onto 24-hour airport weather information.

Why don't we list all of the weather frequencies in this column? Simply too many!

In fact, Popular Communications Magazine offers several shortwave listener and scanner guides that specifically list weather service broadcasts. Pages and pages of information are available.

As an emergency communicator, you must be weather-wise and know impending weather conditions instantly. This information is available if you know where it is, ahead of time. Make it a practice to tune into the weather, daily, so when you really need it in a hurry during times of disaster, it will be at your fingertips.

### What's in a FAX Chart?

The charts in this book list all the regional FAX facilities, the frequencies on which they can be received, and the times they broadcast (*although* you can call a regional FAX agency and find out hours and frequencies they use). The local agencies you select will then give you the low-down on where to tune in for digitized weather charts and printouts.
I recently received a letter from Wes Johnson of Waycross, Georgia. Wes was intrigued by the intercept of the voice communications from the Mir space station which was featured in the December 1988 issue. He, like many of you who visit us occasionally here at Satellite View, was surprised that such exotic signals could be intercepted with a scanner and a omni directional antenna. Space communications generally VHF and above frequency bands, and like their terrestrial counterparts, deal with line-of-sight communications. The advantage of being in space is that there is nothing to interfere with signals to and from the spacecraft during the time it is within the access range of your ground station. This means that most low earth orbit satellites transmitting on a frequency you can tune on your receiver or scanner will be heard as it passes over your station. The Soviet space station Mir is no exception. I know several satellite sleuths who don't even use an outside antenna and quite successfully monitor spacecraft in Low Earth Orbit (LEO). However, I recommend a vertical antenna and a preamp connected to good, low loss coax.

Mir uses wide band FM (WBFM) for its normal downlink communications. It also transmits in narrow band FM on the two meter Ham band. It transmits telemetry (TLM) on 143.625 MHz when it is not being used for voice communications. TLM is simply information about spacecraft, its location, onboard systems, etc. It is usually sent to ground stations in a data format of some sort. It can be CW, RTTY, or other secured formats designed especially for the spacecraft users. Info tech specializes in equipment for the SWL interested in toying with these formats. I say toying, because most secured formats are complicated enough that you will not be able to break them. Plus, many of the simple formats are of little use unless you have the formulas to make the information you gather useful. Of course, this is one specialized area of the hobby Geoffrey Perry of the Kettering Group has been quite successful in pursuing.

Various satellite services use different transmission modes. For example, Amateur Radio satellites use CW, SSB, and a data mode known as Packet. (Packet is an error-free data mode used by Amateurs), military satellites use a digital mode or encrypted voice (usually FM), TV and telecommunications satellites use several formats including Time Division Multiplexing (TDM) and Frequency Division Multiplexing (FDM). I hope this answers most of your questions, Wes.

Now that you have a rough overview of the diversity of space communications, let's look at what equipment is available. I have already mentioned that I think a wideband vertical antenna like the discone is a very good choice for the satellite sleuth. It will cover the widely spread satellite bands you will be interested in and with the addition of a pre-amp, will enable you to hear almost anything in LEO. Quality coax like RG-11 or Belden 9913 will keep signal loss, which becomes a problem above 150 MHz, to a minimum. A pre-amp for any band you have a special interest in will also be a help. As you gain experience, or get a Ham license and want to work with satellites, you may want to get a beam antenna with azimuth and elevation controls so you can learn to track the spacecraft. This will add to the fun and improve signal strength.

Now comes the fun part, or the hard part, depending on how you look at it. Your choice of a receiver or scanner. Two factors, as always, will determine your choice; your interest and your budget. If you already have an HF rig which will tune SSB, you can try your hand at tuning the Soviet Amateur satellites on the 10 meter band (29 MHz). If you have a scanner, review the band coverage it has. You may have access to a few satellite frequencies already. A scanner with continuous coverage is ideal. These units, like the Yaesu FRG 9600, have selectable bandwidths and modes. This enables it tune wide or narrow band FM as well as SSB.
the hiding place for telecommunications satellites.

The PRO-2004, by Radio Shack, covers 25 to 520 MHz and 760 to 1300 MHz. This is an AM/FM only receiver, though it does have wide and narrow selection for FM. This is a very popular scanner. A preamp is recommended for satellite work.

There are two new receivers on the market which are the first of what I expect to be a whole new generation of receivers. They cover both HF and UHF/VHF. They are the Kenwood RZ-1 and the AR-2515 by ACE Communications. The AR-2515 covers 5 MHz to 1500 MHz. It has selectable bandwidths and an optional SSB package. Kenwood’s RZ-1 covers 500 kHz to 905 MHz. It is an AM/FM only receiver and is designed for use in your car. I am sure it would work nicely in the house as well. Each of these receivers is more than up to the job, but remember, if your scanner covers the 2 meter ham band, or 118 to 174 MHz, you can start tuning satellite frequencies in this range to get the feel for it.

Weather satellites are perhaps the most popular and chased after spacecraft, second only to TV satellites. I know several Amateurs and SWL’s who have all but given up other aspects of the hobby to concentrate on these birds. Unlike other utility satellites, it takes more equipment, most of it specialized, to receive and display video from weather satellites. For example, you need a receiver capable of receiving signals up to 50 kHz wide, which is more than most of the receivers mentioned here can do. Therefore, a special weather satellite receiver is preferred. Vanguard has two models available. One is crystal controlled, the other is continuous coverage of the 137 MHz weather satellite band. Hamtronics also has a receiver in kit form available, as well as a selection of pre-amps and other accessories.

Both the U.S. and Soviet Union have several low altitude polar orbiting weather satellites that use the 137 MHz band. Europe, Japan and the U.S. also have geostationary weather satellites. They transmit WEFAX near 1671 MHz. You can still get by with a vertical antenna if you use a good pre-amp for the low altitude satellites. The diagram below shows possible equipment configurations for weather satellite stations.

You can display video from weather satellites in one of three ways. With a dedicated terminal and printer, a terminal (interface) and a computer with appropriate software will enable you to display weather photos on a TV monitor. The old fashioned way, using an audio recorder and an electrostatic printer, is a third and still reliable way of displaying this information.

For the best pictures, a good, dedicated terminal like the Universal M-7000, or DGM FAX 1000 is preferred. These units use a hardcopy printer to display weather maps. The 7000 will also display on a video monitor screen with some loss of resolution. If you want to use your computer to display video, you will need a unit like the PK 232 and appropriate software. If you are already into RTTY and other data transmission modes, it’s very easy to move this type of satellite sleuthing.

Even though chasing the satellites is not unlike any other aspect of the hobby, generally speaking, it can introduce you to new and interesting areas, like tracking. Whether you do it manually, or by computer, it can be fun. We will take a close look at some of the computer tracking programs on the market in the near future... See you next month.

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RADIOSPORTING Magazine
PO Box 282, Pine Brook, NJ 07058, USA
W ell folks, they slipped one past us. Another new US shortwave station came on the air, but there had been virtually no advance publicity about this one. KJES began tests at the end of January on 11730, 15140 and possibly other frequencies as well. At this writing, not much is known about the station except that it is owned and operated by Missionary Radio Evangelism and operates from Vado, New Mexico. Reception reports can be sent to 3720 Greenwich Drive, Vado, NM 88072.

Meantime, the new Herald Broadcasting (Christian Science Monitor) station, WSHB at Cypress Creek, South Carolina was testing the first of its 500 kW transmitters. Assigned frequencies include: 6005, 6175, 7315, 9535, 9770, 11700, 1915, 13760, 21460 and 21770 at various times of the day and night. With that kind of power, you should pick them up with no trouble.

There's word of still more shortwave activity coming in the United States. WNIR (News and Information Radio) would relay the programs of National Public Radio, although it would be a privately owned, nonprofit enterprise.

New Covenant Educational Ministries has just received FCC approval to put up a 100 kW station on the air from Jacksonville, FL. And the Cuban-American National Foundation, unhappy with the "mild" approach taken by the government's official Radio Marti service, wants to put an anti-Castro station of its own on the air.

Apparently Radio Denmark's external service will be rescued by the Danish government which will take responsibility for funding the programs and may later also provide money for transmitter facilities—which probably means paying for relays over Radio Norway and perhaps Radio Sweden facilities, too.

Watch for the new relay of Spanish Foreign Radio which is supposed to be on the air from Costa Rica by the end of the year. The transmitters will also carry a "Radio Costa Rica International" type of service.

If you haven't heard Radio Jordan yet, the station's new half million watt transmitters will also carry a "Radio Costa Rica International" type of service.

The suspense surrounding the future of Radio New Zealand has ended, and on a happy note, too. About a year from now, the station should be able to retire those weary 7.5 kW clunkers it's used since WWII and go on with 100 kW. Plans call for a schedule running 11 hours per day in English and Pacific languages. They hope to have it ready in time to celebrate New Zealand's 150th anniversary.
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THE MONITORING MAGAZINE 66

Tahiti: T. Tahiti, 11825/15170 at 0400 w/fax (Rogers, OK) IN FF or Tahitiant. Ed. 15170 at 0610 in Tahitian w/fax and mx (Zirkelbach, CA).

Tel Aviv: V. Goldin, 9705 at 0316 (Barenstein, NY). 9680 at 0300 (Davis, MA).

Togo: RTT, 5047 at 0529 u/f w/ID in FF (Kunkel, CA).

Tunisia: RTT Tunis, 74511/11205 in 2200 at AA. Bit of RTTY QRM both freq (Tuchtschier, WI).

Turkey: V. of Turkey, 9445 at 0333 (Gilbert, MI).

Ukraine SSK: R. Klev, 7165/115180/15455 at 0640 w/Ok (Kunz, MD); 7400 at 0520 (Decerbo, CT), 11780 at 1800 (Garcia, MD), 13645 at 0350 w/ID, ID, mx (Tuchtschier, WI). U.S.S.R.: R. M. Mittler, 1955 at 1615 (Garcia, MD); 11965 at 2306 w/ID, ID, mx (Kunkel, CA). 2000 at AA in Rogers (OK).

UAE: M. Abu Dhabi, 9395 at 2317 w/ID from QRM. See bid information on this page in ID. Use a "KUSI" Soft Lake City, 9815 or 0300 "KUSI" w/mx (Fate, CA) at 0640.

WIMB, 13115 at 2245 w/ID & address (Mexico, OH); 11965 at 0300 "w/mx, presumed ok" (Rabinowitz, MI).

WMLK, 9465 at 1830 w/id (Garcia, MD); WCN5, 11640 at 2000 (Decerbo, CT).

U.S.S.R.: R. M. Mittler, 1955 at 1751/7350 in 0334 in SS; 15475 at 0171 (Zatka, MI). 6810 is spu at phantom freq. Ed. Lisen Ud. 1395; 0305 at 0410 in RR (Davis, MA).

Radiostation Rodia, 13615/13645/15455 at 0200 in RR (ID) w/id. Ed. P. Peace & Progress, 7480 at 0300 (Hutchinson, OK). 17445 at 0110 in 2200 (Garcia, MD), 15120 at 1545 in Rogers (OK).

Venezuela: N. Tachman, 4870 at 0400 in SS (Davis, MA), 14150 at 0540 in SS (Davis, MA), 14170 at 0540 in SS (Davis, MA), 14170 at 0540 in SS (Davis, MA).

Yemen Arabic Reps: R. Sinada, 9780 at 0432 in AM (Gilbert, CA).

Yugoslavia: R. Yugoslavia, 6100 at 2020 w/id, into YY (Zatko, MI). R. Yugoslavia, 6100 at 2100 w/id, into YY (Zatko, MI). R. Yugoslavia, 6100 at 2100 w/id, into YY (Zatko, MI). R. Yugoslavia, 6100 at 2100 w/id, into YY (Zatko, MI). R. Yugoslavia, 6100 at 2100 w/id, into YY (Zatko, MI).

Many thanks to the following in the party: Bob Birkelbach, Pleasant Hill, CA; Warren L. Gilbert, Sherman Oaks, CA; Brian Avery, Portsmouth, NH; John Tuchtschier, Neenah, WI; Rev. J.D. Hutchinson, Belleville, ONT; Michelle Shute, Pensacola, FL; George Neff, Tampa, FL; Ronald W. Atkinson, Ashland, OH; Rolan Kunkel, Morgan Hill, CA; Larry W. Zamora, Grand Forks, ND; Mark Meece, West Chester, OH; George Zater, N. Blioxi, MS; Lowell Rogers, Ponca City, OK; Frank Mierzwiniski, Mt. Penn, PA; Maywood DX Team DXpedition to Crab Orchard, KY; D.N. Davis, Pittsfield, MA; Sander J. Rabino-witz, Farmington Hills, MI; Mike tebeci, Tumbona, MI; Phil Hallett, Danvers, MA; Cliff Reynolds, Hazelwood, MO; Gregory Baker, Laurel, MD; Dave Bohrenstein, Centereach, NY; Tom Kneitel, NY.

Until next month — good listening!
A reader signing the initials "F.N.G." writes from suburban Chicago to ask if a cellular mobile telephone (CMT) has any ham radio applications or known conversions. The question arises because a car with ham radio license plates was spotted parked at a shopping mall and the only communications gear inside the vehicle looked like a CMT.

Of course it may well have been a regular CMT that happened to be installed in a vehicle owned by a ham... Or, it might have been a Kenwood RC-10 remote control handset (for a ham transceiver) which has the same general appearance as a CMT. On the other hand, a CMT could be modified for ham use. A CMT-to-ham conversion could be feasible for use in the 902 to 928 MHz Amateur band, where the standard repeater inputs are from 907 to 910 MHz, with the outputs at 919 to 922 MHz, 100 kHz channel spacing, according to the ARRL band plan. Besides shifting the operating frequency of the CMT band, other significant modifications would have to be made since there no longer would be any reason for the CMT to search/scan at 30 kHz increments seeking an available working frequency, and there wouldn't be any reason for it to shift from one frequency to another during a contact. It's been done, although I don't know if that's what F.N.G. spotted.

Speaking of modifications, Al Kirkendall of St. Louis, MO raises the question of whether a CMT can be modified to function like a standard scanner for receiving CMT channels. I can tell you this, I have a Mitsu-ishi 800 and have been told by someone at Mitsubishi International that there are various modes it can be placed in during servicing and one of them will cause the unit to act like a scanning receiver. No, I didn't ask for instructions on how to get it to do that trick, however, I would imagine that if one CMT can do this, then most of them can. Might be worth looking into by those who wish to pursue the concept.

In the December issue Mailbag answer concerning the Realistic PRO-2004 search/scan capabilities, I had advised a reader that the unit wouldn't search/scan in 30 kHz increments above or below the 870 to 890 MHz band. A letter from Jorge L. Rodriguez of Gainesville, FL advises that this is true only on units having serial numbers below 630000. Units with a higher serial number will search/scan in 30 kHz steps from 868.95 to 895.98 MHz. We appreciate this additional information!

New Services

Ericsson (of Stockholm, Sweden) was awarded a $19-million contract for its Mobile-vox voice and sat comms system from Cantel, Inc., Canada's national non-wireline cellular service provider. Mobiltex allows fleets of vehicles to exchange data or text messages with a control center and with one another. This kicks off in Montreal, Toronto, and Windsor, then expands nationally to 32 other cities.

Bell Atlantic Mobile Systems began expanding its cellular service to many rural areas of Pennsylvania, New Jersey, Maryland, Virginia, and Delaware.

NYNEX Mobile Communications predicts that by the end of 1989, there will be between 2.5 and 3-million cellular service subscribers nationwide, and the number of NYNEX subscribers in the Northeast will nearly double to 200,000. That company also estimated that more than $3 billion in phone calls will be from/to CMT's in 1989, with 62% of CMT subscribers using their phones for personal reasons at least half of the time. Women, who now account for one out of every five NYNEX's subscribers and are buying/using CMT's with increasing frequency.

NYNEX, which primarily serves the New York/New Jersey metro area, predicts that equipment and service prices have now stabilized and can be expected to remain about the same for the next several years. They see a trend towards a smaller, sleeker, and lighter CMT featuring one-touch speed dialing and hands free operation as an industry norm.

A survey made by US West Cellular, a CMT service provider in 25 western cities including Phoenix and Tucson, indicates that CMT's show a trend away from being perceived as luxury items for the elite. They are more likely to be seen as becoming necessities for the active business person. They found that 81% of users have mobile units, with the rest of the CMT's being hand helds. The highest volume of users are involved in the various aspects of the construction industry. More than 75% of the CMT customers are businesses that employ less than 100 people. More than 28% of the CMT users have their equipment installed in trucks. Interesting stats.

Hardware

Alpine's 9511 is a sophisticated CMT offering full power and 832-channel operation. Some of the standard features include full hands-free operation, multiple phone numbers allowing you to cut down on roam-
I am still getting settled-in at my new West Virginia QTH, but I finally located my antenna materials and with an assist from my son-in-law (he climbed the towers), I now have three longwires, an off-center dipole, and a VHF/UHF antenna connected to my monitoring position. A vertical whip and another dipole are yet to be installed in the near future.

A query from Irv Hohenstein, Spain asks about the "Victor Lima Bravo 2" transmissions. Irv, that ID has been identified as being part of the Israeli Mossad (intelligence agency) operations. See Knittel's Guide To Embassy and Espionage Communications book for more info and a complete roster of frequency and various ID's used by Mossad.

Michael R. Watson, CA reports hearing the sweeping type signal that I and others have observed during the past year. While this signal has not been positively identified, it may very possibly be the USAF Over-the-Horizon Radar?

First-time contributor, Ron Pecora, OH, says he uses a DX-440 with a 75-foot longwire. He enjoys listening to lake freighters on VHF and he lives right on Lake Erie. He wonders if such vessels use any HF for long distance comms? Ron, here are some Great Lakes HF channels: 2514, 2550, 2582, 4369.8, 2118, 2158, 2206, 4075, 8783 and 8796 kHz. Stations heard include WMI, Lorain, OH, WLC Rogers City, MI and WBL Buffalo, NY.

Gary Vendetti, NJ sent in another batch of loggings and indicated he had lost an antenna during heavy winds.

Ronnie Rome of Louisiana says he has been a scanner buff for about ten years, but recently he got into HF monitoring. He is using a R-71A receiver with the wire antenna that came with the receiver plus an outside dipole.

After a long absence, George Osier sent in some loggings and commented that if any readers are interested in sharing information on time stations, they can write him at the following address: George Osier, 814 Morris Street, Ogdensburg, New York 13669.

Robert Berman, NY advises he monitors all types of utility stations using Kenwood R-5000 and military BC-348Q receivers, universal M-600 and M800 RTTY demodulators, and an MFJ 1024 Active Antenna. Andy Gordon, CT wrote saying he had received another nice Navy QSL and patch, this time from the USNS Monol, YAG61. The vessel is involved in "secret" operations with US & NATO submarines. Andy also identified NNN6CXO as the MARS callsign for a Coastal Surveying Craft working off of the USNS Harkness, T-AGS-32. The Harkness supports coastal surveying craft, amphibious survey teams and helos as part of extensive military hydrographic and oceanographic surveys. NNN6CXO is the Harkness' MARS callsign. CX03 may also be used by shore parties.

Interesting information on Soviet space-flight tracking ship CW nets was developed during preparation for the launch of the Soviet space shuttle BURAN. Tom Roach, CA and Sam Ricks, PA teamed up to monitor this activity. Sam wrote, "We tentatively identified the Soviet Navy tracking ship Marshall Nedelin's callsign as RMLP. This callsign appeared on the civilian tracking ship nets and a Soviet naval base frequency. Reports in the Soviet press identified the Nedelin as a BURAN tracking ship stationed off the coast of Chile. These tracking ship nets were active daily for many months prior to the BURAN launch.

The CW tracking ship nets pass telemetry data, plain text messages, and position reports between tracking ships in the North and South Atlantic. Usually the Akademik Sergei Korolev assigns ship-to-ship RTTY frequencies to various tracking ships to relay tracking data on the MIR orbital space complex, press reports, political speeches, and Kriptogrammas.

Steve McDonald, BC, Canada had his PFC returned along with a personal letter, antenna diagram and descriptive brochure of Oil Platform "Irene." This helicopter beacon is heard almost nightly in BC and has been logged in Hawaii and Arizona. Their 30w signal propagates very well. QSL address: UNOCAL Oil & Gas Division, UNOCAL Corp., 3201 Skyway Dr., Suite 104, Santa Maria, CA 93455.

Radio Officer Walter H. Trefett sent this picture of the Radio Shack on the S.S. Capella, his previous ship. He is now serving on the S.S. Inger. The installation is rather extensive with some 30 equipment items (not all shown) making up the communications layout of the vessel.

Weather observations from Soviet ships underway in the North Atlantic, relayed to the hydromet ships in CW, later turn up as ship reported coded weather reports on aviation weather RTTY broadcasts, such as CFH, Canadian Forces Meteor Center, Halifox, NS. It would be interesting to find out if other utility monitors have picked up similar Soviet weather reporting nets in other oceans. I have heard Soviet Hydromet ships working out of ports such as Mombasa, Kenya, Singapore; and various Pacific coast ports in Mexico."
Dear Sir

Thank you for your USL report and confirmed your details.
This is the coast station NAM1AKADIO with call sign JCC.

<table>
<thead>
<tr>
<th>OTH Control station Lat</th>
<th>Long</th>
<th>Transmitting station Lat</th>
<th>Long</th>
</tr>
</thead>
<tbody>
<tr>
<td>26-12-2E</td>
<td>127-41-12E</td>
<td>26-12-52E</td>
<td>127-36-27E</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Freq(KHz)</th>
<th>Power(KW)</th>
<th>Antenna</th>
<th>Operation Hour (UTC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>500/492</td>
<td>2.7</td>
<td>T</td>
<td>#24</td>
</tr>
<tr>
<td>8470</td>
<td>1</td>
<td>Z</td>
<td>2300-1300</td>
</tr>
<tr>
<td>12667.5</td>
<td>1</td>
<td>Z</td>
<td>2400-0800</td>
</tr>
</tbody>
</table>

Service: Radio telegram service for ships.
Service Area: East China Sea, South China Sea, Tarnean Sea.
History: Coast station Naha Radio was established on the 11th Nov. 1933.
Then we opened the marine radio service with medium wave and long wave. We began high frequency service on the 1st Sep. 1935.

Many thanks for your report and listening our station.
Yours sincerely
Radio officer

MEMO

This JCC QSL was received by Milan Seifert, Korea.

Our thanks to Sam and Tom for the informative analysis.
Some beacon QSL addresses were forwarded by Steve McDonald, BC, Canada.
Here they are: Beacon TVY (371 kHz), Tooele, Utah—Mercury Aviation Services, 4363 North Airport Road, ERDA, Utah 84074; Beacon AK (341 kHz), Oakland, CA—FBI Oakland NAV/COM, PO Box 2309, Airport Station, Oakland, CA 94614; Beacon H (314 kHz), Langara Island, BC, Canada—Telecom Area Manager—West Coast, Canadian Coast Guard, Transport Canada, 411-100 Park Royal South, West Vancouver, BC V7T 1A2; and Beacon CB (312 kHz), Cape Beal, BC, Canada—same as for Beacon H above.

I must again ask that contributors please allow two or three spaces between items. Interesting and valuable intercepts are sometimes mutilated and lost when items are cut apart for sorting. Thanks!

George Osier, NY logged a number of HF Single-Letter Beacons (SLB’s) and here is his list:

<table>
<thead>
<tr>
<th>kHz</th>
<th>Letter</th>
<th>UTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>5374.6</td>
<td>I</td>
<td>0318</td>
</tr>
<tr>
<td>6803.5</td>
<td>O</td>
<td>0308</td>
</tr>
<tr>
<td>8136.5</td>
<td>U</td>
<td>0321</td>
</tr>
<tr>
<td>8141.4</td>
<td>K</td>
<td>0323</td>
</tr>
<tr>
<td>10285.4</td>
<td>V</td>
<td>0400</td>
</tr>
<tr>
<td>10643.5</td>
<td>C</td>
<td>0411</td>
</tr>
<tr>
<td>10643.8</td>
<td>O</td>
<td>0416</td>
</tr>
<tr>
<td>11550</td>
<td>D</td>
<td>0435</td>
</tr>
<tr>
<td>12149.5</td>
<td>I</td>
<td>0458</td>
</tr>
<tr>
<td>12150.5</td>
<td>D</td>
<td>0500</td>
</tr>
</tbody>
</table>

Readers’ attention is invited to POP’ COMM December 1984, January and February 1985, and June 1986 for the excellent series on SLB’s authored by William I. Orr, W6SAI.

<table>
<thead>
<tr>
<th>UTC Intercepts</th>
<th>All Times Are UTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Beacon BV, Bartlesville, OK at 0135; Beacon FX, Tuktoyaktuk, NWT at 1229 (Pearce, TX).</td>
</tr>
<tr>
<td>2331</td>
<td>Beacon GRE, Greenville, IL at 0327; Beacon OK3, Oakhills, NE at 1310 (Pearce, TX).</td>
</tr>
<tr>
<td>2435</td>
<td>Beacon NGF, Kaneohe Bay MCAS, HI at 0640 (Dryaff, MA).</td>
</tr>
<tr>
<td>2323</td>
<td>Beacon BDS, S. Davis Head, Bermuda at 0328 (Pat O’Connor, NH).</td>
</tr>
<tr>
<td>2409</td>
<td>Beacon BMV, Plattsburg, NE at 0356 (Pearce, TX).</td>
</tr>
<tr>
<td>2330</td>
<td>Beacon TAD, Trinidad, CO at 0922 (Szalony, CA).</td>
</tr>
<tr>
<td>2434</td>
<td>Beacon PJG, Neth. Antilles at 0423 (O’Connor, NH); Beacon ALM, Alamosa, CO at 0427 (Szalony, CA).</td>
</tr>
<tr>
<td>2356</td>
<td>Beacon TIM, Demerara, Guyana at 0454 (O’Connor, NH).</td>
</tr>
<tr>
<td>2465</td>
<td>Beacon MAJ, Mineral Pt, WI at 0548 (Dryaff, MA).</td>
</tr>
<tr>
<td>2367</td>
<td>Beacon CUL, Chihuahua, Mexico at 0549 (Dryaff, MA).</td>
</tr>
<tr>
<td>2405</td>
<td>Beacon SC, Hong Kong at 0525 (Dryaff, MA).</td>
</tr>
<tr>
<td>2400</td>
<td>PYL, North Point R, Trincomalee at 0533 (O’Connor, NH).</td>
</tr>
<tr>
<td>2414</td>
<td>Beacon HYD, Caué d’Alvares, BA at 0547 (Dryaff, MA).</td>
</tr>
<tr>
<td>2093</td>
<td>Fishing vessels chatting in USB at 0003. Although this is supposed to be an intership freq (only), it’s apparent that the families of some of the fishing boat skippers have (illegal) sets operating here from their homes in order to stay in contact.</td>
</tr>
<tr>
<td>2182</td>
<td>NMF2, USCG Group Woods Hole, MA at 0548; MJY, Eagle to SFT for crew members of MV Lloyd Bermuda. See Communications Confidential Loggings.</td>
</tr>
</tbody>
</table>
in May '89 issue for details of this sea disaster. Had at 0109 as NMF2 asked Eagle to watch for possible survivors in water (Bierman, NY).

2670: NNOG, USCGC Tangent wkg V/EY re transfer of 2 rescued Lloyd Bernardo crew members to CG cutters. Had in 2155 in USBS (Bierman, NY).

2174: SXH & III in QSO via US by 0139. QSY to 27615 EXP, Station X, Peoria, IL.

2174.7: IIH, USS Bowen (FF-1079) clg Moffat Tug Central at 1200 w/freg for tugs while departing (Gaylord, MI).

2176: USS Santalqin (YTB-824) a tug wkg Little Harbor Carlet Harbor at 0040 w/radio check. CTZC, HMCS Ottawa (DDH-279) clg HMCS Halifax at 2225, NNWJ, USS Whidley Island (LSD-41) clg Moffat Central (Gary, IN).

2812.5: IDR, Rome Nortel, Italy w/TVV marker in USBS at 0304 (Oiser, NY).

3116: K1597, apparently US. Embassy, Athens, Greece w/CW marker at 0304 (Oiser, NY).

3228.5: SLP, gwp in CW at 0022 (Kneet, NY).

3253: CG a/s 1903 wkg USCGC Tangent at Lloyd Bernardo sinking at 0304 (Oiser, NY).

3485: New York R. w/aviation wx, USBS at 1416 (Peoria, OH).

4314: L2W, Varna, Bulgaria w/CW marker at 0348 (Oiser, NY).

4676: Vessel Cape Cod w/gwp to un-id sta arranging for harbor pilot, USBS at 2236 (Peoria, IL). Other similar new at 3135, 4623, 7042, 4835, 11525 kHz. This is Fleet Area Control & Surveillance Facility (FACSFAC). Head 0518 (Peoria, OH).

4407: W0M, Miami FL, US in USBS w/gwp to un-id sta in WP CW, yo-yo & stn at 0348 (Peoria, IL).

4583: BZW, Pinegrove & Pancake in USBS discussing qst (in coded form) then going green regarding (Fernandez, MA). Time: 0937.

4594: YL/CG in AM-mode running 32F (X2), 5F (X2) till 0714 when the 32F gps slowly evolved into 5F gps. Early on, the sources of the 32F gps were very pronounced, but slowly decreased until they became 3F gps. Finish at 0748 w/End (Pecora, OH).

4623: NGR, Koriou, Greece in CW at 0255 w/atl markers (Oiser, NY).

4624: VEB2, possible Condonation un-ID stn at 0258 w/usual 2 sec time gwp. But at 0259 a phasing type of sig appeared like an RTTY mark & space. At 0300 switched back to usual gwp (Oiser, NY).

4670: YL/EE in AM-mode w/LB2 xmsn at 1850 (Habibian, Spain). An Israeli Mossad wmrn-- Ed.

4739: 727 26 A7A A7A 7A7 etc, rephrased in CW at 0420 (Oiser, NY).

5176: A340 UFM, USBS in CW at 0311 (Kneet, NY).


5680: Several Canadian stns incl Edmonton Military, Ground Search, Cold Lake seemed to be conducting a SAR, QSY to 2993 kHz at 0100 (Gourdon, CT).

5692: CC a/s Rescue 1903 WUSCGC Tomaros at 0208 in Lloyd Bernardo SAR area (Bierman, NY).

5791: RAF Upover, England at 0858 in CW w/xmsn similar to USFSI Skyskif gwp except w/atl markers as for conditions (Fernandez, MA).

5873: YL/55 in AM-mode at 0838 w/5F gwp (Fernandez, MA).

6271: Gwp aboard sailboats chhting re sailboat race off TX coast (NW Channel) (Peoria, OH).

6315: UMCW, Soviet superkaper Kuslass sending wq & gwp to EREL, Soviet hydrometer wx ship Karlv Krenkel, at 0537 in CW. Soviet ships in the Atlantic were dos daily at 0903 in this active hydrometer net, many ships report in RIGS.

6464: V5S, Sydney, Australia in CW at 1341 w/atl marker & VVW (Oiser, NY).

6466: DRO, BS RSW, Schwedem, Ri, Holland in CW/RTTY w/stn (Fernamides, MA). Time?:--

6577: YL/55 in 3F gwp at 0200 on this ICAC channel.

6687: New York, build the id's to clear the freq. Another ATC sta said he thought it was a type-- NY agreed but was upset anyway at the ATC at the freq, observing the YL/S5 was using the channel more & more often. The id's came lots of QSY & repeated gwp's (Wilmer, MI).

6599: YL/55 in AM-mode at 3F gwp's, but didn't see anything interesting in the id. It was live & sounded like a cheap CB type sig. The id's were read off like a shopping list. Xmsn ended with a string of tones, dead carrier, then off 0355 (Socol, PG).

6677.6: 2 OM/55 in USBS at 1049 w/sending msg in EE & spelling out most of words in text using phonic markers. Msg was some kind of thank you note from an un-ID Latin American ml unit to an un-ID American ml unit. Mentioned climate & friendly people in Southern California. Also San Diego quite often (Fernandez, MA).

6717: YL/5E in AM-mode at 1210/0712 xmsn. Began w/msg "Message" (X3) "Group 5" (X3) then into 5L gwp's. Throughout the week the final character in the id changed. Possibly a product of another msn.

6787:5: UN-ID sta in CW at 0356 w/3L gwp's (Oiser, NY).

6787: 5619 in USBS in CW at 0421, sent at 1218 w/5F gwp's, Cuts O's & T's (EE).

7190: Is this the USAF's answer to the Russian Woodpecker Over the Horizon-Radio? Sweep stays on for about 13 sec with pronounced tone change every 5 sec. After 7 mins, moves on to another band of freqs. Sig was powerful & sounded like a hummming buzz on FM. Possible site for the radio is in ME. Supposedly in final testing stages... ready to be operational by year's end (Fernandez, MA).

19718: YL in USBS at 0444 w/4L gwp's. Some

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Scanning Today (from page 8) effective. ANARC states that the ECPA does not require the Commission to take action at this time. ANARC cites the Commission's July 17, 1987 Memorandum Opinion and Order regarding the Washington Legal Foundation (WLF) petition in which the Commission stated the ECPA has not been in existence for a sufficient time to determine if the legislation and voluntary efforts will be adequate to achieve the security of protected communications. These statements were seized upon by some who believe that manufacturers should be prohibited from marketing devices capable of receiving communications protected by the ECPA. They support a requirement that certain frequencies be blocked.

Discussion
8. We do not believe that technically blocking frequencies is a desirable approach. As pointed out in the Notice, although the ECPA prohibits interception of certain classes of communications, the frequencies on which these communications are transmitted can be used for unprotected transmissions as well. In addition, the ECPA does not prohibit the manufacture and sale of scanners or any receiver based solely on the ability to receive specific frequencies.

9. With respect to the issue of labeling, we agree with some of the commenters that, in some instances, a warning label, by calling attention to a prohibited activity, might encourage it. We are also persuaded that given the complexities of the ECPA it is impractical for a single label to provide sufficient information to properly advise users of the legal requirements. Furthermore, we note from the comments in this proceeding that some manufacturers are voluntarily taking steps to comply with the intent of the ECPA either by informing users of ECPA provisions or by redesigning equipment to omit certain frequencies.

10. In view of the above considerations, we believe that regulatory action is not necessary at this time. Therefore, the proposed labeling requirement is not being adopted.

Abbreviations Used For Intercepts
AM Amplitude Modulation mode
BC Broadcast
CW Morse Code mode
EE English
GG German
ID Identifier/Identification
LM Lower Sideband mode
OM Male operator
PP Portuguese
SB Spanish
TF Traffic
USB Upper Sideband mode

.wx Weather report/forecast
YL Female operator
4-figure coded groups (i.e. 5739)
5-figure coded groups
6-letter coded groups (i.e. IGRJX)
Radio Patria Libre, the anti-Cuban station, is in the news again this month. This time, though, it’s not because of when or where it’s being heard but because it’s not being heard! During the couple of months it was active the station was heard with very good signals but it’s now gone from the shortwave dial. The station, which had been “DF’d” to a location within Colombia, was being searched for by the Colombian military. Apparently, its location was found and the station put off the air, although so far we haven’t had any reports to confirm that. Radio Patria Libre was the third attempt by guerrilla forces in Colombia to get something going so it seems reasonable to expect there’ll be more attempts in the future. Just in case there might be a reappearance of Patria Libre, you may wish to keep a watch for this one around 0030 to 0100 in the vicinity of 6765.

The situation in Southern Africa is in a state of flux, with peace talks, agreements on Namibia and the withdrawal of Cuban troops. The same seems to be the case in the clandestine radio area, too. On the troops. The same seems on Namibia state of this tria Libre, in there’ll guerrilla forces dio the being “DF’d” broadcasting in over clandestine program aired 6100. (0500-0600) Angola which we’ve known The new version has the same schedule de progres Ginbey to interference segment 5030. 5030 and 1030-1230 1800-2000 72 2000-2100 and 0600-0700. Apparently, there might be a relation to the Soviet Lubango, Angola on Sundays, from 0700-0800 on 9565. Another station, Radio Sibonet (or “Siboney?”), supposedly from South Africa, airs at 1800-1900 on 6100.

The Voice of Namibia used to be just a clandestine program aired by the Southwest African People’s Organization (SWAPO) over three or four government stations within Africa. Apparently, there is now a separate station with that name, reportedly broadcasting from Lubango at 0400-0600, 1800-2000 on 4885, 4950 and variable 5030 and 1030-1230 on 9575. On weekends, 1300-2000 on 4885, 4950 and 5030. Given a little luck that 0400-0600 segment might be possible in North America.

After putting up with extremely strong interference from a utility station right next door, Radio Caiman has moved from 9960 to 9965 and is back in the clear again (that’s the only thing about this station which is clear)! The “ute” interference, according to pirate and clandestine radio authority George Zeller, was from a frequency division multiplex station of the AFRTS carrying AP and UP! news feeds on 9961—which sounds like so much noise if you haven’t the equipment to decode it. One of the more diligent clandestine hunters, Robert Ross of London, Ontario, checks in with some nice logs: Radio Farabundo Marti was found on 6700 at 1210 in Spanish with full ID; Radio Patria Libre on 6763 at 0044-0100 in Spanish; the Voice of Democratic Kampuchea at 0410 in Kampuchean on 17680 (that’s via Radio Beijing facilities) and Radio Iran Trollers on 10869.7 in Farsi at 0241. Nice work, Robert!

Well known European DX’er and write on radio, Michael Schaay of Holland supplies a headquarters address for the Eritrean People’s Liberation Front and its station: EPLF National Guidance Department, Information Branch, Voice of the Eritrean Masses, Sahel Eritrea, P.O. Box 671, Port Sudan, Sudan. Note: that is a bit of a name change for the station. We’ve always known it as the Voice of the Broad Masses of Eritrea (or, as one wag once put it—“Voice of the Massed Broads . . . .”)
DX'er Terry Krueger in Florida reports an anti-Noriega program on Radio Impacto on 5030 around 0407. This is carried with the station's "Una Voz de Centroamérica y el Caribe y el Mundo" newscast around 0400-0430. The feature is a commentary by Mayia Correa who, technically, is still a Panamanian senator, though now in exile in Miami. The report is a telephone feed. The logging, as well as Jeff White's background info, appeared in the DX South Florida bulletin.

The games continue in the area between 6.5 and 6.8 MHz during our evening hours. Several clandestine DX'ers have noticed a new transmission in the area which may be another lake Radio Venceremos, or possibly something entirely different. So, in between 6.5 and 6.8 we have this new one, the real Venceremos, Radio Farabundo Marti, and one or two music jugglers. And none of them stay on the frequency very long, making it extremely difficult to track them and determine which one has moved where. It's a real test of monitoring skills!

And speaking of Radio Farabundo Marti, representatives are out and about in the U.S. these days, trying to raise money to buy five portable FM broadcast transmitters and associated equipment so the station can be broadcast to a local El Salvador audience—since most there don't have any access to shortwave. The station is trying to raise nearly $50,000 to cover the cost of the project. Thanks to Terry O'Laughlin in Wisconsin for sending info about fund-raising efforts in Madison, Wisconsin.

The November/December 1988 issue of Africa Report had an article by Karl Maier entitled "Between Washington and Pretoria" which stated that South African military intelligence produced the programs of the "Voice of Free Africa" which later became the Voice of the Mozambique National Resistance, the Renamo station. Maier says the programs were transmitted "from the Hillbrow Post Office tower in Johannesburg." The station has been off the air for several years though Renamo reps have hinted at a return.

That does it for this time. Remember, we need your informational input—your clandestine loggings, articles you may run across about clandestine broadcasting, or the groups which operate the stations and anything else which might have a bearing. Your help is much appreciated!

'Til next month—good hunting!

Telephone Enroute (from page 67)
er fees by registering with no less than four different service providers. In four different cities, a signal strength indicator, 100 number memory and calling card memory. There's also a mute ("hold") button to temporarily deactivate the microphone during a conversation. The 9511 can interface with the vehicle's stereo system by shutting it off when ever the CMT is in operation, then turns it back on when the CMT is disengaged. It can also be wired into the vehicle to beep the horn and flash the headlights when a call comes in and the vehicle is unoccupied. The CMT can be electronically locked with five programmable access modes.

A beep lets you keep track of how long you're gabbing, just in case you have a tendency to forget that the meter is running. There's also a Model 9709 transportable kit that allows the CMT to be taken anywhere and run from its own internal rechargeable battery pack. Has its own antenna. There's an optional battery charger. The Alpine 9511 weighs 2.2 lbs, with the control unit weighing 1 lb.

For more information, contact Alpine Electronics of America, Inc., P.O. Box 2859, Torrance, CA 90509, or circle 102 on our Readers' Service.

This column is always pleased to hear from readers with questions, hints, information, news clippings, anecdotes about CMT use, etc. We would like to hear from CMT manufacturers and cellular service providers.

Beaming In (from page 5)

messages with a kid that I had spent the last five years trying to avoid.

A meeting was set up at the neighborhood radio store. If Big Mickey showed up, I'd just buy some antenna wire and leave. But Big Mickey never materialized. The Mickey of the heterodyne was of the female persuasion, fifteen years old, and was instantly acknowledged as my dream girl.

After that, we spent almost every day together. One day we visited all of the military surplus radio stores that lined both sides of New York's Cortlandt Street. Another day we took the tour of the NBC studios at Radio City. Evenings were reserved for CW contacts.

After we had gotten our code speeds to the point where messages could be exchanged at about 5 w.p.m., one night our contact was abruptly joined by another CW station obviously trying to break into our communications. The other station was persistent and kept pushing to be recognized. Turned out to be a fellow named Larry. He had built his Meissner receiver in shop a year before I did and had been studying for his ham ticket for several months. It was apparent that his CW abilities were far better than Mickey's or mine. A meeting was set up for the next day.

Larry turned out to be seventeen. I recognized him from the neighborhood, but had never met him. He confessed that he had been monitoring our CW contacts for several days and was hoping that we would welcome him in a regular member of the network. Although I hadn't envisioned my private CW contacts with Mickey to be a network, she extended him a cordial invitation.

You might be able to guess the rest. Within days, Larry had appointed himself Net Control Station. Moreover, he was flauting his obnoxious CW prowess by sending fancy signals like SK, AR, commas, and question marks. What's worse, he suggested that Mickey might like to study CW with him. I wasn't invited to the classes. Frankly, it was only a matter of a week or so before I was the only active member of what was once the mighty CW network.

Even the optimist, I called CQ on the silent frequency every night. A few days later I finally called it quits with one last desperate SOS.

For many months afterwards, I saw Larry and Mickey together, although I discreetly walked on the other side of the street. They must have been up to 25 w.p.m. by then. I was still stuck at 5 w.p.m., and couldn't help tuning in the old frequency every once in awhile in the hope that I'd hear some CW there. I didn't.

I've heard of guys who drove Plymouths and lost their girlfriends to guys who drove faster cars like Corvettes, Maseratis, and Lamborghinis. I'm probably the only guy in the world who lost his girl to someone with a faster CW speed!
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Optional Accessories
R-2000:  
- VC-10 VHF converter  
- DCK-1 DC cable kit for 12 volt DC use.
R-5000:  
- VC-20 VHF converter  
- VS-1 Voice module  
- DCK-2 for 12 volt DC operation  
- YK-88A-1 AM filter  
- YK-88SN SSB filter  
- YK-88C CW filter  
- MB-430 Mounting bracket.

Other Accessories:
- SP-430 External speaker  
- SP-41 Compact mobile speaker  
- SP-50B Mobile speaker  
- HS-5 Deluxe headphones  
- HS-6 Lightweight headphones  
- HS-7 Mini-headphones.

Specifications, features, and prices are subject to change without notice or obligation.

R-2000

The R-2000 is an all band, all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front-mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit), and 118-174 MHz VHF capability with VC-10 option.