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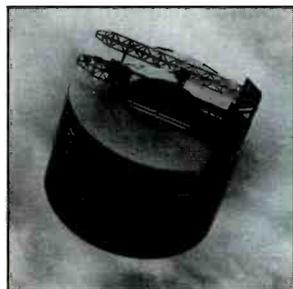
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MARCH 1993

VOLUME 11, NUMBER 7



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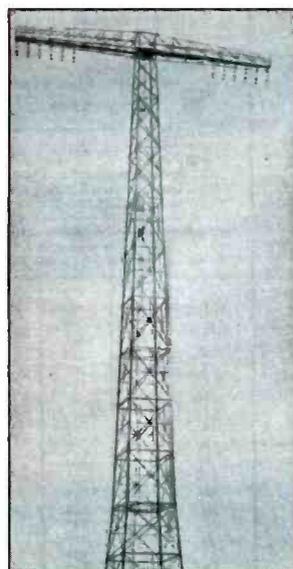
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This month's cover: USA-Security personnel keep a look out at a battery of TV monitors. Photo by Larry Mulvehill.



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CIRCLE 62 ON READER SERVICE CARD

Last November, ABC-TV's Peter Jennings reported on the controversy about whether to proceed with the construction of a costly (\$260-million) American shortwave broadcast relay station in the Israeli desert. The question was whether, given the end of the Cold War, along with the end of major radio jamming, if it was still worth pumping such a huge amount of public funds into financing such Voice of America (VoA) or Radio Free Europe/Radio Liberty (RFE/RL) projects. Jennings pointed out that the proposed antenna farm in Israel does not have much support from local citizens there.

Proponents of the relay station insist that the station is needed to keep our programming beamed strongly into the Mideast and Asia. Opponents say that we already have sufficient transmitter sites available to pinpoint signals into these target areas.

Let's not pick over the pros and cons of this one particular controversy. Fact is, the national media has made it apparent during the past year or two that political, technological, and other factors are forming into a vortex that it seems will affect international broadcasting as we have come to know it for the past 35 years. And it will continue to do so as time goes on.

There are emerging and existing technologies, including digital audio broadcasting (DAB) and satellites, planned to be combined to bring multi-channel programming from one area of the planet to the other. This service will eliminate the limited audio fidelity of shortwave broadcasting, plus other technological disadvantages such as fading, the days when no signals come through, the sunspot cycles, the static, and the interference. AM radio is not the most efficient transmission mode. Also, the frequencies available for shortwave broadcasting are clogged with too many stations, many with an overkill of output power. Shortwave broadcasting technology has advanced just about as far as it is ever likely to go.

With things like this, plus the changing world political scene, and the public's preferences for how and where funds should be spent, you can get some perspective on the pressures tending to reshape international broadcasting.

The winds of change are blowing. This summer, the shortwave signals of TWR in Bonaire will vanish. The station finds it more economical to uplink its programming to a satellite, then let local AM and FM stations pick up the signal and rebroad-

cast it in various areas of the world. TWR will buy the time on these stations, and have the ability to pinpoint their programming into specific target areas. Buying time on local stations in those areas is cheap—a lot less costly than running their high-powered shortwave plant.

Only last September, a Commission appointed by the President called for the elimination of RFE/RL, as well as anti-Castro TV Marti. The U.S. Advisory Commission on Public Diplomacy, a bipartisan citizens panel established by Congress to oversee broadcasting, said that RFE/RL, "have served the country well, but with political changes, their programs increasingly resemble the Voice of America. Their phase-out shouldn't happen overnight, but it should happen. The taxpayers do not need to fund this duplication."

This Commission endorsed continuing the VoA, even enhancing it, but they suggested scrapping plans for the expensive relay station in Israel. They said that once TV Marti was dumped, the money poured into that project (which they claimed was "not cost effective") should be "directed to more productive broadcasting initiatives." Presumably, they meant the VoA.

There is a certain danger in being too quick to succumb to political changes and technological developments, especially by analysts in North America. In North America, where TV and mediumwave radio stations are in abundance, shortwave is not normally accessed by the general public. It is regularly listened to by a growing, but nevertheless, limited audience of hobbyists, expatriates, academics, and others with specialized interests.

It's not easily realized by the public in North America that in many areas of the world, basic shortwave radio is the main form of news, information, and entertainment for the average citizen. Shortwave is used by local stations to reach listeners in remote areas of their own nations. The VoA estimates that there are 600-million shortwave receivers in the world, and the BBC says that 200-million listeners tune in to shortwave on a daily basis. Inexpensive all-band portable receivers are now spread into every remote corner of the planet. A survey in Zambia showed that nearly 60 percent of the adults tuned in to a foreign station at least once a year, and most of those people listened far more often.

In 1990, there were 2.1-billion portable radios in the world. Europe had 27 percent

(Continued on page 74)

“The R8 is a highly sophisticated receiver. We'd call it professional grade, or about as close to it as receivers get these days.”

*Staff review
Popular Communications*

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73 Amateur Radio Today*



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CIRCLE 142 ON READER SERVICE CARD

MAILBAG

LETTERS TO THE EDITOR

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 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 Kneitel, Editor, Popular Communications Magazine, 76 N. Broadway, Hicksville NY 11801.

Thoughts On Hackers

With regard to the November *Beaming* In about hackers, the observations were quite down to earth. I just read about a youngster they caught and claimed was a hacker, and said he ran up \$40,000 in phone bills on two commercial firms.

If commercial firms with data stored in computers had adequate safeguards, they wouldn't have people tapping into their data. In the first place, a computer on a telephone line should not have a program on it that would enable it to make outside calls. Secondly, the proper use of a pass-

word should have slowed the hacker. Lastly, the giving of the proper password should have had the commercial computer calling the password's telephone after hanging up. It would be very difficult for the hacker to be at the proper phone if he/she didn't know where it was.

Also, if a call came in with an incorrect password, the computer should have shut down, recorded the incident, and not gone back on line until after a specified time had elapsed. Three wrong passwords in a row should cause the computer to go to alert status and summon the SYSOP.

From things I have read about computer security, an important point is that a computer that isn't hooked to a telephone line is safe from being hacked by phone. Also, data that needs to be kept secure should not be stored in a computer on a telephone line. If it must be on a phone line, then the computer can't be left unattended. If a hacker was greeted on-line by a human data guardian instead of a vulnerable automatic security system, we would hear a lot less about hacker problems.

Here's a thought for *POP'COMM*. Scientists are now trying to eavesdrop on surrounding solar systems and galaxies to

learn if anybody is out there. If there is intelligent life out there, would they want to be in contact with us after hearing some of the radio and TV soap operas and talk shows that have been broadcast for 70 years? Signals that travel at the speed of light might have already reached other civilizations. Our own listening efforts might be trying to listen millions of years too soon. Or million of years too late.

Donald S. Lambert,
Auburn, Indiana

The thought just struck me, Donald. What happens if we spend all of the time, effort, and money listening for these other civilizations only to find out that they have a communications industry organization that got an ECPA law passed through the Galaxy Federation that says nobody can eavesdrop. Ho boy, then we be in deep nu-nu.— Editor.

Enjoyed the November hacker editorial. While I am not overly sympathetic to hackers, I must agree that they get a bum rap— especially those who have caused no harm. I shudder to think what sort of case would be made against me for the computer systems I have browsed.

But there's even a more absurd portrayal than the examples you have in your editorial. Those bleeding heart stories about long-distance telephone service theft. Notice how the long-distance companies never fail to summon up outrageous amounts for the money they claim to have been beaten out of because of a scam. Yet, they aren't cheated out of the cash, as they would have you believe. Someone used their lines, which would otherwise have been inactive and unused. It didn't actually cost them anything, nor did it prevent paying customers from making calls.

M.C.,
Atlanta, Georgia

M.C. brings up an interesting point. Add to his comments that when they are trying to convince people to sign up for their long-distance service, it is described as being so inexpensive that it's practically being given away. Yet, when you hear about the staggeringly large amounts they toss about in "service theft" cases, you think that maybe their low rates aren't so wonderful. I believe they don't feel that anybody will think to make these comparisons. Keeping in mind what M.C. brings out, maybe they should keep those theft amounts down to less than \$10.— Editor.



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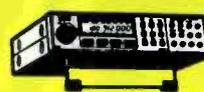
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The Private Security Scanner Connection

An Army of Private Investigators & Private Detectives Are Doing Their Thing. Why Not Listen In— It's Better Than A "Private Eye" Movie!

BY CHUCK ROBERTSON

Hard to believe, but private security personnel outnumber federal, state, and local law enforcement personnel by five to one. In Illinois, where I live, it's closer to twelve to one. Only the U.S. military has a larger security force than the private security industry.

The business of providing private security has been doing well, thank you. Since the crime rate began climbing in the mid-1970's, combined with budget cutbacks for public funding for police, the private security business has steadily increased. Retired police officers are going into the business, and it's also attracted many part time people, such as moonlighting police officers, military people, students, office workers, and others.

When scanning for action, you really should keep the private security industry station plugged into your scanner. You'll get a rather different view of things than you hear on the police frequencies. These people play by different rules. What you hear may surprise you. It can certainly give you its share of unique experiences, insights, and thrills.

Modern Mercenaries

Police agencies don't have sufficient personnel or resources to do everything that the public requires in the way of security and surveillance. This is partially because the public would like the police to provide services that exceed their basic mandate. Let's face it, there are security tasks that cops just don't do.

This includes things like collecting evidence in divorce matters or investigating possible insurance fraud. The police don't get involved with loss prevention (employee honesty, or shoplifting). They will not accompany payrolls, nor transport cash to and from banks. Police don't do credit investigations, or polygraph tests, do counterfeit product tracing, operate central alarm stations, trace missing persons or



Prepare to scan the domain of private security forces.

debt skippers, furnish bodyguards, or supply watchmen and guard dogs for private property. The police don't protect companies from industrial espionage or computer data tampering.

These are only some of the security needs of the public that the police do not furnish. Private security service personnel do these things, and very often it's a matter of working undercover. Private security personnel don't necessarily want people to know who they are or what they are



The CPM-700 probe is a private investigator's device for locating hidden bugs, body mikes, remote control devices, and other sneaky RF snooping items. It is made by Advanced Electronic Technologies, Suite 173, 5800-A N. Sharon Amity Rd., Charlotte, NC 28215.

doing. Dressed in plain clothes, they blend right into the crowd. There is a lot of surveillance work involved, visual and often electronic.

The person, male or female, seated next to you at the diner could easily be a private investigator. The new employee at your job might be a private detective. That person sitting in a parked car and chatting on a two way radio or cellular could well be a private investigator on surveillance— carefully reporting someone's every move. The investigator could be collecting information for many types of clients to be used for any number of eventual purposes.

Private investigators have voracious appetites for information. One government agency estimates that more than half are using illegal electronic eavesdropping. The 72 to 400 MHz portion of the spectrum is favored for these devices, NFM and WFM modes.

Special Police

In most states and municipalities, private guards and investigators do not have

more right to make arrests than any private citizen. However, there is a category of deputized, or commissioned, private detectives given powers beyond that of a private citizen, yet their powers are less than those of a police officer. These people are generally known as Special Police, or Peace Officers.

In some areas, Special Police may carry concealed weapons, obtain certain information from DMV and police files, and wear a uniform similar to local police. In Las Vegas casinos, the guards wearing "Deputy Sheriff" patches are Special Police. Special Police often look like regular police to the public.

Some security personnel of railroads, oil companies, power utilities, large retail outlets, hospital guards (especially in New York City), and some airport security guards, are examples of private security personnel in this category. Did you know that the famous Texas Rangers are also Special Police?

Remember, police are civil servants. The rest of these security people are not.

Frequency Stuff

Private security turns up on a lot of different frequencies, including some that don't seem to match up with FCC regulations. Some even use CB channels, or the no-license 49 MHz band.

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 Doyle Courier Svc., Rochester, NY: 159.735
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When Radio Was

A Look Back At An Earlier Era & Some Lost Historic Sites

BY ALICE BRANNIGAN

Did you ever hear of *Radio Central*? In its day, it was the most talked about and spectacular technological achievement in communications technology the world had known. It was built by RCA, and located in Rocky Point, New York. Rocky Point is a village on the north shore of Long Island, about 35 miles ENE of the POP'COMM offices in Hicksville.

Radio Central was the site of RCA's international transmitting facility where signals in all modes were sent out to all points of the world. These were telegrams, press reports, phone calls, broadcast feeders, news photos, and numerous other types of messages sent out over the many frequencies which could be used. The receiving site associated with these operations were located in Riverhead, some 14 miles SE of Rocky Point. The two sites were separated in order to minimize interference to the receivers from the transmitters at Rocky Point.

Originally, the signals received at Riverhead were sent to Rocky Point via landline, however by 1931 a 450 MHz two-way link had replaced the landline. Hard to imagine now, but in 1931, a fully operational system on a frequency as high as 450 MHz was a mind boggling achieve-

ment. Material that was transmitted from Rocky Point was fed there by landline from the RCA offices in New York City, some 75 miles to the west of Rocky Point.

What a facility Radio Central was! It was the world's largest and most powerful transmitting station. On November 5th, 1921, President Warren Harding sat at his desk in the White House and pressed a button that started the generators at Radio Central. In less than 10 minutes, the nations of the world received Radio Central's first transmission, which was a message of peace from Harding. Within 15 minutes, replies had begun to arrive at Riverhead from other world leaders.

The Radio Central site occupied 6,400 acres, which was a 10-sq. mile area. There was a large building housing the transmitters. Then there were the 12 large (412 ft.) towers. Each tower had a 150 ft. crossarm. Each tower was connected to the others by 16 silicon bronze cables. Fifty miles of the cable were required for the first two antenna systems. There were various other smaller towers and antenna poles added.

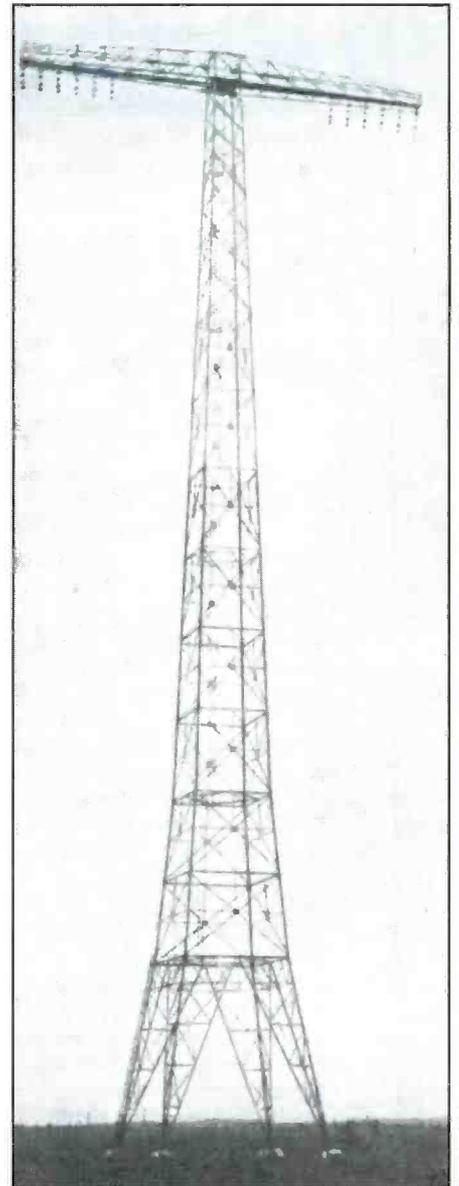
The ground systems required 450 miles of buried copper wire.

Radio Central was constantly being upgraded to keep it modernized, and in the

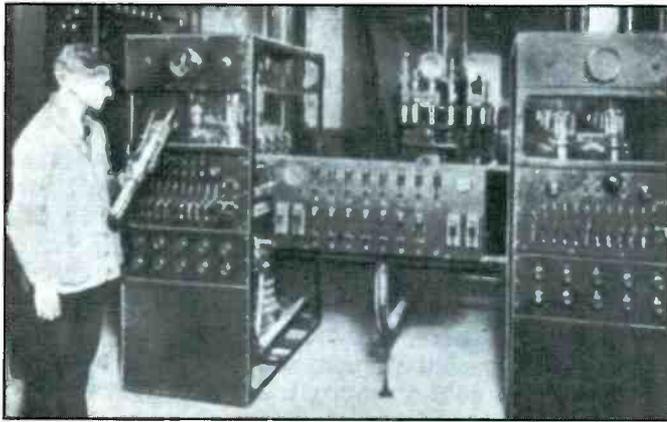
news media. One such major upgrade came in late 1935 when RCA announced that the 40 kW transmitter on 9582 and 10620 kHz (call letters: WEF) would be replaced with a 200 kW unit. This was claimed to be the world's most powerful



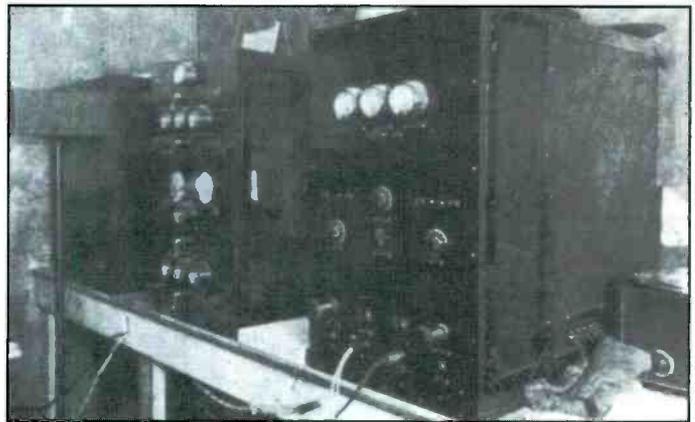
A general view of RCA's Radio Central in the late 1930's.



One of the dozen impressive 412 ft. towers at Radio Central.



A look at some of the transmitting equipment at Radio Central when it first went into operation.



The 450 MHz link transmitter at Radio Central in 1931.

shortwave transmitter. The claim was later revised down to only the most powerful shortwave transmitter in the western hemisphere.

Technology eventually bypassed the need for Radio Central. It was slowly phased out of service, and then completely shut down. The once-proud towers began to be dismantled. The last of the towers came down in 1977.

Presently, the old site on the south side of Route 25A in Rocky Point is maintained as a New York State Conservation Area. You need a (free) access permit to hike (or ride a horse) through it. The area is

patrolled by State DEC Rangers. The access permit must be obtained from a NY State DEC office. There are still paved roads on the site. A few other Radio Central remnants linger, such as tower bases and knocked over telephone poles. Last summer they razed a number of smaller out buildings and electric sub-stations that had remained. Unless the grounding system has disintegrated over the years, it may exist underground. The Rocky Point Post Office has a picture on view showing what Radio Central once looked like.

This wonderful facility has been thoroughly and effectively purged from the sur-

face of the planet. Yet tenement buildings put up at the turn of the century are allowed to sit abandoned in urban areas. At least a representative part of Radio Central should have been preserved for public inspection as a historic site.

Another Lost Historic Site

Jeff Kadet, W3CRH, of Box 20, Macomb, IL 61455, is probably the nation's leading collector of (and dealer in) old TV GUIDE magazines.

He wrote to tell us that after reading

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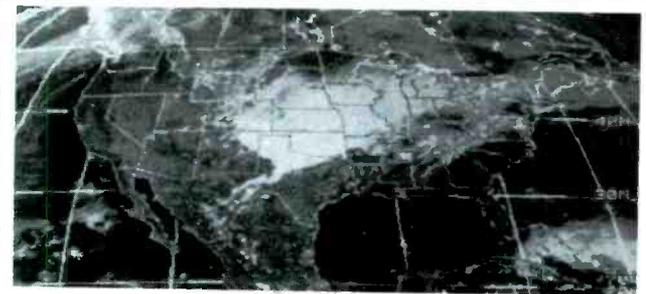
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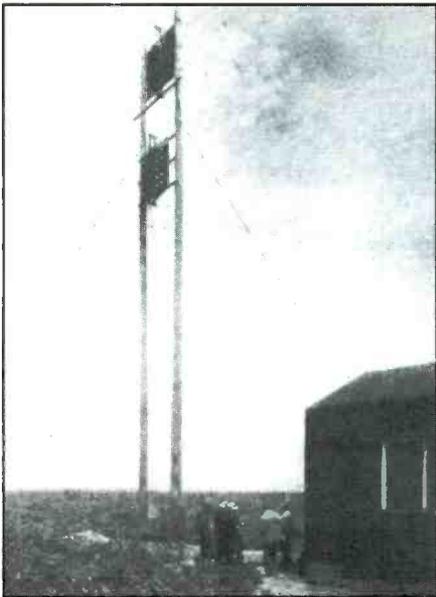
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CIRCLE 133 ON READER SERVICE CARD



In 1931, Radio Central put up these antennas for a 450 MHz link to its receiving site, 16 miles away. The receiving antenna was the higher of the two. The antennas were doublets with reflectors, backed by a copper plate.

about ten books on early radio, and dozens of articles, he came to the conclusion that several people involved in early radio fell through the cracks. Jeff termed it, "got



A control room at CKCK in 1938. In order to assure freedom from vibrations, it was a "room within a room." The inner room was supported on thousands of springs.

shafted by history." These people included Loomis and Fessenden.

This caused Jeff to make a pilgrimage out to Brant Rock, Mass., last May. That was the location of Fessenden's great early 1900's broadcast of voice and music that was heard by ships at sea. This was years ahead of other wireless experimenters. We have discussed Fessenden here, previously. The majestic tower Fessenden constructed at Brant Rock was torn down about 1914.

When Jeff arrived at Brant Rock he was stunned to see the condition and whereabouts of the base of Fessenden's tower. It is virtually hidden in a clump of bushes in a trailer park. There are pieces of the original insulators all over the ground. The tower base seems to be a hangout for partying teen-agers.

There is no plaque, no sign, and, as Jeff put it, "no nothing!"

What can we say, Jeff. This would be a fine project for a ham club in Massachusetts

Computer Aided Scanning

a new dimension in communications from Datametrix



Now Radio Shack PRO 2006 owners for the first time have access to the exciting world of Computer Aided Scanning with the highly acclaimed Datametrix Communications Manager system. Computer Aided Scanning is as significant as the digital scanner was five years ago and is changing the way people think about radio communications.

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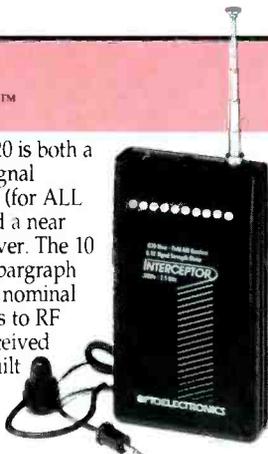
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to contact the property owner and a state historic preservation group and see if they can be gotten together to suitably preserve, display, and mark this site before it is lost forever.

Unfortunately, Fessenden is one of those people who did not leave behind the large following such as left by Marconi, Tesla, and others. These people are enthusiastic about maintaining their favorite pioneer's contributions in the public's consciousness and conscience.

Sad to say, irreplaceable pieces of history and culture are all too casually dispatched into oblivion. Not only these two sites, but also many others like the old Chicago Stock Exchange Building, designed by Louis H. Sullivan, or Brooklyn's Ebbets Field.

Jeff was kind enough to send us a large stack of excellent quality copies of verifiers from the late 1920's and early 1930's. These were originally earned by a mediumwave DX'er who lived in northern Vermont.

Sky's The Limit

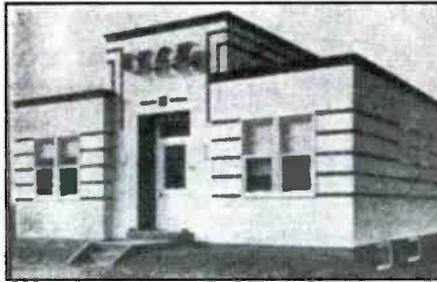
Reporters dangling from balloons, helos, and aircraft didn't originate with the 1990's and Liz Taylor's wedding. They knew those tricks a long time ago

In 1935, *The Detroit News* got its own twin engine press aircraft equipped with cameras, also typewriters for reporters to use. The aircraft could be flown to any area and landed in order to scoop other Detroit papers sending reporters by car or train. It could also be used to fly over fires, wrecks, ship disasters, or other ground events best photographed and observed from above.

The aircraft was assigned the call letters KHPMN, and the newspaper's own ground station had the call letters WKFB. The stations operated on 2150 kHz.

Call Of The North

One of Canada's pioneer broadcasters has been operating since July 29, 1922. That's more than 70 years, and it is cer-



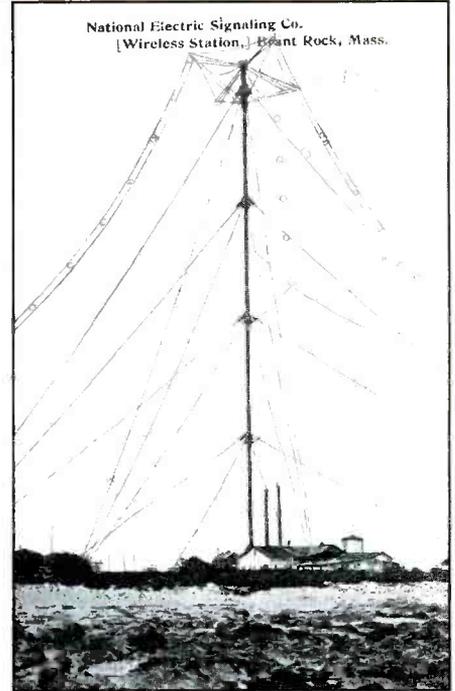
The CKCK transmitter building in 1938. A 257-ft. wooden antenna tower was located to the rear of this structure.

tainly a career worthy of acknowledgment. This station is known as CKCK, Regina, Saskatchewan.

The station was put on the air by the Leader Publishing Co., a newspaper (later the Regina Leader-Post, Ltd.). CKCK's early career was marked by many frequency changes. In the first years CKCK was on the air, it ran 500 watts on 800, 960, and 1010 kHz, and perhaps other frequencies. By early 1938, CKCK had moved up to a new 1 kW transmitter. In the big North American frequency shuffle of 1940, CKCK ended up on 620 kHz (its present frequency). In the late 1940's, the power was increased to 5 kW, and by the end of the 1970's, CKCK had gone up to 10 kW.

An interesting feature of CKCK's increased power in 1938 was the new transmitter facility in Victoria Plains, 7 miles from Regina. Standing 400 ft. away from the transmitter building was CKCK's 257 ft. tower. This was a wooden tower, like the ones we discussed here a couple of months ago. CKCK said wood was used in order to prevent power leakages. The radiating portion of the antenna was a copper wire that ran up the center of the tower. The ground system was 8.5 miles of copper wire buried around the tower.

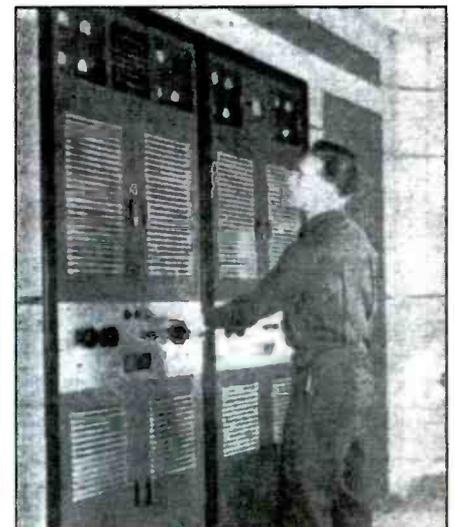
Maybe this arrangement was so good. By 1946, CKCK was stating that its transmitter was located at Pilot Butte, which sounds like a different site.



Brant Rock, Mass., showing the amazing antenna structure once erected there by Fessenden. It seems to have sent out the very first radio broadcast. The antenna itself has been gone for 80 years. The remains of its base are now obscured and hidden in a clump of bushes.

Presently, CKCK is owned by Western World Communications Corp. A great pioneer broadcasting station with a colorful history. A toast to CKCK for more than 70 years of good service. We raise our mug of Moosehead towards Regina, and we'll save a sip for Victoria Plains and whatever might remain of that forgotten wooden tower.

Thanks to all for the input, the old QSL's, station photos, old station listings, and related material. Hope you can join us again next month. ■



CKCK's RCA Model D-1 1 kW transmitter shown being put into service in 1938.

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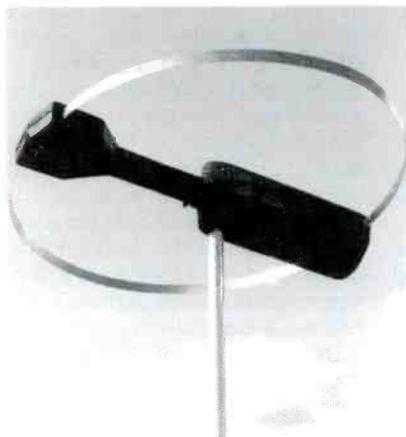
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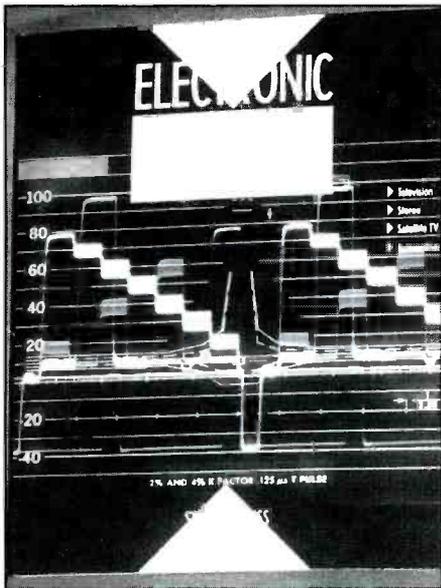
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Signal Analysis

Understanding electronic signals is much more than just simply illustrating waveforms from selective sources, then describing them. To fully define signal characteristics, you must also have a knowledge of the equipment that produces the various types of signals.

In his 316-page illustrated book, *Electronic Signals and Systems: Television, Stereo, Satellite TV, and Automotive*, Stan Prentiss presents a detailed study of signal analysis as it applies to the opera-



tion and signal-generating capabilities of electronic devices most likely to be encountered by today's techs and hobbyists.

This includes all types of test equipment, transmission media, satellite earth terminals, mono and stereo audio equipment, also multiple and satellite master antenna systems.

Prentiss also examines the latest developments in analog color TV systems, plus automotive electronics (including conventional distributors, fuel injection, turbos, and superchargers). The book is loaded with explanatory photos, charts, schematics, formulae, and tables.

Prentiss has done an excellent job, as usual, of unraveling a complex topic and making it both interesting and understandable. I wouldn't recommend for the first book a rank novice should try digesting. However, most people with a decent knowledge of basic electronics will be able to grasp the worthwhile information it has to offer.

This book is \$19.95. The book is title Number 3557 from TAB Books, Blue Ridge Summit, PA 17294-0850. It should be available through most TAB dealers.

Watch These

A series of excellent VHS videos has been released by CQ Communications, which is POP'COMM's parent company. These are all related to explaining various aspects of ham radio, and have been professionally produced. These videos are entertaining as well as informative, covering their topics in plenty of detail. They are of considerable value and use to persons of any age beginning in ham radio.

The videos have interviews with experts, discuss equipment, offer operating tips and techniques, show stations, and explain just what's needed to get started in order to obtain the most enjoyment and success.

The nice thing about videos is that they're almost like being there in person. You can run them as many times as you want to go over the various ideas again, and you can share the experience with your family and friends. You can pick up many good pointers from the hams whose stations are shown in these videos.

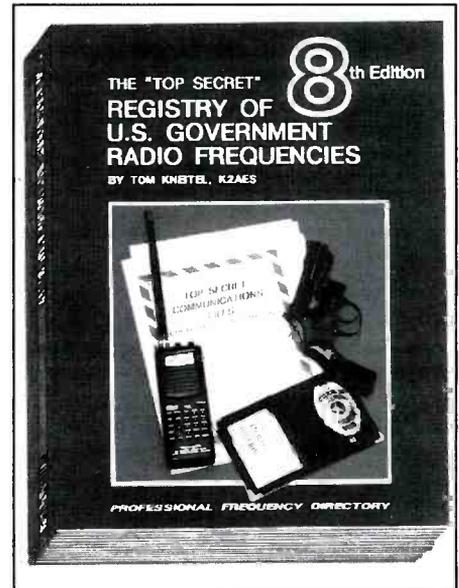
The following titles are available, with their approximate running times: *Getting Started In Ham Radio*, (45 min.); *Getting Started On Amateur Satellites*, (45 min.); *Getting Started In Packet Radio*, (30 min.); and also *Getting Started In DX'ing*, (50 min).

Each video is \$20. Please specify which one(s) wanted. Enclose \$2.50 shipping and handling (\$3.50 foreign) for the first tape ordered, and an additional \$1 per tape thereafter. Order from CQ Communications, Inc., 76 North Broadway, Hicksville, NY 11801. VISA/MC/AMEX accepted. Phone 1-(516) 681-2922; 24-hour FAX 1-(516) 681-2926.

Federal Monitoring Favorite

One of the most useful and heavily relied upon frequency reference guides has long been Tom Kneitel's *Top Secret Registry of U.S. Government Radio Frequencies*. When the 1st Edition appeared in the late 1970's, it was the original and only source of federal agency frequency information. Since then, it has grown into a hugely successful and widely used professional publication. It is generally recognized as the standard federal frequency information reference source relied upon by law enforcement agencies, the news media, private security interests, the communications industry, and scanner owners.

The new 8th Edition is just out, a 268 page treasure chest of data on federal agency and military communications frequencies and systems. They're here! The FBI, DEA, Secret Service, Customs Service, Border Patrol, FAA, FCC, CIA,



USPS, Immigration Service, Treasury, State Dept., BATF, US Marshals, USCG, National Parks, National Forests, EPA, NRC, and dozens of other federal agencies. There is much new and revised information from the previous editions. CTCSS information is provided. Major government contractors and Canadian listings are also included.

Yes, all US military services are there. In this edition the coverage is expanded to cover worldwide American military bases. Moreover, foreign government military frequencies in world hotspots are provided (Mideast, Latin America, Caribbean). Full coverage of the 225 to 400 MHz UHF military aero band (US/Canada) is given, including UHF aero band assignments at all US/Canadian civil airports and ARTCC's, as well as military facilities. Surveillance bug and vehicle tracking transmitter frequencies are in this edition. There is a new by-frequency listing section showing key VHF/UHF channels. Plenty of HF information here, too, including the USAF's new Global SSB network.

Did you see the network TV report about the secret USAF base in the Nevada desert where several captured UFO's exist and are under examination? Its frequency is in the 8th Edition. So is an enormous amount of additional data and extras. It all comes together to make the 8th Edition very welcome and the one essential reference source for all who monitor or are interested in federal frequencies and communications systems.

The Top Secret Registry of U.S. Government Radio Frequencies, 8th Edition, by Tom Kneitel, remains unique and unmatched. The front cover on the 8th Edition is in dazzling full color. Inside, it's pure, highly concentrated data, cover to

cover, margin to margin. Far more fed frequency information than has ever before appeared in any single book.

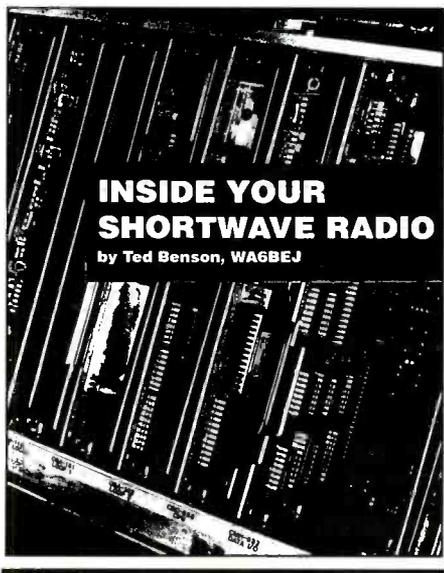
The new 8th Edition of *The "Top Secret" Registry of U.S. Government Radio Frequencies*, by Tom Kneitel, is available from many communications dealers. If your favorite dealer doesn't carry the 8th Edition, order it from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. The price is \$21.95, plus \$3.50 shipping/handling (\$4.50 to Canada). Residents of NY State please add \$2.16 tax. VISA/MC accepted. Phone orders to 1-(516)-543-9169. Or use their 24-hour FAX 1-(516)-543-7486.

In Addition...

Discover DX'ing, by John Zondlo, is a 50-page book intended to introduce a newcomer to the pleasures and potentials of DX'ing on the AM, FM, and TV bands. This book shows some QSL cards, and explains what they are. It also gives enough info to get a beginner started in setting up a simple station and tuning in some sure bets, keeping a log, joining a radio club, etc. Nice book, and written so that everybody can understand how to get started in the DX'ing hobby. Give one to a teen-ager, give one to an adult. The book is \$4.95, plus \$1 shipping, from Universal Radio, Inc., 6830 Americana Pkwy., Reynoldsburg, OH 43068.

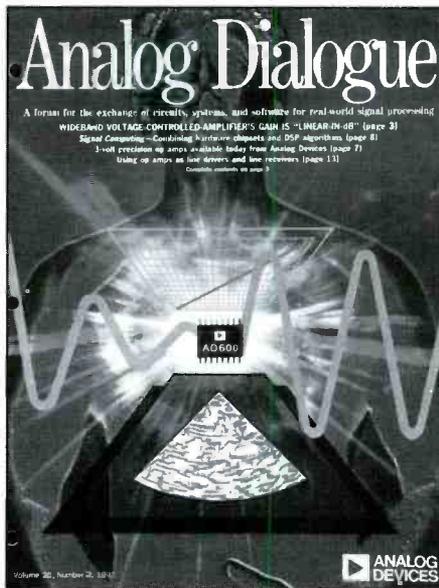
Road To A Ham License, by W. Page Pyne, WA3EOP, is a 33-page booklet that offers itself as a study guide for the no-code Tech Class ham license. The author is of the opinion that you don't need to waste your time studying a 100-page book to prepare for the exam when you can get all the information you need from his 33 page book. Some might wish to debate this. *Road To A Ham License* is \$6 from Radio Sheet, 23 N. Locust St., Hagerstown, MD 21740.

Inside Your Shortwave Radio, by Ted Benson, WA6BEJ, is a 90-page illustrated book explaining how a shortwave receiver



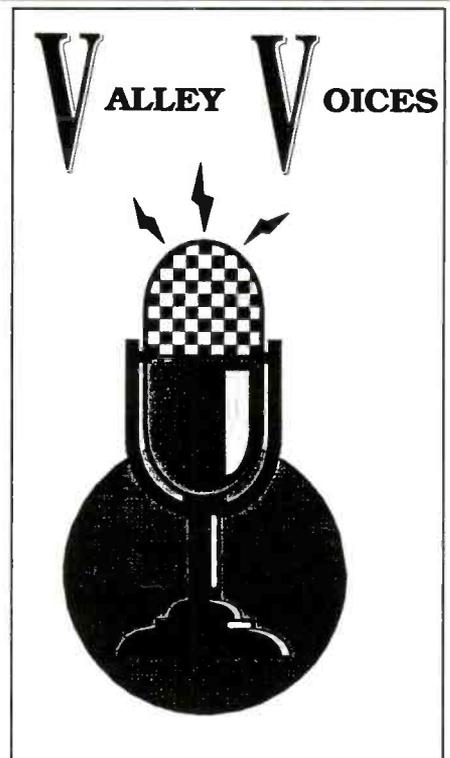
works. This includes various functions of a receiver as it picks up CW, fax, SSB, and RTTY signals. There are explanations of the various components of a receiver, as well as the commonly used receiver accessories, and a glossary of receiver terminology. This informative book is \$14.95, plus \$2 shipping (\$3 outside USA) from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. VISA/MC welcome.

Analog Dialogue, Vol. 26, No. 2, is a quarterly tech journal on circuits, systems, and software for real-world signal processing. Highlights of the latest issue include



the AD600 and AD602 dual-channel, low-noise, low-distortion VCA's providing independent "linear-in-dB" gain. Also examined is a difference amp with common-mode range exceeding its supply value, and a review of 3-V precision op amps. This is a 32-page publication which may be requested from Analog Devices Literature Center, 70 Shawmut Rd., Canton, MA 02021. Their FAX number for requests is 1-(617) 821-4273.

Valley Voices, by John R. Ghrist, N9HVF, contains more than 450 pages of historic and background information



(including 142 pages of photos of station sites, studios, charts, and air personalities) relating to radio broadcasting in the Chicagoland area (and Northern Indiana) during the period 1910 to 1992. The book took John 6 years to research and write, and it covers more than 80 stations, many long forgotten until John tracked them down for his book. This looks to be about as complete a history of broadcasting in the Chicagoland area as has ever been attempted. John (who is an avid POP'COMM reader) advises that during his research, he had requested information from the POP'COMM archives, which was provided in abundance by Alice Brannigan. This book is available for \$33.50 (includes shipping) from JRG Communications, P.O. Box 1073, Dundee, IL 60118-1073. Allow 6 to 8 weeks for delivery. Upon request when ordering, your copy will be personally autographed by the author. ■

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Add Ears To Your Frequency Counter

High Gain Preselector For Frequency Counters Adds Sensitivity

Optoelectronics has become famous for putting its line of high grade frequency counters into the hands of communications techs, hobbyists, experimenters, designers, labs, law enforcement agencies, and others who want or need such precision devices. They're handy. You can turn one on 80 ft. away from an operating VHF mobile radio and get an instant reading of the mobile unit's transmitting frequency. You can hold it a foot away from a cordless phone and get a frequency readout.

To meet the many types of different needs for small, portable frequency counters, Optoelectronics has created a whole family of versatile types with varied features, like the Models 2300, 3000, 2810, 2600H, and 2600HA. These units operate from 10 MHz to 1000 MHz.

The Optoelectronics people kept getting requests from people who wanted to pick up and determine the frequency of extremely low level signals, perhaps using their frequency counters further away from the signal sources to be measured. One of the things this type of performance might be needed for would be identifying surveillance transmitters, or for measuring FM broadcast transmitter frequencies.

Frequency counters that cover broad frequency ranges have two basic sensitivity limitations. For one thing, there is the internal noise of the device itself functioning. A typical 3 GHz bandwidth front end results in an input noise floor of about -70 dBm. Any desired signal to be accessed must exceed this level by 10 to 15 dB.

Then, the counter doesn't just pick up the one desired signal. Once an antenna is connected, it becomes subject to being affected by the undesired signals of various transmitters on numerous frequencies, including powerful FM, and TV broadcast carriers. The level of these incidental sig-

nals also figures in limiting how much sensitivity a wideband frequency counter may have, as a matter of practicality.

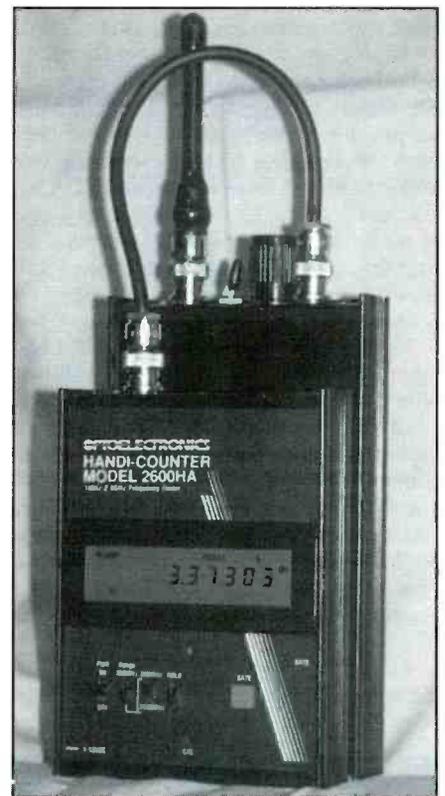
The Optoelectronics design engineers have worked around these problems and created a way of adding powerful ears to any frequency counter having a 10 to 1000 MHz frequency range. It's called the Model APS104. This is a narrow bandpass filter tunable over a wide frequency range. When inserted between the frequency counter and its antenna, two things take place.

First, the narrow bandwidth passband (4 MHz) knocks out most interfering signals, and allows only the signals at the center tuned frequency to pass through to the counter. The apparent increase in sensitivity can be 40 dB or more, depending upon the level of the interfering signal.

Then, since the bandwidth of the measurement system is reduced, the 3 GHz bandwidth noise floor limitation is also reduced. Gain in the active preselector correspondingly boosts signal level to take full advantage of bandwidth reduction.

In operation, the APS104 is mounted to the frequency counter. It sticks there firmly with Velcro, and is powered by an internal NiCd battery pack. A cable runs from the output of the APS104 to the input of the counter. You then select any of several types of antennas best suited to the frequency band to be measured. From there on in, the APS104 is switched on, and you use a calibrated tuning knob to simply dial up the frequency range you want the counter to concentrate on. There's really nothing more to do to operate the APS104.

What does the APS104 add to the performance of a frequency counter? These extended ears allow a person to measure the operating frequency of a VHF two way radio from a comfortable quarter of a mile away. A cordless telephone can be measured from



The amazing APS104 attached to an Optoelectronics Model 2600HA frequency counter. This we liked.

a distance of 120 feet. These are typical increases in a metropolitan environment.

This is an amazing unit, a fine idea, and a terrific way to increase the versatility of any broadband frequency counter. You can get more information on the APS104 from our good friends at Optoelectronics, Inc., 5821 N. E. 14th Ave., Fort Lauderdale, FL 33334, or circle 102 on our Reader's Service.

Reviewed by POP'COMM Staff

THE PARTS PLACE



Pocket LCD-digital multimeter value

Take it along! This UL listed, autoranging multimeter folds up, with its probes, to easily fit a shirt pocket. Continuity buzzer, diode-check mode. Measures to 400 volts AC or DC and 2 megohms resistance. #22-171 24.99



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Milsat Update

Before we begin with your letters, I must share some information of interest concerning two pet projects of mine, Milstar and Mir. Milstar (also known as the Military Strategic and Tactical Relay system—MSTR) has received a shot-in-the-arm in the form of new funding. It has been decided that the final constellation will consist of six spacecraft. This should provide the military with reliable worldwide communications. The proposed locations of each satellite (Geostationary satellites) can be found in the Oct. '90 issue of SV. Lockheed is building the spacecraft and Teledyne is providing the onboard computers. Milstar is not a small spacecraft. It has two 50 foot solar panels on a large bus. They use the SHF band and will have a medium and high data rate capability. According to *Aviation Week*, the fourth Milstar will not be ready for launch until 1998.

Last June, President Bush and Boris Yeltsin signed an agreement which gives NASA and the Russian Space Agency the go-ahead to proceed with the following joint US/Russian missions, according to *Aviation Week*. A Russian Cosmonaut will fly onboard the US space shuttle on Mission 60 scheduled for October 1993. A US astronaut will be onboard the Russian Space Complex Mir that same year. Russia will be allowed to bid on the launch of the US Spacecraft. The US will supply the lander for the Russian Mars mission scheduled for 1994. 1995 should see the docking of the US Space Shuttle with the Mir space complex. NASA will begin a technical evaluation of the Soyuz spacecraft and docking system of Mir with the plans to standardize docking systems and allow each to evacuate the other's spacecraft during

Military Satellites		
Satellite	Downlink	Location
Marisat	243.85-249.350 MHz	15°W, 176°E, 73°E
Leasat/Les	243.80-250.0 MHz	15°W, 105°W, 72°E, 178°E, 179°E
Fitsatcom	243.00-279.0 MHz	10°W, 44°W, 105°W, 230°W, 25°W, 75°E, 172°E, 179°E, 145°W
DSCS II&III	243.00-269.00MHz, 8/7 GHz	175°E, 177°E, 60°E, 13°E, 135°W
SDS (CIA/AF)	243.60-243.90 MHz	Molniya (elliptical)
Milstar	20 GHz	Original locations were to be: 148°W, 120°W, 90°W, 19°E, 30°E, 55°E, 90°E, 133°E, 150°E, 162°E

Note: The uplink frequencies for most military satellites run between 292.85 and 323.00 MHz.

emergencies (See July '90 issue of SV).

Now it is your turn. Our first letter is from Mark DePaepe (N5YEV) of Longview, Texas. Mark is responding to our request for more information on why Alvah Haggert of New York was having trouble hearing the satellite (weather satellite) services of Spacenet 3. Spacenet 3 carries weather transmissions directly from US/European and Russian satellites. Mark reports the service on transponder 17 and not transponder 19. He also informs us that a full disk image of the earth is sent at 5 minutes after the hour. Water vapor images of the earth are sent on the same frequency at half past the hour. You can pull this FDM (Frequency Division Multiplex) signal from the baseband, video or audio output according to Mark.

Jack Sisler (KA8CGF) of Wooster, Ohio also sent an update concerning this service. Jack confirms the signals are on transponder 17 of Spacenet 3 and sends additional frequencies. These transmissions are 40 kHz wide, standard for WxSats. The signal is fed from your TVRO receiver to an infotech data receiver or computer and the

appropriate hard/software. The infotech output is connected to the antenna connector on an HF receiver. Tune the following frequencies for NOAA (LEO), GOES (Geo-stationary) Meteosat European and Meteor Russian weather photos: 1,565.73 MHz, 1,926.30 kHz, 1,880.15 MHz, 1,876.00 MHz, 1,886.05 MHz and 1,928.60 MHz. Each channel carries visual and infrared pictures. These signals can be tuned + or - a few kHz. Your receiver should be in the USB mode.

Jack Quinn (W6MZ) of Menlo Park, CA writes to say he enjoyed the Personal Communications Satellite article in the September issue. He does have a clarification, however. In the article I mentioned VOA, Radio Free Europe and Radio Liberty were all a part of the US Information Agency (USIA). Jack reports, and accurately I might add, the RFE and FL are now private corporations. All three used to be sponsored by the CIA until this fact was made public. They are still key propaganda instruments of the intelligence services, the funding is now under different agencies, technically. VOA is under



AOR produces three models that will tune the milsat bands and up to 1.3 and 2 GHz respectively.



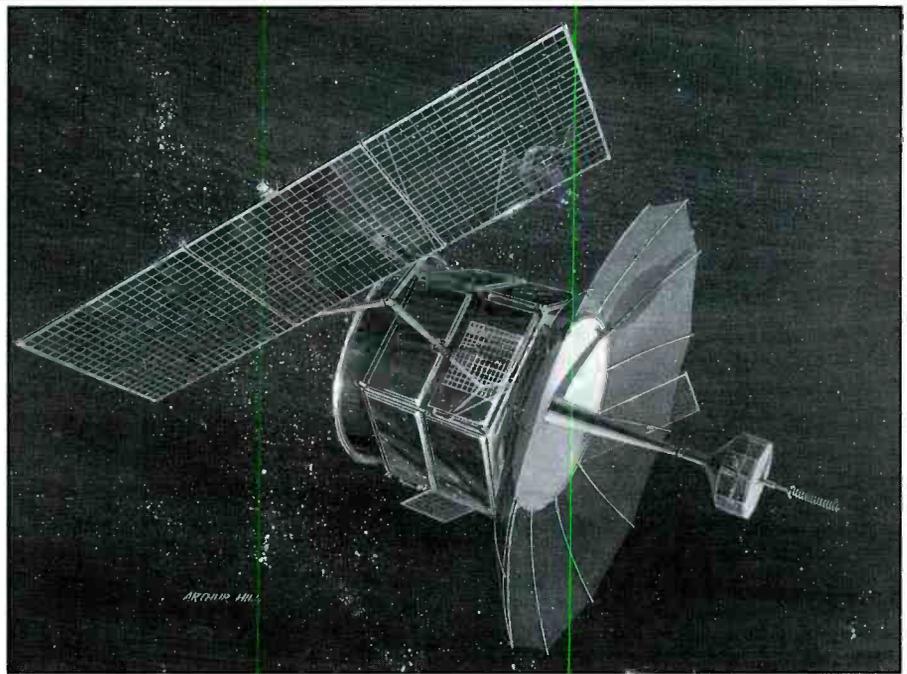
ICOM's R7000 will tune 25 MHz to 2 GHz as will the new R7100.

USIA. Thanks for the update, Jack. I might also mention Jack was surprised, as was I, to discover that USIA was doing some of the funding for Research and Development of a new satellite system. We should not be surprised, however. You and I pay for the R&D of most high-tech and military systems of all kinds. This most expensive of endeavors is then handed over to corporate interest, gratis! Corporate Welfare, as I call it, is doing more to the deficit than Social Welfare. What happened to old fashioned Capitalism, venture capital, etc. We are now in a whole new era.

My next letter comes from...well, it doesn't matter, who lives in...well that doesn't matter either. The point is that voice activity on the Fltsat and Leasat satellites in the Pacific region has been on the increase again. Activity seems to be clustered near 255, 261-263 and 269 MHz. See chart for more voice frequencies.

Of all the satellites the military have in orbit, it is difficult to say which ones are operational, in standby or have failed in orbit. Most of the '80's are still operational. Several of those launched during the '70's have failed. Some of the early Lessats and Marisats are among this number. Leasat, also called Syncom Spacecraft by the DOD, supplement the Fltsatcom birds, and are operational.

Oliver Sire of the University of Wisconsin writes with some questions about the Sony Pyxis GPS receiver shown on our



Here is an artist's conception of the U.S. Navy-sponsored fleet satellite communications system spacecraft. (Photo courtesy U.S.A.F.)

February cover. GPS or Global Positioning System is a space based radio navigation network of 21 satellites. This 24 hour a day worldwide network is a military system which has made their services available to private and commercial interests. The GPS system was used very successfully during

the Gulf War by ground, air and sea forces. It operates in two or three dimensions providing information on position, velocity and bearing. The small handheld receivers have become quite popular among mariners. The receiver samples signals from four satellites simultaneously. By comparing dif-

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GRE America is proud to introduce a new family of products to enhance your scanning pleasure! First, GRE has designed the new **Super Converter 9001** for base model scanners. The 9001 converts 810 MHz - 950 MHz down to 410 MHz - 550 MHz. The 9001 is the perfect alternative to buying a new, expensive scanner covering the 800 MHz band. Next, GRE announces the new **Super Amplifier 3001** for base model scanners. The 3001 will increase gain by as much as 20 dB, and is engineered to help scanners with low sensitivity pull in weak signals. Both products use BNC connectors, (1) 9 volt battery and have an off/pass switch for returning to normal operation.



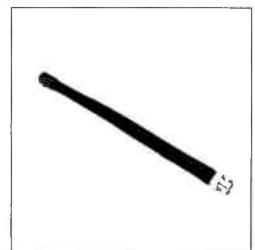
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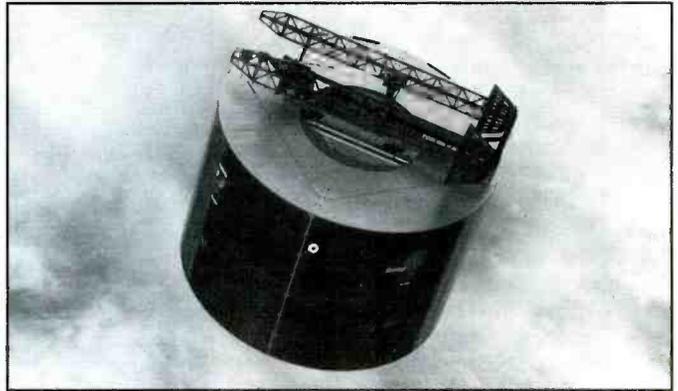
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CIRCLE 51 ON READER SERVICE CARD



Yaesu's FRG 9600 will give you all mode reception to 900 MHz. Leasat, also known as Syncom are leased military satellites that use the 240 to 300 MHz band. (Photo courtesy—NASA)

ferences in the timed signals' arrival at the receiving antenna from each of the satellites, location is determined.

Pyxis is the name of Sony's GPS receiver. The receiver automatically selects 4 frequencies for comparison. Oliver, the Sony system should do everything you need it to in providing location information accurate to one to two hundred feet. The military version is much more accurate. GPS satellites use spread spectrum techniques near 1.5 GHz. Pyxis can update position every two seconds and can store 100 waypoints in memory.

Letters, boy, did I get letters on the Christian Science Monitor! I mistakenly said American Public Radio was part of or

associated with Christian Science/Monitor Radio. One of my local PBS stations run the Monitor radio and APR ID's back to back. As NPR (National Public Radio) is the source of most local programming I made

an assumption and you know what they say about assumptions. At any rate I want to thank all of you who wrote and to all concerned...a thousand pardons!

See you next month.

Known Fltsat Voice Freqs			
244.095 MHz	261.650	262.250	269.07
248.900	261.675	262.300	269.475
249.550	261.700	262.475	269.550
259.700	261.900	262.550	269.800
261.450	261.950	262.950	269.950
261.475	262.100	263.625	288.000
261.525	262.225	264.900	295.075
261.600			

Note: Voice frequencies change at regular intervals. New channels may be found at any time

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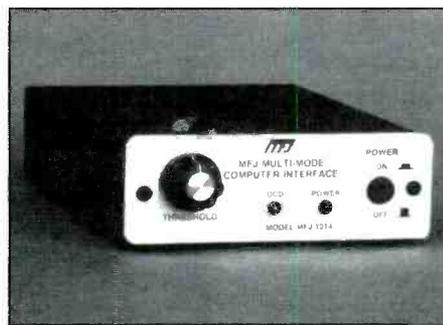
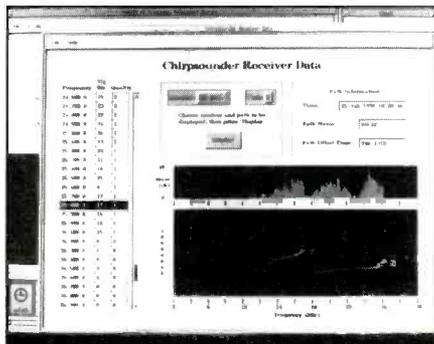
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PC3/93

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Frequency Management and Prediction System

Harris RF Communications developed a new PC-based software program that assists operators in selecting optimum frequencies and radio equipment for HF communications.

The RF-7790 is designed to automate HF communications, at large-scale systems with large numbers of users, radios, antennas and channels. It can be customized to fit the specific requirements for ship-based systems, ship-shore systems, fixed land-based systems and mobile land-based systems.

The RF-7790 conducts a detailed analysis of HF propagation conditions using an Ionospheric Prediction Model (IONCAP), a Ground-Wave Prediction Model, real-time oblique sounding and real-time channel occupancy measurements. The system automatically chooses the appropriate HF propagation analysis techniques based on the operator-specified parameters of the communications path under evaluation.

Harris RF Communications Group, located in Rochester, New York, is a world leader in the design, manufacture, installation and support of advanced HF, VHF, UHF radio equipment, COMSEC equipment, digital video imaging transmission systems, turnkey systems and networks.

For more information, contact Harris Corporation, 1680 University Ave., Rochester, NY 14610.

MultiMode Communications Package

MFJ Enterprises, Inc., announces the MFJ-1214 Multimode Communications package for \$149.95.

The new MFJ-1214 answers requests for a multimode computer interface pack-

age especially for HF enthusiasts. This all-in-one package includes the high performance MFJ-1214 MultiMode computer interface, AC power supply, software, computer and radio cables (add mic plug to fit transceiver), power supply, extensive manual, and Jump-Start™ Guide. The MFJ-1214 package plugs together in a flash and lets you transmit and receive RTTY, ASCII, CW, FAX and WeFAX.

Three versions of the MFJ-1214 are produced for various computers. The MFJ-1214PC works with IBM compatibles with VGA, EGA or Hercules plus 512K RAM and 8 MHz or faster speed. MFJ-1214AM works with Amiga. MFJ-1214ST works with Atari ST. Graphics depends on system used.

The MFJ-1214 interface is tops in performance and includes true DCD circuitry with front panel LED for easy signal tuning. The software circuitry with front panel LED for easy signal tuning. The software program is also menu driven and easy to use. On RTTY, the system gives you all standard speeds and shifts. An on-screen tuning indicator is included plus you get a full text editor that saves and transmits text files. Working CW is terrific with the MFJ-1214. In addition to automatic speed tracking, and on-frequency tuning indicator, it has type ahead buffer for transmitting, adjustable sidetone, transmit tune, and more. You can copy high resolution weather pictures directly on 16.410 MHz, zoom in on three or four state areas, and copy AP news photos on 20.738 MHz (sample frequencies: many more available!). This complete MFJ-1214 package puts you on top of today's hottest digital modes for HF, and it comes with MFJ's one full year No Matter What™ guarantee.

For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., PO Box 494, Mississippi State, MS 39762 or call (601) 323-5869, Fax: (601) 323-6551, Telex: (601) 323-6551, or order toll-free at 1-800-647-1800.

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AP wire photo received on 20.738 MHz using MFJ-1278 with MFJ-1289 Multicom.

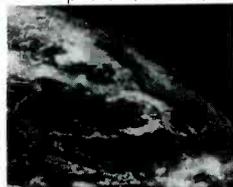
All you need is the MFJ-1278 multimode data controller, HF and/or VHF/UHF receiver and your computer with MFJ software.

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Weather map received on 16.410 MHz using MFJ-1278 with MFJ-1289 Multicom.

These programs include a computer cable and friendly instructions -- everything you need to get started fast.

To enjoy receiving text modes off the air with your MFJ-1278, you can use any computer with a serial port and simple terminal program.

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-28-

ENTERTAINMENT AND ENTERTAINERS... FROM HOLLYWOOD OR BROADWAY...
WHAT THEYRE DOING, WHATS COMING UP NEXT... FROM U-P-1.

(NIELSENS)

C-B-S HELD ONTO THE TOP SPOT IN THE WEEKLY NIELSEN TELEVISION
RATINGS RACE.

A-B-C HAD WON THE NUMBER-ONE POSITION FOR THE WEEK ENDING OCTOBER
11TH... WHEN C-B-S AIRED SIX NIGHTS OF BASEBALL PLAYOFFS AND ONLY ONE
NIGHT OF REGULAR PROGRAMMING. HOWEVER, C-B-S RETURNED TO THE TOP SPOT
WHEN IT RETURNED TO NORMAL PROGRAMMING THE WEEK ENDING OCTOBER 18TH.

AND C-B-S INSURED ITS POSITION AS THE TOP LAST WEEK BY AIRING THE
WORLD SERIES... WHICH TOOK FIVE OF THE TOP 10 POSITIONS. C-B-S'S 60
MINUTES WAS THE MOST-WATCHED SHOW.

A-B-C AND N-B-C DIED FOR SECOND PLACE IN A WEEK THAT SAW THE FOX
NETWORK MAKE A DENT IN THE RATINGS.

THE TOP 10 PROGRAMS FOR THE PAST WEEK WERE: 60 MINUTES (C-B-S)...
GAME SIX OF THE WORLD SERIES (C-B-S)... GAME FIVE OF THE WORLD SERIES
(C-B-S)... GAME THREE OF THE WORLD SERIES (C-B-S)... ROSEANNE
(A-B-C)... GAME FOUR OF THE WORLD SERIES (C-B-S)... MURPHY BROWN
(C-B-S)... COACH (A?-C)... 20/20 (A-B-C)... AND LOVE AND WAR
(C2B-DU162 (=OUYWYGM

BKABLFKXS.UC11

'7,+ ?-: (9. :9749 99094:388')9, TIME LOVER AND

LEADING LADY, MIA FARROW, TO GET PSYCHIATRIC HELP FOR THEIR ADOPTED
DAUGHTER DYLAN. RAKESMAN FDS

HE FILMMAKER, DIY

EDR AND ACTOR

SAYS FARROW HAS REFUSED TO COMPLY WITH A PREVIOUS AGREEMENT FOR
PSYCHIATRIC CARE FOR THE SEVEN-YEAR-OLD GIRL.

DYLAN IS AT THE CENTER OF DOMESTIC SOOT THAT BROKE LAST AUGUST
WHEN ALLEN SUED FOR SOLE CUSTODY OF THREE OF FARROW'S 13 NATURAL AND
ADOPTED CHILDREN. FARROW FILED A COUNTER SUIT... ACCUSING HIM OF
SEXUALLY MOLESTING DYLAN.

ALLEN WAS CHARGED FARROW WITH BEING

SUBJECTIVE BECAUSE OF HIS LOVE

AFFAIR WITH ANOTHER OF HER ADOPTED CHILDREN... 21-YEAR-OLD SOON-YI
PREVIC.

-28-

(BARRY CORBIN)

) (NORTHERN EXPOSURE= CO-STAR BARRY CORBIN AND HIS WIFE, SUSAN, ARE
GETTING A DIVORCE AFTER 16 YEARS OF MARRIAGE.

A SPOKESMAN FOR THE ACTOR SAYS SUSAN CORBIN FILED FOR DIVORCE IN
LOS ANGELES LAST FRIDAY. THE COUPLE HAS TWO CHILDREN AND WILL SHARE
CUSTODY.

-28-

(NANCY PARRY)

ACTRESS NANCY PERRY REPORTEDLY HAS REACHED A SETTLEMENT IN HER
CLAIMS SHE WAS SEXUALLY HARASSED BY A FORMER STAGE MANAGER FOR
A-B-C'S "GENERAL HOSPITAL" OVER A PERIOD OF 12 YEARS.

PARRY'S ATTORNEY... ALAN NEWMAN... SAYS THE ACTRESS, A-B-C AND THE
ACTORS' UNION AFTRA HAVE AGREED NOT TO DISCUSS TERMS OF THE
SETTLEMENT. THE VETERAN STAGE MANAGER INVOLVED... JERRY BLUMENTHAL...
WAS FIRED AFTER A FEMALE ACTRESS WHO OCCASIONALLY WORKED AS AN EXTRA
ON THE DAYTIME TV SHOW SIGNED A LETTER SAYING

HE HAD HARASSED HER

) -28,, NGKNLOJ2N

NLFVQGYI

QNHIDLN 10-18-2 01:26 AES

← UPI news edited for use by Armed Forces
radio and television stations. Was moni-
tored on 8025 kHz at 0627 UTC, baud,
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18220.9: CNM76, MAP, Tangier, Morocco.
w/nx in FF at 1551, 50 baud. (Ed.)

18230.0: GFL25, Bracknell Meteo, England,
w/coded wx at 1600, 50 baud. (Ed.)

18319.9: OMZ, MFA, Prague, Czechoslovakia,
w/nx in Czech, 100 baud at 0845. (Hall, RSA)

18388.0: 5AF, Tripoli Air, Libya, w/"QJH HLL-
TYF" & RYRY, 50 baud at 0830 ("Doe," England). &
at 1928. (Schimmel, WV)

18410.0: GXQ, DCN, London, in // w 16273.5
kHz at 1707. ("Doe," England)

18412.0: GKQ, British Army, London, England.
w/RYI's foxes, & 10 count, 50 baud, FDM, at 1532.
(Ed.)

18424.5: DFZG, MFA, Belgrade, Yugoslavia.
w/Tanjug nx in EE & SC, 75 baud at 1535. (Ed.)

18449.0: MKK, DCN, London, in // w 16040.0
kHz at 1703. ("Doe," England)

18461.5: PCW1, MFA, The Hague, Netherlands,
w/many different selcals, ARQ at 1820. (Ed.)

18495.7: CNM80, MAP, Rabat, Morocco, w/nx
in AA, 50 baud at 1546. (Ed.)

18535.0: MKD, DCN, Akrotiri, Cyprus, wkg
MKK, DCN, London, w/foxes & RYI's on 6 of 8 FDM
channels, 50 baud at 1700. ("Doe," England)

18557.4: "C37A" at 100 baud at 1750, then to
an un-ID RTTY sig. (Tubbs, Germany) We in the States
have heard this sta. on 16312.5 using 100 baud &
ARQ-E/192--Ed.

18579.9: CXR, Montevideo Navrad, Uruguay,
w/tfc in SS to "CNO Washington," 75 baud at 1536.
(Hall, RSA)

18750.0: MKK, RAF, Stanbridge, England, in 2-
channel piccolo mode, with one channel encrypted &
the other idle, at 1819. (Ed.)

18845.0: "SPK" w/"SPK SPK SPK 1/131" +
RYRY foll by 5F grps, 50 baud at 1606. (Schimmel,
WV)

18907.1: GXQ, British Army, London, w/RYI's
& foxes at 1634, 50 baud. (Hall, RSA)

18941.0: MSS, DCN, Belize, wkg MKK, DCN,
London, 2-channel Piccolo at 1714. ("Doe," England)

18971.5: DFZG, MFA, Belgrade, Yugoslavia,
w/Tanjug nx in SC at 1548, 75 baud. (Ed.)

19109.0: Un-ID w/POST selcal, ARQ, 1312-
1318. (Ed.) Un-ID w/a Telex in Danish, ARQ at 0854.
(Tubbs, Germany)

19181.7: Un-ID idling, ARQ, 1344-1349. (Ed.)

19357.9: MFA, Lagos, Nigeria, w/nx in EE, FEC-
A/96 at 1024. (Hall, RSA)

19463.0: SUNA, Khartoum, Sudan, w/nx in FF
at 1658, RYRY at 1710, & nx in EE at 1725, 50 baud.
(Boender, NLD)

19529.0: JMG5, Tokyo Meteo, Japan, w/coded
wx, 50 baud at 0815. ("Doe," England)

19567.7: MFA, Cairo, Egypt, w/Telexes in AA,
ARQ at 1422. (Ed.)

19592.0: ANSA, Rome, Italy, w/nx in II at 1030,
50 baud. (Hall, RSA)

19613.0: CLPI, MFA, Havana, Cuba, w/tfc at
1800, 50 baud. (Schimmel, WV)

19615.0: MTS, DCN, Falkland Islands, wkg MKK,
DCN, London, 3-channel Piccolo at 1712. ("Doe,"
England)

19747.0: 6VU79, Dakar Meteo, Senegal,
w/RYRY at 2247, 50 baud. (Schimmel, WV)

19822.5: 5AF, Tripoli Air, Libya, in // w
18388.0 kHz at 0831. ("Doe," England)

19870.1: UN HQ, New York, NY, w/admini-
strative tfc in EE to Geneva, ARQ at 1133. (Hall, RSA)

20046.5: Un-ID Hungarian diplo in DUP-ARQ at
1247. (Ed.)

20119.7: MFA, Cairo, Egypt, w/tfc in AA, ARQ
at 1342. (Ed.)

20138.3: Un-ID Yugoslav diplo w/crypto after
VCVCVC at 1645, 75 baud. (Ed.)

20156.8: 5KM, Bogota Navrad, Colombia,
w/RYRY, SGSG, & IANTN tfc to CCS, 75 baud at
1442. (Ed.)

20324.7: Un-ID idling at 1619, ARQ-E3/96.
(Ed.)

20326.3: Un-ID idling, ARQ-E/192 at 1545. (Ed.)

20330.0: MKD, DCN, Akrotiri, Cyprus, in // w/ 18535.0 kHz at 1701. ("Doe." England)

20331.5: MKD, RAF, Akrotiri, Cyprus, w/RYP's, foxes, & 10 count, 50 baud, FDM, at 1623. (Ed.)

20364.7: IGP20, MFA, Rome, Italy, w/msgs in II at 1445 & 1454, ARQ-N/96 (Ed.)

20401.6: Indonesian Emb., Dar-es-Salaam, Tanzania, wkg MFA, Jakarta, ARQ at 1155. (Hall, RSA)

20417.5: Un-ID idling at 1625, ARQ-E/96. & going QRT at 1650. (Ed.)

20465.7: 4UA, UN, Rawalpindi, Pakistan, wkg Geneva, Switzerland ("GVA de PIN"), 75 baud, FDM, at 0740. ("Doe." England)

20513.8: French Emb., Dakar, Senegal, w/5L msg. ARQ6-90/200 at 1639. (Ed.)

20560.0: 5AQ88, JANA, Tripoli, Libya, w/nx in EE, 50 baud at 1613. (Ed.)

20609.5: HBD20, MFA, Berne, Switzerland, w/nx in FF to HBD28, ARQ at 1349. (Ed.)

20628.5: CLP5, Cuban Emb., Algiers, Algeria, w/5F msg & diplo t/c in SS from North Africa & Middle East embassies, 50 baud at 1615. (Ed.)

20750.1: OEC, MFA, Vienna, Austria, w/nx in GG re fighting in Sarajevo, ARQ-S4/96 at 1113. (Hall, RSA)

20756.3: RFLIG, French Navy, Cayenne, French Guiana, w/"controle de voie." ARQ-E3/96 at 1458. (Ed.)

20813.5: Msg says "de Paris" + "controle de voie," but circuit is out of Libreville, Gabon. ARQ-E3/50 at 1506. (Ed.)

20822.0: RFLIG, Cayenne, w/"controle de voie," ARQ-E3/96 at 1458. (Ed.)

20919.6: Swedish Emb., Adklis Ababa, Ethiopia, wkg, MFA, Stockholm, at 1042, SWED-ARQ. (Hall, RSA)

20927.8: Un-ID w/5L grps. very strong sig. 75 baud at 1255. (Hall, RSA)

20944.1: SAM, MFA, Stockholm, Sweden, w/5L grps. SWED-ARQ at 1039. (Hall, RSA)

20972.2: Un-ID w/5L grps, 75 baud at 1503. (Hall, RSA)

20996.0: CLP55, Cuban Emb., Georgetown, Guyana, w/prensa minrex, 50 baud at 1445. (Ed.)

21855.7: Un-ID French diplo w/a brief msg in FF & a few 5L grps before the xmsn was abruptly broken. ARQ6-90/200 at 1527. (Ed.)

22391.7: Un-ID w/many different selcals at 2135, ARQ. (Ed.)

22395.0: KPH, San Francisco R., CA, w/a Telex to SWXS, ship Ascona, ARQ at 2125. (Ed.)

22422.0: MTO, Royal Navy, Rosyth, Scotland, w/availability tape, 75 baud at 1600. Freq. formerly used by c/s GYA. MTO & GYA may be collective c/s of the RN at Northwood, England. (Hetherington, FL)

22425.5: WOM, Fort Lauderdale R., FL, w/a t/c list, FEC at 2119. (Ed.)

22434.0: MKK, RAF, London, England, w/foxes, 50 baud at 1340. (Hetherington, FL)

22551.0: MTO, Royal Navy, Rosyth, Scotland, w/availability tape, 75 baud at 1758. (Ed.)

22685.6: UJY, Kaliningrad R., Russia, w/nx in RR, 50 baud at 1519. (Ed.)

22688.0: WLO, Mobile R., AL, w/wx synopsis & forecasts, FEC at 1853. (Ed.)

22854.0: Un-ID French diplo w/5L grps. ARQ6-90/200 at 1542. (Ed.)

22904.2: Un-ID idling at 1420, ARQ-E/96. (Ed.)

22905.5: Un-ID idling, ARQ, 1423-1426, & at 1558 on another day, going QRT at 1616. Also, another un-ID w/encryption at 1426, ARQ-E/96. (Ed.)

23084.3: CLP1, MFA, Havana, Cuba, w/5F msg & msg in SS to Ghana at 1500. Computer measurement of the baud rate showed it to be 46.65 baud, which might explain some of the misprinting seen when the sig. was decoded at 50 baud. (Ed.)

23354.8: A Cuban diplo sta. w/RYRY w/o ID foil by a msg in SS, 75 baud at 1820. Changed to 50 baud at 1824 & sent 5F msg. Msgs headers said Embacuba Uganda, but this may've been a relay from Tanzania. (Ed.)

23357.5: Un-ID w/ARQ CKEV selcal at 1649. Running the same time as the ARQ sta. 200 Hz higher in freq. (Ed.)

23357.7: Un-ID w/a personal msg in EE at 1646, ARQ. (Ed.)

23387.5: LOR, Puerto Belgrano Navrad, Argentina, w/5L grps at 1644, 75 baud. (Ed.)

23520.0: MFA, Sofia, Bulgaria, w/nx in Bulgarian & EE to its embassy in Washington, DC, 75 baud at 1419. (Ed.)

23593.1: SAM, MFA, Stockholm, Sweden, w/nx in Swedish & t/c to Seoul, South Korea, SWED-ARQ at 1145. (Hall, RSA)

23602.7: Un-ID idling in ARQ mode 1443, then goes QRT at 1449. (Ed.)

23631.5: Un-ID w/"pour: ambazaire toute," ARQ at 1446. (Tubbs, Germany)

23716.5: RFLI, French Navy, Fort de France, Martinique, w/"controle de voie" at 1817, ARQ-E3/96. (Ed.)

23730.0: Un-ID in FEC-A/192 mode at 1425. Sig. was coping w/QRN & the QRN was winning. (Ed.)

23976.7: Egyptian Emb., Accra, Ghana, w/5L

grps to MFA, Cairo, ARQ at 1240. (Hall, RSA)

24102.0: DFZG, MFA, Belgrade, Yugoslavia, w/RYRY & ID, foll by crypto after XPXPXP. Was 75 baud at 1436. (Ed.)

24851.5: RFLI, French Navy, Fort de France, Martinique, w/"controle de voie" at 1640, ARQ-E3/192. (Ed.)

24871.5: RFLI, Fort de France, w/"controle de voie" at 1647, ARQ-E3/96. This xmsn in reality was a relay back to RFLI from RFHJ, Papeete, Tahiti. (Ed.)

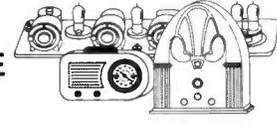
25032.4: CLP22, Cuban Emb., Hanoi, Vietnam, w/two 5L msg to CLP1 at 1555, 50 baud. (Hetherington, FL)

25045.4: CLP22, Cuban Emb., Hanoi, Vietnam, w/a 5L msg & msg in SS, 50 baud at 1711. (Hetherington, FL)

25271.4: ISX25, ANSA, Rome, Italy, w/nx in FF at 1400, 50 baud. (Hetherington, FL)

26356.0: Un-ID w/encryption every min. on the min., for 5-sec. durations, 75 baud, 1705-1930. (Ed.)

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CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

Another new clandestine-type program has come on the air via a major shortwave broadcaster. This one is called the Voice of Ethiopian Patriotism and it's being carried by Radio Moscow on Sundays and Wednesdays in Amharic from 1530 to 1600 on 11975, 15580 and 21785. The broadcast is produced by a group called the Coalition of Ethiopian Democratic Forces. The broadcasts attack political groups now in power in Ethiopia. Two addresses are given: Coalition of Ethiopian Democratic Forces, P.O. Box 21307, Washington DC 20009 or P.O. Box 5077, S-163 05 Spanga, Stockholm, Sweden.

Another clandestine-type program via Radio Moscow facilities - Radio Irina, also known as the Voice of Freedom, can be reached at Ulitsa Novinski 18/257, 121069, Moscow or its US address, 6433 Northanna Dr., Springfield VA 22150. The broadcast, said to be the voice of the Restoration Party, airs from 1400 to 1500 on 15580 and calls for democracy in Vietnam. So that makes two former Soviet client states which are now the targets of broadcasts via Radio Moscow facilities! There have been some reports that this group will also broadcast over WWCR shortwave, Nashville, though no other details are available at the moment.

The Democratic Voice of Burma, which opposes the military government of Myanmar (Burma) and airs over Radio Norway's facilities has flipped back to its original frequency of 17840, after using 17845 for only a month or so. Broadcasts now run from 1430 to 1525. Unfortunately, 17840 continues to be blocked by the BBC-Antigua at that hour. Your editor is quite sure he heard a bit of the anti-Burma broadcast underneath BBC on one occasion recently. We'll see what response a taped reception report will bring.

The Cambodian clandestine Voice of the Khmer has gone off the air, supposedly not for good. The station, operated partly by former leader Prince Sihanouk, operated on 6325 and could sometimes be heard in North America during our early morning hours.

The station of the Rwandan Patriotic Front, Radio Muhabura is still active as of this writing, despite steps having been taken toward a settlement with the government. The frequency has been moved from 6400 to 6340, with a variable pre-0400 sign on, though not officially scheduled to start until 0415. The few North American receptions of this one have been weak, at best.

Good equipment and enough persis-



The communist government of Vietnam is the target of Radio Irina (The Voice of Freedom) being aired over Radio Moscow's facilities.

tence might still bring this one in for many clandestine hunters. There's no known address for this station, so far, anyway. Some sources indicate that this station may be operating from neighboring Burundi.

Rarely heard or reported Voice of the Mojahedin of Iranian Baluchistan reportedly broadcasts in Farsi on 11970 from 1258 to 1455 sign off.

The Sudan People's Liberation Army station, Radio SPLA, is now said to be using 9170, sometimes 9190 between 0500 and 0600, 1100 and 1200 and 1300 to 1400, mostly in Arabic and local languages. Omdurman radio has also been using 9190 in recent months, with an 0300 sign on.

Radio Free Bougainville continues to be active, though there was, apparently, a period of downtime a few months ago. The frequency, though, seems to be somewhat erratic; nominal 3880 but sometimes 3875 or 3870. Searching for this one requires some work in the "wee small hours of the morning"—the few North American logs have been around 0900 or 1000.

The Voice of Palestine (Sowt Al-Filistine) can be heard via Radio Damascus between 1530 and 1730 on 12085 and 15095, all in Arabic. This will prove a lot harder to verify than it is to hear!

Radio Mogadishu, the government sta-

tion in ravaged Somalia has competition from another station using the same name. The other Radio Mogadishu supports one of the other elements in this mixed political bag. It is scheduled at 0400 to 0500 (Fridays to 0600), 1000-1100, 1300 to 1430 and 1600 to 1800 in Somali and Arabic. Broadcasts are in the range between 6956-6972 and 942-9535, the latter in upper sideband.

The Radio Free Croatia program aired on WHRI can be reached at P.O. Box 25481, Chicago, IL 60625.

One of the easiest clandestine stations to hear remains the anti-Castro La Voz del CID (Cuban Independiente y Democratica) which uses 6305 between 0420 and 1200, 9940 from 1208 to 0415, 11940 from 1208 to 2315 and 7340 from 2320 to 1200. Reception reports are answered with nice QSL cards from Apartado 8130, San Jose 1000, Costa Rica.

That covers things for this time. Your informational input to this column is always welcome, whether in the form of log reports, QSL or station address news, background material, news clippings, schedules and so forth. Anything and everything having to do with the world of clandestine radio is of interest and very much appreciated!

Until next month—good hunting! ■



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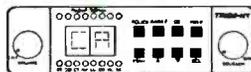
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The answer is clear: *sometimes* and *maybe*, depending on the frequency.

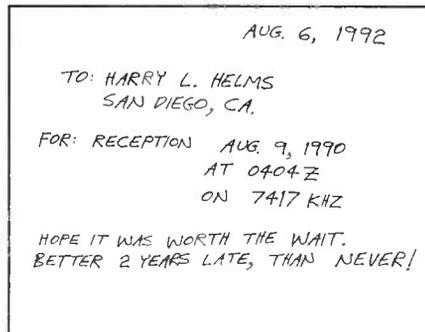
You probably want a little more detail, so let's get going.

Is Cold Weather Really Better for DX'ing?

The notion that cold weather is better for DX'ing than warm weather seems to be supported by the experience of many SWL's. When fall and cooler weather returns, DX generally does improve. The noise level drops on all bands below 30 MHz. Frequencies from 15 to 30 MHz begin to open more often for long-haul DX during the daytime hours, while frequencies below 5 MHz open for similar DX during the night hours. These improved DX conditions last until spring, when noise increases and DX openings get fewer. The conclusion seems clear: colder weather means better DX.

But hold on! Just because two things happen at the same time doesn't mean that one thing causes the other.

Let's get one fact straight at the beginning: weather happens in the layer of the atmosphere closest to Earth, known as the troposphere. Radio signals below 30 MHz



After two years, I had just about given up on receiving a QSL report from this station.



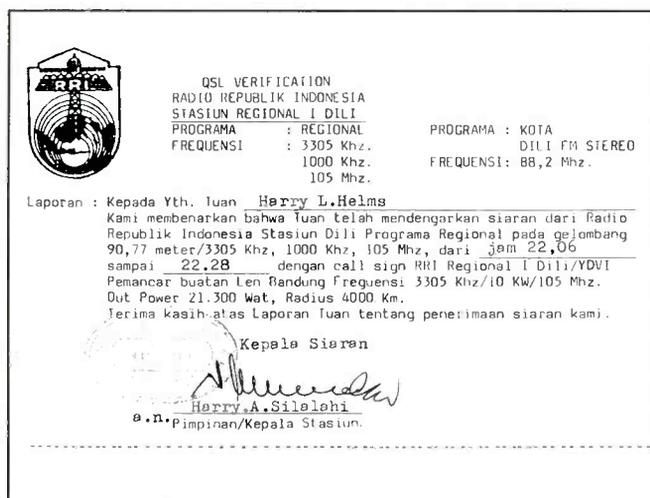
Radio Anarchy's slogan is short and to the point.

travel long distances because of refraction off the ionosphere, a layer of the atmosphere lying between approximately 50 to 150 miles above the Earth. There's nothing in the troposphere that can affect radio signals; they simply shoot through the troposphere on their way to and from the ionosphere. It doesn't matter whether it's hot or cold in the troposphere, or if it's rainy or sunny—the ionosphere is the only thing that matters for DX reception of signals below 30 MHz.

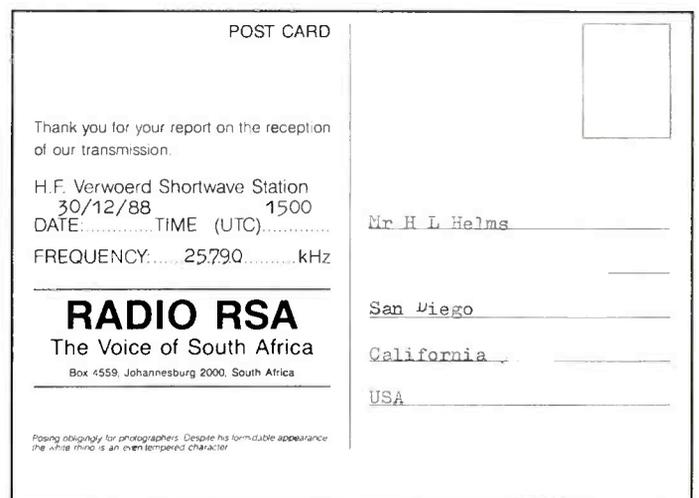
The troposphere does have one indirect effect, however. Thunderstorms, which are the big static generators, take place in the troposphere. During summer, thunderstorms are common and static is therefore usually higher. But this isn't a hard and fast rule. There are some winter nights which have just as many static crashes as one in mid-summer, and there are some

remarkably quiet nights in summer.

But the shorter days and angle of the sun's rays that causes cooler weather in the troposphere also affect the ionosphere. Together, these mean the ionosphere isn't as heavily ionized in the winter as in summer. You might think this would be ideal for DX, but the maximum (that is, highest) usable frequency is usually higher in winter than summer. Why? While the total ionization is less, the ionosphere isn't heated as much in winter and it doesn't expand out to as high an altitude as in summer. The ionosphere is lower in altitude and denser in winter, and thus the effective ionization and maximum usable frequency are higher on winter days than on summer days. The situation reverses once the sun goes down in winter. Since the total ionization is less, signal absorption on lower frequencies is less and DX improves.



Radio Republik Indonesia sends a QSL in the native tongue.



Here is a QSL from Radio RSA.

So cold weather doesn't "cause" better DX. It just happens that both share a common cause.

But Sometimes There is a Link to Weather. . .

Okay, so signals below 30 MHz don't care what the weather is like. The same isn't true for signals above 30 MHz. As the frequency of a signal increases, so does its tendency to get "trapped" in the troposphere and propagated over several hundreds or even thousands of miles. This phenomenon is called *tropospheric bending*, or just "tropo" for short. Every spring and fall, tropo is responsible for some terrific VHF/UHF DX.

Tropo is produced by a *temperature inversion*, which means that air closer to the surface of the Earth is cooler and drier than the air higher aloft. Temperature inversions are responsible for hazy or smoggy weather conditions, and are common in spring and summer where a slow moving cold front meets a stable high pressure mass. Inversions can form along the boundary between the two air masses. When signals above 50 MHz encounter the boundary between the two air masses in the troposphere, the signals can become "trapped" and will follow the curve of the Earth for several hundreds of miles. These "traps" in the troposphere are called *ducts*. "Tropo" can also happen for a few minutes around sunrise and sunset as rapidly changing temperatures in the troposphere can produce brief inversions. These sunrise/sunset inversions tend to allow propagation over shorter distances of 300 miles or less.

The effects of tropospheric bending are greater as the frequency of a signal increases. Tropo is much more noticeable at 300 MHz than at 50 MHz, for example. Tropo can also last a surprisingly long time. If an approaching cold front is a slow-moving stationary front, tropo can last for days. Signal levels during tropo propagation are generally moderate compared to other VHF/UHF DX modes like sporadic-E, but signals are comparatively stable with slow, gradual fading.

Tropo is very common east of the Rocky Mountains, very rare in the mountainous western states, and occasionally happens up and down the Pacific Coast. A clue that "tropo" is possible is an extended period of foggy, hazy, or "smoggy" weather. Here in California, air pollution alerts are good indicators that tropo DX is possible!

Now About That Moon. . .

One legend that has been around for years involves the moon and DX'ing. Supposedly, good DX conditions (or poor conditions) depend upon the phase of the moon. And the really spooky thing is that certain DX conditions *do* tend to repeat

with each phase of the moon. If solar activity is high during the first quarter of the moon, odds are solar activity will also be high during the next first quarter moon.

But there is a reason for this pattern. The moon goes through its various phases in a cycle that last approximately 28 days. The sun makes a complete rotation at intervals of about 27 days. As a result, there is a purely coincidental overlap between the face the sun shows Earth—which determines ionospheric propagation conditions—and the phases of the moon. Since the lunar cycle and solar rotation period are not

the same length, there isn't an exact correlation between the two.

The Bottom Line

So forget about the weather as a factor in your DX'ing below 30 MHz. No matter what you've been told, it makes no difference. Above 30 MHz it's a different story. If you're a scanning fan, pay attention to the daily weather map in your newspaper. If you're in a high pressure area and there's a slow moving cold front approaching you, be alert for tropo propagation!!



World's Most Powerful CB and Amateur Mobile Antenna*

**Lockheed Corp. Test Shows
Wilson 1000 CB Antenna Has
58% More Gain Than The
K40 Antenna (on channel 40).**

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

**Guaranteed To Transmit and Receive
Farther Than Any Other Mobile
CB Antenna or Your Money Back**
New Design**

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

*Inductively base loaded antennas
**Call for details.

Lockheed - California Company

A Division of Lockheed Corporation
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunrise Way, Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #670529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

**58%
MORE
POWER GAIN
THAN THE
K40**

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POP'COMM'S World Band Tuning Tips

March—1993

This Pop'Comm feature is designed to help you hear more shortwave stations. Each month this handy, pull-out guide shows you when and where to tune to hear a wide variety of local and international broadcasters on the shortwave bands.

The list includes broadcasts in languages other than English. Most of the transmissions are not beamed to North America. Keep in mind that stations make frequent changes in their broadcasting times and frequencies.

Changes in propagation conditions may make some stations difficult or impossible to receive. Your own equipment and receiving location will also have a bearing on what you are able to hear.

Note: EE, FF, PP, etc. are abbreviations for English, French, Spanish and so on. Some frequencies may vary slightly. All times are in UTC, which is five hours ahead of Eastern Standard Time.

Freq	Station/Country	UTC	Notes	Freq	Station/Country	UTC	Notes
2310	ABC, Alice Springs, Australia	1000		5970	REE, Spain, via Costa Rica	0000	SS
2490	R. Oito de Setembro, Brazil	0059	close, PP	5995	R. Australia	1200	
3200	Trans World Radio, Swaziland	0300		6005	RIAS, Berlin, Germany	0700	GG
3205	R. Ribeirao Preto, Brazil	0900	PP	6015	R. Austria Int'l	0530	via Canada
3215	R. Oranje, South Africa	0300	EE/Atk	6035	VOA, USA	2300	
3231	R. Madagasikara, Madagascar	0330	unid lang.	6050	R. Nigeria, Ibadan	2230	
3250	R. Luz y Vida, Honduras	0230	SS	6055	R. Sweden	2200	
3260	R. Madang, Papua New Guinea	1100		6060	R. Universo, Brazil	0600	PP
3270	Namibian Bc Corporation	0300		6060	R. Nacional, Argentina	0600	SS
3275	R. So. Highlands, Papua New Guinea	1200		6085	Deutsche Welle, via Canada	0530	GG
3285	LV del Rio Tarqui, Ecuador	0900	SS	6090	R. Nigeria, Kaduna	2300	close
3290	R. Namibia	0500	unid lang.	6115	R. Universidad, Mexico	0500	SS
3315	SLBS, Sierra Leone	0600		6120	R. Japan	1130	via Canada
3320	R. Orion, South Africa	0245		6130	CHNX, Canada	24 hrs	
3325	R. Maya, Guatemala	1030	local lang.	6135	R. Aparecida, Brazil	2330	PP
3335	TWR, Swaziland	0345	s/off	6135	Swiss Radio Int'l	0230	
3365	R. Rebelo, Cuba	0400	SS	6150	Caracol, Colombia	0100	SS
3380	R. Chortis, Guatemala	0230	SS	6160	CKZN, Canada	0830	
3385	R. E. New Britain, P/New Guinea	1100	pidgin	6180	R. Nac. Amazonas, Brazil	2200	PP
3395	R. Eastern Highlands, P/New Guinea	1200		6201	RFPI, Costa Rica	0230	
3980	VOA via Germany	0600		6210	Croatian Radio	0000	Croatian/EE
3995	Channel Africa, S. Africa	0300		6230	TWR, Monaco	0340	s/on, GG
4000	RRI, Kendari, Indonesia	1100	II	6250	RN Malabo, Eq. Guinea	2200	s/off, SS
4331	R. Horizonte, Peru	1100	SS	6329	Estacion C, Peru	0100	SS
4409	R. Eco, Bolivia	0100	SS	6560	R. Pyongyang, N. Korea	1000	JJ
4553	R. Tropico, Bolivia	0135	s/off, SS	6570	Defense Forces Bc Strn, Myanmar	1130	Burmese
4649	R. Santa Ana, Bolivia	0100	SS	6754	R. La Merced, Peru	0130	SS
4725	Voice of Myanmar (Burma)	1130	Burmese	6803	Ondas del Mayo, Peru	1000	SS
4754	Rdf. Maranhao, Brazil	0100	PP	6910	R. Africa 2000, Eq. Guinea	2200	close
4760	R. Frontera, Venezuela	0130	SS	7105	RTVC, Congo	0600	FF
4765	RTVC, Congo	0355	s/on, FF	7110	V of Ethiopia	0330	local lang.
4775	R. Tarma, Peru	0500	s/off, SS	7115	V of Puijiang, China	1130	CC
4795	R. Nova Difusora, Brazil	0758	s/on, PP	7125	IRRS, Italy	0600	
4800	R. Buenas Nuevas, Guatemala	1130	indian lang.	7125	R. Vedo, Russia	0700	RR
4832	R. Reloj, Costa Rica	0200	SS	7170	ORTS, Senegal	0700	FF
4845	ORT, Mauritania	0600	FF	7190	Rep. of Yemen Radio	0300	s/on, AA
4850	CRTV, Cameroon	0430	FF/EE	7205	AWR, Forli, Italy	0630	
4850	R. Luz y Vida, Ecuador	0300	SS	7220	All Union Radio, Russia	0100	RR
4865	LV del Cinaruco, Colombia	0300	SS	7230	Channel Africa	0500	FF
4875	V of Jinling, China	1100	CC	7235	Deutsche Welle, Germany	0400	AA, via Malta
4875	La Cruz del Sur, Bolivia	1030	SS	7240	R. Australia, Brandon	0800	pidgin
4879	R. Nac. Espejo, Ecuador	0130	SS	7255	V of Nigeria	0500	s/on
4890	R. France Int'l, Gabon relay	0400	FF	7265	Sudwestfunk, Germany	0100	GG
4890	NBC, Papua New Guinea	1100		7265	VOA Relay, Botswana	0300	sign on
4900	R. Centinela del Sur, Ecuador	1100	SS	7275	ELBC, Liberia	0652	sign on
4904v	R. Relogio Federal, Brazil	0230	PP	7280	Voice of the Strait, China	0930	CC
4915	Voice of Kenya	0300		7290	V of Res. of Black Cockerel, Angola	0430	PP
4915	R. Anganguera, Brazil	0030	PP	7295	RTV Malaysia	1130	
4915	GBC, Ghana	0600		7385	RFPI, Costa Rica	2330	ex-7375
4920	R. Quito, Ecuador	0300	SS	7417	V of Vietnam	1100	
4945	Channel Africa, S. Africa	0350	sign on	7430	R. Makedonias, Greece	2200	Greek
4955	R. Cultura, Brazil	0200	PP	7465	Reshet Bet HS, Israel	0100	Hebrew
4960	R. Cima Ciento, Dominican Republic	0100	SS	7510	KTBN, Utah	0400	
4975	Super Radio Tupi, Brazil	0000	PP	7550	R. Korea, S. Korea	2230	
4980	Ecos del Torbes, Venezuela	0200	SS	9170	R. SPLA, anti-Sudan	0530	AA
4990	R. Nigeria, Lagos	2230		9190	R. Omdurman, Sudan	0250	sign on, AA
4990	Hunan PBS, China	1200	CC	9265	Icelandic Ntl Bc Svc	0730	EE
5005	R. Libertad, Bolivia	0100	SS	9345	R. Pyongyang, N. Korea	1300	
5020	LV de Sahel, Niger	0500	FF	9400	R. Azadi/Liberty of Iran	0230	Farsi?
5025	Bhutan Broadcasting Svc	1230		9425	KFBS, Saipan	1500	RR
5030	R. Continente, Venezuela	0330	SS	9445	Voice of Turkey	2330	TT
5035	Rdf. Centrafricaine, Cent Af Rep.	0430	FF	9450	R. Yerevan, Armenia	2245	
5045	R. Cultura do Para, Brazil	0130	PP	9475	R. Cairo, Egypt	0200	
5050	R. Jesus del Gran Poder, Ecuador	0359	s/off, SS	9480	TWR, Monaco	0645	
5075	Caracol, Bogota, Colombia	0400	SS	9505	R. Yugoslavia	2200	
5290	Krasnoyarsk Radio, Russia	2300	RR	9510	R. New Zealand	0930	
5305v	R. Lider, Peru	1000	s/on, SS	9530	R. Vilnius, Lithuania	0000	
5850	R. Patria Libre, anti-Colombia	0030v	SS+	9535	Trans World Radio, Bonaire	0300	
5920	WWCR, Tennessee	0600		9540	R. Nac. Venezuela	1140	EE
5935	R. Latvia Int'l	2130		9545	R. Tirana, Albania	0530	sign on

Freq	Station/Country	UTC	Notes	Freq	Station/Country	UTC	Notes
9555	R. Portugal	0230		11970	R. Havana Cuba	0130	
9560	FEBC-Russia	0900	RR	11980	R. Ukraine Int'l	0230	Ukrainian
9560	R. Japan	0100		11985	UAE Radio, Dubai	2100	AA
9565	R. Universo, Brazil	0200		12015	R. Ulan Bator, Mongolia		
9570	R. Portugal	0230		12020	V of Vietnam	1100	
9575	RAI, Italy	0100		12050	R. Cairo, Egypt	0300	AA
9580	R. Tirana, Albania	0230		12060	R. Ukraine Int'l	0130	unid lang
9580	R. Yugoslavia	0100		12085	R. Damascus, Syria	2005	
9595	R. Tanpa, Japan	1000	JJ	13605	Capital Radio, via Abu Dhabi, UAE	2230	
9600	R. UNAM, Mexico	1300	SS	13620	R. Kuwait	2000	
9605	Vatican Radio	0230		13625	KHBI, Saipan	1400	
9610	ABC, Perth, Australia	1200		13635	Swiss Radio Int'l	2130	
9615	KNLS, Alaska	1400	sign on	13650	R. Pyongyang, N. Korea	0000	
9615	R. Cultura, Brazil	2330	PP	13650	R. Canada Int'l	2100	
9640	R. Moscow	2230		13660	R. Havana Cuba (USB)	0200	USB, EE
9645	Faro del Caribe, Costa Rica	0400	SS	13680	Rep. of Iraq Radio	2030	AA
9655	R. Havana Cuba	2200		13685	Swiss R. Int'l	0700	
9665	R. Ukraine Int'l	2200	0100	13710	R. Vedo, Russia	1500	RR
9695	Channel Africa, S. Africa	0500		13715	R. Czechoslovakia	1600	s/off
9695	R. Sweden	0200		13755	R. Australia	1600	
9700	R. New Zealand	1030		13855	INBS, Iceland	2300	Icelandic
9705	R. Portugal	0230		15010	V of Vietnam	1230	
9715	R. Tashkent, Uzbekistan	1330		15070	BBC	1400	
9720	SLBC, Sri Lanka	1230		15084	VOIRI, Iran	0430	Farsi
9735	R. Oman	1945	AA	15090	Vatican Radio	2245	s/on
9735	R. Nacional, Paraguay	2300	SS	15100	FEBC, Philippines	1400	EE, others
9745	R. Cairo, Egypt	0200		15110	REE, Spain, via Costa Rica	1900	
9746	R. Bahrain	2000	AA QRM-HCJB	15135	R. Ukraine Int'l	2100	
9750	R. Korea, So. Korea	1200		15140	R. Veritas Asia, Philippines	1500	
9750	R. Canada Int'l	0530		15165	R. Tashkent, Uzbekistan	1400	Uzbek
9755	R. Monte Carlo, Monaco	0400	AA	15180	Rep. of Iraq Radio	2300	AA
9760	R. Tirana, Albania	0130	Albanian	15185	R. Finland Int'l	2300	
9765	V of Mediterranean, Malta	0600		15195	R. Japan	0500	
9770	China R. Int'l, via Mali	0000		15200v	R. Bangladesh	1230	EE
9810	R. Czechoslovakia	0300		15210	Iraqi Radio	1800	
9820	KTWR, Guam	1500	CC	15220	Channel Africa, S. Africa	0600	(ex R. RSA)
9830	Voice of Hope-Asia, Palau	1100		15260	VOIRI, Iran	0230	sign on
9835	R. Budapest, Hungary	0200		15265	Radiobras, Brazil	1800	
9865	R. Alpha & Omega, Russia	1400	s/on, RR	15300	R. Cairo, Egypt	1500	AA
9880	China R. Int'l, via Russia	2200		15325	R. Japan via Fr. Guiana	0300	
9885	Swiss Radio Int'l	0200		15340	Iraq Rep. Broadcasting	0230	EE/AA
9900	R. Cairo, Egypt	2200		15340	R. Japan, via Gabon	2000	RR
9950	All India Radio	2200		15345	Trans World Radio, Bonaire	1230	
9965	R. Caiman, anti-Cuba	1300	SS	15345	RTM, Morocco	1400	Berber
9977	R. Pyongyang, N. Korea	1100	s/on	15345	RAE, Argentina	1300	SS
10990	BSKSA, Saudi Arabia	1400	AA (feeder)	15355	R. Czechoslovakia	0400	
11250	R. Ukraine Int'l	0000		15360	Deutsche Welle, Germany	2100	
11550	RTT Tunisia	1800	AA	15375	VOA relay, Botswana	0500	Hausa
11570	R. Pakistan	1600		15400	UAE Radio, Dubai	0345	
11620	All India Radio	2000		15400	Radio Finland Int'l	1500	
11620	Vatican Radio	0145	SS	15400	BBC, via Ascension Island	1930	
11635	R. Netherlands via Madagascar	0100		15415	R. Jamahiriya, Libya	2000	AA
11650	China Radio Int'l (R. Beijing)	1500	RR	15445	SLBC, Sri Lanka	2330	
11665	R. Cairo, Egypt	1430	AA	15470	V of Iraqi People (clandestine)	1800	AA
11675	R. Radonezh, Russia	1300		15505	Swiss Radio Int'l	1500	
11685	R. Ala, Russia	0200	RR	15505	R. Kuwait	2245	AA
11705	R. Sweden	2330		15555	R. Pakistan	1620	slow EE
11710	RAE, Argentina	0100		15570	R. Ukraine Int'l	1500	
11715	R. Korea, S. Korea	1030	via Canada	15580	R. Yerevan, Armenia	0230	
11720	R. Sofia, Bulgaria	0300		15580	V of Freedom, via R. Moscow	1330	anti-Viet
11725	R. Korea, S. Korea	1000	SS	15640	Kol Israel	2130	
11735	R. Pyongyang, N. Korea	1330	CC	15750	R. Russia	1800	RR
11740	R. Portugal	1900		17515	V of Greece	1230	
11750	BBC Singapore relay	1200		17535	HCJB, Ecuador	0000	USB
11755	R. Finland Int'l	0130		17555	BRT, Belgium	1300	
11760	R. Tbilisi, Georgia	2130	RR/EE	17630	Africa No. One, Gabon	1100	FF
11765	R. Beijing, China	2100	SS	17715	R. Alma Ata, Kazakhstan	2030	
11780	R. Vilnius, Lithuania	2300		17725	V of the Great Homeland, Libya	2100	AA
11785	R. Guaiba, Brazil	0100	PP	17730	Vatican Radio	0628	s/on
11795	R. Denmark, via Norway	2300		17730	R. Alma Ata, Kazakstan	1830	
11800	RAI, Italy	0100		17740	R. Yugoslavia	1200	
11805	KTWR, Guam	0930		17740	R. Sweden	1300	EE
11810	R. Jordan	1400	AA	17760	BSKSA, Saudi Arabia	0500	AA
11820	R. Sweden	0100		17770	R. New Zealand Int'l	0445	
11825	R. Tirana, Albania	2200		17770	R. Havana Cuba	1800	SS
11830	Radio Romania Int'l	0158	sign on	17775	R. Jamahiriya, Libya	2300	AA
11830	R. Anhanguera, Brazil	0200	PP	17815	R. Tashkent, Uzbekistan	1200	EE
11840	R. Tirana, Albania	0230	s/on	17815	RTV Morocaine	1700	
11855	AWR-Russia	Hindi	1400	17860	R. Moscow	2330	
11870	R. Yugoslavia	0040		17860	Qatar Bc Service	1300	AA
11880	R. Galaxy, Russia	2130		17870	R. Sweden	1500	
11885	WEWN, Alabama	0800	PP	17875	R. Canada Int'l	2130	
11905	CBS, Taiwan	1300	CC	17880	R. Finland Int'l	1300	
11910	R. Budapest, Hungary	0200		17895	HCJB, Ecuador	24hr	SSB
11920	R. Yerevan, Armenia	2245		17955	Iraqi Radio	1300	AA
11930	R. Marti	1800	SS to Cuba	21515	Radio Portugal	1630	
11945	R. Space, Russia	1500	RR	21605	UAE Radio, Dubai	1640	close
11945	Iraq. Republic Broadcasting	0030	AA	21665	R. Romania Int'l	1330	
11955	Voice of Turkey	0400	TT	21675	R. Kuwait	1600	AA
11955	BBC relay, Oman	0130		21820	Swiss Radio Int'l	1500	s/on
11960	RTV Malienne, Mali	0900	FF				
11965	V of the UAE	1800	AA				

ANTENNAS & THINGS

BY JOE CARR, K4IPV

SIMPLE ANTENNAS AND ACCESSORIES FOR SIGNAL IMPROVEMENT

The only antenna on most small portable shortwave receivers is a small telescoping whip extending from the case of the radio. Attempts to put up random length wire antennas of large size will help, but will destroy all of the portability and may cause overload of the receiver front-end circuitry.

Another problem with shortwave reception, whether using a portable radio or a AC powered radio, is due to the nature of ionospheric shortwave propagation. When signals are refracted in the ionosphere, their components tend to spread out causing the signal to arrive at different angles of arrival at different times. As the dynamic ionosphere changes, the angle of arrival changes. These changes can occur over the course of a few minutes. Common loop antennas aimed at the desired station are reasonably insensitive to changes of elevation angle of arrival, but their null is essentially a point-source notch. The solution to the problem is to build antennas with fan shaped, adjustable null with reasonable insensitivity to vertical angle. This class of antenna, popularized by Villard, includes the single-turn, low-inductance wide loop.¹ This trick is seen in a lot of antenna books and magazine articles,² and was also told to me by a missionary (who held an SMO ham call sign) who worked in Sudan.

A clever, simple to build antenna of this class is shown in Fig. 1. The loop antenna shown in Fig. 1 schematically and as a photo in Fig. 2A, calls for a 24 inch single-turn square loop antenna made from 3-inch wide sheet metal stock. The metal can be copper, aluminum or brass, as available (not aluminum if you want to solder to it). A two-inch gap is left at one end to accommodate the tuning capacitor, C1 (see Fig. 2B). This capacitor must be relatively large, on the order of 750 to 1200 pF. This capacitance can be accommodated by two-section and three-section AM broadcast band variable capacitors of 365 pF per section (note: some capacitors, intended for superheterodyne radios, have two sections that are different capacitances). On the same side of the loop as the gap there are four 5/32-inch holes (A, B, C and D) drilled to accommodate mounting the loop to a 1X2 wooden piece, or other suitable support. A wire that is equipped with an alligator clip is attached to the loop, and this clip will be connected to the telescopic antenna on the portable radio. In operation, the loop can be oriented for best reception.

Two controls are used on this antenna. Capacitor C1 tunes the loop to the resonant frequency of the desired station. Potentiometer R1 is used as a phasing control.

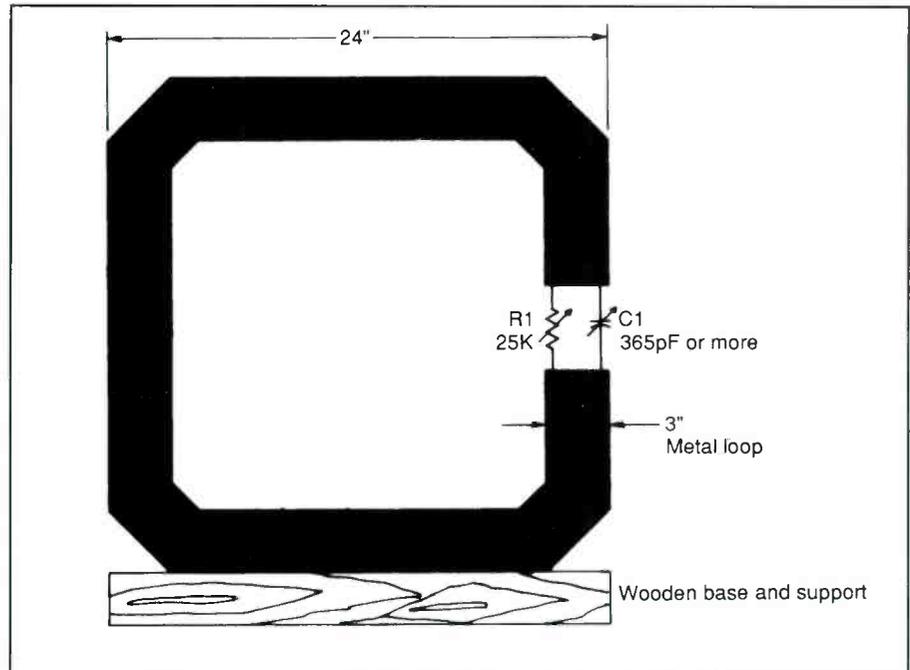


Figure 1. Schematic of the single-turn loop antenna.

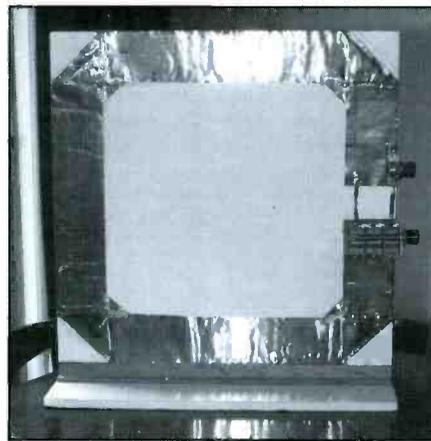


Figure 2A. Construction of an actual single-turn loop.

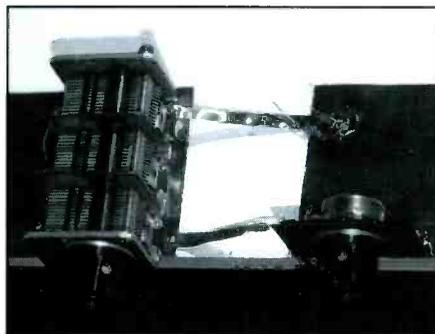


Figure 2B. The controls connections for a single-turn loop.

Construction of the antenna is simple, if you use the right materials. The large support unit material is styrofoam backed poster board. Use either the 3/8-inch or 1/2-inch material (the 1/4-inch tended to sag a bit). This material is typically available at hobby shops, artists supplies, craft supplies or graphics supplies shops for relatively low cost. The copper is 36 gauge tooling copper. It comes in 36"X 12" rolls from hobby shops. If they don't know what you are talking about, tell them to order from St. Louis Crafts. A single roll, with judicious use of heavy scissors, will suffice to build the entire antenna.

{Note: This sheet copper is also useful for shielding other forms of loop antenna. It solders well, and is easy to manipulate.}

I laid out the pattern with pencil and straight edge on the poster board surface. I then cut the copper to fit. The copper is fitted to the poster board using contact cement to secure. I found that the Elmer's brand was best, and could easily be applied with a paint brush. Other brands either took too long to set up, or set up so darn fast (and unforgiving) that I made mistakes.

The styrofoam backed poster board comes in larger sizes than needed for backing the antenna, so I cut a piece off the end for use as the base support. It was about 8-inches wide, and provided a reasonably stable platform. The vertical piece of poster board and the horizontal piece were fastened together with a piece of 3/4-inch right angle trim molding. Three brass machine screws held the vertical piece to

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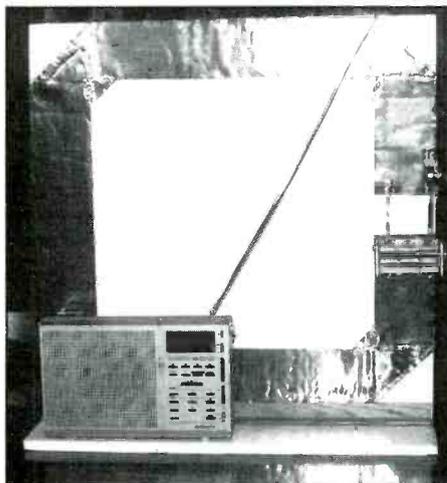


Figure 3A. Vertical orientation for the operation.

the trim molding, while the base was fastened to the trim molding with contact cement.

To use this antenna, position the radio's telescopic antenna close and adjacent to the loop, but not touching it. The loop antenna can be rotated to find the best position to either null or enhance a particular station. The "Lazy Susan" idea will work well in this case. Either vertical mounting (Fig. 3A) or horizontal mounting (Fig. 3B)

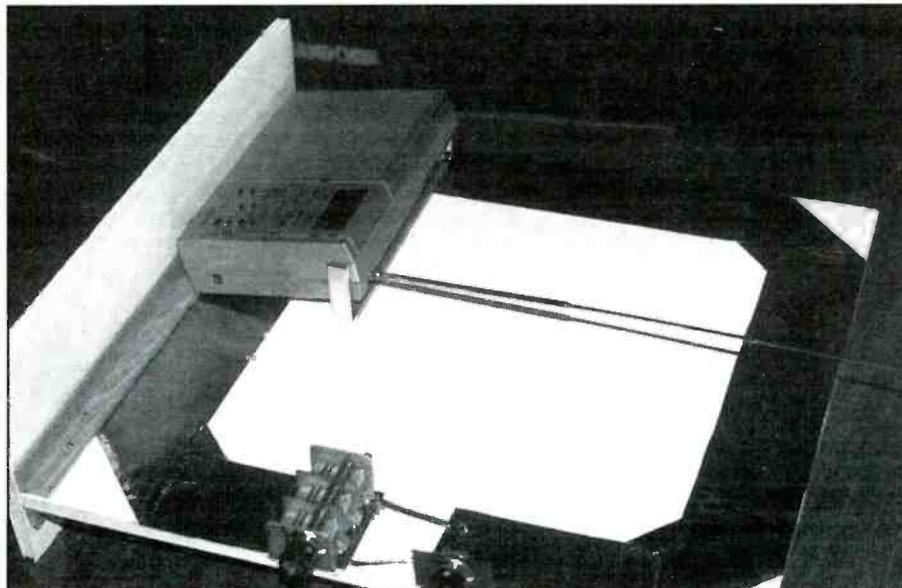


Figure 3B. Horizontal orientation for operation.

is used according to propagation conditions at your location, and rotate to suit best conditions.

1) O.G. Villard, "Indoor Interference-Reducing Antennas For Shortwave Listening," Newsletter of the Association of North American Radio Clubs (ANARC), January 1990; "Combat Interference in Shortwave Reception With Compact Indoor Directive Antennas,"

World Radio-Television Handbook, 1990; "Miniature Indoor Directional Antennas For Reducing Sky-Wave and Ground-Wave Interference in the Shortwave Bands." ANARC newsletter March 1990.

2) For a particularly good article on this subject, see "Improving Portable Radio Performance," Richard Q. Marris, G2BZQ, Elektor Electronics USA, February 1992, pp. 14ff. See also the O.G. Villard, Jr. articles cited elsewhere for a very similar class of antennas. ■

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

From **WNIS**: Pat Murphy, Program Director 50 kW WNIS/850 in Norfolk, Virginia, writes that he is a long-standing *POP'COMM* reader and supporter. He tells us that he was active in the hobby years ago, but had become inactive. That was until he saw a copy of *POP'COMM*, which reminded him of what he was missing and that there were many people who were enjoying the monitoring hobby. Pat saw an ad in that issue for a Kenwood R-5000 and immediately bought one to get back into the swing of things. He's been a very active DX'er (again) ever since. He adds, "What a magazine!" Thanks, Pat. We appreciate your support.

WNIS runs a talk-radio format, heavy on news. Pat is on the air from 9 to 11 a.m. with political commentary, interviews, and call-ins. Other WNIS slots include popular personalities such as Rush Limbaugh and Larry King.

From **KNAX**: We heard from Bob Souza, Chief Engineer at KNAX/97.9 and KFRE/940 in Fresno, Calif. Bob tells us that KNAX runs 2.2 kW from an antenna at the 4,000 level located in the Sierra Nevada Mountains, east of Fresno. KFRE, the AM outlet, runs 50 kW, using separate directional patterns day and night. The bulk of the signal heads west towards the Pacific Ocean, and at night the pattern has a deep null towards Arizona. This is a country music station. They run the ABC Information Network along with Paul Harvey News.

The KFRE transmitter is a Harris DX-50, which is fully solid-state. Bob writes that the money this unit saves on their power bill is nothing less than amazing. KFRE uses 4 towers located southeast of Fresno, near Dinuba. The station has been

operating since 1941, and running 50 kW since 1947.

Bob was an AM DX'er in the late 1960's and early 1970's, and he tells us that he knows how frustrating it is to send out a reception report and get nothing in return. He always vowed if he ever had the chance to respond to reception reports, he would never ignore them. Now he has that chance, so he encourages reception reports for KFRE/940. He asks that we let readers know their reception reports are invited and most welcome at KFRE.

Speaking of DX'ing: If you're a mediumwave DX'er, you'll certainly want to be a part of the National Radio Club (NRC). NRC has been going strong for 60 years, specializing in the AM band. *DX News*, their newsletter, comes out 30 times a year, which means that it is issued twice a month during the DX season. It is loaded with DX tips that are extremely useful to any mediumwave DX listener. Membership includes a year's subscription to *DX News*, and is \$24 (US\$25 in Canada).

The address is: DX News Subscription Center, P.O. Box 118, Poquonock, CT 06064-0118.

California Dreamin': KGIL/1260, in the San Fernando Valley, was sold to Saul Levine, owner of classical music station KKGO-FM. The old KGIL talk program format was dropped and switched over to a big band music. The big band music had been heard in the Los Angeles area over KMPC (AM), but that station dropped it and went to an all-sports program format—leaving fans of big bands able to hear only KGRB on AM and KBOB simulcasting on FM. The idea is to use KGIL to fill the format hole left by the changes at KMPC.

KSRF in Santa Monica, as well as

KOCM in Newport, changed to all jazz. Also, they got new call letters. Ontario's KRZE and Redondo Beach's KFOX-FM have been simulcasting full time in the Korean language for over a year, now. Another Korean language station is KBLA, which had started out not too long ago with an all-business radio format. When that for-

New AM Call Letters Issued

KUKQ Tempe, AZ

Requesting Changed AM Call Letters

Now	Seeks	
KKFX	KKDZ	Seattle, WA
KSTB	KROO	Breckenridge, TX
KTLE	KTUR	Tooele, UT
WLSY	WXKN	Newburg, KY

Changed AM Call Letters

New	Was	
KAJK	KNCR	Fortuna, CA
KCGQ	KGIR	Cape Girardeau, MO
KFEZ	KJLA	Kansas City, MO
KIDR	KMEO	Phoenix, AZ
KOSG	KJWH	Camden, AR
KYOT	KISP	Phoenix, AZ
WCXI	WACY	Fenton, MO
WIOZ	WKHO	Pinehurst, NC
WKJV	WTOO	Asheville, NC
WNJC	WVSJ	Vineland, NJ
WOJY	WPEX	Hampton, VA

New FM Call Letters Issued

KAGD	Stuart, LA
KBMK	Bismarck, ND
KCFA	Arnold, CA
KCWX	Columbia Falls, MT
KDJS-FM	Willmar, MN
KEGT	Lake Village, AR
KOYF	San Carlos, AZ
KOYG	Flagstaff, AZ
KOYH	Yellow Rapids, MN
KULO	Agana, GU
KUPD	Tempe, AZ
KWXU	Ft. Collins, CO
KWXW	Baker, CA
KXBJ	Victoria, TX
KZMM	Troy, MO
WATG	Trion, GA
WDKM	Adams, WI
WIPA	Pittsfield, IL
WFHQ	Pennsuko, FL
WJFP	Ft. Pierce, FL
WJLR	Austin, IN
WKYL	Lawrenceburg, KY
WMNW	Beulah, MI
WOMQ	Bostwick, GA
WOUZ	Zanesville, OH
WQAC	Alma, MI
WRJE	New London, NH
WUNW	Key West, FL
WUNX	Clarksburg, WV
WVRP	Ripley, WV
WXTZ	Noblesville, IN



WCNN/680, in Atlanta, Georgia, runs an all news format. (Photo by R. C. Watts, Louisville, Kentucky.)

mat didn't work, they made the change.

Thanks to George Schwenk, Registered Monitor KCA6YS, of San Pedro, Calif., for these updates.

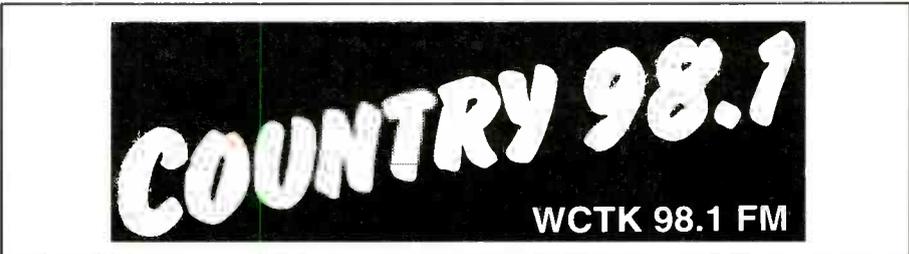
More Country Music: Old WIBQ-FM/93.5, of Remsen, New York, used to be one of those all-satellite canned-music stations. That's history. Enter WKDY-FM/93.5, which is the new image for the old station. Gone is the satellite feed. They brought a country music format, and will be simulcasting with WRNY in Rome.

Meanwhile, in nearby Frankfort, New York, a religious station planning to operate on 100.7 MHz wants to put up a 183 ft. transmission tower. Residents immediately opposed the project, claiming that the tower would be an intrusive eyesore, causing the devaluation of their homes. Some fear it will be a health hazard.

There are presently eight other towers near the proposed tower site, but this one would be the highest in the area if it is constructed.

WNIS 850AM NEWSRADIO

In the Tidewater Area of Virginia, it's WNIS/850, with their great new 50 kW signal (Courtesy Pat Murphy, WNIS Radio.)



Country music in New Bedford, Mass. is alive and well on WCTK/98.1. (Courtesy Peter Kodis, N1EXA, WCTK/WNBH Radio.)

Seeking Changed FM Call Letters

Now	Seeks	
KYAA	KRMR	Ketchum, IA
WSPI	WIAV	Shamokin, PA
WXXH-FM	WQAR	Alma, GA

Changed FM Call Letters

Now	Was	
KAJZ	KBJZ	Santa Monica, CA
KBJZ	KAJZ	Newport Beach, CA
KBLK	KGZG	Burnet, TX
KBTC-FM	KTPS	Tacoma, WA
KBXY	KIXA	Baker, CA
KCOB-FM	KLVN	Newton, IA
KCPW	KBQA	Salt Lake City, UT
KCUL-FM	KEEP	Marshall, TX
KCWS	KFQX-FM	Merkel, TX
KKBE-FM	KJQN-FM	Casa Grande, AZ
KKFA	KTXY	Jefferson City, MO
KLXQ	KEMB	Hot Springs, AR
KMVC	KNOS	Marshall, MO
KPOC-FM	KCYN	Pocahontas, AR
KQTX	KCGR	Portland, TX
KSNX	KODZ	Arlington, TX
KUMT	KBCK	Centerville, TX
KYNN	KFMQ-FM	Lincoln, NE
KZTA-FM	KIHS	Yakima, WA
WBEA	WMNK	Montauk, NY
WBNK	WFNR-FM	Christianburg, VA
WCVS-FM	WRVI	Virde, IL
WERX-FM	WZBO-FM	Edenton, NC
WFRI	WFGI	Lima, OH
WFUL	WLMF	Webster, NY
WFUN-FM	WXJO	Bethalto, IL
WIOZ-FM	WIOZ	Southern Pines, NC
WJGG	WUFH	Lexington, KY
WKOE	WSKT	Ocean City, NJ
WLVK	WUOX	Radcliff, KY
WNBR	WZYH	Oriental, NC
WPZX	WAAQ	Big Rapids, MI
WRLG	WYPE	Smyrna, TN
WRLX	WNGS	W. Palm Beach, FL
WSSP	WUJM-FM	Goose Creek, SC
WVNH	WQFB	Concord, NH
WWNZ-FM	WHVE	Cocoa Beach, FL
WXBB	WHIM	Kittery, ME
WZST	WVZO	Portage, WI
WZZL	WSEQ	Reidland, KY

We appreciate these tidbits from Gary K. Hamlin, N2OHO, Registered Monitor KNY2AAW, of Utica, New York.

Tain't Funny, McGee: Elmer Wallesen, of LaGrange Park, Illinois, passed along a clipping from Richard Roeper's column in the *Chicago Sun-Times*. It tells of the news director at a small FM outlet in Ohio who spiced up dull and routine newswire stories by adding in the names of his friends, or offering quotes from them as if they were persons on the street, and sometimes mentioning names of friends as government officials.

Nobody ever caught on to the joke, so he eventually took it one step further. This meant concocting entire fictitious news stories. One was the story of the woman who went after her cheating husband with an electric carving knife. This story was run complete with screams and the sound of the electric knife. That one got the station's phone lines lit up rather quickly.

Roeper noted that most people get involved in a bit of low-level on-the-job fun, but some people pursue it as an art form.

Andrew's Aftermath: Several readers asked if we knew anything about the portable emergency broadcasting station that was established by the U.S. Army in south Florida in the wake of Hurricane Andrew. It was shown on TV several times, but no information was ever provided.

There were actually three stations, and they were known as *Radio Rescue*. Each of the \$50,000 stations was a completely self-contained portable package that weighed less than 750 lbs. The power output could be varied between 25 and 400 watts, delivering a maximum 30 mile range on any mediumwave frequency between 1000 and 1620 kHz.

The station also has shortwave transmitting capabilities. A 50 by 230 foot area

is required to set up the station and its antenna system.

There are five such stations presently owned by the U.S. Army, and they were previously used during Desert Storm.

Digital Radio: Readers have asked if digital radio has been or will be tested on the standard broadcasting frequencies. Last August, a 6 kW experimental station was authorized in Urbana, Ill., to test digital broadcasting on 93.5 MHz. It was also tested on WILL-FM/90.9, the 10 kW station of the University of Illinois. In addition, there was a 10 kW AM experimental AM transmitter authorized at Cincinnati, Ohio, on 1660 kHz. This was called *Project Acorn*, and was run by USA Digital Radio.

The AM tests were described as successful. It will be worth watching the 1660 kHz frequency to see if additional testing will turn up there.

Jingles & Stickers: Collecting station bumper stickers is just one hobby of *Ricky Radio*, as Rick Schleif is known. He also collects radio jingles, and he's got lots of them from new stations, old stations, and from stations that went dark. Readers wishing to get in contact with him can do so by writing to Rick Schleif, 3282 Highway BB, Apt. 4, Madison, WI 53704.

Aircheck Swapper: Another collector of radio station stuff contacted us. He collects and swaps bumper stickers, T-shirts, coverage maps, decals, and also certain airchecks. Those airchecks he specializes in are Top-40 and AOR stations from the early 60's through the early 80's, and stations in Alabama, Miss., Ark., Mo., and the Fla. panhandle. This hobbyist would like to hear from others who share his interests. Contact him at: Russell Wells, 409 Flavia Circle, Troy, AL 36081. His phone is (205) 566-4233.

Russell notes that this column had men-

tioned that the FCC was after WAGF/1320 (Dothan, Ala.) for going dark without permission. However, he tells us that the station has come back to life now with the same call letters, but as the AM outlet of WJNN/101.3, running R&B, soul, and jazz oldies. The 1 kW signal is no powerhouse, by any means, but it was good to see that the owners found a way to save WAGF from sliding into oblivion.

Is It Fine With Me?: Much mail has arrived asking my thoughts on media reports of the heavy fines that the FCC has given out regarding certain allegedly "indecent" things said during some of Howard Stern's programs over KLSX-FM (Los Angeles), WXRK (New York City), WYSP (Philadelphia), and WJFK (Manassas, Va.).

These fines total well over \$100,000, and the idea was that the material in question was claimed by the FCC "to have been broadcast during times of day when there was a reasonable risk that children might be in the audience."

My opinion is that it is very considerate of the FCC to take upon itself the cloak of being the federal agency that establishes national standards for language and morality, and then enforces those standards. We would be content if they could basically issue licenses, set technical standards, and prevent interference. First let them figure out how to do that efficiently, then the agency can worry about being the national conscience and arbiter of morality.

The public obviously loves Howard Stern's off the wall sense of humor. His ratings prove this. Yes, his material gets tacky and raw, and he has the power to offend. Still, many people find Stern to be very funny.

Howard Stern has wide public acceptance. Therefore, Howard does meet contemporary public standards for decency within his medium. If the public didn't



A photo of Olympis Zarris, a gospel music deejay doing his job at WZCC/1570 (ex-WOBS), Jeffersonville, Ind. (Photo by R. C. Watts, Louisville, KY)

Applications Filed to Construct New FM Stations

AR	Hardy	104.7 MHz	6 kW
FL	Cedar Creek	89.5 MHz	3 kW
FL	St. Augustine Beach	105.5 MHz	
IN	Loogootee	88.7 MHz	1.6 kW
KS	Horton	93.7 MHz	25 kW
MI	Houghton	91.9 MHz	100 watts
MN	Worthington	89.3 MHz	100 kW
MS	Water Valley	105.5 MHz	6 kW
NE	Gering	103.9 MHz	100 kW
NY	Bridgehampton	102.5 MHz	4.5 kW
NY	Calverton	105.3 MHz	
NY	Southampton	92.9 MHz	
NY	Westhampton	98.3 MHz	
SC	Branchville	105.1 MHz	6 kW
SC	Ladson	106.3 MHz	
TN	Byrdstown	96.7 MHz	
TX	Big Spring	94.3 MHz	20 kW
WA	Eatonville	104.9 MHz	6 kW

Permits Granted To Construct New FM Stations

AZ	Prescott Valley	98.3 MHz	875 watts
AR	Pine Bluff	89.7 MHz	
CA	Paso Robles	103.1 MHz	1.2 kW
CA	Redding	88.9 MHz	1.3 kW
DE	Christiana	89.1 MHz	Low power
FL	St. Augustine	88.5 MHz	6 kW
IA	Grinnell	106.7 MHz	50 kW
MI	Lansing	89.7 MHz	100 watts
MI	Sault Ste. Marie	90.1 MHz	100 watts
NE	Lincoln	88.5 MHz	4.7 kW
NH	Manchester	90.7 MHz	Low Power
NM	Socorro	92.9 MHz	6 kW
NY	Ossining	90.3 MHz	1.2 kW
OH	Greenville	89.9 MHz	50 kW
SC	Chesterfield	107.3 MHz	3 kW
TX	Hempstead	105.3 MHz	6 kW
WA	Twisp	106.3 MHz	220 watts

Seeking AM Facility Changes

WEXS	Patillas, PR	610 kHz	Seeks drop to 250 watts, days.
WMXY	Hogansville, GA	720 kHz	Seeks drop to 7.9 kW, days.
WVNE	Leicester, MA	760 kHz	Seeks increase to 25 kW, days.

Seeking FM Frequency Change

KOTS-FM	Plattsmouth, NE	106.5 MHz	Seeks move to 106.9 MHz, 6 kW.
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appreciate Stern's talents, he wouldn't have big ratings, many sponsors, and one of the highest salaries in radio. It seems the FCC's image of the radio audience's taste is stuck in time somewhere between Will Rogers and Arthur Godfrey.

I don't think it's the place of any governmental agency to attempt to establish or fight against contemporary public tastes or standards. These are presently in a state of natural rapid change. Radios have tuning dials and off switches to be used by those who don't want to hear a certain program. Programs should go off the air if they get low ratings, not because of governmental harassment and manipulation.

Children hear and see things daily on the streets, in school, in films, music and videos, on cable TV, and at home that are far beyond anything they are likely to hear said on the radio.

These fines are therefore an outrage.

They blatantly censor and control free speech. A couple of bureaucrats in the government are attempting to control what you and I may hear over privately owned stations. This abridges listeners' and broadcasters' rights guaranteed by the First Amendment of the Constitution. This seems as unconscionable as it is unconstitutional. Broadcasters should seek some means of action to permanently disconnect the government from sitting on the sidelines and trying to control and manipulate programming content based upon ridiculous bureaucratic misinterpretations of public standards.

If you have thoughts on this, please write to us.

April's On The Way: We want your newspaper clippings, bumper stickers, station photos, recent QSL's, and anything you wish to send in about AM/FM station activities and format changes. ■

Some Unknown Handheld Facts

The handheld two-way transceiver is an emergency communicator's most valuable tool. In a recent survey among public safety officers, the portable two-way radio came out tops in what emergency personnel counted on as their most often used, and most important piece of equipment needed in the field. It even beat out the hand gun.

So let's take a moment and review some little known facts about your portable two-way radio.

A quick charger is a must for recharging your nickel cadmium battery pack. This allows you to pull your unit down to almost empty battery power, and then quickly charge it up without overheating from an over-charge. The properly designed mobile or base quick charger does just that in less than 20 minutes. If you're running your equipment off of a small wall charger, you are not giving your nickel cadmium batteries the exercise and workout they need for up to 3 years of rechargeable operation.

If your handheld has an adjustable power output switch, try to always transmit with low power. Low-power, 1-watt, transmit operation may draw only about 300 milliamps. High-power, 5-watt, output draws over 1,000 milliamps. Going from 1 watt to 5 watts seldom makes any substantial difference in communication range. Moving to a better location to transmit back to a base station, using low power, may give you up to 4 times the operating time on your handheld transceiver's battery pack.

Always carry spare freshly charged battery packs. Nickel cadmium batteries self-discharge to an unusable state in approximately 45 days. A battery pack which accepts alkaline batteries is a good backup for emergency communicators who only use their equipment now and then.

If you use an external microphone, don't transmit with the unit on your belt. Seventy-five percent of the RF energy is soaked up by your body's water content and resonant organs. Did you know that your intestines are relatively resonant at 155.160 MHz? And gentlemen, do I need to remind you that the second most sensitive part of your body to RF radiation (eyes are first) might be very close to where your handheld is attached to your belt? Also, incoming signal strength may be attenuated by as much as 15 dB with the antenna resting against your body.

When you properly operate your handheld, holding it up to your face, keep the little rubber antenna as far away from your

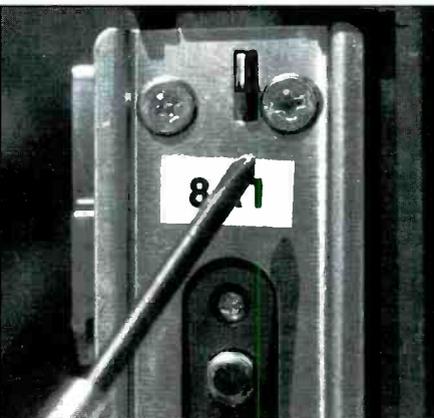


Use a waterproof handheld bag to keep your unit dry

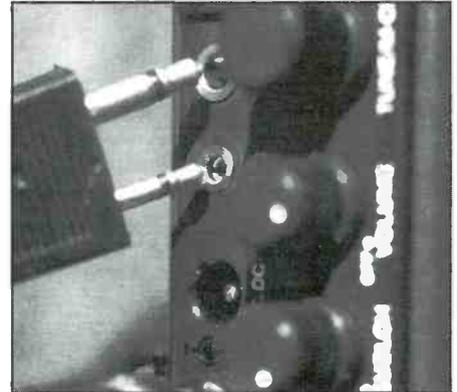
eyes as possible. Also, keep the antenna vertical. If you are transmitting to a base station with your antenna cross-polarized (horizontal), you cut your signal strength by as much as 4 times, 6 dB. Operating your handheld upside down while transmitting puts RF into your lymph nodes. Not good.

Running your handheld mobile, connected to an outside antenna, is always recommended. But watch out for that fragile BNC antenna connector on the top of your handheld, it's not unusual to find the BNC jack wiggling loose, pulling the solder trace off the internal board, rendering your handheld useless.

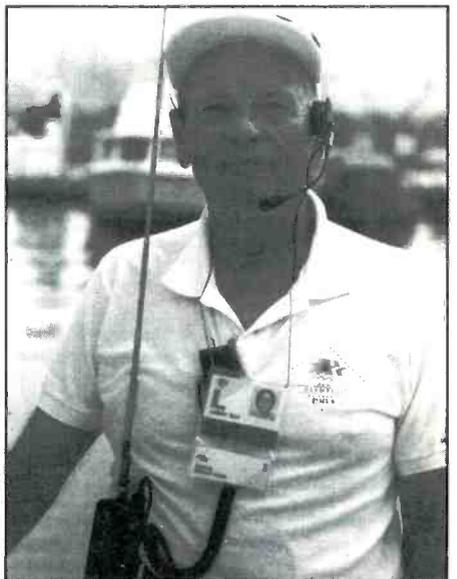
When mobile in a downtown area, don't be surprised if your handheld picks up out-of-band or adjacent-channel signals, intermod, and mixes. This is because your handheld is not designed for a high gain antenna in downtown areas. You will just have to live with it.



Every month, tighten the screws in the battery compartment in your handheld.



When you plug in for an external mike do NOT run the handheld on your belt for transmit.



When using a headset, do NOT transmit with your handheld on your belt.

If you run your handheld off of your vehicle's 12-volt system, don't transmit continuously for more than 20 seconds. On high power, your unit will get red hot, and will self-destruct after about 2 minutes of constant key-down. It does not have a big enough heat sink for high voltage, continuous operation.

Maintain and care for our handheld as your most important piece of safety equipment. Don't be pounding nails with it, or leave it exposed in the sun, or out in the rain. Consider it just as valuable as a police officer would of their own handheld or their own weapon. As an emergency communicator, your handheld transceiver is your number one piece of personal equipment. It very well could save your life in a pinch.

27 MHz COMMUNICATIONS ACTIVITIES

Realistic's new TRC-481 is a mobile transceiver offering dual on-mike and front-panel operating controls. There's also an "Instant Channel 9" switch in this CB, which shows up at a catalog price of \$79.95. Just one of several new Realistic units in Radio Shack's CB line-up that you might want to look over.

The Browning Mystique

A year ago we mentioned that reader Craig Blankenbecler, of Tenn., had a long-time dream of owning a classic Browning LTD mobile CB from the 1970's. The 1970's is when Craig first saw one of these beautiful radios, but then he was in his teens. By the time he became old enough to own one of the pricey sets, Browning Labs had gone out of business—or at least the CB business.

His dream of locating a brand new in-the-box Browning LTD was a constant quest. Then he told us, and we mentioned it here. Craig now tells us that our story brought him a letter from one of our readers in New York, a Browning collector who just happened to have a new Browning LTD to offer Craig. The set had been tested a number of times to make certain it worked, but it had never actually been installed or used.

Craig purchased the radio, telling us it wouldn't have ever happened without our help, or the reply he received from a kind reader named Bob. Glad we could be of service!

In the same mail, we received a letter from someone else seeking to acquire a particular Browning Labs radio. This time it's a Browning Eagle base station. The col-



The smiling operator holding the Browning LTD is Craig Blankenbecler. He spent years looking for one of these radios.

lector looking for the Eagle tells us he has several duplicates of various collectible CB radios and would consider working out some sort of a trade with another collector who could supply a Browning Eagle (he didn't specify which version of the Eagle he wants). Interested parties should write to J. R. Cade, 2220 Baja Ave., La Habra, CA 90631-5802.

The Browning Eagle modular base station appears to have made its first unofficial appearance in mid-1962, except then it wasn't known by that name. The transmitter was called the "23/S-NINE," while the receiver was offered separately and

designated the Model R-2700. You could buy them together, if you wanted. Browning equipment was expensive, but it had an excellent reputation and performance record. The company was located in Laconia, New Hampshire. Later, the two units were modified (only slightly) and marketed together as the deluxe Browning Eagle II base station package. The earlier separate model designations were dropped.

Taken To Task

We were called on the carpet by Ed Barnat, N2RKA, who is the Director of the



This is Jeff Seymour, of Colonial Heights, Virginia.



The Browning Eagle, before it was officially called by that name. That was more than thirty years ago.

Tri-County Assistance, and the President of the Candlelight REACT, both of Cohoes, New York.

First, he has always been "miffed" by what he interprets as our perception that "all CB'ers do is buy radios and raise hell." He fails to cite how he arrived at this perception, although he goes on to state that it is, in any case, "true, as far as it goes," although, "it is a very narrow view in that it does not include the *other* type of CB operators who use their radios while providing service to their friends, families and communities in a relatively lawful and pleasant manor."

This, we reply, is an incorrect perception. We mention REACT, its mission, and good efforts, very often. If any of our readers can show us any other national magazine unconnected with REACT that has publicized REACT even nearly as much as POP'COMM, please let us know. Still, we do not forget that the majority of CB users, and most of our readers, are strictly hobbyists who are obviously interested in using CB for reasons that don't seem to fit into Ed's very sharply limiting definition of worthwhile communications activities.

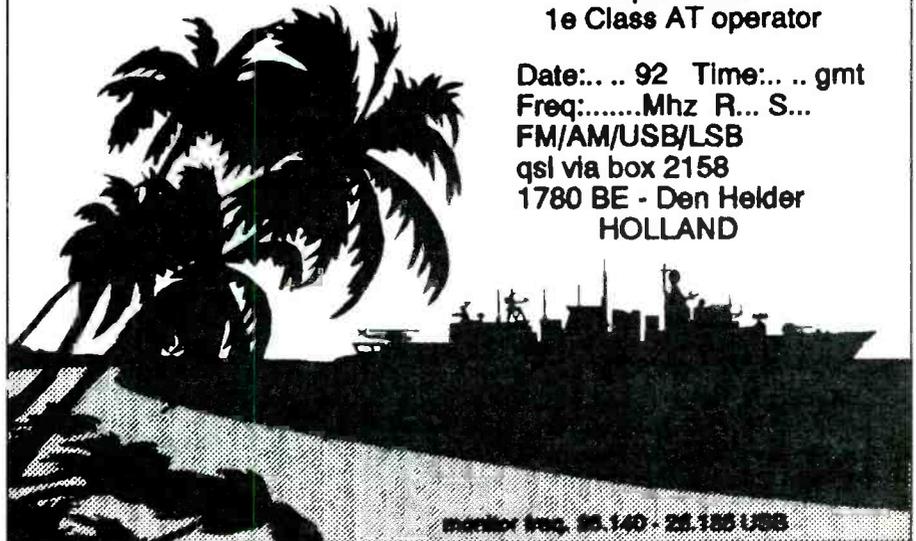
Ed specifically was unimpressed with the fact that in the November column, we shrugged off new FCC Rule 95.418(d) that allows certain highway warning one-way transmissions on the CB channels. He felt that the rule was "the most exciting hard

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HOLLAND



When Andre, 19-AT-211, was on Curacao, he used this QSL. Just his luck, when winter came, his ship was transferred out of the Caribbean!

news about CB you've had in that column in years." He thinks it's finally going to "help silence the overmodulated skip shooting echo chambered roger beeping

foul-mouthed linear lipped blowhards" who ruin Channels 9 and 19 for CB'ers like Ed when they try to warn motorists of traffic tie-ups and hazards ahead."

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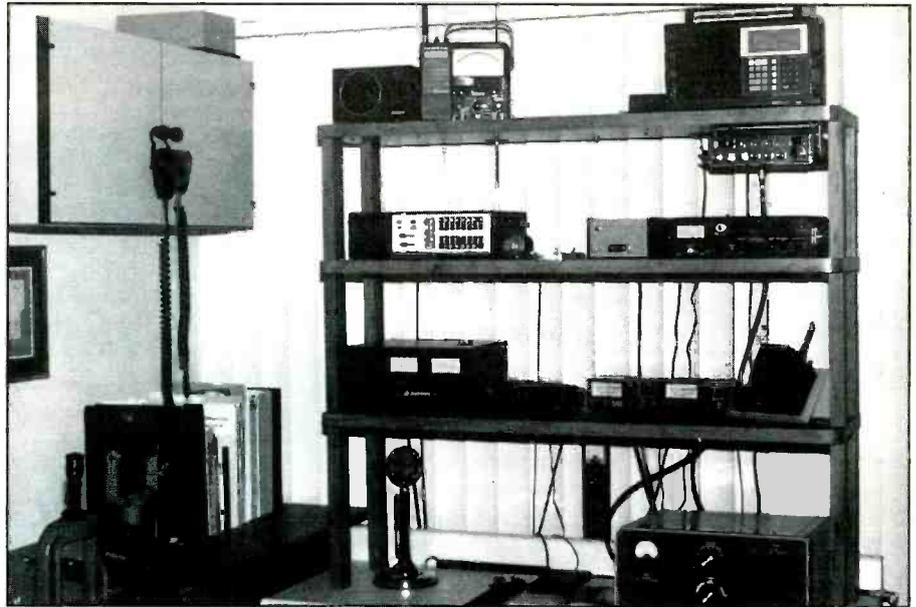
CIRCLE 42 ON READER SERVICE CARD

Ed has somehow determined that this is one CB regulation that the public is at long last going to heed after more than thirty years of paying little attention to most of the other CB regulations. You naughty CB'ers know who you are. We don't want to have to publish your names here. Stop fooling around. Shape up. You're miffing Ed. If we hear of anybody out there buying radios and raising hell, you'll have Ed, FCC Rule 95.418(d), and us to answer to.

More Mail

A lengthy letter arrived from Bob Finn, VE1RJF, SSB Network member SSB-44M, and Registered Monitor VEM1NB3. Bob hails from Saint John, New Brunswick. He avidly pursues Sidebanding, scanning, SWL'ing, and AM DX'ing—all in addition to ham radio. Bob advises that the local CB stand-by channel is 25, with truckers using both 1 and 10. Sidebanding is done above Channel 32. Channel 9 went the way of the dinosaurs.

Andre, 19-AT-211, is from the Netherlands. Being in the Netherlands Navy, he was stationed in the Netherlands Antilles until last November. Andre is a major POP'COMM fan, and anxiously awaits every issue. He tells us that in the Netherlands the government has recently decided to stop issuing CB licenses because the costs involved in administering the



Good looking station at the home of Albert Nunnery, in North Carolina. He's a QSL swapper.

licensing process proved to be more than the income from the licenses.

Dutch CB'ers can still legally operate, but do so without licenses. They are allowed to run 4 watt FM or packet radio on the 40 standard channels. So long as their neighbors don't complain, Dutch CB'ers can also

use beam antennas. Andre points out that many stations operate with higher power than is permitted, use additional frequencies, and operate in unauthorized modes, such as AM and SSB.

Readers wanting to get in touch with 19-AT-211, write to Andre de Groot, Box

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Realistic's new CB has dual controls.

2158, 1780 BE - Den Helder, Holland. Albert Nunnery, KD4LLX, SSB Network Member 67U, and Registered Monitor KNC4ER, was mentioned in a previous issue as someone who will swap CB cards. He advises that the response has been excellent, and everybody who sends a letter along with their card gets a letter in reply. Albert's AD is: Albert A. Nunnery, 1228-F Hamilton Ct., Cary, NC 27511. Al has a very impressive 27 MHz station, and he's very active in scanning, ham radio, and SWL'ing.

CB radio is used by the Burgin Junior Police, a public service club in Burgin, Kentucky. This information came in from J. B. Young, III, Registered Monitor KKY4DO, who is a member of that organization. There are 5 club base stations in town, with Channel 5 being the primary frequency for contacting one another and the local police. They also use Channel 2 for Information, holding Channel 14 and 35 in reserve for occasional special purpose use.

A letter from Tony, a reader who asks to remain anonymous, suggests that the FCC take a more realistic approach to 27 MHz communications. This reader would like the FCC to designate Channels 1 through 40 for AM use only, while also establishing new exclusive SSB frequencies beginning at 27.415 MHz and extending to 27.805 MHz. These would become Channels 41 through 80. This reader would also like to see the FCC have to prove that stations presently caught operating

illegally between 27.415 and 27.995 MHz actually caused someone interference before the agency could level such charges. He wonders how much more interference the illegals cause than those stations the FCC has licensed on some of these frequencies, or how much more interference than hams operating on 28 MHz.

Help Needed

One of our readers is looking for a manual, a schematic, or any other documentation on a CB rig called a Teaberry Racer "T" Model 4006. He describes this as an AM unit with a 40-channel rotary dial and a panel meter.

We recall these as CB radios from the late 1970's. They definitely didn't move as many of them as McDonald's sold burgers. Our readers may be able to scratch up something, though. Anybody who has paperwork, please contact Jonathan D. Armendariz, 1006 Lincoln Street, Bakersfield, CA 93305-3847.

They Read Our Mind— Or Pages

Only last month we were thinking on paper that we hadn't heard from K-40 Electronics in a very long time. Next thing you know, here comes information on their 15th Anniversary CB Antenna.

This is a special limited-edition mobile antenna with a distinctive imprint on its base. It is enclosed in packaging designed for the occasion. These were produced only for a short period of time ending with the close of 1992. Dealers handling the line of K-40 products may have these in stock.

SSB Net Information

We continue to receive requests regarding membership in the SSB Network. This group, founded in 1964, is the world's oldest and largest organization unifying 27 MHz Sidebanders. I have been a member since the mid-1960's and have always proudly used my net number, SSB-295, as my on-the-air ID. This quickly identifies me to fellow Sidebanders as being affiliated with the net.

A \$10 membership (1-time affiliation fee, no yearly dues) gets you your own permanent net ID number. It is inscribed on a certificate and a card, a copy of SSB Net Notes (which outlines proper SSB operating practices), plus other net items. Allow 4 to 6 weeks for processing as the certificates are beautifully hand inscribed by a professional calligrapher.

Please enclose a long, stamped (US 29 cent), self-addressed, return envelope with your membership.

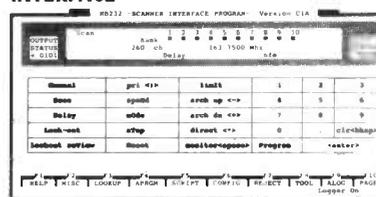
Send memberships to: The SSB Network, P.O. Box 908, Smithtown, NY 11787.

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SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

It sure is a good thing spring is around the corner. Soon it will be time to plan antenna projects by those of us who seem to grow those metallic stalks in our back yards each year. The antenna farms sure do sprout more and more as the interest in scanning intensifies, for it only brings in more distant signals.

Rod Souza of Wailuku, Hawaii, says that he's heard that police in Maui, Hawaii, will begin encryption, use mobile data terminals and use 800 MHz for chatter sometime within the next two years. Rod wants to know if any of this stuff can be intercepted. The encrypted stuff you better stay away from. The Electronics Communications Privacy Act of 1986 is a federal law that prohibits the decoding of encrypted communications, regardless whether it is simple voice-inversion scrambling (the kind that sounds like Donald Duck) or high-tech digital encryption, which turns analog voice into white noise digital voice.

As far as the mobile data terminals, I haven't found any bufs yet who have been able to tap into that one. Police officers in a lot of larger cities are using the data terminals in their patrol cars now to pass along simple status reports (en route, on scene, etc.), as well as car to car chat-chat via keyboards. Each mobile computer system seems to have its own proprietary language, so don't think about hooking up your computer to your scanner; you just can't decode the digital communications. And don't overlook that police, especially supervisors, use cellular in many big cities, as well as small towns. When there is no chatter on the dispatch channels and you know the department has no other means such as additional frequencies or mobile data terminals, you can bet that cellular might be in use.

Stuart Reid of Minneapolis, Minnesota, passes along a news clipping of particular interest. It seems the college kids in the Twin Cities have started relying on scanners so they know when the cops are headed their way to break up a loud party. Apparently, St. Paul police had at least one incident where they responded on the air to a report of a loud party, however, when they arrived, the party had already broken up because students had used a scanner to keep tabs on the cops.

Now, police and University of St. Thomas officials are urging residents to request when they report loud parties that the dispatcher not put the call out over the air. Instead, dispatchers are alerting patrol cars via mobile data terminals. The officers push a button on the terminal to acknowledge receipt of the call, and nothing except a few hisses go out over the air. One police



Here is the extremely well set up listening post of Bob Merritt, of Douglas, GA. Bob says that monitoring is the way he relaxes after a hard day at work. Who would disagree? His equipment includes an ICOM R71A SW receiver, ICOM R7000 VHF/UHF receiver and ICOM R70 SW receiver

official went on to say that the dispatching via the mobile data terminals also is used for other calls that are not desired to go out over the air by voice. When you think about it, what's the difference whether a party breaks up because the cops bang at the door, or a scanner report quiets the scene? The net result is the same: quiet. Stuart adds that it seems like there are few hot communications to be heard in the Twin Cities these days. Apparently, a lot of communications are going out over the data terminals.

Garry A. Fleming writes from Lethbridge, Alberta, that the police in his city have a trunked system on 858.0375, 858.2875, 858.5375, 858.7875 and 859.0375. At times, Gary says, officers request a secure channel, and then squelch-like noise shows up on 857.0375 and 857.2875. This is digital encryption, more commonly known by Motorola's trade name, Digital Voice Protection. Garry asks whether this system can be decoded. However, there are so many possible digital codes that can be utilized in such a system that even if you were to start trying to break the code now, you could easily spend a lifetime—and then some—before you stumbled across the correct digital code. In fact, the police probably can easily change their digital code by sending a signal out over the air. Thus, all mobile and handheld units can be reprogrammed with a new digital encryption code "on the air." Digital

encryption basically converts analog voice as you know it, and turns it into a binary system of zeroes and ones over the air.

Garry says that the police, fire, ambulance, city utilities and public works all share the same trunked system. He says that one person who works for the city told him that they have seven channels on seven bands. He wonders how this can be so. First of all, in a trunked system, mobile and handheld units can be set up to hear only those other units that they need to hear. While various departments in a city may share trunked frequencies, they don't hear the other units. The system breaks up users into groups and subgroups. For instance, one group might be the police department. Within that fleet, there might be several other subgroups such as detective north dispatch, south dispatch, mutual aid, vice, animal control, parking enforcement, and more. Those subgroups even could be broken up into detectives north and detectives south, for instance. That is how the system gets "channels." While only 10 or 20 frequencies actually might be in use on a trunked system, on the same note, all of those frequencies would rarely ever be in use all at the same time. Thus, the groups and subgroups can make efficient use of frequencies without ever having to wait for an available channel; the system automatically assigns users to an available frequency when they want to communicate. There probably are avail-

able paths in the trunked system so that, for instance, a police officer could communicate with a streets department worker. It's all in how the radios are programmed.

Another Canadian, Mike Lopes of Calgary, Alberta, writes in with some of his favorite frequencies for his city: 462.275, 462.650, 462.975, Calgary police dispatch and car to car; 462.125 and 462.375, the Calgary police records; 413.0625, RCMP, airport; 155.790, 155.820, 155.805, RCMP regular use; 155.550, Cochrane RCMP post; 418.4875, Calgary fire dispatch; 413.7125, 413.7875, 41.8625 413.3375, Calgary fire trucks to dispatcher; 413.4375, Calgary fire on-scene; 173.250, the Canadian Forces Base military police; 160545, Canadian Pacific rail police; 452.8625, Calgary Remand Centre; 452.9125, Calgary Saddle Dome security.

Jeff McKinzie, Registered Monitor KPA3AGY, of East McKeesport, Pennsylvania, passes along frequencies for the Pittsburgh area: 453.100, 453.250, 453.400, 453.450, 453.550, 453.950, Pittsburgh police; 453.700, 453.850, Pittsburgh fire; 462.950, Pittsburgh EMS dispatch-1; 462.975, Pittsburgh EMS dispatch-2; 464.100, Salvation Army; 460.475, Pennsylvania narcotics units; 155.880, Pittsburgh public works; 151.865, Three Rivers Stadium security.

Once again from Canada, Mario Villemure of Grand-Mere, Quebec, writes that he likes tuning around on his Realistic Pro-2004. However, he is considering purchasing something such as the Icom R7100, which covers 25-2000 MHz. While most wide-band antennas that are available will cover 25-1300 MHz, he was wondering about coverage of the 1300-2000 MHz band. First of all, if there is something in that band that is of interest to you, you better get an antenna cut specifically for the frequency of interest. The frequency range is so high that you are going to need all the gain you can get. Perhaps you are interested in some microwave links in the 1900 MHz range, or perhaps INMARSAT satellite communications in the 1600 MHz range. A wide-band antenna won't help you much when you start getting that high in frequency. Once you figure out what you want to listen to on this band, get an antenna designed to do the job. Thus, you'll crank in those weak signals with ease.

J.B. Young III, Registered Monitor KKY4DO, of Burgin, Kentucky, says he has been a serious monitor for years and currently scans with an AOR AR2500.

He says he "appreciates a column that really understands us frequency sleuths who love to stay up all hours of the night listening to those strange mystery comms on oddball bands." Gee, I thought I was the only one. J.B. says two frequencies are of interest to him: On 173.3625, he hears

a strange pulse repeated by two different transmitters. On 173.2625, he hears what seems to be five different transmitters each sounding like they answer each other with a warble-like tone. He wonders what he's hearing here. Well, from the FCC rules, we learn that these two frequencies (as well as several others) can be used by licensees in the following radio services: business, forest products, manufacturers, petroleum, special industrial, power and local government. One common use might be that of a water utility that wants to monitor water levels in their tanks. These frequencies can be used for remote control or telemetry. Another possible use is by a power company to regulate its load at the various substations.

Most of the radio services have various guidelines for the use of these 173 MHz frequencies, including that a maximum of 2 watts effective radiated power can be used; the antenna may be no higher than 50 feet above ground, and some radio services dictate the use of directional antennas for fixed locations.

What are you hearing on your receivers in your base or mobile monitoring post? What frequencies are your favorites? How about sending along photographs of those listening posts? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, N.Y. 11801-2909. ■

SGC

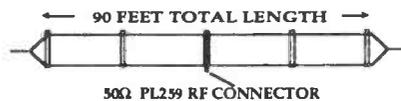
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CIRCLE 67 ON READER SERVICE CARD

TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

No, Cellmate isn't the guy you spent 3 years with at Leavenworth. It's a sophisticated single voice channel, real time, cell-phone monitoring system. Designated the Model TSS-1000, Cellmate is built into an aluminum carrying case and includes a DTMF decoder (32 digit storage) and display to read out the dialed phone numbers. It also includes a Marantz tape recorder, and a modified Panasonic cellular phone.

In other words, it is a lightweight (16 lbs.), portable, covert cellular phone monitoring system designed for surveillance and countersurveillance use. It can operate on its own internal rechargeable batteries, on AC power, or from a vehicle cigarette lighter plug.

Cellmate can monitor generally, or a specific cellular number can be targeted. As it monitors, it automatically changes frequency to follow the target phone as it moves from one cell to another. No manual resetting is required. The cellular phone may be used to place calls, providing an account is opened with a cellular service provider.

Before you get too worked up, remember two things. Cellmate is designed for law enforcement use only. As such, the manufacturer will sell it only to qualified buyers. Also, at a base price of \$6,150, it probably lies within the budgets of governmental agencies and security professionals.

Cellmate TSS-1000 is a wild piece of electronics hardware. It's made by Tech Support Systems, 1203 Normandy Way, Santa Clara, CA 95050. The company also manufactures great looking bug and

phone tap detection devices for use by security personnel.

First Personal Communicators Arrive

EO, Inc., of Mountain View, Calif., showed off the first EO Personal Communicator 440 and 880 devices that put FAX, electronic mail, cellular phone, and personal computing capabilities into the hands of the public. These devices provide an integrated comms package that weighs just over 2 lbs. (EO 440) or 4 lbs. (EO 880).

These units are extremely simple to use. No need to install any software, since EO put both the operating system and nine bundled applications into the 8 MB ROM. In addition to this out-of-the-box convenience, the software represents an \$1,100 value.

All EO users receive a free subscription to an AT&T electronic mailbox that is accessed through an 800 number and can send/receive electronic mail and FAX'es. The EO's hardware includes AT&T's RISC-based Hobbit microprocessor, a built-in high speed modem, an on-board FAX, an optional cellphone connection, a PenPoint Operating System from GO, and special applications for phone, FAX, and mail, are optimized for a variety of needs.

The EO 440 runs at 20 MHz, while the EO 880 runs at 30 MHz. The low power consumption allows batteries to last up to four hours on a single charge (or up to seven hours with the EO 440 using an



The Cellmate TSS-1000 is a portable cellular monitoring station. Is it ever!

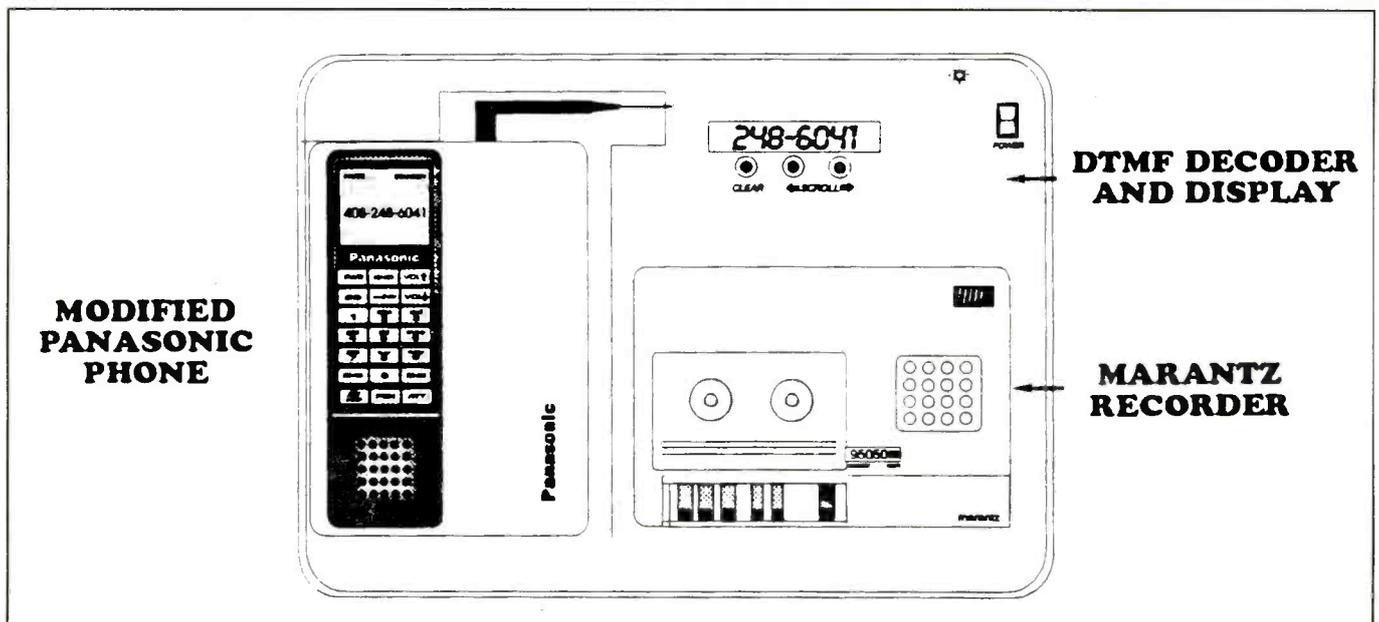
optional extended-life battery pack). Batteries recharge in 90 minutes.

Depending upon the configuration of features, the EO 440 units carry an MSRP between \$1,999 (4 MB RAM, without modem), to \$2,799 (8 MB RAM, internal modem). The EO 880 units have internal modems and carry price tags between \$2,999 (4 MB RAM) and \$3,299 (8 MB RAM).

These are made by EO, Inc., 800A East Middlefield Road, Mountain View, CA 94043.

Cellular/Computer Link

Another unusual new product of interest in the field of New Age personal comms comes from Nokia Mobile Phones. This is the Cellular Notebook Link, a FAX/data interface for use with the Compaq notebook computers and portable PC's. The



Layout of the Cellmate monitor.



A new Nokia device links computers to one of their cellular telephones.



The EO Personal Communicator 440 shown in use with optional cellular phone module. It allows E-mail, FAX, PC, and all sorts of modes from the field. Lets you communicate anytime, anyway, anywhere. An interesting concept.

device links Nokia's new Model 121 cell-phone with any Compaq computer equipped with the new SpeedPAQ 144 Modem. The modem and the phone are designed to send/receive FAX/data transmissions over the cellular network.

When used with the Compaq Speed PAQ 144 Modem, the link transmits data at a carrier speed of 4800 bps, although when used with data compression, a data speed of 11,000 bps can be achieved. FAX is sent /received at 9600 bps.

This Nokia Cellular Data Link is intended for use with the Nokia 121 cellular phone, and is available from Nokia dealers.

For further information, contact Nokia Mobile Phones, Inc., P.O. Box 2930, Largo, FL 34649-2930.

Stop In, Get A Cellphone!

We used to think that the only business you could transact at a little booth in a parking lot was buying a roll of film, or getting film developed in an hour. No more.

Centel Cellular Company of Nevada has put up similar booths in the parking lots of two Las Vegas shopping centers. Why not—that's where the cars (and the customers) are! These booths offer cellular telephones, plus accessories such as extra batteries, chargers, and carrying cases.

Two more booths are planned in the Las Vegas area.

Comment From A Reader

J. R. H., of New Jersey tells us that a few years ago he had purchased a portable cellular phone. During the past year or so a job change left him little occasion to use the phone, so he called up the company with which he had his account and asked if he could get his service suspended. He wanted to still reserve his existing number (NAM) for a future date when he decided to resume the service.

The service supplier said that there would be no problem.

However, he was surprised when the fol-

lowing month his next bill seemed to reflect scant difference from earlier bills when he had full service available. A call to the company revealed that there was a monthly carrying charge for reserving the number for his future use and maintaining his inactive account in their files. This had not been explained earlier.

In addition, he learned something else for the first time. While subscribers may think that their billing for service ends the day they request their service to stop, the clock may continue to run. In J.R.'s case, the company told him they had "billing cycles." Should a customer extract himself from a cycle at a random time to suit his own whim, he would continue to be billed until the end of a cycle. This had also not been explained to J.R. when he first called to suspend his service.

This time he said to kill his number and end his service permanently, effective immediately. He said he didn't care about

their billing cycles, and they shouldn't continue to think up ways to add to his bill. The service supplier demanded payment of the existing bill, and also written notice of the service termination.

J.R. says that he doesn't know the policies of companies in all areas, but he was not at all happy about the way this worked out. He thought that we might give this a mention and suggest that our readers inquire about voluntary service suspension or termination policies so they might avoid being dealt with as he was.

When he starts his service up again, it will be with the area's other cellular service supplier, reports J.R.

The Sun Will Shine Again

Join us in April. Send along any comments, questions, and clippings relating to cellulars, or other personal comms. We are also interested in hearing from service suppliers and equipment manufacturers. ■



These are popping up in Las Vegas parking lots. They sell cellphones and accessories. Quite a clever idea!

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Two phone calls from area SWL friends had tipped me off to the tragic crash of an Air National Guard plane. I started checking Air Force frequencies to see if I could pick up something concerning the crash. On 6730.3 kHz at 1439 UTC I located a message for the Air Force Chief of Staff who was apparently aboard a plane bound for Colorado. A General at an unidentified location told the AF CoS that a C130 from the 167th Tactical Airlift Group at Martinsburg, West Virginia had crashed near Berkeley Springs, WV. The time of the crash was given as 1328 UTC and the plane was in flames when it crashed in the woods and struck a civilian house.

At the time of the transmission it was not clear if there were any survivors. It was later learned there were none.

I wonder if CNN had been monitoring some circuits earlier and picked up the first indication of the crash because the Air Force message indicated that a CNN crew was already on the scene reporting on the incident.

I have learned from Ary Boender in the Netherlands that his *Utility Guide for the 0-900 kHz Spectrum* has been recently updated and now includes over 2000 entries. The list is available for US \$10 which includes airmail forwarding. *The Guide* can be ordered from Ary Boender, Lobeliastraat 33B, 3202 HR Spijkenisse, Netherlands.

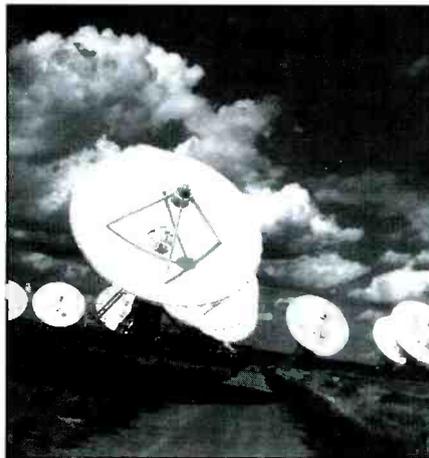
While on vacation in New Mexico, Marty Foss, AK visited the VLA (Very Large Array) site on the plains of San Augustin in Western New Mexico, approximately 52 miles West of Socorro, NM. The VLA is the most powerful radio telescope in the world. The installation consists of 27 identical 25 meter reflector antennas which are mounted on railroad tracks and thus their positioning can be changed.

Herbert Newberry, GA described his monitoring shack as consisting of a Realistic DX440, Mini-Tune 3 Antenna tuner, and a 500' longwire. "I recently put a Somerset Electronics Microdec M300 with video and printer module into service. It does a nice job of decoding CW and RTTY for many of the ute's I listen to. I also monitor 25-1300 MHz using a Realistic PRO-2006 (unmodified) with a Scantenna broadband antenna up 60'. My interest in utility listening blossomed during the Gulf War. When it died down, I gravitated to the various non-broadcast signals I heard all through the bands. From longwave beacons to maritime to government, I enjoy the hunt."

Several years ago Tom Severt, APO England, started in the SWL hobby while overseas. Thus he was happy to have the chance to do some monitoring here in the States when he was on leave in Kansas. He said he managed to log all sorts of new stations including some very interesting ones. "I was slightly disappointed that I didn't hear as many spy numbers stations as I'd have liked, but I managed to finally log 6840 kHz and my first Spanish stations. I remember hearing my first ever numbers station. It was when I was in the Philippines. On 8300 kHz there was a station that would play Chinese music at the top of certain hours. The carrier would stay on all the time, however. After the music, a YL would speak and then send 4F number messages. I remember she would repeat every group. I had no idea what I was hearing at the time but later after reading an article in *POP'COMM*, I realized what I had heard."

First time contributor, Hiroshi Saito in Japan wrote: "I have been monitoring for about 15 years starting with a Yaesu FRG-7, ICOM R-72 & R1 and a Yupiteru MVT-5000. Antennas are a vertical and a L type. I have received Maritime QSL's from 52 countries."

Vic Christiakov, NJ said he started in radio when he bought a scanner while in school in Florida. "Just this past year the SWL bug bit me and I became really interested in shortwave, with UTE stations being the most interesting. At my permanent home I have a 55' longwire antenna. At another location during the work week I use 50' of phone wire hung outside of the window. My receiver is a recently purchased Kenwood R-5000."



Here's a photo of the VLA (Very Large Array) that was provided by Marty Foss



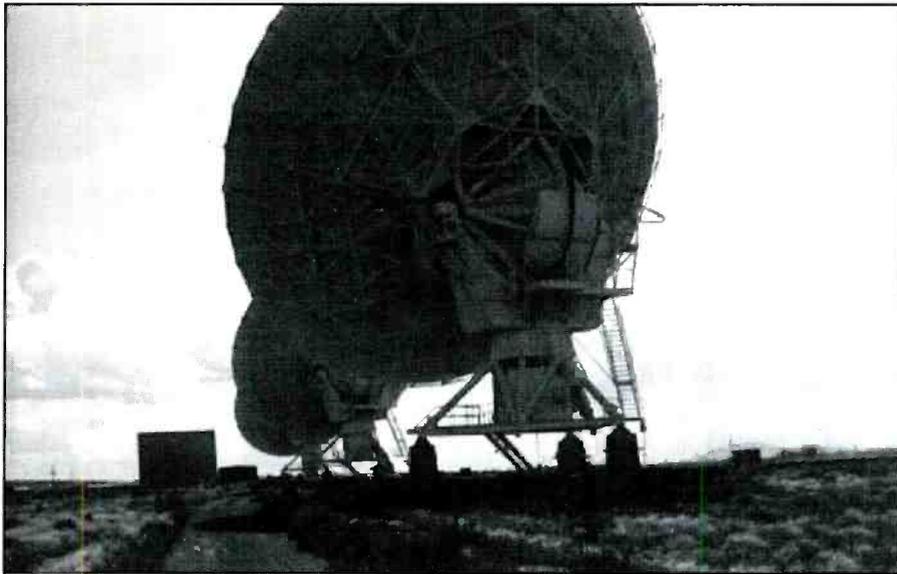
The sign lets visitors know that they have arrived at the VLA. Thanks to Marty Foss, AK.

From South Africa we heard from Glenham Duffy. "I have been a SWL'er for a number of years but it is only for the past two and a half years that I have been a UTE'er. I have logged about 55 countries and have over 35 QSL cards with many of them being from UTE loggings, i.e., Anderson AFB, Guam, a few CG stations, Australian Navy, etc. Since joining the South African DX Club I have for the past 18 months been the mediumwave section editor for the monthly magazine. I am also an Official Amateur Radio Monitor for the S.A. Radio League. My equipment consists of a Kenwood receiver, National Panasonic RF2800B receiver, Eddystone EB35 receiver and a communications terminal."

Larry Coutu, RI commented on the photo in the October '92 column which showed the AUTODIN at McClellan AFB. "How surprised I was to see the paper tape reader and spooler combination still in use. That unit is made by Digitronics, Inc., of Cumberland, RI and I have been working for the company for 24 years servicing all our paper tape readers, punches, and spoolers."

Several readers have asked for the address for QSL'ing the communications of United States overseas peacekeeping forces. I regret I do not have such an address. It may be a long shot but perhaps if a QSL request was sent to the UN broadcast office it might be forwarded to the appropriate component. That address is United Nations Radio, Room S-850, New York, NY 10017. Maybe one of our readers does have a current valid address.

Roger Caldicott, MA reports he hears the wx bulletins each morning in CW from NRV, USCG COMMSTA Guam, Mariana Islands. The frequency is 12867 kHz at 1130-1230 UTC.



Here's a nice close-up of a portion of the VLA from Mr. Foss of Alaska.

Thomas Nowling, FL said he has been a scanner listener for some years. "Recently after purchasing a new PRO-37, I picked up a copy of POP'COMM. I didn't realize the full scope of the communications hobby. I read the issue from cover to cover and decided that I needed to add a SW receiver to my meager shack. After careful consideration of the selections and my wallet, I purchased a Sangean ATS-803A and a MFJ 1020A active antenna.

Although I do enjoy the International SW Broadcast bands and already have a number of QSL cards on the wall, the UTE DX'ing has really caught my interest and I have already logged quite a few."

UTE Loggings. All Times UTC.

- 201: Beacon SGG, St. George Island, AK at 0738. A rare night without static gave me this new DX of 2823 miles. (Vaage, CA)
- 209: Beacon HOE, Homerville, GA at 0517. (Newberry, GA)
- 212: Beacon OKZ, Sandersville, GA. ID in CW & automated altimeter in AM at 0518. (Newberry, GA)
- 212: Beacon CFV, Coffeyville, KS at 2243. (Sevart, KS)
- 227: Beacon GDY, Upperville, VA at 1658. (Vylasek, VA)
- 239: Beacon HKF, Middletown, OH at 2340. (Rice, OH)
- 245: Beacon JYL, Sylvania, GA at 0531. (Newberry, GA)
- 248: Beacon UL, Montreal, Quebec, Canada at 0340. (Vylasek, VA); Beacon FRT, Spartanburg, SC at 0532. (Newberry, GA)

- 254: Beacon SPK, Reno, NV at 0822. (Vaage, CA)
- 257: Beacon CEU, Clemson, SC at 0534. (Newberry, GA)
- 260: Beacon CEP, Ruidoso, NM at 0827. (Vaage, CA); Beacon HAO, Hamilton, OH at 2345. (Rice, OH); Beacon BNL, Barnwell, SC at 0534. (Newberry, GA)
- 264: Beacon UIA, Andalusia, AL at 0835. (Vaage, CA)
- 290: Beacon AOP, Rock Springs, WY at 0850. (Vaage, CA)
- 310: Beacon H, Egmont Key LS, FL at 0546. (Newberry, GA)
- 313: Beacon Z, Cape Canaveral, FL at 0547. (Newberry, GA)
- 317: Beacon TB, Tybee (Island) LS, GA at 0549. (Newberry, GA)
- 320: Beacon W, Cape San Blas LS, FL at 0551. (Newberry, GA)
- 323: Beacon JES, Jessup, GA at 0552. (Newberry, GA)
- 326: Beacon PKZ, Pensacola, FL at 0553; Beacon UOT, Union, SC at 0553. (Newberry, GA)
- 329: Beacon CH, Charleston, SC at 0554. (Newberry, GA)
- 348: Beacon SGE, u/i at 2246. (Vylasek, KS) My refs show SGE on 383 kHz and located at St. George, QLD, Australia. (Ed.)
- 353: Beacon MG, Montgomery, NC at 0407. (Vylasek, VA)
- 356: Beacon VES, Versailles, OH at 2350. (Rice, OH)
- 359: Beacon DO, u/i at 2235. (Vylasek, KS) This beacon is located at Kansas City International, MO. (Ed.)
- 365: Beacon ADT, Atwood, KS at 0927. (Vaage, CA); Beacon PTS, Pittsburg, KS at 0439. (Sevart, KS)
- 367: Beacon MT, u/i at 0929. (Vaage, CA) Wonder if this is a freq change for Chibougamau, PQ, Canada? (Ed.)
- 368: Beacon SIR, Rawlins, WY at 0929. (Vaage, CA); Beacon IX, Olathe, KS (Johnson County—Dustt) at 2250. (Vylasek, KS)
- 375: Beacon CHT, u/i at 2252. (Vylasek, KS) Located at Chillicothe, MO. (Ed.)
- 379: Beacon PUU, Flagstaff, AZ at 0932. (Vaage, CA); Beacon FSC, Fort Scott, KS at 0441. (Sevart, KS)
- 383: Beacon CNP, Chappell, NE at 0933. (Vaage, CA)
- 385: Beacon VWL, New Castle, IN at 2355. (Rice, OH); Beacon WL, Williams Lake, BC, Canada at 0936. (Vaage, CA)

中华人民共和国
上海海岸电台
Shanghai Coast Radio Station
The People's Republic of China

Q S L

Address: 7th Floor 20 Guang Dong Road Shanghai
Cable: SMATENCO Telex: 33103 BOMTA CN

HIROSHI SAITO
Your report on the transmissions of XSG
was verified as follows:

Date: 28 OCT. 1990 Time: 1329-1333 UTC
Frequency: 8665 kHz Mode: CW A1A Power: 10 KW
The traffic:
CA CA CA DE XSG XSG XSG OKU?
BSX 8 12 16 AND 22 MHz BK

Wish you success in your radio activities!
Your sincerely 佐藤 洋平

O.G.E. Radio-Orient
B.P. 1226
Beyrouth-LIBAN

STATION COTIERE
Radio-Maritime
Beyrouth-Radio
O D R

A RADIO Mr. HIROSHI SAITO

Confirmons notre émission:
Indicatif d'appel ODR3
Fréquence 8702 KHz
Date 17.11.79 Heure 14.28 GMT
Destinée à aux navires
Mode: CW. ~~SSB~~ AM
Puissance émetteur 1000 Watts
Antenne émission:
Type Doublet
Azimut 111/291
Coordonnées notre émission: 35°28'55" E - 33°47'42" N
Beyrouth, le 14.2.80 Le Chef de Centre
J. BOYADJIAN

These QSL's were received by Hirochi Saito of Japan.

DIXON
NORTH CAROLINA

DIW

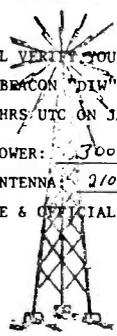
198 kHz

THIS WILL VERIFY YOUR RECEPTION
OF RADIOBEACON "DIW" ON 198 kHz
AT 0707 HRS. UTC ON JANUARY 19/92

BEACON POWER: 700 watts
BEACON ANTENNA: 210' VERTICAL
SIGNATURE & OFFICIAL STAMP:

(over)

[Signature]
FAA TECHNICIAN

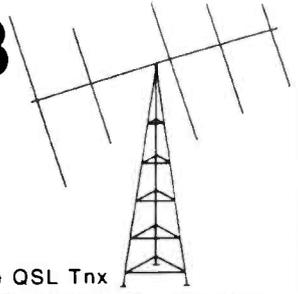


SECTOR FIELD OFFICE
940 Aviation Drive
NEW BERN, N. C. 28582

PFC returned to Steve McDonald of Canada.

KOH8GB

Ernie L. Rice



Butler County

Pse QSL Trx

STATION	DATE	UTC	MHz	R S T	MODE

Ernie Rice, Registered Monitor KOH8GB, OH uses this card for his reception reports.

- 394:** Beacon EZZ, u/i at 2345. (Vylasek, KS) Located at Cameron. MO. (Ed.); Beacon YB, North Bay, Ontario, Canada at 0433. (Vylasek, VA)
- 395:** Beacon XEN, Xenia, OH at 2358. (Rice, OH)
- 400:** Beacon IDP, Independence, KS at 0444. (Sevart, KS)
- 404:** Beacon YSL, St. Leonard, NB, Canada at 0515. (Vylasek, VA)
- 407:** Beacon H, Montreal, Quebec, Canada at 0436. (Vylasek, VA); Beacon IBU, Statesboro, GA at 0631. (Newberry, GA)
- 409:** Beacon TM, Tifton, GA at 0631. (Newberry, GA); Beacon YTA, Pembroke, Ontario, Canada at 0519. (Vylasek, VA)
- 413:** Beacon OEG, Yuma, AZ at 1007. (Vaage, CA)
- 415:** Beacon CBC, Cayman Brac, Brit. W. Indies, at 0255. (Vylasek, VA); Beacon HJM, Bonham, TX at 1025. (Vaage, CA)
- 417:** Beacon HHG, Huntington, IN at 0000. (Rice, OH)
- 419:** Beacon UEW, Lawrenceville, GA at 0633. (Newberry, GA)
- 420:** Beacon TU, Tupelo, MS at 0634. (Newberry, GA)
- 424:** Beacon RVJ, Reidsville, GA at 0635. This is site of Georgia maximum security state prison. (Newberry, GA)
- 426:** Beacon FTP, Ft. Payne, AL at 0635. (Newberry, GA)
- 429:** Beacon JNM, Monroe, GA at 0636. (Newberry, GA)

- 432:** Beacon MHP, Metter, GA at 0637. (Newberry, GA); Beacon IZN, Lincolnton, NC at 0532. (Vylasek, VA)
- 435:** Beacon ILY, Washington, GA at 0637. (Newberry, GA)
- 516:** Beacon YWA, Petawana, Ontario, Canada at 0540. (Vylasek, VA)
- 521:** Beacon GM, Greenville, SC at 0642. (Newberry, GA); Beacon INE, Missoula, MT at 1022. (Vaage, CA)
- 526:** Beacon OJ, u/i at 2358. (Vylasek, KS) Located at Olathe, KS (Johnson County—Furor). (Ed.); Beacon ZLS, u/i. (Newberry, GA) Located at Stella Maria, Bahamas formerly at 320 kHz. (Ed.)
- 1704:** OXZ, Lynby, Denmark in USB at 2143 w/navigational warnings. (Boender, Netherlands)
- 1713:** PCH, Scheveningen, Holland in USB at 2145 w/wx. (Boender, Netherlands)
- 2670:** USCG COMMSTA Guam, NRV w/wx at 0448. Also hrd NM, COMMSTA Boston. (Franz, FL)
- 2899:** DHL 834 w/Shanwick, FL330. Shannon next & SelCal check in USB at 0037. (Boender, Netherlands)
- 3330:** CHU, Ottawa, Ontario, Canada w/time signal in AM at 0711. (Newberry, GA)
- 3485:** WSY70, New York VOLMET w/wx in SSB at 0809. (Newberry, GA)
- 4054:** AFA4IA, net control, w/kg MARS stns AFA4LH, AFA4JI, AFA4SI (Dallas, TX), AFA4CW, AFA4GN, AFA4CB, (Houston, TX) AFA4ZN, and AA4RH in USB at 0201. (Sevart, KS)
- 4225.3:** XFM, Manzanillo, Mexico in CW at 0135 w/wx. (Sevart, KS)
- 4247:** KPH, San Francisco, CA w/V's in CW at 0826. (Newberry, GA)
- 4285:** VCS, Halifax CG, Nova Scotia, Canada. Sending V's & freqs in CW at 0731. (Newberry, GA)
- 4364:** AT&T High Seas pp to vessel New Amsterdam at 0000. (Nowling, FL)
- 4386:** WOO, Manahawken, NJ at 2000 w/tfc list. (Nowling FL)
- 4369:** WLC, Rogers City, MI. Wx synopsis & forecasts for Great Lakes in SSB at 0740. Also hrd on 4381 kHz but heavy QRM. (Newberry, GA)
- 4426:** NMN, USCG COMMSTA Portsmouth, VA w/offshore forecast. (Franz, FL)
- 4560:** Mossad station YHF w/2 msgs by YL/EE at 1803 in 5L grps. Also on 3840 kHz. (Mason, England)
- 4594:** YL/GG rptng Papa Zulu fm 0500-0505. Then 5F grps for 143. (Mason, England)
- 4719:** RAF VOLMET at 0221 w/wx for various European airports. (Nowling, FL)
- 4725:** OM/EE at 0310 w/4F grps. (Franz, FL)
- 5000:** WWV, Fort Collins, CO w/time announcement. YVTO, Caracas, Venezuela w/time announcement in SS. These sigs hrd at 0159. (Franz, FL)
- 5211:** WGY933, Pikesville, MD w/kg WGY912,

- FEMA Special Facility Berryville, VA at 0010. (Rausch, NJ)
- 5301:** OLY, Prague, Czechoslovakia in CW at 0458 w/5F grps. Simulcast on 6758 kHz. (Sevart, KS)
- 5303:** U/i CW stn hrd at 0254 w/5F grps. Down at 0258 w/no signoff. (Sevart, KS)
- 5499:** Brazzaville VOLMET w/aviation wx at 0328. (Franz, FL)
- 5500:** U/i OM/RR w/VOLMET at 0430. (Duffy, S. Africa); YL/EE rptng 288 Oblique 00 from 2000-2005. Ended w/'Out' & sounded like phone being put down when carrier went off. (Mason, England)
- 5505:** Shannon VOLMET, Ireland w/wx at 0549. (Franz, FL)
- 5598:** NY Aeradio w/kg Aeroflot 326 w/request that freq be maintained & SELCAL checked. Hrd at 0350. (Duffy, S. Africa)
- 5650:** Gander in USB w/kg KLM755 at 0155, Pakistan 801 at 0156, & Lufthansa 419 at 0200. Shanwick w/kg Atitalia 615 at 0203. (Boender, Netherlands)
- 5690:** Caribbean Inter-Islands Police Net, Sierra 1 w/kg Sierra 2 & 3 re All Points Bulletin. Hrd at 2345. (Rausch, NJ)
- 5696:** NOS, Cape Cod Air in USB called USCG Helo 6017 at 0236 to inform him that a sea plane had flipped over in Cuttyhunk Harbor (Elizabeth Islands) and personnel were spotted standing on top of a/c. Helo 6017 directed go Cuttyhunk. Helo 2111 broke in telling Cape Cod he was enroute to site. At 0238 Cape Cod advised 2111 & 6017 to "Stand Down. Pilot recovered. Was brought on board a small boat." (Caldicott, MA); USCG COMMSTA San Francisco wkg vessel "Union" re trouble reaching land. Hrd at 0210. (Franz, FL)
- 5807:** ZKLF, Auckland, New Zealand. Only call hrd. Weak CW sig at 0921. Covered w/heavy QRM. (Newberry, GA)
- 5821:** CW NNN sign on from 2000-2005 foll by YL/GG w/Gruppe 30 and into 5F grps. (Mason, England)
- 5870:** NMN, COMMSTA Portsmouth, VA w/5L CW code practice grps at 0258. (Sevart, KS)
- 5929.5:** YL/SS in AM at 0305 w/4F grps. Rptd 203 and 1-0 count. Ten tones & group count, then sent msg. This station on about every night at 0300. (Sevart, KS)
- 5930:** YL/SS w/4F grps. (Franz, FL)
- 6369:** CQ DE D3E41, Luanda, Angola in CW at 0415 w/mkr. (Caldicott, MA)
- 6411:** 9VG55, Singapore in CW at 1120 w/CQ mkr. (Caldicott, MA)
- 6416:** WLO, Mobile, AL in CW at 0323 w/wx. (Sevart, KS)
- 6501:** CG Portsmouth, VA w/wx for Atlantic in USB at 2345. (Chistiakov, RI); Aircraft B6T at 0405 w/kg District 7 Miami Ops via simplex pp from COMMSTA Portsmouth. B6T was OSC in SAR case involv-

Abbreviations Used For Intercepts

- AM Amplitude Modulation mode
- BC Broadcast
- CW Morse Code mode
- EE English
- GG German
- ID Identification/led/location
- LSB Lower Sideband mode
- OM Male operator
- PP Portuguese
- SS Spanish
- tfc Traffic
- USB Upper Sideband mode
- w With
- wx Weather report/forecast
- YL Female operator
- 4F 4-figure coded groups (i.e. 5739)
- 5F 5-figure coded groups
- 5L 5-letter coded groups (i.e. IGRXJ)β

ing tug taking on water. Tug was enroute to San Salvador, CG Rescue 2122 dropped pumps to vessel which continued to its destination. (Rausch, NJ)

6513: VFF, Iqaluit (Frobisher Bay) NWT, Canada Coast Guard in USB at 1320 w/Navigational warnings & ice reports. 5 mins later switched language from EE to FF. Wx reports given for the most NE part of Canada. (Caldicott, MA)

6577: New York radio in USB at 0018 w/kg several a/c such as AM1150, UN484, and AF594 giving routings & clearances. (Chistiakov, RI)

6679: Honolulu VOLMET w/aviation forecast at 0552. (Franz, FL)

6738: MacDill in USB at 0205 w/Sky King bcst. (Chistiakov, RI)

6800: YL/SS at 0314 w/4F grps. (Franz, FL)

6840: OM/S yelling "Repito Repito Grupo Dos Dos Uno." This was in USB on top of the 0230 sign on of nightly sked of 4F station. (Franz, FL)

6998.7: WAR, Pentagon (Ft. Ritchie, MD) in CW at 0104 w/rx re changing MARS seal. (Sevart, KS)

7415: YL/EE at 0510 w/5F grps x2. She was QRM'ing WKIK & other Pirates! Why send nbrs t/c at a time & freq likely to be interfered with? (Mazanec, OH) It possible that recipient of nbrs t/c located where that freq is hrd clearly. (Ed.)

7422.5: YL/SS in RCS at 0303 w 835 and 1-0 count rptd. After ten tones sent 166 grp msg of 4F grps. Same msg sent few nights later at 0003. Same stn as on 5929.5 kHz but does not work //. (Sevart, KS)

7655: YL/SS from 2100-2134. Called 449 x3 then 1-0 count x2 & into 3/2F grps. (Franz, FL)

7887: YL/EE w/5F grps x2. Off at 0446 & closed w/some sort of song. (Franz, FL) This is known as "The Lincolnshire Poacher" station as that is the name of the tune which is played. For complete rundown on this stn & other see "Secret Signals" published by Tiare Publications, PO Box 493P, Lake Geneva, WI 53147. (Ed.)

7920: Kilo Victor Papa 2 (Mossad) at 0422. (Franz, FL)

8090: NMN, COMMSTA Portsmouth, VA in CW at 0112 w/msg re ship/shore freqs. (Sevart, KS)

8127: Mossad stn CIO2 at 1947, also on 4360 kHz. (Mason, England)

8130: Charlie India Oscar 2 (Mossad) hrd at 0449. (Franz, FL)

8142: CW t/c in 5F grps & YL/Czech at 0200, 0300, 0400, 0500, and 0600 preceded by VVV DE OLX in CW. Also hrd on 5301 kHz. OLX is listed as CETEKA Press, Prague. (Mason, England) Skeds at 0900, 1100, 1300, 1800, 1900, 2000 & 2100 were monitored by Ary Boender, Netherlands.

8188: Every Sunday at 1100 music box mkr playing "Swedish Rhapsody." At 1105 YL/GG into 5F grps for 3 addees. (Mason, England)

8205: Oil rig in Gulf of Mexico at 2007 w/pp to Louisiana. (Nowling, FL)

8697: Maritime Command Halifax w/wx in CW at 2205. (Duffy, S. Africa)

8698: UDK2, Murmansk clg 4Ls in CW at 0305. (Sevart, KS)

8764/8240: British warship HMS Coventry GDKG wkg t/c w/Portishead Coventry was off Bermuda. Hrd at 2320. (Rausch, NJ)

8791: WOM, Pennsuco, FL in USB at 0311 w/kg cruise ship Song of America w/pp. Ship on ch 825 (8267 kHz). (Sevart, KS)

8794: WOO, Ocean Gate, NJ in USB at 0040 w/kg Panamanian ship 3EAR6 w/pp's. Also WLC, Rogers City, MI in USB w/wx at 0257. (Sevart, KS)

8809: WOM, Pennsuco, FL wkg MV "ICC" w/pp at 0120. (Duffy, S. Africa)

8828: Auckland, New Zealand w/VOLMET in USB at 0451. Honolulu on at 0454. (Sevart, KS)

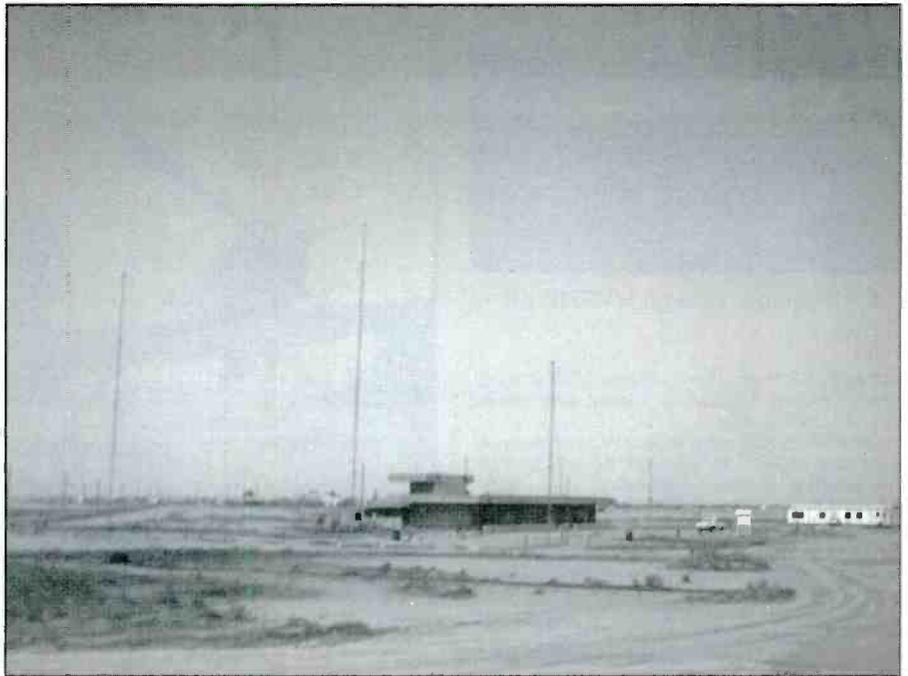
8843: Honolulu wkg Delta Flt 16 across Pacific Ocean enroute Dallas, TX. A/c called in at various times w/coordinates. Hrd 0415-0455. (Caldicott, MA)

8845: New York aero at 0015 w/wx & relays of info to various airlines. (Nowling, FL)

8867: At 0421 Nadi recd position & eta fm Pacific 913. At 0908 Nadi wkg Continental 16 w/position check. All in USB. (Spurway, Australia)

8891: ICAO NAT-D area w/Reykjavik, Iceland, Sondrestrom, Greenland, and Churchill, Canada wkg various a/c in USB at 2319. (Sevart, KS)

8930: Stockholm wkg Columbus 5568 at 1420



The "Sarge" in Saudi Arabia took these photos. In this view there are 5 dipole antennas. "This place did the meteorological stuff for the airport."

w/SECAL check & wkg Delta 83 at 1422. All in USB. (Boender, Netherlands)

8957: Shannon VOLMET, Ireland in USB at 2235. (Sevart, KS)

8967: Teflon 2 wkg Thule for pp. U/i stn clg Raider 04 & 05. Cigar Box & Sea Otter w/coded msgs. Plus several Sky King msgs. USB 0310-0330. (Hill, MI)

8984: Pinstripe One wkg C2M w/comms re SAR op. C2M gave details of search area, then said "in the dark" & scrambled comms followed. Possible drug bust?? Hrd at 1233. (Franz, FL) CG Rescue 1482, 1712, and MAC 95302 wkg SAR comms w/COMMSTA New Orleans re rescue ops for freighter Holstein which sank in storm in Gulf of Mexico. Hrd at 1330. (Rausch, NJ) USCG Helo 1437 called COMMSTA

Portsmouth re helo has fuel control problem. Poss engine problem but not certain. Advised Portsmouth his position and said he going to Arcadia airport. Portsmouth said they would advise Clearwater. (Caldicott, MA)

9120: U/i CW stn at 1841 rptng diff msgs of 3L/F grps. Still going at 0241. (Sevart, KS)

9240: Foghorn signal at 0345. (Franz, FL)

9381: 5F grps in CW at 0318. Rptd grps & ended w/BT BT 530 530 128 128 TTTTT. (Sevart, KS)

9570: Warbling jammer at 2000 jamming bcst stn. (Sevart, KS)

10000: BPM, Xian, PRC time signal stn in CW at 2259. (Sevart, KS)

10066: Calcutta wkg Cathay 291 at 1827 and



C-23A of the Missouri NG, callsign WINDY 28.



C-12 aircraft, callsign MYSTIC 68.

Cathay 210 at 1835. Then Lufihansa 7495 at 1856. Position reports & SELCAL checks. USB mode. (Boender, Netherlands)

10177: YL/GG rptng Whisky Papa w/electronic tones from 0130-0135. Then into 5F grps for 716. Msg was 88 grps. (Mason, England)

10648: YHF (Mossad), YL/EE at 0100. (Sevart, KS)

11175: McDill AFB w/Sky King msg at 1945. Then called McDill 143 x2 but no answer. (Nowling, FL)

11176: MacDill AFB wkg Spar 84 w/pp re tidal wave in Nicaragua at 1439. Air Force personnel were standing by ready to help w/relief efforts but needed order from JCS. Lots of comms w/relief flights to Homestead AFB. All USB. (Sevart, KS) USAF Reach 306DD wkg Croughton in USB at 0930. USAF Giant clg Mainsail at 0950 & Giant clg Incirlik Airways for rdo check at 0951. Also USB. (Boender, Netherlands) 18189 clg Ascension on triple 1. Requested pp w/Dover AFB. Gave departure HKNA 0400 & indicated require dipl clearances for Uganda. Tanzania,



OV-1 Mohawk decked-out as an ELINT bird

Zambia & Zimbabwe. Hrd at 1928. (Duffy, S. Africa)

11200: Royal Air Force VOLMET. West Drayton, England in USB at 2230. (Sevart, KS)

11218: German Air Force WF70 clg GAF Munster (DHM91) for rdo check at 1040 in USB. (Boender, Netherlands)

11234: RAF F5476 w/Architect in USB at 0922

for pp. ALF 6108 Italian AF wkg Cyprus Flightwatch (RAF) in USB at 0810. (Boender, Netherlands)

11283: U/i CW stn at 0223 w/5 F/L groups. (Sevart, KS)

11494: Poss DEA comms at 2035 re u/i aircraft and comment re something thrown out of the airplane. Part of transmission was scrambled. (Adrian, BC, Canada)

12984: Time signal stn VNG, Penrith, NSW, Australia w/pips at 1340. (Mason, England)

12990: UKK3, Nakhodka, Russia in CW at 1232 wkg ships in the Sea of Japan. (Caldicott, MA)

12994: VIP4, Perth, Australia in CW at 1150 w/tfc list. This stn provides wx & navigational warnings at 1118. (Caldicott, MA)

13067: UAI3, Nakhodka, Russia in CW at 1100 w/tfc list then he broke into u/i language in CW. (Caldicott, MA)

13267: Khabarovsk, USSR VOLMET w/aviation wx in RR. Site is about 250 miles S of Vladivostok. (Rausch, NJ)

14670: CHU, Canada time signal stn at 1804. (Sevart, KS)

14870: OM/EE w/RR accent rptng 168 at 1400. Then at 1405 453 x2 31 x2 & ended w/00000. AM mode. (Mason, England)

15015: Ascension AB, Ascension Island wkg Reach 002 in USB at 2143. (Sevart, KS)

16086: YL/EE w/1-0 count and 352 at 1400-1407 then off. Later 9AR being sent in CW foll by data burst. The counting stn was also on 13555 kHz. (Mason, England)

16331.9: Stn shifting from RTTY to CW. Sounds like CLP1. Havana xmtr. Hrd at 2230. (Ed.)

16438: YL/EE announcing 4F grps in AM at 1330. Severe fading and warble jammer comes up on freq at 1334. YL sent grps for exactly 10 mins then off air. Jammer continued on freq until 1342 then went down. (Ed.)

16445.6: U/i stn w/auto CW at 1908 sending 5F grps. At end sends 719 x2 24 x2 TTTTT and down. Each grp of text rptd twice. (Ed.)

17016: SLHFM's P and C in CW at 1056. (Boender, Netherlands)

19380: YL/EE w/374 x3 17498 031 from 2102-2108. Then 5 dashes foll by 5F grps. Also on 14930/19380 kHz. (Mason, England)

19714.9: YL/EE in AM at 1700 w/callup of EZI (Mossad). (Ed.)

20350: YL/GG rptng Charlie Delta from 1100-1105 then electronic tones & into 5F grps for 059 and 432. (Mason, England)

22476: NMO, COMMSTA Honolulu (USCG) in CW at 2145 w/listing of AMVER (Automated Mutual Assistance Vessel Rescue System) freqs. (Caldicott, MA)

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Some new stations and new reporters this time. Let's get right into them.

Eric Cannon in Georgia noted Bandit Radio at 2305 on 7415 and they were apparently having transmitter problems. Can you include a few program details with your logs, Eric? Thanks.

Anarchy One was found by Skip Harwood in California on 7417 USB at 0330 one evening with host Captain Anarchy saying that the station provides a forum for everyone to aid all forms of resistance. Also heard on 7417.2 at 0300. John Cruzan, Missouri found this on 7415 at 0340 with a talk on Columbus. An address announced but could not be copied.

The Voice of the Night showed for Jason Gilroy in Massachusetts on 7414 USB at 2356 and again at 0045-0100 giving out a fake phone number and not mentioning any address. Cruzan heard this one announcing (800) 925-3786, extension 123 and John says the number works. A young male announcer at the mike; played commercial and was interfered with. Changed to 7425 and then back to 7415.

Cannon had Hello Radio on 7415 LSB at 2153. Cruzan heard this just briefly at 0300, with the announcer wishing everyone a good time and lots of Southern Hospitality, said 73 and left the air.

Gilroy had them "on and off" from 0024 to 0127. ID as "Helllllooooo Radioooooo."

WKIR, announcing Jacksonville, Florida as a location was heard by Gilroy on 7415 USB at 0147 with a minute or so of repeated IDs "This is WKIR, Jacksonville, Florida, USA." Jason's not sure about the last letter in the call. Cruzan had several logs of this, as WKIK, on 7416 USB at 0027 with song parodies. Also at 0019 with CW interference and later in contact with EBO Radio, asking about getting a maildrop. EBO advised contacting the Wellsville address. Harwood in California heard the station as WKAR on 7415 USB at 0230 with a test and contact with an unknown station.

Skip had WORK on 7415 USB at 0145 with the "Workingman" talking about Japanese products and playing music.

WEED Radio was logged by Thornton Jacobs on 7415 USB at 0144 to 0200 sign off. Rock, man and woman announcers "broadcasting from the great southwest" and QSL via Radio Hobby Online: 17082381901 area #5 msg sec. Cruzan logged this at 0144 mentioning their sister station, KRAP and playing segments of other broadcasts that mentioned WEED.

Another Cruzan log was VOLD—the Voice of the Last Days, also on 7415 USB at 0340, predicting WWIII, reading Bible passages and advising listeners to take cover because "the end is near." Blue Ridge Summit address.

Several loggings of EBO Radio: Har-

wood had them on 7415USB at 0104 and another time on 7418.8USB at 0230, the latter sounding like a relay of the Voice of Bob. One message sent in CW "If you happen to be a female then send a photo for an extra special response de EBO Radio, catch y' all later..." Cruzan had this around 0240 with ID "This is EBO Radio, Frogmore, South Carolina" and playing Neal Young and classical music, heavy reverb effects. Also at 0023 with ID, counts and request for one dollar's worth of stamps to the Wellsville address for a QSL.

Cruzan heard WYMN, possibly with "Pirate Jenny" at 0114 on 7415 with mailbag segment, female vocalists and mention of Wellsville address. Noted they'd been broadcasting for eight years. Gilroy had this one with slogan "female feminist pirate radio" at 0122, saying they were back after being off the air for a long time.

The Voice of the Laughing Idiot was heard by Cruzan on 7416 USB at 0026, with one guy giving an ID and laughing hysterically; also in contact with EBO radio.

Hit Parade Radio was also heard by Cruzan, on 7413 at 0230. Mention of Wellsville address but poor reception due to interference. Gilroy had this on 7417 at 2025 to 2030 abrupt sign off. Played short music clips and announced the Wellsville address.

Harwood found Jolly Roger Radio on 7417 at 0430 with a mix of rock and slogan "JRI in the sky."

Gilroy had WREC - Radio Free East Coast, on 7415 at 1951 to 2015 abrupt close. Played rock music and announced the Blue Ridge Summit Address.

And that will do it for this time. Keep those pirate logs coming my way, ok! I can put copies of your pirate QSL's to good use in the column, too, as well as any fresh address information you may run across. And you station operators, why not check in once in a while and let me know what you are up to.

Back next month! Happy pirating! ■

RADIO FRUM RADIO

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TO: SAMPLE QSL# 000

Zytron Glurszargh, owner-engineer-gen mgr-disc jockey.

Zytron Glurszargh

STRANGE

Does anyone know if Radio Strange is still active? We've had this sample QSL in our "get to" file for sometime now.

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

More ingredients are being added to the shortwave relay stew. Now we can watch for the BBC to be beamed via former Russian jamming transmitters! Sites at Chita (Russia) and Tashkent, Uzbekistan, will be used to reach audiences in Asia. Apparently this action comes, in part, because the Chinese are jamming the BBC's relays out of Singapore and Hong Kong. The Chita site will carry programs in English and Mandarin while Tashkent will broadcast programs in Bangeli, English, Urdu and Hindu. By April the two will be airing about 15 hours per day. No frequencies yet available.

The BBC is also on the air via Meyerton, the main shortwave transmitter site in South Africa. The schedule is 1745-1900 on 15420 and 0700-0730 on 17790, with 250 and 500 kW respectively.

The government of Kazakhstan has offered its radio facilities for use as a relay by Kol Israel! No word yet on whether the Israelis will take them up on the offer.

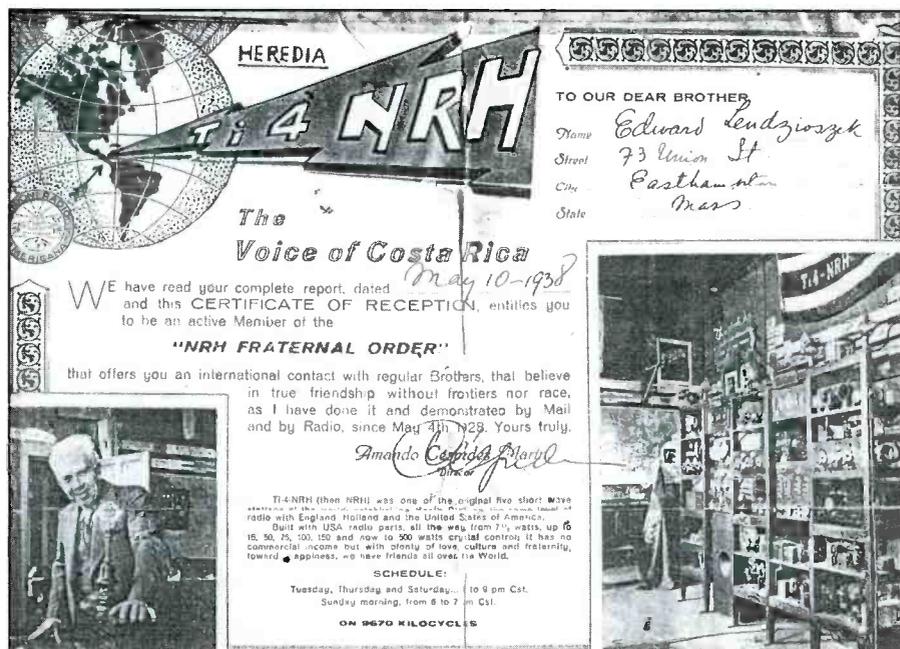
Radio Exterior de Espana's Costa Rica relay is on the air at last. The facility is currently in use during the daytime period with REE's "servicio mundial" programming on 15110 and 17845. 5970 is in use in the evenings from 2200 to 0500.

Belgium's BRT (BRTN) has changed its name to Radio Vlaanderen International - which makes the third name change for a major shortwave station in just a matter of weeks (Radio Beijing has become China Radio International and Radio RSA switched to Channel Africa.) Don't they know some of us can handle change only in small, carefully spaced doses?

Kenya has always been a fairly hard to hear country for many DX'ers. But that may change a few years down the road. HCJB and FEBA Radio, along with a Kenyan religious organization are looking at the possibility of putting a Christian station on the air from Nairobi, the Kenyan capital. This is still in the talking stage, though, so you may as well keep trying to hear the Kenya Broadcasting Corporation if it's not in your log yet.

More trouble for English programming. Now it's Radio Luxembourg which is losing its English service. The English broadcasts on 15350 were to have been discontinued at the end of 1992, due to a lack of advertising revenue.

The Sri Lanka Broadcasting Corporation, which is making use of the newish Radio Japan relay facility there is disappointed in the amount of response to its North American Service and is asking for reports. We suggest that the limited and badly timed schedule may have something



A classic QSL. TI4NRH from Costa Rica in 1938. It's in the collection of Edward Lendzioszek of Massachusetts.

to do with the problem. SLBC's North American service airs for only a half an hour a week - Mondays at 2330-0000 on 15425. Why not, say, daily at 1200 or 1300 on the same frequency? Anyway, give 'em a try and drop the station a line or two if you can pick them up.

Marie Lamb in New York says Radio Moscow's "Moscow Mailbag" program is back on the air—it was discontinued for a time because so little mail was getting through. Marie is hearing it at 0115.

Here's a review of "what's on" (and not on!) from the Dominican Republic, courtesy of Dino Bloisse in New Jersey:

4800 - La N-103, Santiago hasn't been heard for a few months.

4930 Radio Barahona, Barahona; very irregular operations. Plays local music. Transmitter runs 5 kW and suffers from modulation and hum problems.

4962 Radio Cima (Ciento), Santo Domingo is heard with a program called "Baladas y Boleros." Actually, the frequency of this one has recently slipped down to 4960 and it is suspected that this is where they were supposed to have been all along.

6025 - Radio Amanecer, Santo Domingo at 0030 with a program called "America 92" beamed to New York and Miami.

9877 - Radio Santiago, Santiago, heard at 2300 in Spanish and English with

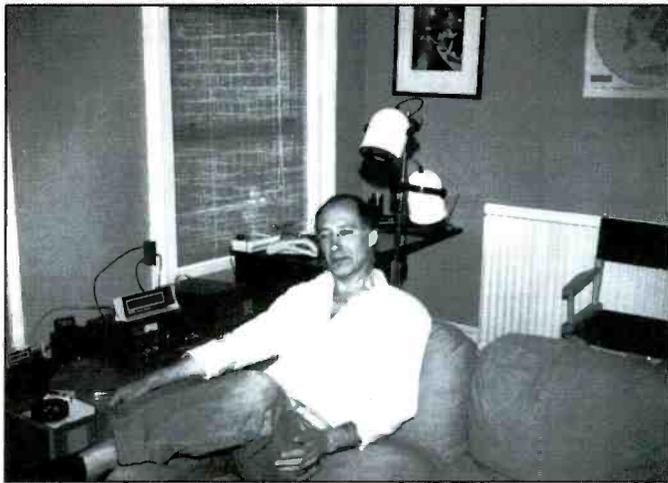
announcer Carlos Benoit identifying the station as "This is Radio Santiago International Wave, 9875 in the 31 meter band."

9950 - Radio Clarin, Santo Domingo, gone for good—the transmitter was sold to Radio Miami International.

Dino notes that the Dominican Republic is experiencing a severe power shortage with power delivery limited to certain hours, which may explain why some of the active stations sometimes seem to run erratic schedules. Thanks very much for the info, Dino. Keep us up to date on any news you run across.

The Ontario DX Association will have Ian McFarland as its keynote speaker during its convention on May 1. McFarland, of course, hosted Radio Canada International's popular "SWL Digest" for many years before going to work for Radio Japan a couple of years ago. The ODXA convention will be held at the Ramada 400/401 hotel in Toronto. Propagation expert Dave Rosenthal is also scheduled to speak. More information about the convention may be had by contacting Steven Canney, 2952 Bayview Ave., Willowdale, ON M2N 5K6, Canada. Include an IRC to cover return postage costs.

Edward L. Lendzioszek of Easthampton, MA sends along one of his treasured old QSL's, and it's a true classic: TI4NRH from Costa Rica, heard in 1938 on 9670. This was one of the first (perhaps the first



C. Vasili of London in his comfortable shack, complete with shortwave, scanner and RTTY decoder.



Here's a view of part of the DW/BBC Antigua relay site, courtesy of Alan B. Scholl, Antigua.

shortwave station in Latin America) and it sent a beautiful 8 x 10 QSL certificate.

Bob Merritt in Douglas, Georgia wonders about a station he's noted on 6210, airing mostly non-stop music. It's probably Croatian Radio (Hrvatska Radio), Zagreb, Bob. It's fairly widely heard across North America and, surprisingly, considering the situation, is QSL'ing quite faithfully.

C. Vasili in London would like to correspond with other *Pop'Comm* readers. From his shack photo, featured this month, it looks like he is into all kinds of monitor-

ing. His address is 244 Brecknock Road, Upper Holloway, London N19, 5BQ, England.

Also looking for correspondence is Alan B. Scholl, PO Box 65, St. John's, Antigua. Alan is a computer systems operator for Cable and Wireless in Antigua and kindly supplied us with a photo of the Caribbean Relay Company facility there which operates the joint BBC/DW Antigua relay.

Robert C. C. Hall of Cape Town, South Africa is deeply into both broadcast and RTTY monitoring and sends photos of his

two listening posts. Many thanks, Robert. From your letter it seems we know many of the people you work with in supplying information. We'd be grateful for any broadcast logs you can send in the future.

SPECIAL REQUEST - We are interested in obtaining envelopes (undamaged other than having been open) which you have received from past and current communist countries for possible use in a project we are working on. Thanks.

KEEP THE MAIL COMING! Your logs are most welcome each month, but they

New For 1993

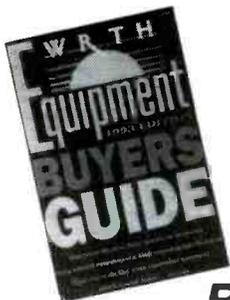
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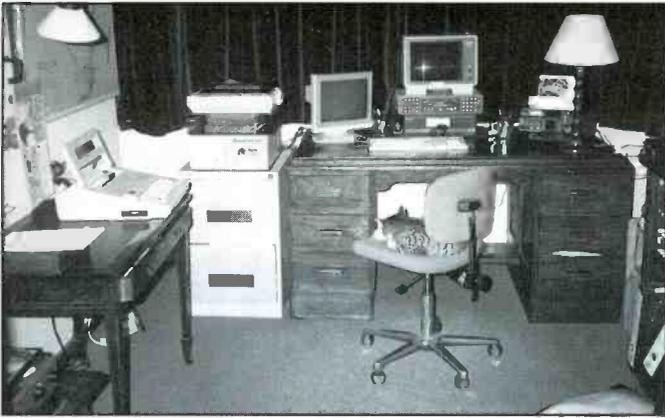
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Robert Hall of Cape Town does his serious monitoring, mostly RTTY, from this well-equipped, computerized shack. That's "Sparks" on the chair (and obviously not engaged in any serious monitoring!)



And this is Hall's "rest station" which features an ICOMR71E and Sony 2001D portable.

must be double spaced (at least) and each item must be tagged with your last name and state abbreviation otherwise they can't be used. We also need shack photos, station schedules and brochures, clippings, your letters, comments, questions and what-have-you. We look forward to hearing from you as often as possible!

Here are this month's loggings. Broadcast language is English (EE) unless otherwise indicated (GG = German, FF = French, etc.) All times are UTC, which is 5 hours behind EST.

SWBC Loggings

Albania: Radio Tirana, 9580 at 0330. (Dokulil, CA) 9760 at 0519. (Vaage, CA) 11825 at 0230. (Johns, TX)

Antigua: BBC relay, 5975 at 0403 and 9640 at 0542. (Dokulil, CA)

Argentina: Radio Nacional, 9690 at 0234 in SS with promos. mentions of springtime. phone calls. news. (Lamb, NY)

Armenia: Radio Yerevan, 11657 at 0256 with ID at 0258. "Sabre Dance" and into Moscow World Service at 0300. (Maywoods DX Team, KY) 13645 at 0246 via Khabarovsk, news of the Balkans. (Foss, AK) 15175 at 2245. (Johns, TX)

Ascension Island: BBC relay. 15260 at 0002, 15400 at 1710 and 17880 at 1801. (Dokulil, CA)

Australia: Radio Australia, 6080 at 1056 in Tok Pisin (Pidgin English), new 9510 at 1100, 13605 at 0927 with country. ID, address, phone number. 13705 in Thai at 2339 with ID, EE lesson and 17750//17795 at 0221. (Lamb, NY) 5995 at 1304. 9540 at 1503. 9580 at 1403. 11880 at 1530 and 13605 at 1740. (Dokulil, CA) 17795//21740 at 0404. (Vaage, CA)

ABC, Perth, 6140 at 1237 with talk and music. (London, MN) 7240//9610 at 0800. into an Asian language at 0900. (Rausch, NJ)

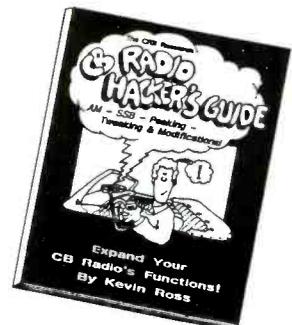
Austria: Radio Austria International, 6015 via Canada at 0529. (Vaage, CA) 9870 at 0331. (Dokulil, CA)

Botswana: Radio Botswana, tentative, 7255 at 0333 in EE and presumed Se Tswana with "36 Years of Progress" promo, soul, African music, mentions of

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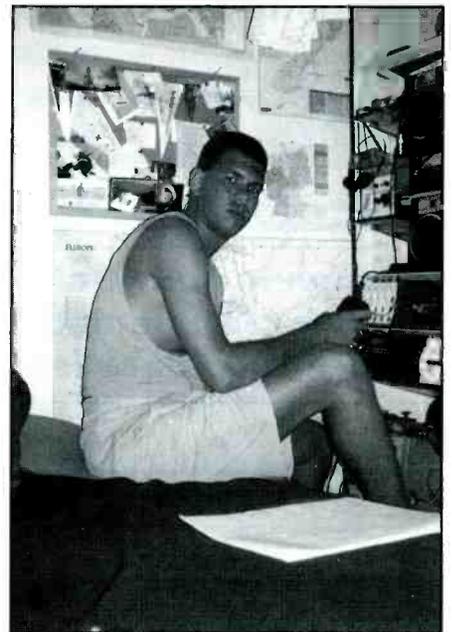


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Gaborone. (Lamb, NY)
 VOA relay. 15495 at 2022 with "Nightline Africa." (Lamb, NY)
Brazil: Radio Nacional do Brazil. 15445 at 1240 in EE with talk and music. (London, MN)
 Radio Nacional da Amazonia on 6180 at 2206 in PP with jingles. ID, pops, singing DJ. (Lamb, NY)
 Radio Beijing relay, 15430//17755 at 0143 in SS with Chinese lessons. ID, frequencies. IS at 0156 and off. (Lamb, NY)
Bulgaria: Radio Sofia, 11720//15330 at 0001 with frequencies, schedule, ID, news. (Lamb, NY) 11720 at 0000. (Dokulil, CA) 15330 at 1730. (Johns, TX)
Cameroun: RTV Garoua, 5010 at 2150 in FF with African music, news, IDs, anthem. (Lamb, NY)
China: CPBS at Urumqi, 9064 at 0956 in CC with music. (Foss, AK)
 CPBS at Beijing on 15500 at 0904 in CC. (Foss, AK)
 Radio Beijing, 9570 at 1732. 9690 via Spain at 0300 sign on, 9770 via Mali at 0005 and 11715 via Mali at 0009. (Dokulil, CA)
Colombia: La Voz del Cinaruco, 4865 in SS at 0900 with regional music, ID at 0930. (Rausch, NJ)
Congo: RTV Congolaise, 4765 at 0354 with drums, anthem, "Ici Brazzaville" by man announcer, joined by woman announcer with frequencies. (Maywoods DX Team, KY) 0400 in FF. (Johns, TX)
Costa Rica: Radio For Peace International, 7375 at 0400, heavy QRM. (London, MN) 13630USB at 2335 (Dokulil, CA) 0331. (Dybka, TN)
 Radio Reloj, 4831 at 0531 in SS with ID at 0535. (Maywoods, TX Team, KY)
Croatia: Croatian Radio Zagreb, 6210 at 0051 in Croatian with Elvis (so that's where he is! editor), ID, news, US and Italian pops. (Lamb, NY)
Cuba: Radio Havana Cuba, 9550 at 0540 and 11950 at 0042. (Dokulil, CA) 11950 at 0400. (Vaage, CA)
Czechoslovakia: Radio Czechoslovakia International, 7345 at 2023 mentioning their "Check Out Czech" language course. (Lamb, NY) 9580 at 0108 with news. (Dokulil, CA)
Denmark: Radio Denmark, 9565 at 0243 with EE ID and 9560 at 0330 with news in Danish. (Vaage, CA)
Dominican Republic: Radio Cima Ciento, 4962 at 0405 in SS with Latin pops, frequent shouts of "Viva Caliento." (Lamb, NY) 0300 in SS. (Johns, TX)
 Radio Amanacer International, 6025 at 0030 in SS. (Johns, TX)
Ecuador: HCJB on 9745 at 0230. (Provencher, ME) 11925 at 0510. (Vaage, CA)
 Radio Quito, 4920 at 0130 in SS. (Johns, TX)
 Radio Federacion, 4961 at 0159 in SS with local pops, jingles, IDs. (Lamb, NY)
Egypt: Radio Cairo, 9900 at 0035 in AA. (Dokulil, CA) 0130 in AA with announcer and AA music. (Dybka, TN)
England: BBC 9590 at 2236 (probably via Canada, editor), 11750 at 1558, 15400 (Ascension, editor) at 2009 and 17830 (via Hong Kong? editor) at 0019. (Vaage, CA)
Finland: Radio Finland International, 11755 at 0130 with sign on, ID, news. (Dokulil, CA)
French Guiana: RFO, 5056 at 0543 in FF with jazz, maybe early Stan Getz. (Maywoods DX Team, KY)
Gabon: Africa Number One, 9580 at 0620 with man, woman announcers, vocals, promo announcements. (Maywoods DX Team, KY)
 Radio France International via Gabon, 12015 at 1616 with news in EE. (Dokulil, CA)
Germany: Deutsche Welle, 9670 (via Antigua, editor) and parallel 11705 at 0508. (Vaage, CA) 9700 (Antigua, editor) at 0346. (Foss, AK) Here at 0302 and 11865 at 0100. (Dokulil, CA)
Ghana: Ghana Bc Corp. Network One, 4915 at 2212 in local language with EE IDs and local music. (Lamb, NY) 0550 ID 0559 "This is the Ghana Broadcasting Corporation." (Maywoods DX Team, KY)
Greece: Voice of Greece, 9395 with news at 0130 and 9420 with news at 0340. (Dokulil, CA) 15630//15650 at 1458 with IS, Greek and EE IDs, into SS at 1502 after anthem. (Lamb, NY)
 VOA Kavalla relay, 7205 at 0243 with VOA "Monday Morning." Off at 0300. (Lamb, NY)
Guatemala: Radio cultural, TGNA, 3300 at 0359

with EE ID and address, into religious program. (London, MN)
Honduras: La Voz Evangelica, 4820 at 0330 with religious programming in EE. Scheduled Monday only, at 0300-0400. (Rausch, NJ) (All EE or just that program, ED? editor)
Hong Kong: BBC relay, 11820 at 1145. (Rausch, NJ)
Hungary: Radio Budapest, 9835 at 2100 in EE. (London, MN) 11910 at 0200. (Johns, TX)
Iceland: Icelandic National Broadcasting Service, 13855 at 2302 in Icelandic with Erroll Garner music, ID, news, bells. (Lamb, NY)
India: All India Radio, 9700 at 1402 in unidentified language, 10330 at 1532 in EE and 11620 (Bangalore) in unidentified language at 1420. (Dokulil, CA) 11620 at 1938 with "Songs of Kashmir." (Foss, AK) 2137 with id at 2139 and "Quiz on India's Contribution to the World." (Maywoods DX Team, KY)
Israel: Kol Israel, 11588 at 0315 with news. (Dokulil, CA) 9435//11585// 11605//15640 at 2230 with "Israel News Magazine." (Lamb, NY)
Italy: RAI at 0100 on 11880. (Dokulil, CA)
Japan: Radio Japan, 11815 at 1702 and 11865 at 1702. (Dokulil, CA) 17825 at 0308 with news, ID, "Friday Magazine Hour." (Lamb, NY)
Kenya: Kenya Broadcasting Corporation on 4935 at 0300 in EE. (Johns, TX)
Kuwait: Radio Kuwait, 13620 in EE at 2001 with talk on history of Kuwait "where the streets are wider than in Bahrain." (Maywoods DX Team, KY)
Luxembourg: Radio Luxembourg, 6090 in GG with song from "Grease", woman announcer with ID, rock. (Lamb, NY)
Madagascar: Radio Netherlands relay, 15150 at 1428 in EE. (Johns, TX)
Mali: RTV Malienne, 4835 at 2330 with man in FF, talk and ID. (Rausch, NJ) 2320 with Michael Jackson, FF disco, IDs, mentions of Bamako. Also 5995 at 2218 in FF with African music, guitar IS, ID, news. (Lamb, NY)
Mexico: Radio Mil, 6010 at 0430 in SS. (Johns, TX)
Monaco: Trans World Radio, 9480 at 0635 with sign on in EE, religious program. (Dokulil, CA)
Mongolia: Radio Ulan Bator, 12010 at 1210 in unidentified language, very weak. (Northrup, MO)
Morocco: VOA Tangier relay, 17895 at 2126 with financial news, "This Day In History" and "VOA World Report." (Lamb, NY)
Netherlands: Radio Netherlands, 6020 at 0120. (Dybka, TN) 9890 (via Madagascar, editor) at 1515. (Dokulil, CA)
Netherlands Antilles: Radio Netherlands via Bonaire, 6165//9590 at 0328 sign on. (Vaage, CA) 9590 at 0402. (Dokulil, CA)
 Trans World Radio, Bonaire, 9535 at 0310 and 11930 at 0315 with religious programs. (Dokulil, CA)
New Zealand: Radio New Zealand International, 17770 at 0335. (Dokulil, CA) 0532. (Vaage, CA)
Northern Marianas: KHBI, Christian Science Monitor, 9455 at 0530, 9530 at 1400, 11580 at 1602 and 13635 at 1619. (Dokulil, CA) 13840 at 2034 with IDs, news. (Lamb, NY)
North Korea: Radio Pyongyang, 9325 at 1317, 9977 at 1518 and 0003 on 15115. (Dokulil, CA) 15115 at 2306 with news in SS, IDs, political talk. (Lamb, NY)
Norway: Radio Norway, 7215 at 0459 with EE ID, news in Norwegian. (Maywoods, DX Team, KY) 9560 (move from 9565) at 0300. First use by Norway of this frequency in last 30 years! (Vaage, CA) 15330 at 1558. (Dybka, TN)
Oman: BBC relay, 9590 at 2305 with world news. (Dokulil, CA)
Pakistan: Radio Pakistan, 15550 at 1734 with music, unidentified language. (Dokulil, CA)
Palau: High Adventure/KHBN on 9830 at 1308 with religious program hosted by Pat Boone. (London, MN)
Paraguay: Radio Nacional, 9735 at 0240 in SS and Guarani with IDs, news, anthem, local folk music.
Peru: Radio Ancash, 4991 at 0400 in SS. (Johns, TX) Radio Cora, 4915 in SS at 0400. (Johns, TX)
 Radio Union on 6115 in SS at 0500. (Johns, TX)
 Radio Eco, 5097 at 0200 in SS with ID. (Johns, TX) 1007 with IDs, local music, dedications. (Lamb, NY)



And here's Alan in his shack in St. John's, Antigua.

Philippines: VOA relay, 6110 at 1310, 9760 at 1415 and 11920 at 1610. (Dokulil, CA) 17820 at 2131 with "VOA Spectrum." (Lamb, CA)
Portugal: Radio Portugal International, 9705 at 0232 with ID, news. (Dokulil, CA) 21655 at 1919 in PP with IDs, talk about theater, rock. (Lamb, NY)
Romania: Radio Romania International, 5990 at 0230. (Johns, TX) 9510 at 0216 and 9570 at 0410. (Dokulil, CA)
Russia: Radio Moscow, 9640 and 9655 at 1530, 9755 at 1600, 11655 at 1512, 11940 at 1608, 12050 at 2320, 15375 at 1721 and 15425 at 0402. (Dokulil, CA) 11980 at 0459. (Vaage, CA) 15225 at 1550. (Dybka, TN)
 Adventist World Radio-Russia, 11855 at 1340 with Voice of Prophecy program, into RR at 1400. (London, MN)
 Radio Aum Shinrinryo, 15485 at 2030 with religious program. Produced in Japan, transmitted over Radio Moscow facilities. (London, MN; Provencher, ME)
Rwanda: Deutsche Welle relay, 7225//9565 at

Abbreviations Used in Listening Post

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

0419 with IDs, "European Journal." Also African news and site ID. (Lamb, NY)

Senegal: ORTS Dakar, 7170, 0050 with choral chants. (Maywoods DX Team, KY)

Singapore: SBC Radio One, 11940 at 1545 with music. (Dokulil, CA)

BBC Relay, 6195 at 2151 with "Newshour" and ID, 17790 at 0118. (Lamb, NY) 9740 at 1400. (Dokulil, CA)

South Africa: Channel Africa (ex Radio RSA)

3995 at 0407 with news, sports, ID, frequencies. 9730 at 0159 with new IS, ID, news. 15220 at 0621 with health program, disco, ID, news, dramatic feature called "On Trial." (Lamb, NY) 9565 at 1600 sign on, into news. (Dokulil, CA) 15220 at 0606. (Dybka, TN)

Radio Orion, 3320 at 0127 with commercial, ID, talks in EE and Afrikaans. (Lamb, NY)

South Korea: Radio Korea, 9570 at 1405 and 9870 at 1606. (Dokulil, CA) 15575 at 0030. (Johns, TX)

Spain: Spanish Foreign Radio, 9530 at 0000 with ID, news. (Dokulil, CA) 0540 with woman announcer and music program. (Vaage, CA)

Sri Lanka: VOA relay, 9645 with news at 1510. (Dokulil, CA)

Sweden: Radio Sweden, 11705 at 0200. (Johns, TX) 17870 (strongest) // 21500 at 1513 with program on the Swedish airline industry. (Dybka, TN)

Switzerland: Swiss Radio International, 9650 at 0006 with news of Switzerland. (Dokulil, CA)

Syria: Radio Damascus, 12085 at 2130 with news and "International Unionist Committee." (Maywoods DX Team, KY) 2330 in AA with ID, news. (Dokulil, CA)

Tahiti: Radio Tahiti, 11827 at 0606 in FF, with Polynesian music. (Maywoods DX Team, KY)

Taiwan: Voice of Asia, 7445 at 1115 in EE with US pops, talks, ID, news. (Lamb, NY) 9280 at 1006 in Mandarin with man and woman talking. (Foss, AK)

Voice of Free China via WYFR, 5950 in CC at 0600 (Vaage, CA) 7130 direct at 0941 in CC. (Foss, AK)

Family Radio/WYFR via Taiwan on 11550 at 1420 with religious program in EE. (Kokulil, CA)

Broadcasting Corp. of China, relay of local FM-1 service, direct from Taiwan, 11885 at 0005 in CC with local pops, ID, talks. (Lamb, NY)

Togo: RTT Togolaise, 5047 at 0614 in FF with music. (Maywoods DX Team, KY)

Turkey: Voice of Turkey, 9445 at 2200. (Johns, TX) 0312. (Dokulil, CA)

Tunisia: RTT Tunisienne, 12050 at 1547 with music and talk in AA. (Dokulil, CA) (Typo? Did you mean 12005? editor)

Ukraine: Radio Ukraine International, 9665//9685//11790//12060 at 0013 with "Music From Ukraine," IDs, frequencies. Into Ukrainian at 0100. 11980 at 0302 with news. (Maywoods, DX Team, KY) 17605//17690 at 0039 in RR. (Vaage, CA)

United Arab Emirates: UAE Radio, Dubai, 13675 in EE at 0330 and 15400 in AA at 1729. (Dokulil, CA)

Voice of UAE, Abu Dhabi, 15305 at 2305 with news, weather, ID. "They Made Civilization." (Lamb, NY)

United States: KJES, 11710 at 1300. (Provencher, ME)

Radio Marti in SS to Cuba, 11930 at 1545. (Dybka, TN)

WJCR, new 7465 at 1430, Bible readings, ID, address. (Lamb, NY)

Vanuatu: Radio Vanuatu, 7259.8 at 0704, woman in FF. (Foss, AK)

Venezuela: Radio Continente, 5030 in SS at 0100. (Johns, TX) (Reactivated, editor)

Radio Rumbos, 4970 with ID in EE at 0455. (Johns, TX)

Radio Tachira, 4830 at 0030 with pops and love songs in SS, man announcer with 0100 ID. (Rausch, NJ)

Vietnam: Voice of Vietnam, 15010 at 1239. Weak. (London, MN) 2330 with ID, schedule, news, commentary. "Welcome to Vietnam." (Lamb, NY)

Yemen: Republic of Yemen Radio, 7190 in AA with local music, IDs, anthem, news. (Lamb, NY)

Yugoslavia: Radio Yugoslavia, 11870 at 0038 with news. (Dokulil, CA)

Zambia: Radio Zambia, 6165 at 0330 in EE after Radio Netherlands signs off. (Johns, TX)

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CIRCLE 70 ON READER SERVICE CARD

That's the ballgame for this time. Glasses raised, please, in tribute to the following who checked in with reports:

Marie Lamb, Brewerton, NY; Jill Dybka, Nashville, TN; John Dokulil, Grass Valley, CA; Mark Northrup, Gladstone, MD; Chris London, Princeton, MN; Bjorn F. Vaage, Granada Hills, CA; Marty Foss, Pitkas Point, AK; the Maywoods DX Team, KY (Loy W. Lee, John Hafendorfer, Dr. Joel Roitman and Charles Everman); Ed Rausch, Cedar Grove, NJ; Andy Johns, Mansfield, TX and Edouard S. Provencher, Biddeford, ME.

HOW I GOT STARTED

Popular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of *Popular Communications*, and none can be acknowledged or returned.

Entries will be selected for use taking into consideration if the story they relate is especially interesting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve style.

The person whose entry is submitted will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*.

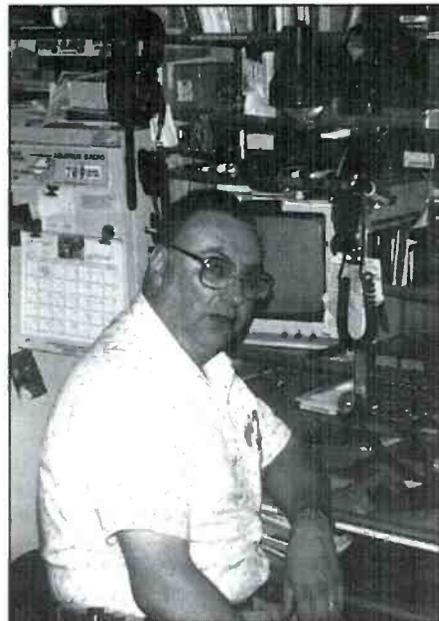
Address all entries to: How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801.

Our March Winner

This month our winner is David A. Baker, Sr., Amateur N1GOI, also Registered Monitor KME1BE, who hails from Lincoln, Maine. David wrote: "I built my first radio when I was 14. My first commercially built shortwave radio was a National NC-60, and that was 30 years ago. I was so proud of the set that I kept insisting that friends come over to listen to what it could receive.

"As CB became popular, I got into that. My callsign was KQA7777. I still like to monitor Channel 13, which is popular here as the campers' and motor home channel. Four years ago, I tuned my new scanner across the 2-meter ham band and that one time was all I needed to convince me that this is something I wanted to be a part of. That bug bit hard, too!

"Now I have an Advanced Class ham ticket. I'm a Novice=Tech instructor, a volunteer examiner, and a net manager. I am also the public information officer, and the President of the Bagley Amateur Radio Club (as well as one of its founders). I still like to SWL, and listen on my scanner too."



David A. Baker, Sr., N1GOI, as well as Registered Monitor KME1BE, enjoys many facets of the communications hobby world.

Answers! Answers! Answers! CQ's New 1993 Guide to Amateur Radio

New hams—Novices, Techs, Generals or whatever ticket you start with—have questions. What do I look for in an HT? How should I operate on the local repeaters? What's it like to get on HF? How do I set up a station? How do I use an SWR bridge? These questions and a hundred more. As important as these problems are, there's one other question that's more important: Where can I go to find the answers?



CQ's 1993 Guide To Amateur Radio

will answer these questions and hundreds of others. This new guide is chock-full of articles written strictly for the newcomer by some of the best writers in Ham Radio. Bill Orr, W6SAI, shows you how to efficiently set up your first station. Lew McCoy, W1ICP, takes you on a tour of repeater operating practices and etiquette. McCoy also tells you what an SWR bridge is and how to use it, as well as recommending the best type of SWR indicator for newcomers. Ed Juge, W5TOO, gives you a concise guide to the common and not-so-common functions and capabilities found in today's handhelds. Famous ham educator Gordon West, WB6NOA, guides you through the licensing and upgrading maze. John Dorr, K1AR, shows you how to set up your first packet station and make that first connect. There's even an article that gives you the secrets of successfully installing PL-259s—no small task even for old timers. You'll find many, many more articles that you'll want to refer to often. Also, you'll find detailed information on many of the most popular rigs plus an explanation of what everything means—a mini buyer's guide of sorts. Plus, you'll find an up-to-date listing of all the Ham Radio manufacturers and dealers. You'll want to keep this book handy for day-in-day-out operation. It will pay for itself with every article you read.

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WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Amateur Radio Operator Sentenced For Jamming Police Channel

U.S. Magistrate Louisa Porter of San Diego, California, sentenced Roy L. Eyman, II, an amateur Technician class licensee, to three years of supervised probation and 250 hours of community service for violating federal statutes in jamming a tactical operations radio channel of the San Diego Police Department (SDPD). In addition, as part of his sentencing, Mr. Eyman must deprogram and demodify all his amateur radio equipment to remove all public safety frequencies. Any public safety frequencies found programmed in his amateur equipment would constitute a violation of his probation and would subject him to resentencing.

The jamming incident occurred on September 16, 1991, and consisted of the broadcasting of Beatles music on an SDPD tactical operations channel. At the time of the jamming incident an SDPD sergeant, who is also an amateur radio operator, was carrying a handheld amateur radio transceiver with a signal strength meter which he used to localized the source of the music. In a heavy fog the officer walked up close to the strong signal and heard the music over his amateur radio handheld unit as well as hearing it aurally originating from Mr. Eyman's vehicle. The sergeant then seized Mr. Eyman's radio equipment.

The case was prosecuted by Assistant U.S. Attorney Tom McNamara. The Commission's San Diego office assisted in the investigation which led to the conviction.

The maximum penalty for unlicensed radio operation in a first conviction is a fine of up to \$100,000 or imprisonment of up to one year, or both.

Notices of Apparent Liability Issued

Notices of Apparent Liability were issued to the following stations for willful violation of Section 301, of the Communications Act, 47 U.S.C. Section 301, relating to the operation of a station without proper station authorization.

Land Mobile Stations. Scott Home Center, Raymondville, Texas - \$8,000, Federal Petroleum, Lyford, Texas - \$8,000; Raymondville Co-op, Raymondville, Texas - \$8,000; Bridge Oil (U.S.A.) Inc., Odem, Texas - \$8,000.

Private Coast Stations. Nor Quest Seafood, Inc., Ketchikan, Alaska - \$5,000; Mike Tolva, Homer, Alaska - \$2,000.

Maritime Mobile Stations. Lafayette Fisheries Inc., Seattle, Washington - \$8,000; Raymond L. Bellamy, Homer,

Alaska - \$2,000; Daniel Kavanaugh, Kodiak, Alaska - \$2,000; Echo Belle Inc., Kodiak, Alaska - \$8,000; James H. Prince, Port Townsend, Washington - \$2,000; Charles E. Yates, Seattle, Washington - \$2,000; North Coast Seafood Processors Inc., Seattle, Washington - \$8,000; Nushagak Spirit, Rio Vista, California - \$8,000; Ronald J. Kavanaugh, Kodiak, Alaska - \$2,000; Burch Bros Inc., Kodiak, Alaska - \$5,000; and Raymond L. Bellamy, Homer, Alaska - \$2,000.

Notices of Apparent Liability issued for violation of the Commission rules relating to the requirement that all radiotelephone logs of ships stations which are compulsorily equipped for radiotelephony must contain all applicable log entries and the time of occurrence (Section 80.409(e) of the Communications rules, 47 C.F.R. Section 80.409(e)).

Royal Prince Fisheries, Seattle, Washington - \$1,000; Southern Wind Inc., Seattle, Washington - \$1,000; Harvester Enterprises Inc., Seattle, Washington - \$1,000; and Bering Trawlers Inc., Seattle, Washington - \$1,000.

Notices of Apparent Liability issued for willful and repeated violations of the Commission's rules relating to the lighting of radio antenna towers (47 C.F.R. Section 17.42) and notification to the FAA if tower lights malfunction (47 C.F.R. Section 17.48(a)).

Metropolitan Houston Paging Services, Inc., Seattle, Washington - \$8,000; Yoder Enterprises, Inc., McAllen, Texas - \$8,000; DBA Advanced Paging, McAllen, Texas - \$8,000; RGV Educational Broadcasting, Inc., Harlington, Texas - \$8,000; and Tate Communications, Inc., Harlingen, Texas - \$8,000.

Standards Rules For Cable Television

The Commission clarified a Report and Order adopted February 13, 1992, which established new technical standards for cable television systems. The new standards defined the basic technical quality of service cable subscribers are entitled to receive and are applicable to all NTSC video downstream signals.

Specifically, the Commission clarified issues of concern which included the following: clarified the following standards and tests: 1) the location of the majority of tests must still be made after the converter unless otherwise noted; 2) continued to require cable operators to conduct system-wide testing which uses converters that reflect the type supplied to nearby sub-

scribers when tests are performed outside subscriber's homes; 3) modified visual level variations measurements so that they may be made before the input of the converter; 4) continued to require that aural center frequency measurements be made at the output of the modulating or processing equipment (generally the headend) and at each test location; 5) relaxed the aural carrier levels for baseband converters to a range between 6.5 and 17 dB below the associated visual carrier level; 7) continued to require that noise and distortion testing be performed at the output of the converter; 8) relaxed the measurement of hum to only require that one channel be measured at each test point, and that single unmodulated carrier be allowed to be used to demonstrate compliance; 9) clarified the location of tests for traps and color measurements; and 10) declined to adopt specific rules on co-channel interference noting that cable operators are still expected to make reasonable efforts to ensure signal quality and to use good engineering practices and proper equipment in the processing of each signal.

Modified with conditions, the amplitude characteristic standard so that testing may be conducted prior to a signal passing through a converter for a seven-year period from December 30, 1992, the effective date of the rule.

Reduced the number of the test points required for technically integrated cable systems utilizing microwave hubs. In defining a microwave hub, the Commission held that reception of 75 percent or more of the video channels from a common head-end establishes a clear demarcation point. To further ease the testing burden on cable operators, the Commission will also allow the required test points to be counted against the total number of test points required, so long as the selected test points included one for each portion of a system served by a hub, and they are balanced to represent all geographic areas served.

Finally, concerning the relationship between federal-local governments, the Order adopted in this proceeding requires each system operator to establish a process for resolving complaints from subscribers about the quality of the television signal delivered. It also provides that the records associated with this process must be available for inspection by the FCC and franchising authority upon request. However, the Cable Act states that system operators may not disclose personally identifiable information concerning any subscribers. Thus, the Commission agreed with petitioners that this creates an apparent conflict between the Order and the Cable Act and that an effort should be made to accom-

modate the conflicting privacy and technical standards compliance considerations.

The Commission said that this could be accomplished by requiring cable operators to provide both the FCC and local franchise authorities with aggregate data on complaints, rather than individual complaints containing personally identifiable information of the type restricted from system operator disclosure. The Commission and local governments will have available complaints that are received directly by them.

The Commission also noted that it believed that this rulemaking proceeding satisfied the Congressional mandate contained in the Cable Television Consumer Protection and Competition Act of 1992, that the Commission prescribe regulations which establish minimum technical standards for cable systems. It also noted that in passing the Act, Congress codified the right of franchising authorities to apply to the Commission for waivers to impose technical standards that are more stringent than that of the FCC's.

Authorization And Evaluation Division Office of Engineering and Technology

Julius P. Knapp has been appointed as Chief, Authorization and Evaluation Division, Office of Engineering and Technology.

The Authorization and Evaluation Division administers the Commission's equipment authorization program, which affects all equipment that uses radio frequencies. The program ensures that electronic equipment marketed in the United States complies with technical requirements established to achieve a variety of spectrum efficiency and public interest objectives. The Division has principal responsibility for the development of the technical standards for all radio equipment, and for Parts 15 and 18 of the FCC Rules. It processes applications for equipment authorization; and it develops measurement procedures and conducts tests of equipment to determine compliance with the standards. The Division also performs analyses and laboratory studies relating to the introduction of new communications technology and equipment. Many of these activities are carried out at the FCC's Laboratory in Columbia, Maryland, which is operated by the Division.

Mr. Knapp began working at the Commission in June 1974, and has been employed in the Office of Engineering and Technology since that time.

Venezuela-United States Memorandum of Understanding Signed

The Venezuelan Ministry of Transportation and Communications (VTMC)

and the FCC signed an agency to agency Memorandum of Understanding (MOU).

This MOU, adopted in accordance with the 1990 U.S.-Venezuela Science and Technology Agreement, will expand direct ties between the FCC and the new VTMC division responsible for spectrum management in the areas of radio monitoring, direction finding, exchange of technical data and interference resolution.

The signatories were Commissioner James H. Quello for the FCC and Minister Fernando Martinez Mottola for the Ministry of Transport and Communications.

The areas of cooperation envisioned by the MOU include:

Development of systems of study for technical verification of radio frequency emissions and interference analysis; homologation of technical characteristics of both monitoring and communications equipment; exchange on a real-time basis of radio spectrum monitoring data and direction finding bearings once monitoring systems are appropriately developed; identification and elimination of improper radio transmitters operating in the COSPAS-SARSAT distress and safety band; training visits to FCC Field Operations Bureau headquarters and monitoring facilities, as appropriate; training visits to the VMTC headquarters and monitoring facilities, as they are developed; development of an automated information system for the issuance of permits in the various radio services; development of an automated system for the issuance of permits in the various radio services; radio frequency spectrum planning; exchange of information on common carrier and radio tariff systems; and exchange of information on broadcasting and cable regulation.

Voluntary Reallocation of UHF TV Spectrum

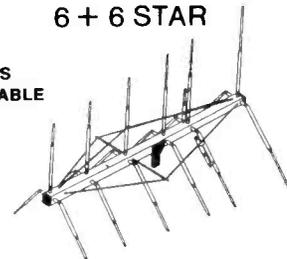
The FCC's Office of Plans and Policy released a working paper recommending that UHF TV licensees be allowed—under limited circumstances—to voluntarily use their assigned spectrum for cellular telephone and comparable services. The study, Changing Channels: Voluntary Reallocation of UHF Television Spectrum, by Evan R. Kwerel and John R. Williams, examines the effect of removing a single UHF television station in Los Angeles from service and using the resulting spectrum for a third cellular telephone service provider.

The study concludes that such a reallocation in Los Angeles could increase net social welfare by over \$1 billion. The authors note that the figures in the paper do not take into account potential changes in the mobile telephone industry that could result from the allocation of spectrum for personal communications services proposed by the Commission. The analysis and methodology used are nevertheless expected to be a valuable tool in the improving spectrum management policy.

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The Los Angeles study involved three basic steps. First, the authors calculated that removing one Los Angeles UHF television station, but protecting future HDTV use, could yield 12-18 megahertz of spectrum for cellular use throughout most of the metropolitan area. Second, they estimated the social cost (i.e., loss to viewers and advertisers) of removing a Los Angeles television station to be approximately \$139 million.

Third, the authors calculated the social benefit of a third cellular system operating on the released UHF spectrum. They estimated that cellular prices could be expected to fall approximately 25 percent as the result of a third cellular competitor. Assuming such a price reduction, the social value of a third Los Angeles cellular system was estimated to be \$1.196 billion. The study also found that the market value of a third Los Angeles cellular system would greatly exceed that of the displaced television station.

Based on these results, the authors recommend that one UHF-TV licensee in each market be allowed to voluntarily reallocate their assigned spectrum to noncellular telephone and comparable services, subject to a streamlined benefit/cost test. The authors also recommend broader use of voluntary reallocation in other contexts to speed the introduction of new technologies and to increase competition.

The Working Paper is No. 27 in the OPP Working Paper series. These papers are intended to spur discussion of public policy issues, and do not necessarily represent the views of the Federal Communications Commission, any Commissioner, or the Office of Plans and Policy.

Copies of the paper will be available for purchase from Downtown Copy Center, 1990 M Street, NW, Washington, DC 20036, 202/452/1422.

For further information, contact the authors at 202/653-5940 or Audrey Spivack at 202/632-5050.

Cost Structure of Personal Communications Services

The Office of Plans and Policy released a working paper examining the cost structure of proposed personal communications services (PCS). The paper, Putting It All Together: The Cost Structure of Personal Communications Services, by David P. Reed, assesses the potential spectrum requirements of these new services by estimating the costs of delivering PCS, both as a stand-alone system and through the use of existing infrastructure such as telephone, cable television, and cellular telephone networks.

The study makes three principal findings. First, significant economies of scope exist between PCS and telephone, cable television, and cellular services. Second, 20 MHz appears to be a sufficient spectrum

allocation size to implement low-cost PCS systems (although the study recommends that consolidation up to 40 MHz be allowed). Third, the cost function of PCS does not justify limiting the number of licenses in the PCS market if license sizes are 20 MHz or more.

Using an engineering cost model developed for this study, this paper shows that the economies of scope found to exist between PCS and telephone, cable television, and cellular services alter the characteristics of the cost function for PCS. The economies of scope that can be realized through the use of such infrastructure would not only lower the upfront investment initially necessary to provide PCS, but also would make it possible to realize full economies of scale with a smaller number of subscribers.

The study also recommends that cellular operators be permitted to acquire up to 10 MHz of spectrum from new PCS licensees, an amount that was found to be sufficient for cellular providers to realize economies of scope. Contingent upon the presence of adequate safeguards, the study similarly recommends that local telephone companies be allowed to acquire up to 10 MHz of spectrum in areas where they operate a cellular subsidiary, and be treated like any other PCS provider in the remaining services areas.

The results also support issuing the highest number of licenses possible if the spectrum block size is 20 MHz or more. Since 20 MHz may not be enough spectrum to implement low-cost radio systems in areas where high densities of incumbent microwave users exist, or to provide other applications not considered in this analysis, the paper recommends that PCS suppliers be permitted to consolidate licenses up to a 40 MHz limit.

The paper is No. 28 in the OPP Working Paper Series. These papers are intended to spur public discussion of public policy issues, and do not necessarily represent the views of the Federal Communications Commission, any Commissioner, or the Office of Plans and Policy.

Copies of the paper will be available for purchase from Downtown Copy Center, 1990 M Street, NW, Washington, DC 20036, 202/452-1422. In addition, a copy will be available for public inspection and copying at the Commission's Public Reference Center in Room 238, 1919 M Street, NW, Washington, D.C. 20554.

For further information, contact David Reed at 202/653-5940 or Audrey Spivack at 202/632-5050.

FCC Modifies Processing Procedures For Rural Service Area Cellular Radio Applications

The Commission modified its rules to permit limited transfers and assignments of

applications in Rural Service Areas (RSA). This action will apply to both wireline and non-wireline cellular applicants and will exempt cellular applicants from various limitations on transfers and assignments of interests in RSA cellular radio applications. Transfers that do not come with one of the exemptions continue to be prohibited prior to grant of a construction authorization.

In the Third Report and Order in CC Docket No. 85-388, the Commission found that allowing transfers, assignments, or other alienations of pending applications caused delay of service to the public because such transactions disrupted orderly application processing procedures. The Commission stated that ownership changes required the issuance of a public notice and a restart of the application processing cycle, absent a waiver of the cut-off rules. Thus, the Commission adopted a rule which prohibited the alienation of any interest in an RSA application prior to the grant of a construction authorization. The Commission also concluded that prohibiting the sale, transfer, assignment, or other alienation of any interest in a cellular RSA application, permit, or license, until the grant of the construction permit, would deter insincere applicants from speculating in unbuilt and new facilities.

While the rule was intended to expedite processing by eliminating applicants' right to file changes in control, processing was often delayed because many applicants filed waiver requests in order to accommodate business activities that related only incidentally to cellular applications.

Therefore, based on the comments filed in this proceeding and careful consideration of the issues raised, the Commission found that a uniform exemption rule applicable equally to wireline and non-wireline carriers would best serve the public interest. The Commission stated that transactions conducted in the ordinary course of business having no more than an incidental effect on cellular applications should not be impeded. Accordingly, transfers of interest in cellular applications which meet one of the specified exemptions will not be prohibited.

New FCC Form 314/315 Available For Use

As a result of Commission proceedings, the FCC Form 314 (Application for Consent to Assignment of Broadcast Station Construction Permit or License) and the FCC Form 315 (Application for Consent Permit or License) has been revised. All changes were recently approved by the Office of Management and Budget.

The revised forms have been printed and are available for use (August, 1992). Since many applicants may be far along in completing the old forms, the Commission will continue accepting applications made on the old forms until December 11, 1992.

Use of the recently revised FCC Form 314/315 will eliminate the need to file a separate FCC 155 as that form has been incorporated into the new edition of the FCC 314/315. Applicants are strongly encouraged to use the new form. Applicants must now be filed on the revised FCC Form 314 (August 1992 edition) and the FCC Form 315 (August 192 edition).

Application forms may be obtained by calling Telephone Number (202) 632-FORM and leaving your request on the answering machine provided for this purpose.

Forms Distribution Function Transferred

The FCC said that the forms distribution system which issues blank copies of Commission forms has been assigned to the Records Management Division, Associate Managing Director for Public Information and Reference Services (RMD, AMD-PIRS).

This reorganization should help the public by improving the management and distribution of Commission forms. The Records Management Division is responsible for forms management which now includes the distribution of blank FCC

forms to the public. The RMD will now oversee the contractor (Dynamic Concepts, Inc.) who will continue to provide blank copies of Commission forms to the public.

Problems with the distribution system or information pertaining to forms, comments or complaints, or matter related to receiving blank FCC forms should be addressed to this office. The Chief, RMD is Bill Cline. You may contact Judy Boley (forms manager/analyst) for questions related to forms management and Patricia T. Quartey (forms distribution manager) for problems or questions regarding distribution of blank FCC forms. The staff can be reached on (202) 632-7513.

The Records Management Division is always available for your assistance and we look forward to providing a system that makes forms available just in time to the public. Any feedback related to the forms distribution system will be greatly appreciated.

Note: Please do not attempt to contact the Printing and Graphics Branch, Operations Management and Services Division for Inquiries/problems, etc., because they are no longer responsible for forms distribution oversight. ■

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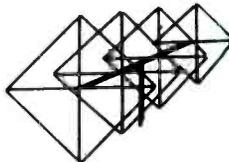
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Beaming In (from page 4)

of them, 20 percent were in Asia, 2 percent were in the Mideast and North Africa, 3 percent were in Africa below the Sahara, and 8 percent were in Latin America. Only 2 percent may not sound like it amounts to many people, but when you think about it being based on more than 2-billion radios, you realize that this is a very large potential audience.

The question is how much is it worth to the various governments to continue to pump money into shortwave facilities to get their messages across to the peoples of the world? What about now that the hostile rhetoric between the world's superpowers has cooled down?

The public wants health research, new schools, public housing, food for the hungry, salvaging the environment, and to reduce the national debt. The public weighs these matters against whether the government should continue to build new shortwave facilities, even though they have heard about new alternate mass media technologies looming on the horizon. The Cold War is over and, frankly, now the public feels this money would be better spent

on the poor, the elderly, veterans, the homeless, the unemployed, in AIDS research, on education, fighting crime, saving the environment, or for other pressing domestic purposes.

But remember that when there is a world crisis, people now know to run for their shortwave radios, even in North America, where shortwave had long been looked upon by the public as a technical curiosity. Soon as the Gulf War started, so did sales of shortwave radios. This, combined with the new codeless ham ticket, spurred a lot of public interest in shortwave listening. It was the first indication that the public is capable of being motivated to tune in on shortwave.

There is no doubt that technological changes are somewhere down the road. Certainly, these will someday compete with shortwave for the ability to reach audiences. This uncertain future has made more than a few DX'ers nervous. Do we wake up one day to find our favorite international bands silent, with the stations packed up and fled to exotic technologies?

Despite its drawbacks, shortwave broadcasting is presently a fully functioning broadcasting activity attracting a worldwide audience. It is relatively easy to go on the air, and the audience can listen with simple and inexpensive equipment that is readily available.

Other, more efficient and more innovative, high-tech international broadcasting methods are known, but they aren't yet fully operational. Nor have they been accepted by world audiences. Nobody knows when they might become successful, and which of the several competing systems will eventually dominate the scene. Even if one dominant new system had already emerged, and then went into full operation tomorrow, an audience would have to be cultivated from a starting point of zero. It would take many years to build up that audience to the point where established, old-fashioned AM shortwave is presently at.

Receiving equipment for the new system(s) would have to be designed, manufactured, and then sold to listeners around the world. In underdeveloped nations, those who saved up to buy a transistor portable radio for as long as someone here might save up for a big-screen color TV may not be quick to run out and replace it with an unfamiliar emerging technology.

Two years ago, the Center for Strategic & International Studies held a symposium in Washington, DC. The future of shortwave broadcasting was the topic, and there were opinions galore. One of the participants was our old friend, broadcast engineer George Jacobs, W3ASK. When George offers an opinion, we pay attention. George has been an insider at one stage or another in connection with the operation of many international stations. This includes WCSN, KDSA, WRNO, WHRI, KTBN, KVOH, KHBN, the VoA,

and others. He has represented the USA at almost every major broadcasting conference convened by the ITU since 1949.

At the end of George's words to the symposium, he concluded with the comments, "Considering its directness, immediacy, intimacy, free access, relatively low cost and huge worldwide potential audience, I do not see any technical replacement for shortwave broadcasting for at least the next several decades. I believe that it will continue to enjoy its unique and important role in the field of human communications for well into the 21st Century!"

The end of the Cold War in Eastern Europe doesn't mean that we have nothing of interest left to say, or that there is nobody out there who wants to listen. The majority of independent nations created from what had been the USSR are unstable and exist in different stages of political and economic malaise. Some are engaged in civil or border unrest to one extent or another. Frightening headlines are starting to emerge once again from Germany. Former Yugoslavia is a battle-torn nightmare. There are famines in the Mideast and North Africa. Areas of Asia, Africa, and the Mideast are time bombs that could explode at any time. Several of our neighbors in Central and South America are undergoing social, economic, or political crisis. It seems apparent that we need our country's international broadcasting potentials, focusing and refocusing them as required to keep them directed towards ongoing world tension areas.

For the USA to cut back on these facilities, or discontinue expansion of our official shortwave voices because the Cold War ended, or for budgetary considerations, or the hope that emerging alternative mass media technologies will someday catch on, is shortsighted. Traditional shortwave broadcasting by many nations and stations throughout the world is going to be around for a long time to come. It has to be.

Let's hope that the USA's own voice continues to be adequately heard on shortwave so long as there are listeners around the world who feel that what we have to say is relevant, useful, and the truth.

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Ray Briem, N6FFT, has a great all-night talk show over Los Angeles station KABC (790 kHz). Sometimes Ray devotes his program to the communications hobby and invites several guests to chat and take phone calls from listeners. Ray has one of these programs coming up. It starts at midnight PST on Friday, March 12 (3 a.m. Eastern Standard Time, Saturday, March 13th). This program lasts five hours, so there's plenty of time to yak. Stew MacKenzie will be on hand, so will Radio West's Steve Miller, and scanner expert Brian Webb. I'll be there, too. The toll-free number in California is 1-800-222-5222. The station will announce other numbers.

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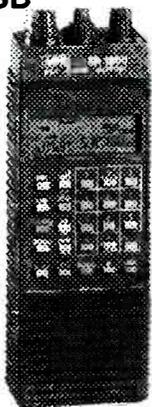
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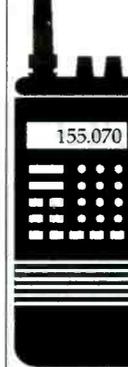
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- Coverage: 500KHz-1300MHz
- Sensitivity: .35uV NFM, 1.0uV WFM, 1.0AM
- Speed: 20 ch/sec. scan. 40 ch/sec. search
- IF: 561.225, 58.075, 455KHz or 10.7MHz
- Increments: 5 to 955KHz selectable/ 5 or 12.5 steps.
- Audio: .4 Watts
- Power: Input 9 - 13.8 V. DC
- Antenna: BNC
- Display: LCD
- Dimensions: 6 7/8H x 1 3/4D x 2 1/2W. 12oz wt.

AR950/AR900 \$289/\$219



100 Channels. Low, Air, High, UHF & 800MHz.

Standard Features:

- Extremely compact size.
- Unrestricted 800MHz coverage.
- 100 channels permanent memory.
- Earphone Jack.
- Delay, Hold features.
- Channel 1 Priority.
- 5 Scan Banks, 5 Search Banks.
- Two antennas included.
- AC & DC Power cord w/mobile mnt. hrdwr. (AR950)
- NiCad battery w/chgr adapter. (AR900)
- One Year Limited Warranty.

Options:

- Base type antenna 25 to 1000MHz w 50'coax. AS300 \$59.95
- Mag Mnt Mobile Antenna. 15' coax. MA100 \$25.00
- Cigarette Lighter power adaptor. CP100 \$5.00
- Wide band preamp GW-2 \$89.00
- Extended Warranty. 2/3 yrs \$40/\$55

Specifications:

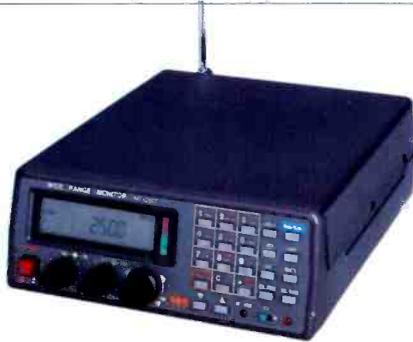
- Coverage: 27-54, 108-174, 406-512, 830-950MHz
- Sensitivity: .4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
- Scan Speed: 15 ch/sec.
- IF: 21.4MHz, 455KHz
- Increments: 10,12.5,25,30
- Audio: 1W
- Power: 12.8VDC, 200MA
- Antenna: BNC
- Display: LCD w/backlight
- Dimensions: 2 1/4H x 5 5/8W x 6 1/2D. 14oz wt. (AR950)
5 3/4H x 2W x 1 1/2D. 12oz wt. (AR900)

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AR2500

\$429



2016 Channels. 1 MHz to 1500 MHz

Standard Features:

- continuous coverage.
- AM, FM, wide band FM, & BFO for SSB, CW.
- 64 Scan Banks.
- 16 Search Banks.
- RS232 port built in.
- Includes AC/DC pwr crd. Antenna, Mntng Brckt.
- One Year Limited Warranty.

Options:

Earphone.	EP200	\$2.00
External Speaker. Mobile Mount.	MS190	\$19.50
Extended Warranty. 2/3 yrs.		\$65/\$75
Mobile Mounting Bracket.	MM1	\$14.90
RS232 Control Package	SCS2	\$295.00
(software & cable) offers spectrum display and database.		
Wide band preamp	G-W2	\$89.00

Specifications:

Coverage:	1MHz-1500MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	38 ch/sec. scan. 38 ch/sec. search
IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 300mA
Antenna:	BNC
Display:	LCD, backlitged
Dimensions:	2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb.

AR3000

\$1095



400 Channels. 100KHz to 2036MHz.

Standard Features:

- Extremely compact size.
- Continuous coverage.
- Attenuation Programmable by Channel.
- Manual tuning knob.
- Tuning increments down to 50Hz.
- AM, FM, wide band FM, LSB, USB, CW modes.
- Backlighted LCD display.
- 4 Scan and Search Banks, Lockout in Search.
- 4 Priority Channels.
- RS232 control through DB25 connector.
- Delay, Hold Features.
- 15 band pass filters, GaAsFET RF amp.
- Sleep and Alarm Features.
- AC adaptor / charger. DC power cord.
- Telescopic Antenna
- One Year Limited Warranty.

Options:

Earphone.	EP200	\$2.00
External Speaker. Mobile Mount.	MS190	\$19.50
Extended Warranty. 2/3 yrs.		\$65/\$75
Mobile Mounting Bracket.	MM1	\$14.90
RS232 Control Package	SCS3	\$295.00
(software & cable) offers spectrum display and database.		
Wide band preamp	G-W2	\$89.00

Specifications:

Coverage:	100KHz-2036MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	20 ch/sec. scan. 20ch/sec. search
IF:	736.23, (352.23) (198.63) 45.0275, 455KHz
Increments:	50Hz and greater
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 500mA
Antenna:	BNC
Display:	LCD
Dimensions:	3 1/7H x 5 2/5W x 7 7/8D Wt. 2lb 10oz.

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World Radio TV Handbook 1992

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- Phase-lock ECSS system for selectable-sideband AM reception.
- Maximum IF bandwidth flexibility! The Variable Bandwidth Control (BWC) adjusts the wide and intermediate IF filter bandwidths from 5.5 to 2.0 kHz and 2.0 to 0.5 kHz—continuously.
- Stock fixed-width IF filters include a 5.5 kHz (wide), a 2.0 kHz (intermediate), and a 1.0 kHz (narrow). Optional LC filters include 2.4 kHz, 300 Hz, and 500 Hz crystal type.
- All mode 100 kHz - 30 MHz coverage. Tuning accuracy to 1 Hz, using JRC's advanced Direct Digital Synthesis (DDS) PLL system and a high-precision magnetic rotary encoder. The tuning is so smooth you will swear it's analog! An optional high-stability crystal oscillator kit is also available for ±0.5 ppm stability.
- A superior front-end variable double tuning circuit is continuously controlled by the CPU to vary with the receive frequency automatically. The result: Outstanding 106 dB Dynamic Range and +20 dBm Third-Order Intercept Point.
- Memory capacity of 200 channels, each storing frequency, mode, filter, AGC and ATT settings. Scan and sweep functions built in. All memory channels are tunable, making "MEM to VFO" switching unnecessary.
- A state-of-the-art RS-232C computer interface is built into every NRD-535D receiver.
- Fully modular design, featuring plug-in circuit boards and high-quality surface-mount components. No other manufacturer can offer such professional-quality design and construction at so affordable a price.