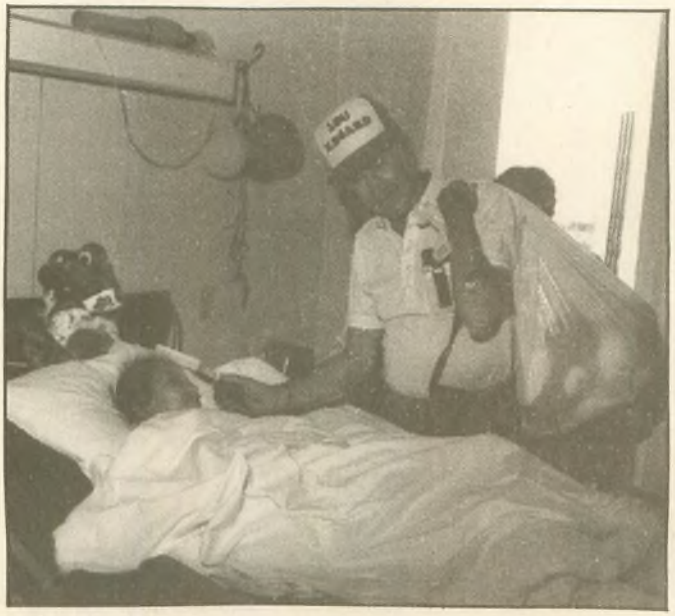
Worldradio

(USPS 947000)
PO Box 189490
Sacramento, CA 95818

POSTMASTER: Send changes of address to above (Please include mailing label.)

Second-class postage paid Sacramento, California and additional mailing offices



Here comes Santa Claus!

Christmas 1989 found Fellowship Amateur Radio Club of South Florida visiting five area hospitals with toys to distribute to the children for the fifth consecutive year. Santa also visited with the children via radio. NW1T was Santa's net control, and his helpers included KB4ORA, W4GVJ, W4AYJ and KB4ARD (pictured). *(Photo by WA8PMB)*

Worldradio

Year 20, Issue 6 December 1990 • $1.25

Opening soon at a school near you ...

The Code Boys

JOSEPH FAIRCLOUGH, WB2JKJ

So how come your club isn't overflowing with new, young hams? Oh, you think it's a better selling job that needs to be done — got to get the word out to the young ones, let them know about this great, lifelong activity. Put a few of the club members down at the local mall this Saturday, set up a demo station and go to it.

The fact is that if you get a one percent response you're probably doing about right. Then, even if you followed up properly on that one percent, you might get just a handful of prospects and those will probably be interested because Amateur Radio is something they always wanted to do, especially now that they are retired. You're back at square one.

If you are going to truly showcase our hobby to young people today you better be prepared to do it on their level. That means forget just about all the standard stuff and jump into the 90s. If it's not "rad," "bad" or just plan "chill" your ham recruitment program has just about as much chance of survival as a super hi-tech stereo in a shiny new BMW on the lower east side of Manhattan, our part of town.

Nothing reaches teens today like music. New Kids, 2-Live Crew and so on. These groups attract thousands of youngsters to concerts, not to mention untold hours of listening time. Here at the Radio Club of Junior High 22 in New York City, or as we say, "at the core of the Big Apple" this is no secret. "Psst, Yo Mickie D, is Carman listnin' to 15 WPM CW or Mötley Crüe on that Walkman?" So how do we get pop music and Amateur Radio all on the same frequency in order to swell the ranks with new young hams, all glad to be "rappin' " with you on your favorite band?

Steven Reyes, KB2KUC, far left and Robert Gastro, KB2IFJ, extreme right support the banner as close to 1000 members of the "22 Crew" get set to join other groups in their annual Get High On Ham Radio parade.

Enter the "Code Boys." Ralph, KB2HVR, and Hector, KB2IFM, both 16 years old and in the ninth grade at Junior High 22 and both very talented. They went through three years of Education Through Communication, a unique educational program developed in 1980 by Joseph Fairclough, WB2JKJ, and the Radio Club Junior High School 22 to integrate Amateur Radio into the standard curriculum as a teaching tool. The program is now a nationwide organization. Ralph (High Voltage Ralphy) and Hector (Hek) found success in the academic world via their involvement in Amateur Radio.

Each spring we hold our annual Get High on Ham Radio Parade. It's one of the most exciting events of the year for us, as it is the culmination of a full year of working toward a drug free community, offering "code, not crack" to thousands of young people as an alternative to life on the street. With such talent as Ralphy and Hek (music is next in their lives only to 220 MHz operation), it seemed only natural to put them on the entertainment committee.

The concept of the Code Boys was created specifically for this annual parade. Ralphy and Hek worked during every free moment developing lines for rap songs to perform on the days of the parade. It wasn't easy to combine an anti-drug theme with the idea of Amateur Radio. But they did it; listen . . .

Chill With The 22 Crew

I got a little rhyme I want to say
Listen up close cause I won't go away
No coke up the nose no dope in my vein
I'm Hek in affec and I'm here to stay
Just understand the rhyme that I display
when I need to get high, higher and higher
I get on my rig and use the amplifier
I'm not a cowboy on a horse with a saddle
Just a ham, ma'am, sendin Morse with a paddle
We don't bother nobody and we don't make noise
I'm Hek, he's Ralph — we are the CODE BOYS!

—Hector Cabrera, KB2IFM

(please turn to page 6)

63 years and still serving the amateur's needs..now two more fine new amplifiers

the 3KD Classic

the 2KD Standard

Now you have a choice of four high quality HF desk models providing the performance and reliability you have come to expect from a Henry Amplifier

3KD CLASSIC. . .new to the Henry line

1500 W PEP nominal output SSB and CW. 1000 Watts ICAS, RTTY, and FM, covering the 3.5 to 30.0* MHz frequency range. Nominal gain: 15 to 20 times input drive. Tube complement consists of one remarkable new Eimac 3CX-1200D7 ceramic triode. It uses a Pi-L plate circuit with a silver plated tank coil for maximum efficiency and attenuation of unwanted harmonics.

2KD STANDARD. . .new to the Henry line

Smaller than the 2KD Classic and with a slightly lower power output, but still the same rugged construction, the same superior components, the same dependability. The 2KD Standard is a 1200 W PEP nominal output SSB, CW, 750 W RTTY FM RF linear covering the 3.5 to 30.0* range. It uses a Pi-L plate circuit with a silver plated tank coil for maximum attenuation of unwanted harmonics. Its tube complement consists of one Eimac 3-500Z glass envelope triode in a grounded grid circuit.

3KD PREMIER

The same superb specs as the Classic, BUT with the addition of 160 meter operation and QSK break in keying. Both the Premier and the Classic desk models are no nonsense. . .no compromise amplifiers that will please the most discerning amateur for many years to come.

2KD CLASSIC

A proven desk top workhorse providing full legal power. Uses two Eimac 3-500Z glass envelope triodes plus a full complement of top quality components. And, as with all Henry amplifiers is backed by an enduring history of the most reliable equipment available for the amateur market.

*10 meters available on export models only

For additional information on these and the rest of the fine line of Henry amplifiers please call or write for our new information packet.

The Henry line of amplifiers also offers four very heavy duty HF floor consoles in addition to several UHF and VHF models. In all, we now offer 15 different amplifiers. . .more than any other manufacturer that we know of. One of them has to be just right for you.

In addition to our broad line of amateur and commercial FCC type accepted amplifiers we offer special RF power generators for industrial and scientific users. Call or write Ted Shannon for full information.

HENRY RADIO 63 YEARS OF SERVICE

Henry Radio

2050 S. BUNDY DR. • LOS ANGELES, CA 90025 • (213) 820-1234

Toll free order number: (800) 877-7979 TELEX: 67-3625(Henradio) FAX (213) 826-7790

MARS maintains phone patch skills

How many times have you searched the HF band and stopped to listen to a phone patch conversation? You can sense the excitement and appreciation many of these callers display at the opportunity to talk to a friend or loved one over the radio.

You'll find many phone patch services out there, but one of the oldest and most reliable is run by the Army Military Affiliate Radio System (MARS). Army MARS has an extensive phone patch network. One of these very active networks falls under the responsibility of the Eastern Area MARS directorate.

Since MARS operators are also, by regulation, licensed Amateurs, all the latest radio, radio procedure and phone patch technology is available to ensure that authorized callers from overseas can make reliable phone calls to their loved ones in the States.

Mr. Tom Moore, AAA3E, the Eastern Area MARS Director, recently spoke about MARS phone patch operations. "Currently, we have 37 stations in my area, which covers Maine to Puerto Rico and most states East of the Mississippi River, who routinely enter our phone patch nets. Our largest volume of calls originate from Germany. Of course, we have to be most active during morning hours to accommodate the time difference and propagation."

When asked about coverage, Mr. Moore confirmed that all states in his region are fairly well covered, but that some areas could use a few more stations. "Mr. Rod Godfrey out of Delaware is the Eastern Area phone patch coordinator. He's done an excellent job. If there're any hams interested in joining our program, they can contact him directly; or if they are in another region, they can contact the MARS director in their state."

Mr. Moore believes MARS is very important to our military. "This service provides an important morale boost to our servicemembers overseas," he said. "You can't beat it costwise. At least one long distance carrier, Sprint, provides free service during holidays. We expect this to continue."

He believes that phone patch operations will be even more important in the future. As the military looks for ways to save money, one of the results could be more activity for MARS. "My sense is that there could be shorter tours to save the government moving costs. We must be ready to provide morale traffic — be it voice or message — to our separated military overseas. This will not only give them an opportunity to continue contact with their loved ones, but will offer our dedicated MARS members further training advantages, because training is our primary mission."

Anyone interested in joining MARS can contact Tom Moore at 301/663-2793 or, for phone patch information, Rod Godfrey at 302/324-7062. Those in regions outside the Eastern Area will be furnished information about which regional or area MARS official to contact. □

ARRL experiments

The FCC has granted the ARRL a license to conduct experiments on the potential for interference from Amateur 220 MHz operations to TV Channel 13. In disposing of the many petitions for reconsideration of the reallocation of 220-222 MHz to land mobile use, the FCC said that it might consider making spectrum below 220 MHz available to Amateurs if it did not interfere with television.

The experiment station, KF2XAA, will operate with up to 250W on 216.0-216.85 and 217.15-220 MHz using spread spectrum and "white noise" transmissions. The license authorizes 50 units of the Midland 13 -509 transceiver and expires Jan. 1, 1991, although it may be renewed. Station KF2XAA is not authorized to communicate with regular Amateur stations, but is a self contained operation that will communicate with units under its own license. —*Portage ARC newsletter* □

CONTENTS

FEATURES

COLUMNS

Worldradio

TM

December 1990
Vol. 20, No. 6

Subscription Dept.
Worldradio
201 Lathrop Wy., Ste. D
Sacramento, CA 95815
1-800-365-SUBS

**is published monthly by Worldradio, Inc.
2120 28th Street
Sacramento, CA 95818
(916) 457-3655**

Second class postage paid at Sacramento, CA & additional offices. **POSTMASTER:** Send address changes to **Worldradio Inc.,** P.O. Box 189490, Sacramento, CA 95818.

Worldradio (USPS 947000) is an international conversation. You are invited to participate.

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio Community. We publicize and support the efforts of those who bring the flame of vitality to this avocation.

You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio.

Worldradio is an independent newspaper not affiliated with any other firm, group or organization. Its pages are open to all. Permission is hereby automatically granted to reprint from this publication with appropriate source credit. If there is something useful, we wish to share it.

Subscription rates: $13 per year, $25 for two years, $36 for three years and $130 for life; $10 extra per year for surface mail delivery outside the U.S. Please remit international postal money order. IRCs will be accepted.

STAFF

Editor and Publisher.....Armond Noble, N6WR
Managing Editor.....Robin Wortley
Associate Editor.....Norm Brooks, K6FO
Assistant Editor.....Kaye Schwartz
Consulting Editor.....Lou Ann Keogh, KB6HP
Advertising Director.....Helen Noble
Ass't Adv. Director.....Rosalie Hernandez
Graphics Director.....Dianne Dunning
Circulation Mgr.....Dorothy Campini

PUBLISHER'S MICROPHONE

We first recognize those of sterling character who have become **Worldradio** Super-Boosters (Lifetime Subscribers): Keith Poole, K7MOA, Pittsburg, PA; Richard Smith, NU9U, Fort Atkinson, WI; William Culbertson, KA9ZBN, Springfield, IL; Mike Eyman, W0XM, Garnett, KS; John Miller, NF6Y, Norco, CA; James Bollinger, W6ETD, Foresthill, CA; Joseph Burnett, KF7ME, Tacoma, WA; and Harold Grogan, KB7JUG, doing good things for this country out at an APO address.

•

Just returned yesterday from the ARRL Pacific Division convention held in San Jose, CA. A grand time, indeed! It made me feel a little sorry for those Amateurs who never go to a convention or belong to a radio club. They are truly missing something.

Seeing long-time friends, making new friends . . . it's all part of a convention.

There is an opportunity to listen to some pretty high-priced talent (donating their services) at the technical seminars. At one forum there was an attorney and a Ph.D. (aerospace) on the panel. They were sharing their knowledge (for free). That's all part and parcel of the Amateur Radio game.

Whatever your interests, emergency communications, packet, antennas, propagation, contests, DX, transmitter hunts, OSCAR, traffic, MARS, QRP and so on, you'll learn more about it at a convention. Possibly the seminar will be given by a college professor and you don't even have to turn in a paper.

You can get in your two cents worth to an ARRL official about whatever you feel strongly about.

At the Saturday night banquet I met an Amateur who was an engineer at the same radio station I had worked for. He had been there 20 years earlier than I.

I see pretty much the same faces year to year. Once you go, you tend to go again and again.

Should you know any of our hermit-like Amateur brethren (and we sure do have them) do your best to invite them to go to a convention with you or come to the local radio club.

If they say "I don't know anybody there," just remind them that they didn't know anyone at all until they met them for the first time.

Forums, seminars and technical knowledge aside for the moment, forget the gear exhibits, the best thing about a convention is that you're around a lot of people who like being around other likeminded people. The same can be said of local radio clubs.

•

Wailing and gnashing of teeth. Like the tides, there is the return of "why don't we have more Amateurs?" One reason may be that there isn't one single person whose full-time job is to work on recruitment of new Amateurs.

Considering what a 10 percent increase would mean to the manufacturers, it does seem strange that there isn't some industry-funded Office of Growth. There is a volunteer group, but after putting in a full day of work, tending to children, reading the newspaper and possibly a book now and then, spending a little time on the air, mowing the lawn and painting the hallway, just how much spare time does one have left to devote to saving Amateur Radio?

Conventional wisdom says the only way to keep our frequencies out of the hands of UPS, USPS, UPI and Radio Upsalla is for us to have more Amateurs. However, it seems that no one is taking his own advice very seriously, or there would be some serious effort going on somewhere, somehow.

•

Or is it for naught? A recent article said some electronics industry association, via surveys, had determined that well over half of the people owning home video recorders could not figure out how to program them to record a show on the air two hours away. They just played movies on them.

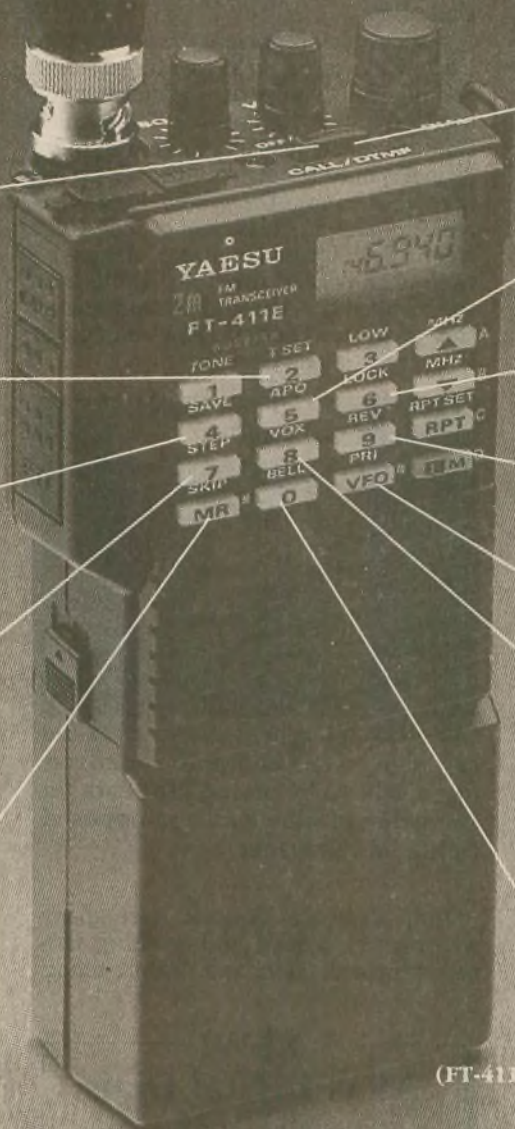
About half of the US households have a VCR. We could assume that it's the upper-income half. Of that top half, half can't figure out how to press a couple of buttons. (We can only assume they do a bit better at their chosen field of endeavor.)

So you, faithful Amateur, drag one of your inept neighbors to your shack. There you display a wall full of knobs, dials, digital readouts, blinking lights and you proclaim, "You can do this too!"

Your neighbor, who has avoided even a digital watch and is still making toast in the oven, runs from your house in sheer terror.

— Armond, N6WR

INDUSTRY FIRST! FT-411E (ENHANCED)



INDUSTRY FIRST!
10-memory auto dialer

INDUSTRY FIRST!
One-touch instant recall of favorite channel

INDUSTRY FIRST!
APO (Automatic Power Off)

INDUSTRY FIRST!
Built-in PL encode/decode

INDUSTRY FIRST!
Backlit keypad & display

INDUSTRY FIRST!
PTT/keypad lock

INDUSTRY FIRST!
10 battery saving sampling rates

INDUSTRY FIRST!
2 VFO's

INDUSTRY FIRST!
Programmable channel steps (5, 10, 12.5, 20, 25)

INDUSTRY FIRST!
Built-in VOX at no charge

INDUSTRY FIRST!
User friendly for those with impaired vision. Keys have their own distinctive tone.

INDUSTRY FIRST!
Built-in CTCSS paging

(FT-411E shown actual size.)

FT-811
Small Size and Most Features

FT-470
Most Popular Dual Band

New
FT-911
Reliable Novice Radio

For more information on these and other Yaesu products, contact your nearest Yaesu dealer now.

YAESU
Performance without compromise.℠

(continued from page 1)

"Chill" was an incredible hit with the crowd which was made up of several thousand 10 to 16-year-olds who had no idea what Amateur Radio was but sure knew what crack was. Officials of our club, leaders of the other organizations involved, the police and representatives from the New York City Board of Education also caught the crowd's reaction. As they say, "that's showbiz." But with school opening in just three months, time was running short to organize an ongoing plan for the Code Boys.

Educational representatives saw the Code Boys as a way to attract kids coming from elementary school and going into junior high school. The transition from elementary to junior high school is one of the most difficult for all involved; many times the kids just never make it. Imagine a tool that would discourage the use of drugs as well as showcase Amateur Radio and the Education Through Communication program. The Code Boys had plenty of work ahead of them.

Code Boy Hector Cabrera puts his call sign on the board after delivering a talk to incoming students on the value of ham radio as opposed to life on the street.

June, July and August were spent writing, rehearsing and working like never before. Hek and Ralph along with myself and an entourage of helpers put in long hours, all in preparation for September 10 which was opening day, not only for school but for the Code Boys as well. The week of the 10th through the 14th was spent touring junior high schools in New York City with soaring drug problems and high drop-out rates, promoting Amateur Radio and the Education Through Communication program, which is initiated and maintained by the Radio Club of Junior High 22. The Code Boys were an even bigger hit in September than they were in May!

Hector (Hek) Cabrera, KB2IFM, and Ralph (High Voltage Ralphy) Vasquez, KB2HVR, are the Code Boys, posing with the "Crewmobile" before the first show.

Amateur Radio has once again proved to be an incredible tool in education, this time getting young kids off the street and into the classroom and showing them alternatives to drugs. As of this writing there are close to 300 young kids in Novice classes, and this number is only limited by a lack of space and funding.

Get out of the mall and create a communicative tool such as the Code Boys. If we can do it in what has to be one of the toughest towns in the nation, your group can too. Hek and Ralph will get older and move on, but the concept of the "Code Boys" will be with us for the foreseeable future. When styles and tastes change, so will we. Right now we are "rad" and "bad" but who knows about next year? One thing you can bet the ranch on though — we will adapt, find out what works and continue to turn out better students, citizens and, of course, hams.

Want to know more? We are here to help. Write us at P.O. Box 1052, New York, NY 10002; 516/674-4072; FAX: 516/674-9600. WB2JKJ Classroom Net is on 7.238 MHz at 7 a.m. EST daily. We are a non-profit nationwide organization, working to get ham radio into the classroom as a teaching tool, enhancing and improving the education of young people. □

Do you know where you are?

SHARON DEAN, KL7VL

When you are traveling down the highway on a nice sunny day, taking in the sights, looking here, there, hither and yon, make notes of where you are.

The greenery looks wonderful in the summer and the snow on the trees in the winter can look beautiful. The sunrises and sunsets on the mountains are fantastic. You can see majestic mountain peaks in the distance with their topping of snow. We can see the water rushing under the bridges we pass over. We see the Canadian geese flying to their nesting grounds. Sometimes we pass friends on the highway.

But do you know exactly where you are? How many people pay close attention to where they are when they are driving long distances?

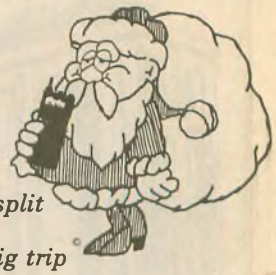
Last week I stopped to call in an emergency on the way to work in Anchorage. But I wasn't paying any attention to any of the signs I was passing. I had to ask someone which off ramp we were closest to.

From this experience I will pay much closer attention to just where I am on the highway, if not picking out signs, then picking out landmarks. Emotions run high in an emergency and it is very easy to forget where you are or even the street you are on.

So, next time you go cruising down the highway, try to remember which signs you just passed and which ones are coming up. — *ARNS* □

Twas the night before Christmas on 20 meters

DON CHRISTENSEN, W8WOJ



Twas the night before Christmas and all through the shack
The signals had echoes; the aurora was back
I was twiddling the knobs and tuning around
Looking for rare DX but none could be found
When all of a sudden a pile up so thick
Caused me to question, "Could that be St. Nick?"
Well I shifted the bandwidth and varied IF
Then I switched in the filters but it made little diff
Why can't I hear him I asked in a fit
And I smiled when I discovered he was operating split
He was working by districts; what a furious clip
Santa was operating contest style just before his big trip
I fired up the linear cause I wanted a shot
It would take maximum power; everything I've got
The two hard working triodes; they twinkled so bright
As I got ready to call that jolly old sprite
Just as the little green ready light started to glow
St. Nick was saying "8th district stations get set to go"
I stepped on the foot switch and yelled into the mike
Then BANG, what happened? Who turned out the light?
After finding the flashlight, I located the breaker
It's a wonder in the darkness I didn't meet my Maker
By the time I got the rig back on frequency
Santa announced that he was ready to go QRT
But I broke, said QRZ-d, will you take one more eight?
Feeling certain that I simply was much much too late
But much to my surprise old St. Nick came right back
WOJ he was saying, make it quick I must pack
I must leave on my trip, it's a long one you know
And I could tell by the flutter the band was starting to go
Just as the propagation was beginning to flee
Santa said "MERRY CHRISTMAS to all and a big SEVEN THREE."

As tensions have risen in the middle east, some hams here in the United States have begun to wonder if they might lose their operating privileges should war break out. It now appears that the likelihood of Amateurs being ordered off the air if the United States goes to war in the Persian Gulf is small. This is because Amateur stations in the US don't constitute a threat of interference in the likely theater of military operations. The trigger is a proclamation of "War Emergency Powers," not a formal declaration of war. The President alone has the authority to invoke these powers. (*Westlink Report*, 8/31/90)

•

On Sept. 19, 1990, the FCC adopted its second Notice of Inquiry in preparation for the 1992 World Administrative Radio Conference. The text of the 150-page NOI (In General Docket 80-554) has not yet been released, but it is said to contain specific recommended US proposals for WARC-92. Responding to the Second NOI will be the best opportunity for the general public to express its views on WARC-92 matters, but the time for comments will be very short. (*The ARRL Letter*, 9/21/90)

•

The ARRL has again asked the FCC to take action on intentional intruders to our HF bands. Cited this time are a pair of Soviet stations clobbering part of 20M along with five other intruders on 17M coming from Argentina, China, and the Sudan. (*Westlink Report*, 8/31/90)

Our FCC has formally asked the Soviet Ministry of Post and Telecommunications to solve an interference problem on the 20- and 17M Amateur Radio bands. In its message to Moscow, the Commission requested assistance in removing the interference on 14.024 and 18.125 MHz. Stations signing the callsigns URS and RKA are accused of the QRM. The international assistance request came after numerous reports were received from concerned Amateurs nationwide. (*Westlink Report*, 8/31/90)

On August 27, the FCC issued three Notices of Apparent Liability to Monetary Forfeiture to radio Amateurs involved in confrontations on 20M: Richard K. Eastman, N5FX, Herbert Schoenbohm, KV4FZ, and William Terrill, K2BFI. Eastman and Schoenbohm were cited for operations on July 16, and Terrill was cited after FCC observations on August 17. All were told, "You appear to be in willful violation of Section 97.101(d) of FCC Rules and Regulations, in that you operated your Amateur Radio station in a manner that resulted in willful interference to radio communications of other Amateur stations." The notices apparently include a fine of $1000. The three have 30 days to respond to the letters. (*The ARRL Letter*, 9/7/90)

In addition to those listed in the foregoing paragraph, the FCC issued a Notice of Violation to Glenn Baxter, K1MAN, for violating Section 97.115 (a)(2) in his alleged handling of an illegal third party phone patch between his station and a UB5 Amateur station in the Soviet Union, and Section 97.119(a) for not identifying every ten minutes. Engineers from the Kingsville, Texas facility issued Notices of Violation to William E. Pike, NØDCP, of Ferguson, Missouri and to Harold D. Case, Jr., WD4PZT, of Orlando, Florida, both citing violation of rules against willful interference (97.101(d)) (*W5YI Report*, 9/15/90)

Ordered to pay a $2000 fine for malicious interference was Joseph Smith, Jr., (WA4RNP), of Bessemer, Alabama. Smith was accused of maliciously interfering with transmissions on a 440 MHz repeater in nearby Birmingham. A Notice of Apparent Liability to a Monetary Forfeiture was issued on August 3 by FCC's Field Operations Bureau office in Atlanta. In his answer to the citation mailed to him earlier this year, Smith admitted that he had been the source of the interfering signal. He claimed that the incident was accidental and that it oc-

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of October 1, 1990.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17326.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0BZ	KF0MW	N0MLS	KB0HOR
1	WK1F	KC1WY	N1IAV	KA1WLE
2	AA2BI	KE2WH	N2LGM	KB2LEZ
3	WE3T	KD3TW	N3IOB	KA3WXD
4	AB4ZC	KN4PF		KC4TGW
5	AA5UU	KI5JP	N5RJM	KB5NUY
6	AA6YE	KK6QF		KC6ODO
7	AA7GI	KG7IS	N7PQH	KB7LRZ
8	AA8CG	KF8JJ	N8MXY	KB8KSH
9	WV9Q	KE9ZF	N9KDV	KB9FNS
North Mariana Is.	AH0I	AH0AG	KH0AM	WH0AAO
Guam	KH2N	AH2CH	KH2EP	WH2AMS
Johnston Is.	AH3C	AH3AD	KH3AD	WH3AAG
Midway Is.		AH4AA	KH4AD	WH4AAH
Hawaii		AH6KP	NH6XP	WH6CJC
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AE	KH8AI	WH8AAZ
Wake Wilkes Peale	AH9A	AH9AD	KH9AE	WH9AAH
Alaska		AL7MK	NL7UZ	WL7BZK
Virgin Is.	NP2H	KP2BU	NP2DX	WP2AHF
Puerto Rico		KP4RB	WP4ZC	WP4JLN

Subscription form

If you received this copy of Worldradio and you aren't yet a subscriber . . . this was your sample copy.

We sent it to you to acquaint you with our reporting on this great activity. Amateur Radio is exciting, challenging, stimulating, satisfying and very rewarding.
You are cordially invited to subscribe to, and be a part of Worldradio.

Yes. I want to know even more about the wonderful world of Amateur Radio.

TO FACILITATE FASTER HANDLING OF YOUR SUBSCRIPTION, PLEASE USE THIS BLANK

(SOURCE) ☐☐☐☐ (59-60)

Name _____

Call _____

Address _____

City _____

State _____ **Zip** _____

☐ NEW	☐ Renewal	☐ Gift
12 issues	($1.08 per issue)	$13.00
24 issues	($1.04 per issue • save $1)	$25.00
36 issues	($1.00 per issue • save $3)	$36.00
Lifetime	(Be a WR super booster)	$130.00

Overseas Readers! Prices quoted are U.S. funds. Please include $10 extra/year for surface mail delivery outside the U.S. Subscriptions may be paid in U.S. funds drawn on U.S. banks, by International Money Order, VISA or MasterCard. Canadian Postal Money Orders (in U.S. funds) are also acceptable.

☐ Check enclosed ☐ MasterCard ☐ AmEx ☐ VISA

Card # _____ **Exp. date** _____

Signature _____

Please clip and mail to . . .

Worldradio™
201 Lathrop Way, Suite D
Sacramento, CA 95815

For Subscriptions (charge cards only)
TOLL FREE 1-800-365-SUBS 8 a.m. to 5 p.m. Pacific Time

Thank you!

Subscriptions received by the 20th of the month will begin with the issue dated two months from the month of receipt, i.e., if we receive the subscription by April 20, your first issue will be June, and will be mailed to you in early May.

Worldradio is a two-way communication. Send in Amateur Radio information and news. Share your knowledge with your fellow amateur and Worldradio reader. We are most interested in your comments and suggestions. We would appreciate being placed on the mailing lists of amateur club bulletins.

curred due to his oversight in not monitoring a channel on which he was trying to control a remote base.

•

Having exhausted its lobbying, filing, commenting and reconsideration efforts for the most part, the ARRL now looks to the US Court of Appeals to roll back the reallocation of 220-222 MHz to private land mobile radio services for "narrowband" (kHz) usage. The FCC gave Amateur Radio exclusive use of 222-225 MHz. But the ham community generaly reviled the reallocation of the lower part of the band because other spectrum is available for land mobile, because the benefits of narrowband technology may have been overblown and because of troubling questions in the FCC's analysis, among other issues. Oral arguments before the court are scheduled for Nov. 16 in Washington. Much of the dispute between the FCC and ARRL pertains to the FCC's belief that usage of 220-222 MHz is light. Taking the ARRL Repeater Directory as its guide, the Commission apparently assumed that the main use of 220-222 MHz was for repeaters and, finding few in that band, decided that the band was little used. ARRL pointed out instead that a key use of 220-222 MHz is for high-speed intercity packet links which would not show up in the Directory. The League conducted a 48-hour survey of the band, identifying 773 fixed Amateur stations and 1,106 weak signal stations, not including "many hundreds" of packet stations (For further information, see the Sept. 15, 1990 issue of the *W5YI Report*, pages 9 and 19)

The period for reply comments in PR Docket 90-55 closed on Sept. 7. The FCC staff now must study the comments to determine the consensus of Amateurs toward a Communicator Class no-code license. Most comments seem to support adoption of a no-code license, though not necessarily the one promoted by the FCC or the ARRL. Virtually no one wants to see the Novice and Technician Class licenses deleted. It's still an open question, however, whether the FCC will be able to pay for all the applications processing in the service if these two license classes are not discontinued. Most commenters who mentioned band privileges object to limiting Communicators to frequencies above 222 MHz. (*The W5YI Report*, 10/1/90) □

Special Events...

Tournament of Roses

The Relay Repeater Amateur Radio Club will operate special event station KE6PE from Dec. 29 to Jan. 1 from the Wrigley Mansion in Pasadena to commemorate the 102nd Anniversary of the Tournament of Roses.

The station will operate from 1600Z to 0400Z each day on the suggested frequencies 14.260, 21.335 and 28.450 MHz. Amateurs in California and Nevada can contact the station on 2M via the club repeater 144.970/147.410 or on 220M via the Condor Connection.

For a certificate send QSL and 9×12 SASE (50¢) to Relay Repeater Club, P.O. Box 81, Arcadia, CA 91066-5019. □

Historic Spencer shops

The North Carolina Chapter TSRAC will operate special event station N4KVF on Dec. 8 from 1400Z to 2200 Z.

Frequencies will be as follows: CW 7.050 and SSB 14.240 MHz during the first half-hour and CW 14.050 and SSB 28.480 MHz during the second half-hour.

For a certificate send an SASE to Walter Bastow, N4KVF, 3045 High Rock Rd., Gold Hill, NC 28071. □

Russian pen-pals

I was recently asked to find a pen-pal in the Soviet Union for the 15-year-old daughter of a friend of mine, Ed Stephenson, AB4S. It is not a very easy task, bearing in mind the language barrier, international differences in mentalities, general laziness and disinterest in corresponding among youngsters and limited ways to reach potentially interested pen-pals.

I wrote to my good friend Michael Shaprinsky, UT5BW, in Kiev, Ukraine and asked him to put my appeal on the bulletin board in Kiev's Radio Club. I chose Kiev because there are a lot of young Amateur Radio operators, and Kievians are generally very vivid and communicative. I spent nearly 20 years in Kiev, on the air as UK5UBZ, so I do know the matter. Michael writes a column for the newspaper published by the Ukranian Voluntary Society for Assistance to Army, Aviation and Marine Fleet (DOSAAF), so I asked him to print an announcement of my appeal.

The result was unpredictable. Michael mentioned my appeal in his column and I have received over 50 letters from many parts of the Soviet Union, from boys and girls, ages 11 to 19 years old! Most are Amateurs, but some letters are from parents who are experienced Amateur operators seeking a pen-pal for their child in order to broaden his horizons. A few letters are written in English, and some are accompanied with photographs. Practically all of them contain an SASE. What to do with this pile?!

If you know someone who wants to find a pen-pal in Russia, let me know and I will try to find a match. I do this with pleasure in response to the hospitality I have received in the US. Write to me, Valery P. Pristavko, P.O. Box 17, 220012 Minsk, USSR. □

PUBLIC SERVICE

Amateurs get a good word

It was about this time last year that people throughout the Bay Area and surrounding areas were struggling with the devastation left by the Oct. 17 earthquake. As we think back, we're reminded how important Amateur operators can be in such emergency situations. The following is an article which appeared in the Commentary section of the Oct. 25, 1989, edition of the Auburn *(CA)* Journal. *The article was entitled, "Good news via the friendly ham airwaves," by Susan Rushton.*

Yeah, yeah, I know I was told to keep off the phones during the hours following the earthquake. Couldn't do it, though. I was frightened about my family, all of whom are down there.

Over and over (cube that, then quadruple it) I dialed the 415 area code, only to hear the same voice say the same thing — "all circuits are busy now."

With my childish certainty that "nothing will ever happen to anyone I love" crumbling as stories in the *Journal* and over the airwaves kept updating me with news of increasing devastation, I felt more and more helpless.

I needed to know, but I couldn't leave. I had a job to do and people depended on me here.

What'd I do? It was so simple I'm sorry I didn't think of it earlier. I contacted George Steinkamp, N6WIS, of the Sierra Foothills Amateur Radio Club. You know — hams.

He said the radiowaves were humming with people taking calls and assisting the American Red Cross, sharing information and offering help. Some hams, like Sierra Foothills member John Tiernan, KA6LNC, had hotfooted it down to the affected area with their equipment and assisted in the rescue effort.

Mostly, hams relayed what Steinkamp called "health and welfare" calls — urgent requests from loved ones elsewhere asking if relatives in the Bay Area were all in one piece.

I got on the bandwagon. Do me a favor? Call my parents? Are they all right?

Remember the Disney movie *101* (or was it 1,001?) *Dalmations*? The "Twilight Bark" was the only way the dogs had to get information to other dogs. One dog barks into the night. Other dogs hear him and they bark too. Soon the information is spread over miles, and information comes back the same way.

That's what ham radio's like. I talked to Steinkamp Wednesday morning. He got on the waves and contacted someone in Redding, who zeroed in on a ham 50 miles north of my parents' house. That person called my parents.

By that afternoon I had my answer — "Sally says they're OK."

How lovely, how reassuring, how friendly. How grateful I am.

In my two years at the *Journal* I've interviewed nine hams, from 10-years-old to 82. They're all nuts, and nuts about their hobby. I know they're hams mainly because they get such a kick out of the equipment and contacting people in Taiwan and Pakistan and Manitowoc, WI.

But they also have their community in mind, and take their community into their heart. I've sure taken them into mine — *Information submitted by Charlie Cary, N6GEP* □

Looking for old friend

I am looking for a ham whom I used to know when I was in the Army at Ft. Gordon, Georgia a few years ago. He is Jose Rosado, KB4CXB. Do any World-radio readers know his whereabouts?

RICH WEISS, N7CXB
Apo, NY □

Colvins' Update

Dear friends,

We have just finished our DXpedition in Malawi. We stayed in the Capital City Motel in the capital of Lilongwe. It was a good choice because the food and accommodations were excellent, and there was a great high place to erect our antenna. We ended up with a total of 7000 QSOs, and we contacted Amateurs in 155 countries. We were on the air from September 13 through 29. The call was rare and it was one of our better operations. Our call was 7Q7KG.

We obtained our licenses in the city of Blantyre which is 352 km from Lilongwe. The licenses were issued promptly, and the licensing authorities were most friendly and cooperative. We did, however, have to pay the most we have ever paid for our permits to operate; the cost was $115 each.

Prior to this DXpedition in Malawi, we completed a very satisfactory operation in Dar es Salaam, Tanzania. Operating as 5H0QL, we made 7000 QSOs and worked 139 countries, half CW and half SSB. We were on the air from August 22 through September 7, operating from the QTH of Tom Warren, 5H3TW, using our equipment and his antennas. We have visited with Tom now in three continents: North America, Asia and Africa. We try to use Iris' call in one country and then Lloyd's call in the next country.

We are not sure of our next stop. We hope that it will be in Africa at some place that we have never operated. 73 es 88, Lloyd (W6KG) and Iris (W6QL) Colvin. □

Gordon West Seminars

Thinking of teaching a Novice class? Is your club ready to start up some upgrade courses? Looking for inside information on where to buy textbooks at 50 percent off?

Gordon West, WB6NOA, is now offering a free (that's right, absolutely free) weekend of instructor and elmer training for some valuable classroom experience on the latest techniques of teaching Amateur Radio. The three day seminar is open to all ARRL-registered instructors. Guest instructors will actually be *paid* to teach certain sections of the seminar. For further information call 714/434-0666 for recorded information or write to Gordon West, 2414 College Dr., Costa Mesa, CA 92626.

Earthquake assistance still needed

Over a year after the devastating October 17 earthquake, supplies are still urgently needed for renovation and reconstruction. The Western Service Workers Association, all volunteer and completely community supported, appeals for your assistance.

Amateur Radio operators and equipment are needed NOW to aid long-term reconstruction. Gear (to be used by licensed operators volunteering with us) particularly needed is HF transceivers, antennas, antenna matches, amplifiers, hand-helds, phone patch gear, telex equipment, fax equipment, etc. Other supplies needed are PA systems, cellular phones, CB base station and walkie talkies, kitchen utensils, and especially building supplies.

Many of us have been misled to believe that the worst is over. It isn't. Lives are in no way back to normal; the damage caused by this earthquake is an economic disaster for these regions whose effect will be felt for months and even years to come. Literally 2/3 of the real work of recovery from this disaster remains to be done. Volunteer low-income families are building local Disaster Relief Units to ensure that rapid and well-organized response will be available to our communities in future emergencies.

We are very thankful to all the Amateur Radio operators who have helped us out so far. For more information write to Western Service Workers Association, 1666 7th St., Oakland, CA 94607 or call 415/832-2111; also 547 Airport Blvd., Watsonville, CA 95019; 408/688-9017. □

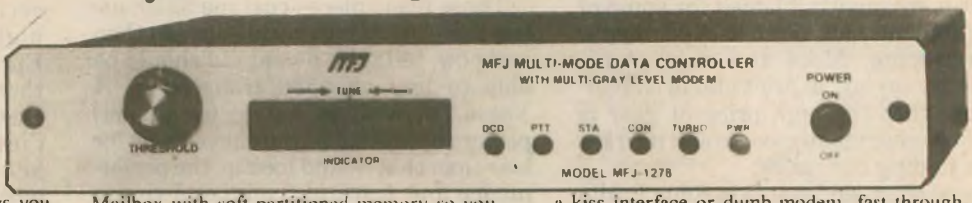
MFJ gives you *all 9* digital modes

and *keeps on* bringing you state-of-the-art advances

. . . while others offer you *some* digital modes using 3 year old technology!

MFJ-1278

$279.95



No 3 year old technology at MFJ!

Using the latest advances, MFJ brings you 9 exciting digital modes and *keeps on* bringing you state-of-the-art advances like new ASA™.

You get tons of features other multi-modes just don't have.

Only MFJ gives you *all 9* modes

Count 'em -- you get 9 fun modes -- Packet, AMTOR, RTTY, ASCII, CW, FAX, SSTV, Navtex and Contest Memory Keyer.

You can't get all 9 modes in *any* other multi-mode at *any* price. Nobody gives you modes MFJ-1278 doesn't have.

The best modem you can get

Tests in ***Packet Radio Magazine*** prove the modem used in the MFJ-1278 copies HF packet more accurately than all other modems tested.

MFJ-1278 is the *only* multi-mode with a ***true*** DCD circuit. This dramatically reduces sensitivity to noise and dramatically increases completed QSOs.

Exclusive Built in Printer Port

Only the MFJ-1278 has a dedicated printer port that lets you plug in your Epson or IBM compatible printer.

You don't need to buy a silly $40 cable just to plug in your printer.

20 LED Precision Tuning Indicator

MFJ's unequaled tuning indicator makes it really easy to work HF packet. Unlike others, you use it the same for all modes -- not different for each mode. Just tune your radio to center a single LED and *you're precisely tuned in to within 10 Hz* -- and it shows you which way to tune!

New Easy Mail™ Personal Mailbox

You get MFJ's new Easy Mail™ Personal Mailbox with soft-partitioned memory so you and your ham buddies can leave messages for each other 24 hours a day.

Multi-Gray Level FAX/SSTV Modem

You'll see tomorrow's news today when you copy outstanding FAX news photos with crisp clear details. MFJ-1278 is the *only* multi-mode with a built-in multi-gray level modem. It lets you transmit and/or receive multi-gray level pictures with an appropriate terminal program.

NEW! **MFJ's new Automatic Signal Analysis™ gives you *exclusive* HF packet idenification!** **MFJ's** new ASA automatically identifies HF packet, RTTY, ASCII and AMTOR signals. A quick "OK" command selects the mode!

One FREE Upgrade!

When you buy your MFJ-1278 *today*, you don't have to miss new modes and features that come out *tommorow*. **Why?** Because your 1278 comes with a coupon good for one ***free*** eprom upgrade exchange that'll add new features.

Plus More . . .

Plus you get . . . 32K RAM, ***free*** AC power supply. Host mode that lets MFJ-1278 serve as a kiss interface or dumb modem, fast throughput anti-collision technology, independent transmit level for each radio port, random code generator, lithium battery backup, RS-232 *and* TTL serial ports, socketed ICs, tune up command, peripheral I/O port, automatic serial numbering, programmable message memories, dual radio ports (*each* HF or VHF), CW paddle jack, audio amplifier and speaker jack so you can monitor CW sidetone, transmit and receive audio and packet connect bell, ***new*** fully intergrated instruction manual with *Fast Start*™ booklet and more. 9½ x 9½ x 1½ inches.

No Matter What™ Guarantee

You get MFJ's one year No Matter What™ Guarantee.

That means we will repair or replace your MFJ multi-mode (at our option) *no matter what* happens to it for a year.

Others give you a *limited* warranty. What if *they* say, "Sorry, your *limited* warranty doesn't cover *that*?"

Get 9 new ways of having fun

Don't settle for 3 year old technology.

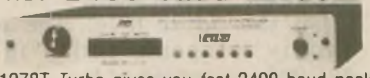
Choose the only multi-mode that gives you the latest advances and all 9 modes.

Get 9 new ways of having fun *today!*

New MFJ-1278T *Turbo* with *fast* 2400 baud modem

MFJ-1278T

$359.95



The new MFJ-1278T *Turbo* gives you *fast* 2400 baud packet -- *twice* the baud rate of any other multi-mode. By communicating faster you'll reduce chances for error, lessen congestion and more efficiently utilize our ham frequencies. You'll also get 1200/300 baud for compatibility with older TNCs.

The 2400 baud modem is also available separately. Order MFJ-2400, $69.95, for any MFJ and most other TNCs.

Software Pack gets you on the air *instantly!*

MFJ software packs with interface cable get you on the air instantly if you use an IBM compatible, Commodore or Macintosh computer. Here are some of the programs available:

MFJ-1289, $59.95. Menu driven. Super IBM compatible program. See ad below for details.

MFJ-1282B, $39.95. New with multi-gray receive for Commodore 64/128. Menu driven.

MFJ-1287, $24.95. Macintosh starter pack.

MFJ Packet Radio

MFJ-1274

$159.95

MFJ-1270B

$139.95

MFJ-1270B super clone of TAPR's TNC-2 gives you more features than *any* other packet controller -- for $139.95

You can double your fun by operating VHF and HF because you get ***high performance*** switchable VHF/HF modems.

You get the Easy Mail™ Personal Mailbox with soft-partitioned memory so you and your buddies can leave messages 24 hours a day.

In MFJ's new **WeFAX** mode you can print full-fledged weather maps to screen or printer and save to disk using most computers.

A new KISS interface lets you run TCP/IP and MSYS. NET ROM compatible.

You also get 32K RAM and a free 110 VAC power supply (or use 12 VDC).

For dependable HF packet tuning, the MFJ-1274 gives you a high resolution tuning indicator -- and it's only $20 more.

New 2400 baud ***Turbo*** models available: **MFJ-1270BT,** $209.95; **MFJ-1274T,** $229.95.

New MFJ MultiCom™ . . . exciting new 1278 software

High resolution AP news photo received on 20.738 MHz using MFJ MultiCom and MFJ-1278 with multi-gray modem.

MFJ-1289

$59.95

New menu-driven MultiCom™ brings out the full power of your MFJ-1278 with multi-gray modem. No set-up required — just load and use. You get incredible high resolution WeFAX maps and AP news photos right off HF. You also get color packet pictures and multi-gray SSTV.

Bursting with features . . . One-Key Macros™ combine multiple keystrokes into a single touch. Call-Alert™ sounds an alarm when any characters you tell it to watch for come in. Auto-Set™ instantly switches entire stored sets of parameters. Auto-Router™ stores digipeater node routes for instant use. Packet Multi-Plex™ lets you transmit or receive a binary file and continue your QSO. Multi-Word™ gives a powerful word processor that is tailor-made for multi-mode communications.

Custom QSL created with paint program can he transmitted by FAX, SSTV or Packet. On-line help. RS-232 cable. Tons more. Call for ***free*** MFJ catalog for full information: **800-647-1800.**

Multi-Gray WeFAX weather map received on 16.410 MHz using MFJ MultiCom and MFJ-1278 with multi-gray modem.

Optional MFJ-1292 digitizer, $199.95

. . . lets you instantly point, shoot and transmit a video picture -- all in one smooth sequence

Transmit your very own digitized pictures all over the world by packet, FAX or SSTV. MFJ MultiCom™ lets you integrate the MFJ-1292 "Picture Perfect" Video Digitizer, $199.95 with your MFJ-1278 for shooting and transmitting your pictures in one smooth sequence.

Nearest Dealer/Orders: 800-647-1800

MFJ ENTERPRISES, INC.
Box 494, Miss. State, MS 39762
(601) 323-5869; **TELEX:** 53 4590
FAX: (601) 323-6551; Include s/h.

MFJ . . . making quality affordable

Another perspective on the cost of Amateur Radio

Gary Myers, K9CZB

The cost of Amateur Radio equipment is frequently blamed for some of the problems that our hobby/service is experiencing. More and more Amateurs are saying, in print and in conversation, that the high price of gear is discouraging young people and retirees from joining our ranks.

Some even say that Amateur Radio equipment has been priced out of the reach of the average wage-earner. Before we devote too much concern to this "problem," let's put a few things in perspective.

When I got my Novice license in 1955, my friends and I were earning $1 per hour or less at our summer jobs (mine paid $.60 per hour) and $1 was the going rate for lawn mowing. Today's teenagers earn $3-4 per hour (or more), and they won't touch a lawn for less than $5 or $10.

Although I started with all homebrew equipment (a regenerative receiver and a 6AG7 oscillator with 5W input on 80 and 40M), by dint of a *lot* of hard work, I was able to purchase a new Hallicrafter SX-99 receiver, a Globe Chief 90 transmitter kit (CW only) and a Heath VF-1 VFO kit soon after I upgraded to General in 1956, at age 16.

Those basic pieces cost me $220; using the 4:1 earnings ratio between then and now, today's 16-year-old should be able to buy an $880 transceiver. A Yaesu 747 with an Astron (or similar) power supply can be purchased new for less than that — and look at the performance and features, compared to my 1956 gear!

Today, anyone can homebrew a transmitter and receiver that would be superior to my homebrew Novice gear, for well under $100. Remember, that's really less than $25 by 1955 standards.

How about kits? Back then, the popular beginners' kits were the Heath AT-1 transmitter ($30 — crystal control, with about 20W out) and AR-2 receiver ($25). Today, a Heath HW-9 CW transceiver kit has a vastly superior receiver and a VFO, with a signal that's only about one S unit weaker, for about the same relative cost.

On the adult level, the average family's income today is about $25,000, compared to less than $6,000 in the mid-50s. A typical adult 1955 Amateur's rx/tx combo was the equivalent of a SX-96 ($250) and a Viking Ranger ($300 for CW and AM — no SSB). At 4:1, that translates to $2,200 for a transceiver today . . . not too shabby.

Our Novices now have access to voice communications in our most exciting DX band, as well as the use of FM repeaters and digital communications. There are at least two bells-and-whistles 10M rigs that are available for less than the cost of a table model color TV. A 220 MHz handheld can be purchased for less money than many teenagers have invested in their heavy metal compact disc collections.

So, we are getting better equipment today, for about the same (or even less) relative cost, and our entry-level license conveys privileges that didn't even exist in 1955. What, then, is the difference?

For starters, as a teenager I didn't have a computer, an ATV or dirt motorcycle or my own stereo system. My high school band didn't travel to Europe, and we didn't have a ski club that spent winter break in Colorado. Designer jeans and Nintendo games didn't exist. Nobody would have known what "instant gratification" meant.

Working adults were different, too. Motor homes that cost half as much as a house wouldn't have sold very well in 1955. Foreign travel was uncommon. Hobbies were more accessible than good restaurants and live entertainment. People pushed their lawnmowers, and cleared their driveways with shovels. The average person's home electronics inventory consisted of an AM radio, a monochrome TV, and a record player. Nobody had heard of "yuppies" or "personal luxury cars."

Lifestyle after retirement was different, as well. Retirees' travel usually was limited to visiting their children: few owned travel trailers, much less motor homes, and none that I knew toured the world. A "retirement career" normally consisted of doing odd jobs around the neighborhood.

One seldom, if ever, heard retirees complain about a lack of time. Retirees needed to conserve their money, but they had the time to putter around in the garden and workshop, play cards, fish in the local river or enjoy hobbies like Amateur Radio.

Times have changed. Today, people of all ages spend breathtaking amounts of money, by 1955 standards, on nonessentials: a PC-compatible or Mac computer system, a snowmobile, a projection TV, a camcorder, a sailboat. In my community, it is fairly common for people to invest $2000 or more in a riding lawnmower, a rototiller and a snowblower, and then spend upwards of $500 per year on a health club membership so they can get some exercise.

And if you think that $6,000 for a transceiver is ridiculous, check out the price of a ski or bass boat, complete with motor and trailer — something that can be used only on good-weather

weekends, and for less than half of the year in much of our country. Same goes for recreational vehicles. Nearly everyone owns at least a few very expensive toys, so it's obvious that people *can* afford to buy Amateur Radio equipment. Why, then, don't more become Amateurs?

People have more money to spend on luxuries and recreation, but they also have more opportunities for fun and diversion. More people are doing more things than ever before, and nobody admits to having any spare time.

We seem to be suffering from cultural hyperthyroidism, and we want to live every day as if we were in a beer commercial. The pace of life has accelerated, and the emphasis is on the physical rather than the cerebral: as a society, we value the rush of adrenalin more than the quiet glow of accomplishment.

Amateur Radio just isn't as exciting to most people as sailing or snowmobiling, and it doesn't provide the comfort or status of a cruise ship vacation. A winter week in Aspen would more than buy a new rig, but schussing down the slopes usually wins out over dit-dahing around the bands. Physical fitness buffs are not attracted by the prospect of spending long hours studying for a license, in order to spend more long hours seated in front of a radio.

The aura of mystery and excitement that once accompanied radio communications no longer exists in a world of cellular telephones and satellite TV. Ready access to travel has dulled our curiosity about far-away places. Today, no one is awed by an Amateur's ability to talk to the world.

And Amateur Radio is the antithesis of instant gratification. An up-front investment of time and effort is required before you can *begin* to participate, in direct contrast to the modern plug 'n play lifestyle. We are an impatient society that demands immediate yet effortless access to fun, entertainment, excitement and status. Access to Amateur Radio is neither immediate nor effortless, it is not perceived as exciting, and it confers no status at all.

The fact is that people have plenty of money to spend on those things that they consider to be fun or important to their image. In our culture Amateur Radio simply is neither. And *that*, my friends, is our real problem. □

Silent Keys

Onie Woodward, W1ZEN

Leonice R. ("Onie") Woodward, W1ZEN, became a Silent Key on August 26. She had been particularly active in the Young Ladies Radio League and the Quarter Century Wireless Association. She managed the QCWA QSO Parties for the past seven years.

First licensed in 1953, she immediately became very active in Framingham, Mass. Radio club activities included many Field Day activities. She joined YLRL in 1956 and, after serving in a number of positions, she became YLRL President in 1962. She was a Charter Member and President of the WRONE (Women Radio Operators of New England) and for many years was the publisher of their newsletter, *WRONE Chatter.*

She joined QCWA In 1978 and was co-founder of the Yankee Chapter #112 and the Quarter Century Wireless Women Chapter #120 (QCWW). For the past seven years she was the QCWA National Activities Manager.

Onie is survived by her husband, Walter S. ("Woodie") Woodward of Marlboro, Mass. and daughter, Ann, KA1PON, of Marlborough, Mass. Her son-in-law, grandson and granddaughter are all licensed Amateurs (N1FJQ, N1DFQ, and KA1NOJ, respectively). —*Information submitted by Blanche Randals, W4GXZ.* □

Too close for comfort!

An alert neighbor of Thurman Beach, W6OOX, San Diego, California captured the above shot of lightning as it snaked between the elements of Thurman's antenna. Fortunately for all concerned, the house, radio shack and intrepid photographer were undamaged. *(photo submitted by Thurman Beach, W6OOX.)*

A ham's Christmas Eve

GARY E. MYERS, K9CZB

'Twas the night before Christmas
And all through the shack,
The rigs were warmed up,
Humming softly in the rack.
The last package was wrapped,
And the tree was majestic,
The family was asleep,
But my thoughts weren't domestic.
Visions of sugarplums
Were far from my head,
For as I tuned 20M,
The band was not dead!
I took a deep breath
And unlimbered the key,
Called "CQ DX,"
And waited to see.
Then ever so faintly,
Through the noise and QRMary,
Came a sure-fisted reply,
So light and airy.
I trembled with excitement
As I copied his call,
For this was THE Rare One
To hang on my wall!
Then from my headphones
There arose such a clatter,
I sprang back from the rig—
What was the matter?
Then there was silence,
Except for the sound of a
Struggle ensuing
Outside on the ground.
Away to the window
I flew like a flash,
Tore upon the shutters
And threw up the sash.
And what to my wondering eyes
Should appear,
But a miniature sleigh,
And eight tiny reindeer!
They were tangled and looped
In my feedlines and guys,
And I could but stand there,
And gape in surprise!
A little old driver
Was wielding an axe,
Cutting them all free
From the wires and coax.
I was about to say something
I'd surely regret,
When he turned toward me,
And then our eyes met.
He shrugged and smiled,
Then bent over his pack,
And I saw a whip antenna
Mounted on the sleigh, in back.
He rose up the tower
In a single bound;
I pulled in my head
And as I turned around,
The rig sprang to life,
And I ran to it with glee,
For there was that Rare One
Still calling me!
We traded reports,
And I filled out the log,
Dizzy with pleasure,
And lost in a fog.
I went back to the window—
Wonders never cease:
There was my feedline,
All in one piece!
I ran from the shack,
And there under the tree,
Was the Rare One's QSL card—
How could that be?
Then I remembered the sleigh,
And the mobile whip,
And I scratched my head
And chewed on my lip.
So Santa's a ham. . .
That's not so surprising,
But why haven't I heard him,
With the sunspots a-rising?
What is his call,
And what bands does he work?
Where can I find him—
Where does he lurk?
Then, a sudden inspiration,
I began to Understand:
There's only one place for Santa—
The Gentleman's Band!
It took a few minutes
To retune the gear,
For my hands were shaking,
And clumsy, I fear.
160 was quiet
On this cold Christmas eve,
As I tuned 'round the band,
Hardly daring to breathe.
Near the high end, a voice,
So jolly and hearty,
I knew right away
I had the right party.
". . .thanks Old Man,
For coming back to me,
I hate to rush off,
But I'm busy, you see.
"I've deliveries to make,
There's work to be done,
So thanks for the short,
It's really been fun."
I swear I heard hoofbeats,
And sleighbells and sounds
That could only be Santa,
Making his rounds.
The other station was gone,
So I dropped in my call;
I didn't really expect him
To come back at all.
As I lifted my finger
From off of the mike,
I heard other stations,
Tailenders and the like.
Then he chuckled and said,
"Thank you, thank you all,
For sitting there waiting
To give me a call."
"I'd love to stay around
To talk and ragchew,
To meet and get to know
Each and every one of you."
"I'm not really DX,
Just a mobile-nine,
Even though I have
An unusual call sign."
"I'll be back next year.
And so until then,
See you down the log,
We'll meet again."
And I heard him exclaim,
As he went QRT,
"Happy Christmas to all,
And to all, 73!"

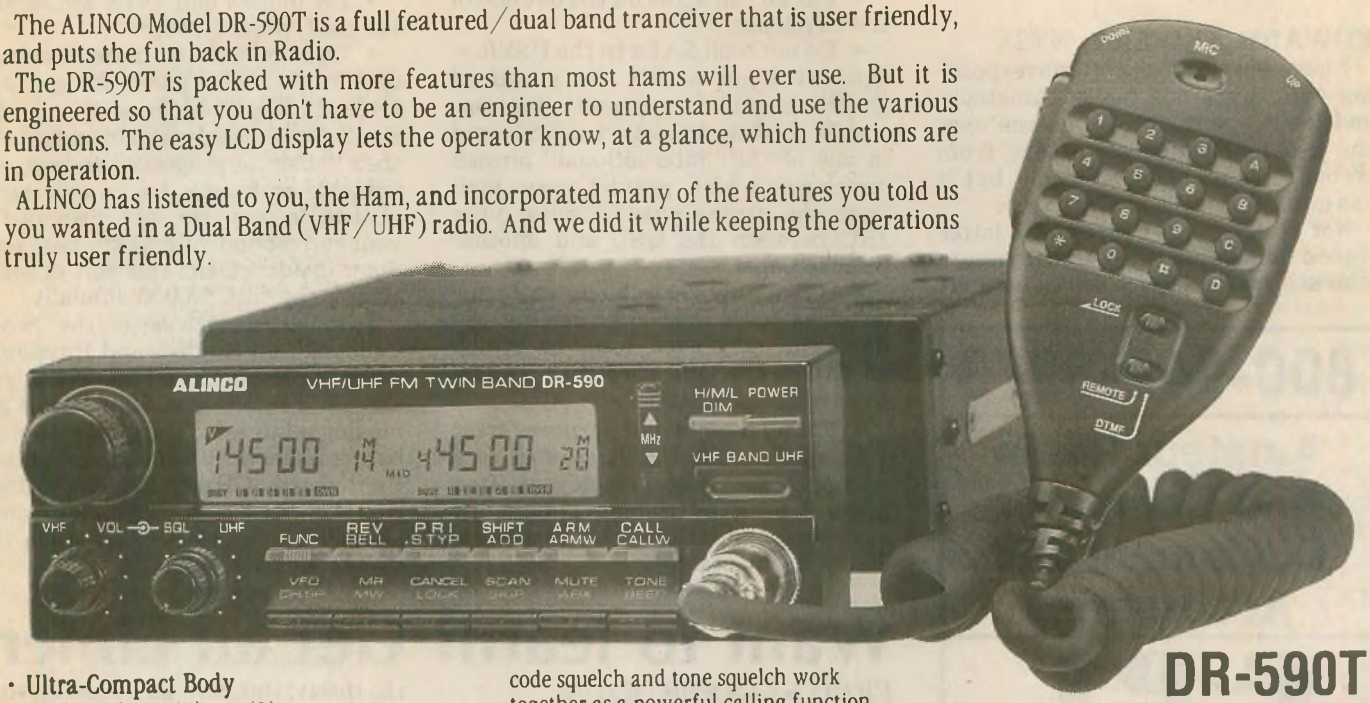
—Tri County ARA, Dixon, IL □

THE REMOTABLE TWIN BANDER

The ALINCO Model DR-590T is a full featured/dual band tranceiver that is user friendly, and puts the fun back in Radio.

The DR-590T is packed with more features than most hams will ever use. But it is engineered so that you don't have to be an engineer to understand and use the various functions. The easy LCD display lets the operator know, at a glance, which functions are in operation.

ALINCO has listened to you, the Ham, and incorporated many of the features you told us you wanted in a Dual Band (VHF/UHF) radio. And we did it while keeping the operations truly user friendly.



DR-590T

- **Ultra-Compact Body**
  5-7/8" (W) x 2" (H) x 7" (D)
- **High Power (Selectable)**
  High: 45W at VHF — High: 35W at UHF
  Middle: 10W — Middle: 8W
  Low: 5W — Low: 4W
- **Extended Receiver Range**
  144.00 - 147.995 Mhz (TX), 130 - 173.995 Mhz (RX), 440.00 - 449.995 Mhz (TX), 410 -470 Mhz (RX)
  (Specification guaranteed on amateur bandsonly. Modifiable for MARS/CAP permits required)

FEATURES

- **Simultaneous**
  Receiving on both bands at the same time
  Scanning intermix scan model on both bands at the same time.
- **Independent VHF & UHF Controls**
- **Detachable**
  With the optional remoting kit, the front panel can be seperated from the main unit.
- **DSQ (DTMF Squelch) Function**
- **Code Squelch Function**
  You can program a 3 digit code that will open the squelch only when the same code signal is receive from another transceiver. This allows for selective receiving. Additionally, with the optional tone squelch unit, the code squelch and tone squelch work together as a powerful calling function.
- **Various Useful Paging Functions for Grouping Calling and Individual Calling**
- **Remote Control Microphone**
  With this microphone there are several functions that can be controlled remotely:
  1. Direct setting of frequencies in VFO mode
  2. Up/Down of memory channels in memory mode
  3. Shifting to call mode
  4. ARM (Automatic Repeater Mode)
  5. VHF/UHF Switching
  6. Up/Down by 1 Mhz steps
  7. Setting and Selecting DSQ codes
  8. Setting and Automatic Dialer
- **Scanning Features**
  Memory Scan, Program Scan, ARM Scan, Band Scan, and more Scan.
- **Memory Channels**
  The unit has 28 memory channels, one independent "Call" channel, and 10 ARM memory channels (40 channels in total). You can program set tones, shift frequences, shift directions, and channel steps in each of the 28 memory channels.
- **ARM (Automatic Repeater Memory) Function**
  10 repeater channels can be memorized automatically. While ARM mode is active, scanning stops at vacant channels and pauses, then starts again automatically. This function is useful to find vacant repeaters.
- **ABX (Automatic Band Exchange) Function**
- **Bell Function**
- **Dimmer Function**
  Selectable 2 different brightness of LCD light
- **Three Priority Functions**
  VFO Priority, Memory Priority and Call Priority.
- **Repeater Operation**
  The DR-590T can be used as a cross band repeater.
- **Full Duplex Cross band Operation**
- **Others**
  1. Auto Dialer Function
  2. 6 Channel Steps (5/10/12.5/15/20/25 Khz)
  3. DTMF Monitor Function
  4. 38 Sub-Audible Tones built-in
  5. And Many Other Features

ALINCO ELECTRONICS INC.
438 Amapola, Lot 130 • Torrance, CA 90501
Tel: (213) 618-8616 Fax: (213) 618-8758

Mail to the USSR

EDWARD KRITSKY, NT2X

I have been extensively corresponding with numerous Soviet Amateurs and lately many voice concerns over the disappearance of letters from abroad. The problem isn't new, but it has gotten worse in the last year.

Not so long ago I received a letter signed by a group of Soviet Amateurs who said many letters arrive without "green stamps" or IRCs or don't arrive at all. Those arriving bear marks indicating that they were opened and then crudely resealed. These Amateurs offer these words of advice:

- Put no call signs on the outside of the envelopes.
- Do not mail SAEs to the USSR — the envelopes aren't the standard USSR size and they attract attention.
- It is better to mail your QSL card in one of the "international" airmail envelopes which protect your mail from the prying eyes. Conceal your IRC between the QSL and another piece of paper.
- It is highly desirable to seal your envelope with tape after sealing the flap. You may even want to attach an IRC to the QSL card with a small piece of the same tape.
- For all intents and purposes treat your mail to the USSR as mail to a country where postal employees often make a buck by ripping stamps off envelopes and stealing their contents. Avoid flashy stamps.
- If you mail anything of value in a parcel, by all means insure it. Postal theft is commonplace and my friends hint that it's probably the work of the organized crime in the USSR.
- US dollars and IRCs are legal in the mail to the USSR.
- Under no circumstances send your QSL cards with "green stamps" and IRCs via Box 88, Moscow. The Central Radio Club considers all incoming mail their "business property" and removes valuable enclosures for its own needs; photos, letters, etc. are discarded — your correspondent gets the bare QSL. Some insiders claim this sort of activity nets the CRC $5,000 annually.

To make this task easier, the "Soviet Callbook" (in English and Russian) is going to print in the middle of this year and will contain over 52,000 calls and mailing addresses. The publication can be obtained worldwide from Infotech Publishers: USSR, 220050, Minsk, Box 41. Price and availability dates unavailable. —*Information submitted by Ted Melinosky, K1BV* □

Want to learn? Get an Elmer!

FRED SKINNER, K2DN

One of the common sights in the hobby is to find the newly minted Amateur who displays his pride in having joined the ranks of Amateur Radio. He or she has worked very hard, they've spent several hours of study and diligently practiced the code to the best proficiency they could muster. They took their examination feeling heavy palpitations and they passed it! Oh joy!

The OM or YL came to a club meeting feeling very good about themselves (as they should) and talked to everyone. All they are waiting for is their ticket to start operating. Never mind that they don't have any equipment or operating literature or whatever.

Then the glorious day comes when the mailman delivers the ticket and wow . . . we are now real Amateurs! So what's next? How do we get into this business of communicating with the entire world? Phone or CW? In all likelihood we have the funds necessary to get the essentials and . . . we've got the ticket! But, how do we get started? What antenna are we going to use? What kind of rig do we buy? How do you learn to run the rig? How do you lay out the antenna? What are the operating procedures? What should I read to get started?

NO, HERMAN'S TALKING ON THE RADIO DOESN'T BOTHER ME A BIT!

Of course the questions vary according to the age in which one starts the hobby, the funds one can spare in buying the equipment, the ease with which one can walk around the roof of the house or climb trees to hang a wire and whether one lives in a house or an apartment. Getting the ticket is just the beginning and the road to mastering the hobby is infinite in distance.

The best we can hope is that we can become proficient enough to get the highest level of enjoyment out of the craft. But are we true experts? Very few of us!

So what do we do? We read, we listen, we ask questions, we arm ourselves with a great deal of patience. One of the best ways to learn, however, is to meet someone who has had more experience than ourselves, who has had his or her share of frustrations and learned from them, who is essentially willing to share his or her knowledge with those who are new or less experienced in the hobby, and can patiently convey it.

Such an individual is called an "Elmer," and he or she is the true treasure of our hobby. People like them are worthy beyond description and the value of their friendship is invaluable. So, do you want to learn? Get an Elmer to help! — *The Communicator* □

STATION APPEARANCE

Phil Lennan, N2HIF

Send **Worldradio** *a picture of your shack and the staff will choose a winner to receive a free one-year subscription! Stations will be judged by neatness (wires tucked away, etc.) and accessibility of equipment. Monetary value of equipment is not a consideration.*

Phil Lennan, N2HIF

This month's winner is Phil Lennan, N2HIF, of Highland Mills, NY. Licensed at age 11 as WV2RUE, he upgraded to General in 1961. He has been an Extra since 1987.

Phil joined the Navy in 1966 and became the ship's radio operator aboard a guided missle destroyer escort (USS Ramsey DEG-2). *He operated maritime mobile and handled phone patch traffic on return transit from Vietnam.*

While he operates all modes, Phil loves CW, which represents about 90 percent of his operating time. He enjoys entering a few contests a year and the annual Sweepstakes contest remains his favorite.

Following is a description of Phil's equipment:

Kenwood TS-940S transceiver (HF); Kenwood TS-440S transceiver (HF); Kenwood PS-50 power supply; Kenwood SP-940 speaker with filters; Kenwood SM-220 station monitor scope; Alinco EP-3030 power supply; Astron RS-35M power supply; Astron RS-4 power supply; Daiwa DK-210 electronic keyer; AEA MM-3 electronic keyer; Vibroplex paddle; Kantronics KAM TNC/RTTY/AMTOR/PACKET; Alinco ALD-24T 144/440 MHz dual band transceiver; Kenwood TR-751A all mode 2M transceiver; Mirage B-215 2M amplifier and Ramsey CT-50 frequency counter. □

Amateur "Hi"

Ever had a funny or strange experience with Amateur Radio, either on or off the air? If so, type it up (or print neatly) and send it to us for consideration in our monthly AMATEUR "HI" contest. You could win a free year's subscription to **Worldradio***!*

This month's winner is Chuck Winter, N7AAG, of Harrah, WA. There's nothing like the first time.

It was my first attempt to make radio contact with a doctor-friend, WB7ARA/HR3, in Eastern Honduras. I knew I had the right time and frequency. I could just barely hear his voice.

Over and over again I tried to break into his QSO. The minutes dragged closer to the hour mark. A cassette was running in my shack and I had high hopes of taping my momentous first contact with my friend. It was working toward being a momentous flop.

My finger was already on the power switch. I would shut things down and try another day. And then — faintly at first — I heard the doctor's voice calling me. I rushed through my station ID and blurted out, "Sam . . . it's me, it's me!"

That excitement was vividly portrayed on the still-running recorder. The tape would later reveal I had jumped up and down and shouted — to no one in particular — "He heard me! He *actually* heard me!"

That first wonder of DX has never left me. □

License care

BOB REITZEL, KD6OA

What condition is your original license in?

Now that the license is good for 10 years, after carrying it for eight or nine years will it still be readable? Will it still be clear enough for the photocopy you will need to upgrade?

I have seen some that are doubtful. I recommend making a copy to be carried in the billfold and that the original be kept in a safe place, along with other important papers.

As a W5YI VE examiner in the Los Angeles area, I know that we do ask to see the original, and many are "dog-eared" or stuck to the plastic window in the billfold. These are very difficult to remove when the time comes to xerox.

So a word to the wise, take that signed original (you did sign it, didn't you?), xerox it, store it and carry the copy, then, when it's time to upgrade, you won't hear the VE examiner saying, "Sorry, I can't read it!" □

OFF THE AIR

CW — a worthless endeavor?

Learning CW requires a modicum of tenacity. If one is willing to learn, he will acquire a skill which will set him apart from the multitude. In some cases, it can be one's only mode of communication with other humans.

Tracheotomy: an artificial opening into the trachea, or windpipe. Laryngectomy: the extirpation of the larynx. Glassectomy: the surgical removal of the tongue.

What does all this have to do with Amateur Radio? Well, friends, my friend Bob Chapko, K9YKN, has undergone all of these procedures as a result of cancer of the tongue, larynx, lymph glands and much of the throat. He will never be able to speak again, not even with some of the mechanical voice machines or an artificial larynx. Fortunately, Bob has fine CW skills; it is now his only communication with the world. He uses a TDD (supplied by the telephone company) to contact emergency officials such as police and paramedics. He communicates with Packet and RTTY, of course.

I am happy that when I became a ham, I stayed on CW until I had achieved 25wpm solid copy. I was present when Bob took his Extra class code exam. The examiners told everyone that there would be one minute of practice and the five minute test would start after that. The practice started and Bob just sat there at the table, pencil poised, but not writing. The examiner said, "Go ahead, this is the practice copy." Bob said nothing. When the test started, Bob started to write and at the end of five minutes turned out a flawless copy.

God forbid that any of you should ever suffer the ravages of cancer like Bob has, but it can happen. CW is *important.* If the big one drops, all of the VHF and UHF repeaters will be gone. It was the first mode and the only mode 100 years ago, and it may be the only mode again 100 years from now. Is the move toward no-code one more step to "move the phone section down into the CW portion?" I think our freedoms are being eroded badly today. I wonder, where will it all lead?

BART PAINE, K7CC
Tucson, AZ □

Keep it simple

In response to the FCC Petition for Rulemaking regarding amendment of the Amateur Radio service rules to make the Amateur service more accessible to persons with handicaps, I'd like to make the following suggestions.

Lower the code speed for the General Class license from 13wpm to 5wpm for all Amateurs. See the RM-7242; most of the code waivers are for the upgrade from the old Technician license to the General class. The proposed rules will require the FCC to process each waiver in a manual mode. This change would remove the major waiver request.

Move the 13wpm requirement to the Advanced class. Allow a handicap code waiver for the Advanced class.

Do not allow a 20wpm code waiver for the Extra Class license. I think there should remain a barrier of 20wpm for the sake of the VEC program, DX Amateur bands, and a special, top license for those who have qualified.

In addition, severely handicapped applicants not holding a current or expired Amateur Radio license should be required to pass at least the 5wpm code test.

Save the government money. Keep it simple.

GORDON GIRTON, W6NLG
Sunnyvale, CA □

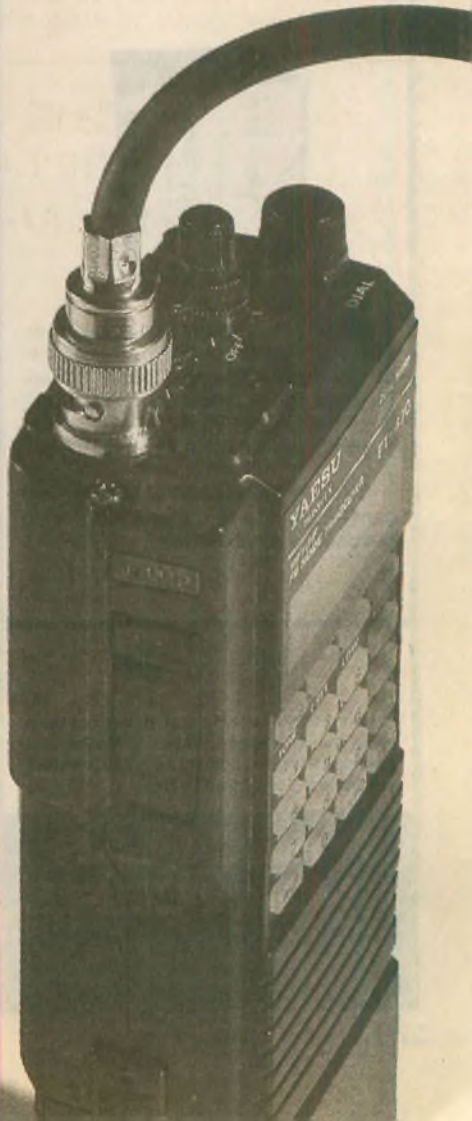
Quiet commitment

Accolades have been passed out to a lot of operators in the ham community. However, there is one Amateur whom I feel has been overlooked. He does his job, unofficial though it may be, and he does not ask for or get much credit. I have known him for many years and watched him give very freely of himself. When there is something to do, he is always first in line to offer help.

The ham community has always accepted him as a leader, although much of his work is done on his own. For every event that needs volunteer help, people respond to his appeals; he schedules volunteers as needed. If you happen to monitor 2M during the day of the event, you will hear him with his cheerful voice controlling every situation. We all accept his leadership because we know that his advice will always be carefully thought out, accurate, and in the best interest of all concerned. By his example, he brings out the best in all of us.

As a result, we feel that we have one of the finest emergency setups anywhere. When the earthquake hit, I think he was at county communications before the ground stopped shaking. He put in more time than anyone, and he kept volunteers coming. He checked every station to see what was needed, gave people encouragement, and showed tremendous commitment.

rfconcepts **DualBand**



revolutionary **AMP**

Designed for use with dual band hand-helds (HT's), the rfconcepts DualBand Power Amplifier represents a revolutionary step in the state of the art. This dual band amp and preamp combination is the first to amplify both 2m and 70cm automatically.

The DualBand Amp senses power output from your HT through dual narrow band peak detectors using fast switching low insertion loss relays for automatic keying (RF sense and transmit).

Features including PIN diode protected twin GaAsFet preamplifiers for extended range in fringe areas, and an all-component PC board mount design for reliable performance and serviceability, make the DualBand ideal for both mobile and ham shack applications.

For a detailed technical specification sheet, call your rfconcepts dealer or contact rfconcepts direct.

The rfconcepts DualBand, extra power for both 2m and 70cm, automatically.

rfconcepts - Division of Kantronics - **P.O. Box 11039, Reno, NV 89510, 702.827.0133**

When the crisis was over, he quietly disappeared back into the ham community without a lot of fanfare. But when another crisis comes about there will be Walt Del Conte, WD6EKR, offering assistance.

ANONYMOUS
Somewhere in the Bay Area □

Money saver

Here's a way to save a few bucks on the battery replacement for your hand-held transceiver.

In the case of the Kenwood TR7400 2M FM hand-held rig, the factory replacement pack (model PB24, 9.6 volts at 450mA) is priced at over $30.

A suitable and more powerful rechargable NiCd battery pack (9.6 volts at over 1A) is widely available as the battery pack for electrical powered portable tools such as drill motors. I use Makita Tools P/N 632009-0, battery charger cartridge #9000. A high current fast charger is also available from Makita, the fast charger model 9000 rated at 1.5A. Same voltage with more endurance, at the same price! Can't beat that, can you?

The drawback of the drill motor battery pack is the physical size. Of course, it does not fit within the TR7400 enclosure, but what ham can't improvise? Try it — you may like it, especially if you already have one in your tool box!

MICK McDANIEL
San Diego, CA □

From the Embassy

Sierra Leone has a viable base of Amateur Radio operators, some of whom are fairly well off Lebanese. A couple of us work at the US Embassy and several of us are missionaries. The rest are local Sierra Leoneans, most of whom make the equivalent of $50 per month. By the local standard of living, this allows for food, rent and clothing only; it doesn't begin to cover the cost of even a minimal second-hand Amateur station if such were available here in West Africa. Several faithful attendees of our monthly meeting of the Sierra Leone Amateur Radio Society (SLARS) have no license because they think it silly to pay the annual license fee if they have no equipment.

The club station consists of old, nonfunctional Heathkit gear. There is no site for a club station at present and it doesn't seem that these individuals will ever get on the air.

There are scores of perfectly functional but unused rigs gathering dust in the basements, attics and garages of American Amateurs. I'm asking the gang to dig them out, dust them off, box them up and send them to me for distribution to these deserving people. Solid state rigs would be preferred (Atlas, Swan, etc.) but servicable tube-type transceivers, transmitters and receivers would also be welcome. Rigs with dual voltage primaries would be best, though I'm certain that I can come up with some transformers. HW-100/101s, TR3s, NCX-3s and -5s would be super. They don't have to be cosmetically perfect, just functional. If you own such equipment, please consider sending it to us (via me at Freetown/Dept. of State, Washington, DC 20521/2160) to enable Sierra Leonean hams to get on the air.

DAVE HEIL
Freetown, SIERRA LEONE □

Contribution

I am a teacher at a small Christian school in Massachusetts. We accept no funds or grants from the government, so it remains a task to set up an Amateur Radio club for those who are interested.

I am a Novice (KA1UMF) and am now teaching code and basic electronics to a small group of junior high school boys who wish to get their ticket. It is my wish to help interested young people become Amateur Radio operators by building a station with which to train them using hands-on experience.

We have no equipment, and we would gladly accept any used (or new) equipment donations. We are able to supply a receipt for a tax deductible contribution. If you are interested in donating to this worthy cause, contact me at 413/283-6010 or write to 115 Flynt St., Palmer, MA 01069.

BRUCE COBURN, KA1UMF
Palmer, MA □

HAPPY HOLIDAYS!

Product Review
MFJ949D

RICHARD ARLAND, K7YHA

Recently MFJ Enterprises, P.O. Box 494, Mississippi State, MS 39762, unveiled the fourth generation of their very successful Versa-Tuner II, the MFJ-949D. This latest model offers features that have become standard on previous editions of the tuner. Built to handle up to 300W of RF power, the unit includes an antenna switch for two coaxial fed antennas, 4:1 balun for matching open wire transmission lines to a 50 ohm transmitter, end-fed wire antenna input, 300W dummy load for transmitter tune up, and full 160 - 10M coverage.

In addition to all this the new 949D offers a dual colored, cross-needle SWR/Power metering so forward power, reflected power and SWR can all be read simultaneously. There is a circuit included to measure peak and average power on the meter. A meter lamp has been added and is powered by 12VDC by an optional AC adaptor (MFJ-1312, cost: $12.95) or you can hook it right into your 12VDC station buss.

Hi/lo power switch gives a choice of two metering ranges. In the high power range the meter will read up to 300W forward power and 60W reflected power. In the low power range the meter will measure 30W forward power and 6W reflected power. In each instance, SWR can be read directly off of the SSWR scale while simultaneously monitoring forward and reflected power. Peak power measurements are made by pushing in the front panel switch labeled "peak." This switch places additional capacitance into the metering circuitry which yields a peak power reading.

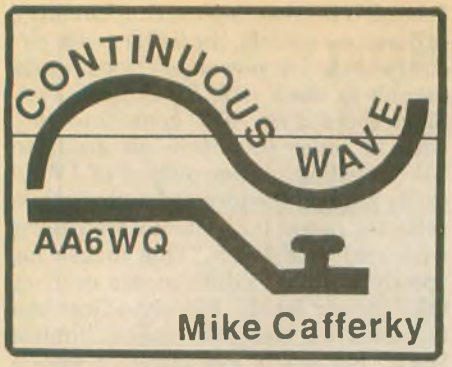
The MFJ-949D Versa-Tuner II antenna tuner is designed to match almost any transmitter to almost any antenna. This includes dipoles, inverted Vees, verticals, mobile whips, beams, random wires, long wires, G5RV dipoles and Zepps. In short, any antenna fed by coaxial cable, balanced feedlines (twin lead or ladder line) or single wire feed can be matched to your favorite transmitter, transceiver or receiver (yes, you can use it for SW listening and SW DXing also!).

The MFJ-949D measures 3½ x 10½ x 8 inches and is fully enclosed in a metal cabinet. This greatly reduces RFI in the shack by keeping the RF where it belongs — inside the tuner and on the coaxial cable. Front panel controls (starting from the left) are lamp on/off, hi/lo power, antenna selector, peak/average power, transmitter matching, inductor selector and antenna matching. The power/SWR meter is a big 2½ x 1¾ in. back-lit, two-colored meter featuring large, easy to read scales. Rear panel connections include dual coaxial antenna inputs, transmitter input, wire antenna input and balanced line inputs, *big* ground lug, and a 2.5mm meter lamp 12 VDC input.

The MFJ-949D tuner puts a lot of flexibility at the operator's fingertips. The dual coaxial antenna input ports can be bypassed and fed directly to the transmitter without going through the matching circuitry in the tuner (coax 1 direct, coax 2 direct). This is especially useful when using a multiband antenna that is tuned for one portion of a given band and needs the L-C network of the tuner to operate in other portions of the band. A quick flip of the wrist is all that is needed for quick antenna matching during a hasty QSY. The balanced line/wire position of the antenna selector switch selects the wire antenna port. In order to connect a balanced line (twin lead or ladder line), a jumper needs to be placed between the wire antenna connector and the first balanced line connector on the rear panel.

Being a dedicated QRP operator, I was anxious to try the 949D at QRP power levels and check out the performance and ease of operation. Unlike other SWR/Power measuring circuitry in previous models, the 949D meter circuitry in the low power position is quite useable at the 1 - 2W RF output level. Since there is no "set" control to play with in order to obtain an accurate SWR reading, power output of 1W is easily read on the forward meter, while reflected power is also monitored along with real-time SWR. This makes for speedy antenna adjustments even at QRP power levels. Merely adjust the transmatch controls for minimum SWR. No weird gyrations or guesswork. Quick and simple. A QRPers delight!!

The antenna matching network is the "standard" shunt capacitor input, series capacitor, shunt inductor output favored by Lew McCoy in his Ultimate Transmatch designs over the past 20 years. No surprises, just solid, proven RF design. The workmanship of the 949D is the usual high calibre which we have all come to expect from MFJ Enterprises. Built ruggedly for hard use, the MFJ-949D is a welcome addition to any shack and should serve the QRPer as well as those radio Amateurs who run up to 300W of RF. At home in the shack or in the bush, the 949D is a winner! Priced at $149.95 (retail) the full-featured MFJ-949D is an excellent value for the money. □



Welcome to "Continuous Wave." First, here's a little information about the author, Mike Cafferky, AA6WQ.

After spending the first two months (formerly KC6HSF and N6YHG) on the air exploring both SSB and CW, Mike settled down into the lower portions of the bands. For the last ten months he has operated almost exclusively on CW.

Mike's enjoyment in Amateur Radio presently comes from the fun he has operating mobile CW while making the 120 mile round trip commute to work each week day. He says it's a myth that you have to be a super operator to succeed at mobile CW. If you are in the western states, you will find him near 7.050 MHz Monday through Thursday during rush hour meeting new friends and staying in touch with other mobile CW operators. On Fridays he operates near 14.050 MHz.

As a marketing consultant, Mike has been publishing articles for over ten years and is currently a columnist for the Long Beach Times *newspaper where he writes a weekly column on marketing tactics for entrepreneurs.*

Some of the topics to be addressed in his Continuous Wave column include the laws of CW and QSOs, preparing for test day, getting past the 13 WPM hump, mobile CW, weight settings on electronic keyers, operating techniques, CW courtesy, pet peeves of code instructors and more. If you are a code instructor and have a pet peeve about CW operating, send it in to Mike. If you have seen or heard about unusual applications, awards or notable achievements in CW, send the information to him.

Finally, if you are a mobile CW operator or know someone else who is, send information and pictures to Mike. If you have questions or other ideas about CW you would like the author to address, write to Mike Cafferky, AA6WQ, 14031 Champlain Ct., Fontana, CA 92336.

Head copy

New CW operators are often in awe of more experienced Radio Amateurs who can copy code in their heads. Even some veteran operators wish they could copy without pen and paper whenever they wish. In this month's column you will learn why head copying is important to some Amateurs and how to do it proficiently.

The benefits of copying in your head

Think of the reams of paper you could save if all you wrote during a QSO was log information or data you wanted to keep. All those mounds of wadded up used paper would vanish. Instead of experiencing the tension associated with getting every letter down, you could be relaxing in an easy chair, feet up, enjoying a CW conversation.

Some operators have been known to operate while relaxing in bed. Others work from their car or boat when they need their hands free to operate other controls. You could even enjoy CW while cooking, eating breakfast, changing your oil, enjoying a picnic in the park, assembling a craft, watching Monday Night Football or doing many other activities.

A few things to remember

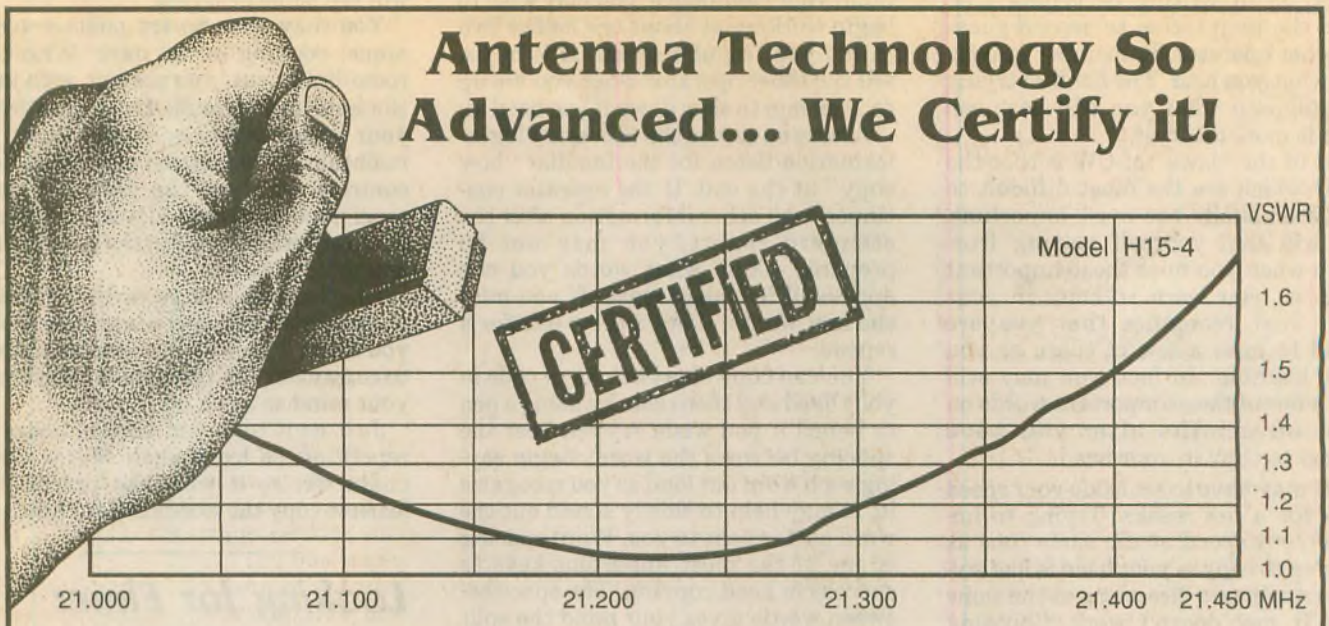
Not everyone is cut out for this type of code copying. If it is not for you, CW can still be enjoyable. Copying with paper and pen is still recommended in learning Morse Code. Handling health and welfare traffic requires the error-free precision gained only by writing what is copied. Another important reason to be able to write (or type) copy is for documentation of information which cannot be left to memory. Also, if you are preparing for code proficiency tests, you must be able to write what you hear so your copy can be checked for accuracy. Finally, using pen and paper can help you concentrate. It minimizes the chance that your mind will wander.

Techniques to learn head copy

Here are some of the techniques which have been used successfully to learn to copy in your head.

First, consider your environment. A good pair of head phones with a narrow frequency response is a start. Some operators add an audio filter to their head phones to limit the frequencies passed through. Using CW filters on your radio can help minimize the effects of QRM. Minimizing the distractions in your radio room will also help to set the best learning environment. In other words, to learn to copy in your head, first start with the best conditions possible given your set up.

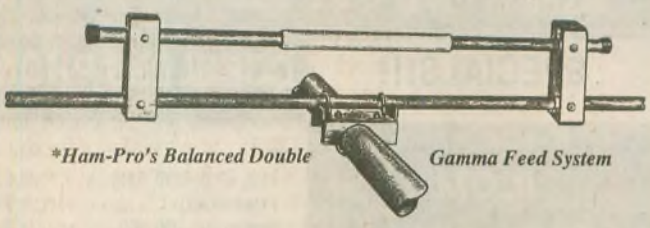
Antenna Technology So Advanced... We Certify it!



In this age of inflated claims, Ham-Pro offers certified** electrical values for pattern, gain, and VSWR. This unique approach sets Ham-Pro apart from the rest. Our 30 years of commercial broadcast antenna experience brings to amateurs a truly superior antenna which offers the following advantages:

Lower VSWR

The above measured chart indicates the superiority of our Balanced Double Gamma Feed System. A balun as well as impedance matcher, this novel feed system is located inside the driven element tubes, sealed, and weather protected. The pre-tuned driven element is shipped completely assembled and tested, offering lower VSWR across the band than any other monobander of its kind on the market.



**Ham-Pro's Balanced Double Gamma Feed System*

Superior Electrical Design

The new feed system which produces the lowest VSWR, gives the highest possible efficiency in a Yagi. Gains are maximized for practical boom lengths using computer analysis and range measurements. Harmonic rejection, unsplit elements and excellent VSWR bandwidth are exclusive features. Forget the antenna tuner – just tune your rig at mid-band and change frequency with ease. Great for contests!

Mechanically Superior

Surpassing the Electronic Industry Association (EIA) RS-409 standards for Amateur Antennas, all safely withstand 87 MPH winds with gusts to 112 MPH, while VHF models survive with 1/4" ice. Using 6061-T6 aluminum, booms are so strong they don't require back braces. Four U-bolts are used at each element-to-boom saddle, and two bolts hold each element splice.

No sheet metal screws to strip. No troublesome hose clamps. No copper wire to corrode. No outboard baluns, wires or loose coax outside the boom to distort the pattern. Vibration dampened where needed, element diameter changes are swagged for better electrical and structural performance. Our type N weather-proof input connector and all hardware are stainless steel!

* Patent Pending
** All data certified by independent testing facility

HAM-PRO MONOBANDERS

Model & Elements	Band	MEASURED Gain dB/d	MEASURED Max VSWR in band	Price
H20-4	20m	9.23	1.61	$635
H15-4	15m	8.80	1.65	$475
H10-3	10m	6.46	1.79	$245
H6-6	6m	9.41	1.91	$250
H144-15H	2m	13.73	1.68	$225
H144-15V	2m	13.73	1.93	$225
H220-17	220MHz	13.53	1.29	$230

Buy With Confidence

The new Ham-Pro Balanced Double Gamma Feed system plus other new innovations make Ham-Pro antennas superior to all others. Certified measured patterns, gains and VSWR values assure you the best monobanders money can buy.

To order or receive detailed specifications on our new generation of Yagi monobanders, call or write us.

HAM-PRO™
ANTENNAS
A Division of Kopps Corporation
6199B Warehouse Way
Sacramento, California 95826
Phone: (916) 381-7710
Fax: (916) 381-4332

Just as in writing or typing CW, avoid the temptation to second-guess the other operator. Remember to copy only what you hear. The habit of trying to anticipate what you will hear can make it more difficult.

One of the "laws" of CW is that the words which are the most difficult to copy are usually the most important. You will find yourself getting frustrated when you miss these important words as you learn to copy in your head. Just recognize that you are bound to miss a few of these as you begin learning. In fact, you may still miss a few of these important words on occasion months after you have learned to copy in your head.

You may have to set aside your speed goals for a few weeks. Trying to improve your speed at the same time as learning to copy in your head is like trying to run in two directions at the same time. It just doesn't work. Choosing one goal or the other to concentrate on will keep your frustration level at a minimum. Don't forget that if you have been doing CW for any length of time, you have already learned to copy a few things in your head. Familiar words can serve as islands of rest when you begin progressing to 100 percent head copy.

Now is the time to jump right in and try it. Start with a real live QSO. To build your confidence, you may wish to begin working at about one half or two thirds your regular speed. If it helps, tell the other operator what you are up to. Ask him to slow down if you need to.

After you record the necessary log information listen for the familiar "how copy" at the end. If the operator continues with other information after the standard report, you may not be prepared. Copy what words you can and see if it makes sense. If you miss the key words, don't worry; ask for a repeat.

You can copy short bursts of code in your head and then relax by using a pen or pencil if you wish. As you hear the spacing between the words begin saying each word out loud as you recognize it. It may help to slowly sound out the word as it is sent to you. Word spacing is one of the most important keys to success in head copying. The space between words gives your mind the split second it needs to make sense out of the stimuli it has just received.

With paper and pencil you can look down and review what you have just written to see where the spacing needs to be. However, when copying in your head you are left at the mercy of the other operator's spacing. Sooner or later, after a couple of days trying your hand at head copying, you will begin to recognize a few more words and you will see some progress.

You may wish to try another technique: copying in the dark. With the room lights out, you are left with just the auditory stimuli. The lights from your radio will give enough light to maintain an orientation of your station controls. At first the darkness may seem uncomfortable. If it is, just eavesdrop on another QSO in the dark before you get on the air.

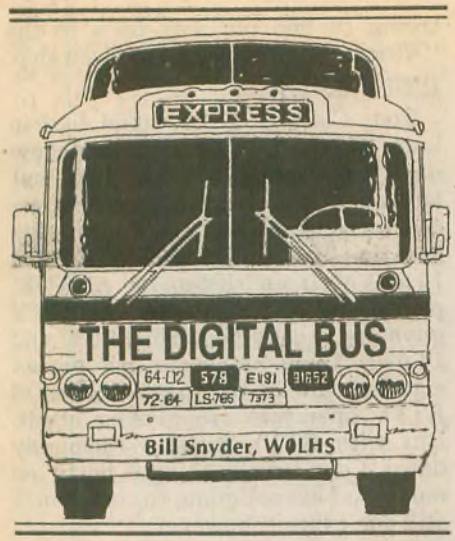
Another idea is to record a few QSOs on cassette tape and play them while you drive. This will give you the chance to copy in an environment which forces your mind to work on its own.

Just as it took you several hours of repetition to learn each Morse Code character, so it will take practice to learn to copy the words in your head. □

Looking for Elmer

I'm a young man, blind and shut in, and I'm seeking friends who live in the Los Angeles area who could assist me in learning about Amateur Radio and possibly attaining an Amateur Radio license. My phone number is 213/938-5347, or contact me by writing to me at 5909 W. Sixth St., Los Angeles, CA 90036.

RICHARD
Los Angeles, CA □



Martin Mullican, GØNJN, the English "Cornhusker," also answers to the call of NØKRO; he is a Yank in the US Air Force in England and he is having a bunch of fun with packet radio. Martin and I have traded messages a number of times via the world-wide packet system. I won't say packet is the speediest system I've used, but now and then is does get through without losing the message.

A recent message I sent to Martin must have broken some kind of world record for finding the longest pathway to England. Martin thinks so too. Because our packet system operates in a random and capricious way, messages do sometimes make an extra-long trip to the addressee. When Martin received my message he replied by sending back the list of stations that handled my short note to him.

Here's the route: My BBS forwarded it (through four nodes) to the WDØFFQ BBS in Devils Lake, North Dakota. From there it was kicked over to VE4BBS near Winnipeg, Manitoba. From there one would think it should go east towards the British Isles, but no, it went west to N6MPW in California. His BBS, in turn, shot it over to another California BBS who kicked it right over to W6HTH in the sunny islands of Hawaii.

Next the little message hopped down to Australian bulletin board station VK4BBS, where it was rebooted to DU1EAG in the Philippines. The DU BBS relayed it to YB1BBS in Indonesia, which in turn sent it to Europe, and there it hopped through three Netherlander shacks: PA2AIR, PI8EAE and PAØSCH.

The country of Ireland and the EI6EH BBS was next in the growing line of calls. From there it hoppped over to jolly old England. The line-up of G stations forwarding my little message is as follows: GB7ULV, GB7BPL, GB7LIV, GB7OAR, GB7CHS, GB7YAX, GB7WRG, GB7DAD, GB7LRG, GB7BIL, GB7ZPU and GB7SPV. That is a total of 12 relays. I sent the message on August 12 and it arrived on September 2. It passed through a total of 25 PBBS on its journey around the world. You might call that a leisurely trip, one that would be fun to take as a vacation junket.

When Martin received my message, he promptly answered it in the GB7SPV machine. The return portion in England was via GB7ZPU, GB7HXA, GB7DDX, GB7ESX, GB7VLS and GB7LDI. From there it hopped the Atlantic to Tom Clark's station, W3IWI, located in the Baltimore/Washington DC area. When a message gets into Tom's station it knows its way to North Dakota without random forwarding. It jumps to VE4BBS in Manitoba and then down to me via the North Dakota BBS, WDØFFQ and six nodes. The time frame for the answer was not too speedy either. The date filed was September 2, and the message arrived in my BBS on September 20, which adds up to about 18 days. But the whole process did encircle the globe.

Martin's answer included this comment and question: "You asked about the path your message to me took. Wow, this one has to be a world record. Did you put some magic 'around-the-world' addressing parameter in there somewhere?

No, Martin, it was just the wonderful luck-of-the-draw randomness that the packet system depends on to route a message. There ain't no system that I know of as of this writing. I wish there were. More than anything the packet radio network needs management by route managers at all levels of operation.

I would like to see the ARRL take the reins and establish a national system with a national manager, regional managers, state managers and in crowded areas, local managers. Each manager would then tell each BBS where to dispose of outbound traffic. It shouldn't be too complicated to figure out the best and alternate routing for a message to any place in the world. If they would go to the zip code system for US traffic, it could be a breeze to push traffic through without going all over the country.

Martin also indicated that he would like to see more hams try international traffic handling on packet. "They're missing out on all the fun!" he writes. And I agree with him. So, fellow packeteers, try a message to Martin in England. Here's all you have to do: Put a message addressed to GØNJN via GB7SPV.GBR.EU in your local PBBS and wait for a reply. I'm sure Martin won't mind answering your missive, so have at it. When you get a reply, drop me a line and tell me the details. It should be an interesting experiment.

Short message, long path

A friend of mine recently moved his BBS to Alexandria, Minnesota from St. Cloud in the same state. He sent me a short packet message with the following text: "Please send me your phone number. I need to check something out with you." The filing date was the 14th of the month. It arrived in my BBS on the 30th of the same month (wonders will never cease) after a long trip around the country.

First it went to Minneapolis, the opposite direction from Fargo, North Dakota. Then it went to MIAFL.FL, MIAFL.FL, SRQFL.FL, HLN.MT, BZN.MT, BIL.MT, NEWY.WY, DPN.MB (Manitoba), PLP.MB, ND, SLK.MB, ND, SLK.MB, ND and finally into my mailbox BBS. I wonder what path it would have taken if we were all forwarding with zip code numbers instead of the hierarchical system.

Newsletter stuff

I enjoy reading the newsletters from clubs around the country. The latest one to cross my desk is *Ham Hum* from the Ak-sar-ben ARC in the Omaha, Nebraska area. It has a history dating back to 1951 and, according to the masthead, a circulation of 425. In the issue I am looking at there is a list of packet operators and the PBBS stations on which they receive their mail. It is quite impressive; there are lots of packeteers in the Omaha area.

The *Red River Radio Flyer,* our local club newsletter, was named for a brand of sleds that were popular when I was a kid. I even owned a Radio Flyer Sled back in the 1920s. It was a Christmas present from my grandfather. Dale Carey, WBØAKO, the local AMSAT coordinator, lays out the copy on his Compaq computer using the Pagemaker program. He then copies the newsletter to disk and brings it to my shack where he processes the master prints on my HP IIP laser printer which is equipped with a postscript cartridge. Desk top publishing is here to stay.

One of the most interesting newsletters I receive is the *Ham Band Junk Yard Dog Newsletter.* It's published by Bud, AE7K, Box 2143, Elko, NV 89801. Here's what Bud calls a CLASSIFRIED(sic) AD: "WANTED, Electricians. Good pay, benefits. Con-

tact National Electric Chair Co, Inc. at your local prison."

Another classified: "CONTRARY to last months notice, Boyd Studge is still responsible for my debts, whether he likes it or not. All my lawyers agree. /s/Desire Fandango."

The major thrust of Bud's newsletter, which is a free publication (SASE desired) is to log all the "junk" signals heard on the ham bands each month. If you hear strange signals on the ham bands, drop Bud a line and enclose your log with date, time, frequency and nature of the strange signals (RTTY, AM, FM, CW, FAX, Jamming, MPX, harmonics or whatever). The HBJYD indicated one signal was "Swahili (a pidgin Arabic)." I think you are wrong, Bud; Swahili is a complicated Bantu language spoken on the island of Zanzibar and the neighboring African mainland. There is, however, a pidgin language called "Kitchen Swahili" used in the East African countries. I got pretty adept at using it to order barroom drinks during my year in East Africa.

Bob Leo, W7LR, and I once spent a day in Zanzibar. We hired a local Bantu native to guide us around the maze of extremely narrow and crooked streets on the exotic island. We asked him his name and he replied "George Washington." I wondered if he would have said "John Bull" if we had arrived on a British ship. By the way, I'm glad we hired George; we'd probably still be trying to find our way back to the "African Pilgrim," our American ship.

RTTY activity

Tom Cole, K6EPS, would like to know where all RTTY activity is these days. So would I. I listen daily, but lately I've not seen much activity except on contest weekends. I would suggest that Tom tune his dial to 14.070 to 14.110 MHz and listen for AMTOR, packet and RTTY signals. The RTTY guys are usually between 14.080 and 14.090. There are some HF packet signals below 14.100 that a number of RTTY operators are fussing about. But with RTTY activity seemingly down, I don't really thing it hurts too much, so I am not going to complain. I still don't like it, however.

Eavesdroppings

RTTY IS MUCH BETTER THAN SIDE BAND FOR DXING BECAUSE YOU CAN USUALLY FIGURE OUT WHAT THE OTHER GUYS CALL SIGN IS WITHOUT HAVING TO SPEND AN HOUR TRYING TO DECIPHER AN ACCENT ... MY TYPING IS NOTHING BUT A RACE AGAINST THE BUFFER ... I MADE A MISTAKE AND PAINTED MY TOWER FROM THE BOTTOM UP ... IN MY LIFETIME I HAVE WATCHED COMMUNICATIONS GO FROM A SINGLE TELEGRAPH WIRE TO SATELLITE STUFF ... THE RIG HERE IS RUNNING IN THE FREQUENCY SHIFTY MODE, THAT IS WHY THE CARRIER WOBBLES ... I LIVE ON A 20 ACRE FARM AND RAISE EVERYTHING FROM CATTLE DOWN TO ANTS ... WOULDN'T YOU KNOW IT, MY ROTARY BEAM GOT STUCK IN THE DIRECTION OF NO DX ... SHE THOUGHT FRESH FISH HAD TO COME FROM FRESH WATER ... I NEVER READ THE INSTRUCTION MANUAL UNTIL I'M REALLY STUCK ... WITH THE COST OF COMPUTERS COMING DOWN THE STUFF IN MY HAM SHACK IS PILING UP ... IT'S HARD TO TUNE UP YOUR RIG WITH THE ANTENNA DISCONNECTED ... MY SHACK IS A REGULAR MUSEUM, THE ONLY THING I DON'T HAVE IS A SPARK TRANSMITTER ... I NEVER THROW OUT ANY OLD TUBES, I TAKE THEM TO THE DAYTON FLEA MARKET AND BRING THEM HOME AGAIN. GIVES ME A GOOD REASON TO GO EVERY YEAR ...

My thanks go to WØHAH, W7VFR, WØPCI and those stations I watched on the HF bands. My packet address is WØLHS via WOLHS.ND.USA.NA. If you care to, send me a message. You may write me: Bill Snyder, WØLHS, 1514 South 12th St., Fargo, ND 58103. 73 and DIT DIT. □

DX WORLD

John F.W. Minke III, N6JM
6230 Rio Bonito Drive Carmichael, CA 95608

Activities Calendar

01-02 Dec. URE Spanish DX Contest (CW)
01-02 Dec. ARRL 160-Meter Contest (CW)
08-09 Dec. ARRL 10-Meter Contest

For details on contest activity, consult your favorite contest column. We have no advance notice on some of the above and are basing the dates on those from previous years.

W100N

The following DXers were awarded Worldradio's Worked 100 Nations award recently: 381) Everett C. Faulkner, AA6MP, (All 20M SSB) Sep. 19, 1990; 382) Ronnie L. Houston, WX5X, Oct. 11, 1990.

Here's the QTH of Sven Fagerström, SM7KDB, of Möbylånga on Öland Island (IOTA EU-37). The lower antenna is a duo-bander with 4 elements on 15M and 5 elements on 20M. The upper antenna is a 7-element mono-bander on 10M. The rotor is in the attic. Sven, a retired math and physics teacher, runs an IC-735 with an SB220 amplifier. His location is only a few hundred meters from the Strait of Kalmar.

Juan Fernandez (CE0Z)

According to *Inside DX,* there is a possibility of a DXpedition to Juan Fernandez Islands around mid-November. Activity is planned for all bands, 10 through 160M on both CW

Sven, SM7KDB, at his home on Öland Island.

Sven takes time out for this photo in southern Spain where he has a second QTH running an IC-720 to an HQ-1 minibeam.

and SSB. The operators will include CE3BFZ, KB6SL, F2JD and possibly others. Look for them beginning November 10 for about a week of operating.

Grosse - Ile (CI0GI)

As expected the DXAC shot down this one as a separate DXCC country. The vote was unanimous. The little island is located in the St. Lawrence River, downstream from Quebec City.

Jarvis Island (KH5J)

Recently we asked Jim Maxwell, W6CF, a member of the DX Advisory Committee, about the status of Jarvis Island. His reply was that they have yet to receive any information from them concerning DXCC status. That was the AH3C/KH5J DXpedition last April. No cards have been received either, at least not by us. Hopefully, they will be coming soon, as well as the paperwork for separate DXCC status.

St. Peter and St. Paul Rocks (PY0S)

The Natal DX Group is planning a return trip to St. Peter and St. Paul Rocks, starting the first week in May and running for 10 days. The DXpedition team is to consist of five operators and operate all bands, both CW and SSB.

The estimated cost of the DXpedition will be $9,000, which is beyond the economic means of the local hams in that area. They are presently soliciting donations to support the operation. If you care to help out the Natal DX Group please send your support to them at Caixa Postal 597, 59021 Natal, RN, BRASIL. Be sure to send your donation via registered mail only!

Meet Sokum, the YL operator at XU8DX in Pnom Penh. Her QSL manager, Dr. Shin Onisawa, JA1 NUT, reports that she has started working at a ground satellite station in shift duties. She lives with her mother and brother. Her father was killed during the genocide by Pol Pot. Thanks to Shin for the photo and information. As of this writing the DXCC desk is still not accepting contacts with XU8DX made by Sokum. Perhaps things will change soon.

Club station XU8DX was established and operated under the permission of the PTT Cambodia by the Hungarian team of HA5PP and HA5WE last Spring. Since their departure last April the station has been operated by a young Cambodian YL named Sokum.

IOTA

AF-12	Juan da Nova Island		FR5ZU/J
		14.256 MHz	0400 UTC
AS-22	Bear Islands		4K4QQ
		21.025 MHz	0400 UTC
AS-43	Nampo Archipelago		JI1GRU
		21.170 MHz	0700 UTC
AS-59	Tauyskaya Bay Islands		UA0IBB/A
		14.003 MHz	0045 UTC
AS-71	Arakamchechen Island		4K4/EK0AK
		21.266 MHz	0245 UTC
EU-27	Bear Island		JW9MAA
		21.320 MHz	2245 UTC
EU-40	Berlenga Island		CR1BI
		21.260 MHz	0945 UTC
EU-44	Mageroy Island		LA2NK
		21.302 MHz	1830 UTC
EU-46	Tromso Island		LA3T
		21.250 MHz	1630 UTC
NA-14	Grand Manan group		K8ZZC/VE1
		14.260 MHz	1930 UTC
NA-70	Amchitka Island		KL7Y/P
		21.012 MHz	0011 UTC
NA-84	Harrington Island		VE2JL
		21.009 MHz	2215 UTC
OC-67	Raiatea Island		FO5KF
		24.935 MHz	0900 UTC
SA-18	Isla de Chiloé		F2JD/CE7
		28.560 MHz	0030 UTC

LA3T was very active in the recent SAC contest in September.

Mike Sochinski, RA3YG, reports that their DXpedition to Kolguyev Island (EU-85) during the three-week period in June and July was very successful, thanks to K2UPD, K9PPY and W4BAA. They made more than 25,000 contacts, many of them with US stations. Mike reports that they are planning a return DXpedition next year. Anyone who worked this last DXpedition (4K3PA, 4K3PWB, 4K3/UA3YCA and 4K3/RA3YG) should QSL direct only to Mike at P.O. Box 5, Bryansk 241 000, USSR. Please include an SASE and Mike says he will accept a green stamp in lieu of IRCs.

Turneffe Islands (NA-123) is to be activated for the first time late in November by Scotty, V31SW, Gary V31KX, and Kristin, V31YL. They will be signing V31TI beginning on or about November 21 for about five days. Check the usual IOTA frequencies, 14.260, 21.260 and 28.460 MHz.

QRZ DX reports that FW1FM is located on Futuna Island (OC-118) and should be there for three years. The operator is FE1GJO and counts for DXCC as Wallis and Futuna.

We would like to include information on the IOTA awards program in this column. Hopefully, it is of some use to you.

DX awards program

The Western Washington DX Club, as well as several other DX clubs, has established an annual DX awards program starting in 1991. Awards will be presented to each member who has worked 100 or more countries during the year.

The Northern California DX Club has something similar with their annual Summer Marathon, plus a nine-band DXCC.

We would be interested to know what other DX clubs have awards programs within their memberships. It is a great way of creating some fun for intra-club competition. Often a good side benefit is working a brand new one while in the running.

Big NCDXC meeting

Year after year the Northern California DX Club has held their

monthly meetings in the San Francisco Bay Area. Finally, one comes to Sacramento! Mark your calendar for February 8. The local Sacramento members of the NCDXC plan a meeting to remember.

Worldradio's own Peter Onnigian, W6QEU, will speak on antennas with Jay O'Brien, W6GO, to give the latest on packet radio for the DXer. The meeting will be held at the Santa Fe Inn, 2600 Auburn Blvd, (Fulton Avenue exit on Business I-80). In addition, the Inn has special rates for attendees who wish to spend the night. For room reservations contact the Inn at 916/482-4770. Be sure to mention the reduced rates. Those who stay will have a special treat to visit the W6GO antenna farm that Saturday morning.

Contact Ed Merritt, KF6EN, 2512 Cambon Way, Sacramento, CA 95821; 916/489-2285 no later than January 1 for reservations.

QSL via the bureau

Bill Mollenhauer, N2FZ, after being off the air for 10 years and returning in September 1989, writes, "How about doing a survey on the rate of return of cards via the bureau?" Bill reports that it took him about seven months for a card to get to a Russian ham via that route. He had received a direct return on the card. So far he has sent out around 500 cards and received about 20 in return.

We really don't have to do a survey here. Sending QSL cards via the bureau is the least expensive way of exchanging QSL cards. Unfortunately, it is very slow. Expect to wait in excess of a year, especially if the DX station waits until he receives yours. Bear in mind, most DX stations don't need stateside QSL cards.

It is also unfortunate that the bureau system cannot handle domestic cards. I'm sure more exchange between locals would occur if this service were available. However, the bureau system is manned by volunteers and it really would be unfair to increase their workload.

Anyway, for you ARRL members, be sure to use the outgoing system via Newington and keep envelopes on file at your district QSL bureau. The outgoing system is available to members only, but the incoming system is available to all DXers.

New DXCC fees

Most of you are probably aware by now of a new fee system established at the DXCC desk. Basically, it is $10 for all new applications and another $10 for endorsements exceeding one per year. We have heard several negative comments on the system.

We don't think the new system is particularly unreasonable. Remember, you are allowed one free submission per year and it doesn't matter how many cards or different DXCC programs you are involved with (CW, mixed, single-band, etc). For most of us who have reached those higher numbers, the number of new ones begins to be harder to come by. So, a yearly submission isn't really a bad idea at all and may even be better for a lot of us who have trouble getting 10 or 25 new ones together.

Soviet ham magazine

Beginning January 1991 the new, comprehensive *Soviet Ham Press Digest*, covering all the aspects of Soviet Amateur Radio, will be published. Written in English, the publication will keep you informed on Soviet hams and will feature Soviet DXpeditions, clubs, awards, QSL information, and much more. Yearly subscriptuions for this monthly publication will be $12. For subscription information contact George Yankopolus, NA3O, 13 Glen Meadow Drive, Glen Mills, PA 19342.

Antique QSL department

The following QSL card was submitted by Charles McDowell, K4LR (formerly W4JJX).

DX Prediction — December 1990

Maximum Usable Frequency from West Coast, Central U.S., and East Coast *(courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22180).*

The numbers listed in each section are the average Maximum Usable Frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio De Janeiro. Chance of contact as determined by path loss is indicated as bold MUF for good, plain MUF for fair, and in parentheses for poor. UTC in hours.

DECEMBER 1990
WEST COAST

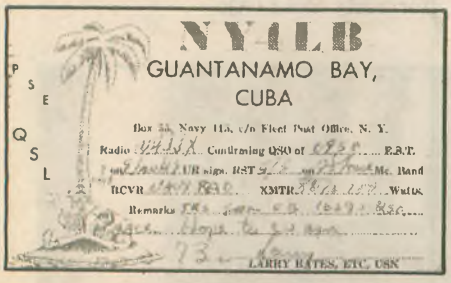
UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(13)	14	17	(11)	17
12	(13)	14	17	(11)	16
14	(21)	13	16	(11)	31
16	(26)	14	24	(15)	37
18	28	14	(21)	(12)	40
20	28	(13)	28	(12)	40
22	24	27	33	(11)	38
24	21	29	36	(11)	32
2	16	24	32	11	22
4	15	17	22	11	20
6	(14)	16	20	10	18
8	(13)	15	18	11	17

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	(16)	11	17	11	17
10	(16)	11	17	(11)	16
12	27	11	16	(11)	23
14	34	14	28	19	35
16	37	(14)	24	(17)	39
18	36	(13)	(22)	(13)	40
20	30	(13)	29	(12)	40
22	25	22	33	(11)	36
24	21	(18)	31	11	26
2	19	(13)	22	11	21
4	18	(12)	19	11	19
6	(17)	(12)	(18)	11	18

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	16	11	(17)	11	17
9	16	11	16	(11)	16
11	28	11	16	17	24
13	35	12	30	21	34
15	38	(11)	26	19	38
17	38	(11)	(21)	15	40
19	33	(11)	(26)	13	40
21	27	(18)	31	12	36
23	21	(17)	31	11	26
1	19	(13)	21	11	21
3	18	(12)	(19)	11	19
5	17	(12)	(18)	11	18



NY4LB was the call assigned to Larry Bates, who was stationed at Guantanamo Bay in Cuba. It was a confirmation for a contact made on 10M for AM operation. The date was 1949 and the NY4 prefix was dropped in favor of the KG4 prefix. During the early 1950s when we were about to run out of W prefixes, K calls were soon to be issued. However at that time, any K call indicated that it was from outside the 48 states, (K6 for Hawaii, K7 for Alaska), so those stations were then issued new two-letter K prefixes. It was probably at that time that the NY4 prefix was retired for the new KG4 prefix. Charles says that his card is a double antique, as the card only required 1¢ to be mailed. And it happened to be a green stamp!

QSL information

Bill Jago, K7MO, writes that he has been receiving QSL requests for SV0MO/SV8 and SV0MY/SV8. Bill is not the QSL manager as we listed in the September issue. These calls are the work of pirates! We checked the W6GO/K6HHD List and found that SV0MO/SV8 has been indicated as such for at least a year.

Incidently, we would appreciate any feedback from readers who find errors in these QSL routes.

Bruce Siff, W2GBX, can provide QSL cards for any of the following calls (dates are in parentheses): EL5C ('82), FO0BRS ('85), J6LIH ('80-'83, '87) J6LPS ('89), J73HA ('82-'84, '87-'88), ON8IC ('80-'83, '89), PJ5/W2GBX ('88), V29C ('89-'90), VK4FCC ('85), VP2E/W2GBX ('88), W2GBX/J3 ('89), W2GBX/KP4 ('86), W2GBX/V2 ('88-'89), W2GBX/V2A ('85, '87), YC1GT ('80-'85), 3D2GB ('86), 8P6OP ('80-'82).

For contacts for Bruce's 1971 activities as 3A0GB, 9H3B (1972) and TA3GB, send your QSL requests via VE3MR or W2FXA.

Ray Riker, NY2E, reports that he has assumed the QSL responsibilities of WA4BCQ for HS0B, HS0M, HS0SM and HS0AC.

Alex Ulyanich, RB5IJ, apologizes for all those DXers who sent him QSL cards plus other calls that he handled, including 4J5FV, UG7GWH and UF7VWA. It seems that the local postal system was not efficient. Alex says to try again via NA3O.

According to *QRZ DX,* the 3Y5X QSL cards continue to arrive in the mail. Club Bouvet requests that you do not complicate their efforts by sending follow-up cards. Please be patient.

The same applies for 5N6SKD. His QSL manager claims that there is a six month delay on receiving logs.

QSL routes

A41JV	—KJ4GK	VE1MQ	—VE1BTT
CN2BB	—DF4VS	VP2EXX	—KB2XR
CR1BI	—CT1CQK	VP2MBK	—K8UE
CS9M	—DL9XY	VP2MEU	—K8UE
CT3FF	—I0WDX	VP5VAA	—WS4E
CW0W	—CX4CR	VP8CDJ	—GM4KLO
EA8AGD	—OH6DK	XE2XA	—KD5GY
ED1ISI	—EA1ANE	XE2XSQ	—K5TSO
ED5IPE	—EA5GEO	Y90ANT	—Y21RO
F2JD/CE7	—F6AJA	YJ8AB	—KC4MJ
FO0IGS	—F6EEM	YJ0AMH	—KF7PG
FT5XA	—F6ITD	YM5KA	—HA0NNN
FW0ET	—FK0DD		*(See Note 3)*
GD3CSA/P	—G0IEQ	YS1HUKE	—N8FU
	(See Note 1)	YT90T	—YU4XA
GX0ANT	—G4XTA	YU9TW	—YU2TW
HF0POL	—KB6GWX	YU90AA	—YU2AA
HK0TU	—HK3DDD	YZ90S	—YU2AKL
HS0AC	—NY2E	ZC4HMS	—G4SSH
	(See Note 2)	ZD8S	—AK0M
HS0B	—NY2E	ZF2JI	—KG6AR
	(See Note 2)	ZF2JR	—N6RJ
HS0M	—NY2E	ZF2ML/ZF8	—WB2P
	(See Note 2)	ZF2NE/ZF8	—W6ASP
HS0SM	—NY2E	ZF2PM	—NE4L
	(See Note 2)	ZF2PN	—NE4L
IZ3JAM	—I3QKO	ZL150A	*(See Note 4)*
IZ8SGV	—IK8IPL	ZM7AMO	—ZL1AMO
J37DX	—W8KKF	3C1EA	—EA4CJA
JW9MAA	—LA7SP	3D2JH	—KF7PG
JW0GB	—WB4ZBI	4J5FV	—NA3O
KC6CW	—JA2NQG	4K3PA	—RA3YG
KC6EE	—LA1EE	4K3PWB	—RA3YG

KH0AM	—JE1CKA	TU2UI	—WA8ZWR
L3D	—LU6DTS	TV1L	—F1LBL
LX2PA	—PA3DKX	TZ6VV	—N0BLD
LZ5M	—LZ1RU	UA1PAT	—RA3YG
LZ5Z	—LZ1KDP	UA1PAV	—RA3YG
N3CBW/UA6	—W3FDU	UA0KBA	—RA3YG
OH0BT	—DL4DBR	UA0KBCU/A	—RA3YG
OH2AQ/QJ0	—OH2BVF	UF7VWA	—NA3O
OY3QN	—OZ1ACB	V31BB	—N3ADC
P29SC	—WB1GWB	V31KF	—W5ASP
P40A	—KA1XN	V47KP	—K2DOX
P40R	—K4UEE	V47NXX	—KB2XR
PJ1B	—K2SB	V61BI	—DF2AL
PJ8MM	—K1MM	V61SW	—G1IOV
PQ5C	—PY5CC	V63AN	—JA2NQG
R6L	—UZ6LWZ	V63DX	—JA7HMZ
R0AJ	—UZ0JWA	V73BL	—WB4CSK
RA1PA	—RA3YG	V85OO	—N2OO
RH0E	—UH8EA	4K3/RA3YG	—RA3YG
RQ9W	—UQ1GWW	4K3/UA3YCA	—RA3YG
S79NBD	—JG1NBD	4K4BCU	—RA3YG
SO3HRA	—DJ0IF	4K4/EK0AK	—UA9OBA
ST0YD	—F6AJA	4K0ADS	—RE3AH
ST2YD	—F6AJA	5Z4DU	—KE4DA
SV0HS	—DJ8MT	6W1QB	—DK3NP
T32HK	—JL3UIX	7J1ADJ/JD1	—KB1BE
TA5KA	—HA0NNN *(See Note 3)*	8J6JEN	—JARL
		8P9X	—K4FJ
TA0WEA	—LA5NM	9H1FBS	—N5APW
TK9LAV	—F6ATQ	9H3KE	—PA0PAN
TO8ONR	—F6ELE	9M6OO	—N2OO
TR8JL	—F6IXI	9M8MKS	—9M2FH
TR8RY	—FF6KGU		

A35KB	—Rev. Kevin Burke, P.O. Box 1, Nuku'alofa, TONGA
C53GS	—P.O. Box 274, Serekunda, GAMBIA
HK0AZW	—P.O. Box 120, San Adreas Island, COLOMBIA
JX7DFA	—Einar Dahlen, Romolslia 58, 7029 Trondheim, NORWAY
PJ7RR	—P.O. Box 431, St. Maarten, DUTCH WEST INDIES
TJ1BD	—P.O. Box 1185, Douala, CAMEROON
TY1DX	—Germano Gabucci, Villa Federica, 61020 Trasenni, ITALY
V31TI	—Scott Williams, P.O. Box 1522, Belize City, BELIZE
V61P	—P.O. Box 9080, Windhoek, NAMIBIA
ZD8PJ	—P.O. Box 3, ASCENSION ISLAND

Notes

1. Please QSL direct to the manager only.
2. Ray Riker, NY2E, has assumed QSL chores from WA4BCQ. Ray's new address is 433 Palo Alto Drive, Palm Springs, FL 33461.
3. Please QSL direct to the manager indicated. Do not QSL via the bureau.
4. SSB contacts go to ZL1AAS and CW contacts go to ZL1AMO.

Many thanks to the following contributors: JA1NUT, PS7AB, PS7KM, RA3YG, RB5IJ, SM7KDB, N2FZ, N2OO, NY2E, W2GBX, AA4NW, K6DR, K7MO, N7NZ, W8KKF, Western New York DX Association (KD2YP), Southern California DX Club (WB6PSY), Western Washington DX Club (K7WA), *The DX Magazine* (VP2ML), *Long Skip* (VE3IPR), *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *Inside DX* (N2AU), *QRZ DX* (W5KNE) and *The DX Bulletin* (VP2ML).

The Southern California DX Club has in its membership roster one RG8AU, an honorary member residing on the Isle of Coax, located in The Belden Congo. I wonder if anyone has worked this call? He goes by the name of Ivan Haade. This reminds me of the 5U4GB I worked several years ago. I think the guy is still laughing!

My DXpedition to Sierra County during the annual California QSO Party was very enjoyable even though I did not make the number of contacts that I'd hoped to. But I did manage to work all continents in less than 24 hours. Considering an elevation of over 6200 feet, surrounded by trees and hills and running only 100W to a Butternut vertical (Worldradio's Field Day antenna), I thought that was a nice compensation. And, they called me! Good DX to you. Very 73 de John N6JM. □

QSL manager corrections for the November issue

YJ8AB's manager is KC4MJ, not KC4NJ. 4X1AD's (not 4X1AB) manager is KM4TH, not KC4MJ.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

Date of filing: Oct. 23, 1990
Title of publication: Worldradio
Publication No.: 947000
Frequency of issue: Monthly
No. of issues published annually: 12
Annual Subscription Price: $13.00
Location of known office of publication: and
Location of the headquarters or general business offices of the publisher: 2120 28th St., Sacramento, CA 95818
Name and address of publisher and editor: Armond Noble, 2120 28th St., Sacramento, CA 95818
Owner: Worldradio, Inc., 2120 28th St., Sacramento, CA 95818; Armond M. & Helen L. Noble, Sacramento, CA; Lou Ann M. Keogh, Sacramento, CA; Dorothy Campini, Sacramento, CA; Norman Brooks, Carmichael, CA; Linda Rutledge, Sacramento, CA
Known bondholders, mortgagees and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages or other securities are: none

Extent and nature of circulation	Average no. copies each issue during preceding 12 months	Actual no. copies of single issue published nearest to filing date
A. Total no. copies (net press run)	28,231	28,328
B. Paid and/or requested circulation		
1) Sales through dealers and carriers, street vendors and counter sales	1,184	1,245
2) Mail subscription (paid and/or requested)	14,801	15,138
C. Total paid and/or requested circulation (sum of 10B1 and 10B2)	15,985	16,383
D. Free distribution by mail, carrier or other means. Samples, complimentary and other free copies	11,946	11,645
E. Total distribution (sum of C and D)	27,931	28,028
F. Copies not distributed		
1) Office use, left over, unaccounted, spoiled after printing	300	300
2) Return from new agents	0	0
G. TOTAL (sum of E, F1 and 2 — should equal net press run shown in A)	28,231	28,328

I certify that the statements made by me above are correct and complete. ARMOND M. NOBLE, Publisher

Like everywhere else, here in the Northwest we have TV commentators who offer remarks on matters of interest ranging in scope from local to international. We hear them on almost every news program, morning through noon and into the night, either at home or in the grid-lock enroute to our "place of enjoyment." And they seem to hold forth with impunity. However, they do come to a brief halt once a month and give air time to the comments that come in as rebuttal to their viewpoints. They even receive words of praise but, oddly enough, they are also criticized for their "sins of omission," topics not touched upon in their daily commentaries.

By writing for **Worldradio**, an Amateur Radio newspaper, you might think that my experience would be similar, getting mail from readers who are not satisfied with my arguments and viewpoints. Happily, that is not the case. But it doesn't surprise me, as what I write is not radical or "far out," scientifically speaking. Still, it might be counter to some long-held views that readers have on the subject of propagation. Anyway, in the absence of rebuttal to my monologue, I don't feel compelled to halt my discussion to offer additional arguments in support of what I hold dear and true.

But that is not to say that people I correspond with always agree with me or what I have to offer. In that regard, I should mention an instance where I sent a correspondent some software for predicting HF propagation conditions. Back came a letter of thanks but also a remark that the program couldn't be all that good as it failed to predict openings on 6M when the solar flux reached high levels.

The fellow was right but he provided me with a classic opening, an instance where I could go in and not only clarify the matter but also drive home a point. Thus, my rebuttal was to the effect that the particular MUF software predicted the average behavior of the ionosphere for a given level of solar activity, as that was the database on which it was founded. However, openings on 6M are far from average in the scheme of things; thus, he was asking for the impossible, predicting an extreme from a model built on averages. So I was able to walk away from that one unscathed. But I did add that there is software that deals with fluctuations about MUF averages, just not to the extreme that he was interested in.

While on that topic, I might mention that there are real ways to ferret out DX openings on 6M. While that's in the VHF region, beyond my own experience, I am told that a number of VHF buffs keep TVs idling, say on Ch. 2 when it's not in use, looking for stray signals. Given a coherent flicker or picture, they're on the band, like NOW!

But the best one I've heard about involves Steve Barnes, KH6SB. Steve runs the NOAA ionosonde in Maui, and when he spots an F-layer critical frequency in the daily ionosonde records that's unusually high, he gets on 6M and works into the South Pacific. Now that's a class act but not everyone can be as fortunate to have an ionosonde at his disposal.

When it comes to "sins of omission," I've been spared also. For example, I didn't get any flack for failing to mention that back in the '40s and '50s there was a native school of thought which held that there was a correlation between HF radio propagation conditions and planetary positions. The spokesman for that viewpoint was J.H. Nelson of the Engineering Department of RCA Communications Inc. He published articles in the RCA Review which suggested that HF radio signals showed a tendency to become degraded within a day or two of some planetary configurations.

Since planetary configurations can be forecast with considerable precision several years in advance, it was suggested that HF radio propagation forecasts would enjoy the same degree of predictability. I don't know when those ideas, largely qualitative in nature, met their demise but I can say that they are not held by any practicing scientist that I know of at the present time. So we can leave the matter there, just one of historical interest.

A more serious "sin of omission" on my part is the fact that I haven't mentioned "long-path," something that's near and dear to DXers. But for the record, let me say that I firmly believe in long path. Indeed, I savor every LP QSO and couldn't have made WAZ without them, getting Zones 21, 22 and 37 by that mode on 14 MHz.

But my favorite example of LP, and one of personal delight, is the fact that I had an LP CW QSO with ZS1AAX in Capetown with just 5W output. In order to make that contact by QRP (1353 UTC on June 5, 1988), I had my beam pointed at 100 degrees west, essentially toward the Province of South Australia. The corresponding short-path orientation would have been 80 degrees east, over northern US and the Atlantic.

Geometry is one thing, solar illumination is another. Thus, if you've followed my harangue about D-region absorption of HF signals, you can appreciate the difference of those two paths: the signals going westward toward Australia went into a darkened ionosphere while signals in the direction eastward toward South Africa would go into a fully sunlit D-region. While there is a difference in the

number of hops, say seven to the west and five to the east, I think it is pretty clear that my QRP signals would not have stood a chance to reach Capetown by going east into the jaws of a fully illuminated D-region on the path.

Now comes the curious part of LP: signal strengths. I gave ZS1AAX an RST 589 and he gave me RST 579. I can honestly say that my RST report for his signals was fair and square, right off my S-meter. Indeed, I called him that particular morning with QRP because he was the loudest I'd heard him in several weeks, making it the best chance I'd ever have for an LP QSO with a ZS using QRP.

I'd like to think his RST 579 for my signals was accurate too but, in my heart of hearts, I'm prepared to settle for RST 569 or even 559. After all, he was running 130W output and I was only using 5W; with comparable antennas, that's some 14 dB difference in power or just a couple S-units. Okay?

But even at RST 559, that's an FB report for QRP on a path of 23,600 km. Moreover, if you've ever listened in the morning hours to long-path from South Africa, you know there are some BIG SIGNALS coming from that direction. So there's a puzzle: big signals, many hops. But are they hops in the usual sense? That's the question!

At this point the consensus seems to be an emphatic "NO." In circumstances like that, the best theoretical calculations of signal strength via the classical multi-hop scheme seem to fall short in magnitude. For example, MINIPROP Version 3.0 does detailed mode searching and predicts an opening for that path but the best signal strength for my QRP would be more like S-2 instead of S-5 or S-6.

With a history of strong signals coming via LP, the idea has developed that LP contacts often involve a different mode of propagation, without all the intermediate ground reflections that we're used to thinking about. Lacking a need of ground reflections to continue the mode of propagation, D-region absorption and ground losses would be greatly reduced.

As to how the hop structure differs from the usual multi-hop path, there are several possibilities. Thus, there is Pedersen-ray propagation, with high-angle rays from one's antenna incident on the ionosphere but now going off at low angles on refraction, out to one-hop distances of up to 10,000 km.

Then there's the possibility of ionosphere tilts supporting long-distance propagation, tilts of the F-layer due to uneven solar illumination, causing refracted rays to travel above the earth's surface before encountering the ionosphere again and then being finally refracted back to the earth. Experimentally, such chordal-hop propagation would seem to be favored in the dark hemisphere, such as the ZS example discussed earlier, whereas the more conventional hop structure, earth-ionosphere earth, would be favored in a fully illuminated hemisphere.

And there's the suggestion of a "whispering gallery" mode with RF waves guided along the bottom of the F-region instead of the usual multi-hop propagation. Such an idea comes from observations of "round-the-world" echoes of pulses of RF energy. As you can well imagine, given today's QRM, that's not something that can be readily checked out on frequencies in the Amateur bands.

Even to this date, none of those ideas seem to have any set of physical circumstances associated with them which we could easily single out at ground level to predict the presence of these unique modes of propagation. In essence, we're brought back to the humble beginning of all this, now saying "Long-path propagation exists because . . ." but our grasp on the ionosphere is still too limited for us to complete that sentence with any degree of satisfaction or predictability.

So that's my "sin of omission." Now I feel better having said all that but I still have a sense of personal frustration, except when I have another LP QSO. How about you? □

Search And Rescue Communications

Jerry Wellman, WB7ULH
P.O. Box 11445
Salt Lake City, UT 84147

From the *USAF MARS Communicator:* "Did you know the Air National Guard is operating on HF packet while on their monthly drills? You might take a look around the frequencies and watch the professional communicators at work."

Wait just a minute! Amateur Radio or MARS or CAP may be non-paid, but non-professional? No way! From publications of all kinds articles have featured some very professional Amateur Radio operators doing some very professional service — using Amateur Radio call signs on Amateur Radio frequencies.

Associated Press carried a super article recently about MARS communicators doing what can only be done via an Amateur Radio license.

Volunteers

"The problem is," the reader said, "we got a bunch of Amateur Radio people in the county but only a handful are willing to participate in training." OK, looks like they have the same problem you have. If disaster strikes or the call goes out for a big rescue you're going to get some volunteers. Some responders won't have completed training and may not know your local search procedures.

Seriously. Should you expect 100 percent response of trained communicators? Yet, what do you do with those who sincerely want to help and more than likely could contribute to the mission at hand? Some of them might be qualified to handle some serious communicating. Others may fit the category of "resource drain" — by the time you get them up to speed, the search mission is over.

What a dilemma! If you reject them they get upset, yet you do want to encourage training and participation. One suggested solution is to define your training levels and then put out a carrot or two. For example, you establish six training levels with six as your best trained. Your response plan then lists general category responsibilities with the level six folks getting the "neat" jobs such as net control, headquarters communicator, or mission communications officer. Each level has a list of "assignments" all the way down to the untrained operator who may be assigned to monitor traffic or weather.

Now spend a little time on the local nets doing some public relations work. Let other Amateur Radio operators in the area know your group is on the local emergency call out list and talk about your upcoming training. Tell what the certified communicators will be doing and let the rest know they can respond as trainees or assistants.

Several factors will make this work: 1) your group must have its act together and be recognized by the local officials, 2) you must have a plan in writing with realistic training levels and 3) stick to your plan and hold to the criteria for participation. What you don't want is a whole bunch of folks responding "like we did last time" and expecting to be put in charge. Do that once with your non-certified volunteer and you might as well trash your plan.

It's also important to prepare your people to deal with the "extras" that will show up. On one search we had a fellow show up to help. He had his flashing yellow light, loud speaker plugged into the scanner (causing feedback on every channel we were using) and he was somewhat offensive in the command post due to his unfamiliarity with deodorant. The communications leader took the responder aside, thanked him for caring enough to respond, and sent him up the trail to monitor the weather.

Following the search the problems were discussed with our volunteer. Had the confrontation occurred outside the command post, many of the other groups and law officers would have remembered the altercation, perhaps the yelling and maybe some corrosive words. As it was, the problem

was isolated and dealt with in a manner that didn't sour any attitudes.

When you're a communicator on a search mission you're under the microscope. Those around watch and many others will listen. What they observe and hear *will* affect future participation for your whole group. As group leader, who you assign to interact with other SAR people affects their perception and whether or not they'll "talk you up" after the mission. Spend a little time in your training sessions on how to deal with the untrained volunteer. Accept that you won't get everyone trained, so plan ahead. Take a little time and do some public relations instruction too. Don't assume everyone will know you are Amateur Radio operators or what Amateur Radio is all about.

"Professional" means doing an effective job when you're called. The way I see it, you spend more time improving your communication skills than many "professionals." Be proud of that. Share the Amateur Radio wealth. Get involved!

Equipment

So many radios, so many features. What to buy. Wellman's first law of the shack: The brand of radio you use isn't as important as you think it is! Look at your station as a system. If one part fails, the system efficiency drops. Why spend $900 on a new rig and use some scrap coax? A 300 ft. antenna run with improper coax and crusty connectors isn't going to cut it. Some of you still think the cold water pipe is always a solid ground point.

Take some time to plan a station. Even an emergency field station can be planned. You need a tuned antenna, effective ground system, quality coax and a good microphone. Some stations sound better and there's a reason. Most of the time the station was built as a total system instead of a bunch of stuff hooked to a radio.

Hints

I loved using a foot switch when working at a police department. Both hands were free. My rigs have been modified for a plug-in foot switch. Sure comes in handy! I found a couple in a pawn shop and another was an old sewing machine foot control.

Nothing bugs me more than poor quality audio on an S9 signal. Looking through some surplus stores netted me a number of Plantronics Star Sets. These headsets were from telephone users, but only needed a resistor (to limit the audio) when wired into several rigs. If you need some ideas on hooking these headsets to your rigs, drop me a line and I'll tell you what I did to make them work. They sound GREAT!

When you plan to operate packet during a public service event, don't forget the manual! I did, and when I needed to change an obscure parameter, I couldn't remember how. Now I have a copy of the command summary sheet taped in an envelope to the bottom of the controller.

Thanks

Another year is ready to slip into history and I'd like to thank all of you who have written. There's nothing like a bunch of letters to fire me up for the next month's column. THANKS!

I'm also very indebted to a good friend and search-and-rescue mentor: Ott Webb, N7BRR. It was Ott who spent a lot of time with me on many, many search missions both as an instructor and search pilot, but especially as a friend. Thanks, Ott, for giving me the pushes I needed!

And thanks to Mom and Dad (Pat, KA7MVX and Jerry, KA7MVY). I appreciated you letting me (when I was younger) string antennas and I'm super proud you've joined the Amateur Radio circles. You may not have understood my need to tinker with electricity or why I spent so much time on search missions, but you supported my "hobbies." Dad, Mom: 88.

Keep Writing

Hey readers, keep your comments coming! Your ideas are just great. □

There is plenty of cable to separate the Yaesu head from the transceiver body.

Remote HF installations

Sure enough, car and coach makers have made it harder and harder in 1991 to find a place to mount a 100W HF mobile transceiver. The same problem exists for boats; space is now at a premium at the NAV station or operating helm to squeeze in a little 100W mobile transceiver. The 100W rigs need to breathe, too. If you can find space to squeeze one into the dash but don't allow any room to ventilate, you could very well roast the finals to near shutdown on output power.

A remote-controlled HF transceiver is an obvious answer. Yaesu was first to offer a remote-controlled kit for their popular 747-GX HF 100W SSB transceiver. ICOM also has a transceiver with a full remote-controlled head: the marine SSB transceiver IC-M800 which is easily modified for Amateur Radio remote-control use. And looking over the wonderful new Kenwood TKM-707 marine transceiver which is readily adaptable for Amateur Radio use, it looks like this rig will also take a remote-control head shortly.

The Kenwood TKM-707. Most marine SSB rigs may be modified for ham as well as remote head control.

The Yaesu 747-GX package is the least expensive way to go. I see the Yaesu selling for around $700, and the remote-control harness and mounting hardware goes for an additional $175. That sounds like a lot, but you really do get a nice package. "The cable is plenty long enough for any car — it easily stretches between dash to trunk in a big long Buick Regal," comments Howard at Ham Radio Outlet in Anaheim.

It takes about an hour to strip down the front panel on the Yaesu 747-GX and plug in the cable ends to the transceiver and the Yaesu head that unplugs from the body. The installation appears relatively simple; the head goes just about anywhere within view of the dash or boat's NAV station, and the guts go out of the way, though probably not in a vehicle trunk.

If you put the transceiver in the trunk, you now must run gargantuan red and black DC lines from the engine compartment all the way back to the trunk area. This is dangerous. We are talking about cables the size of your regular thumb-sized battery leads, and these can get red hot and have fire potential in case of an accidental ground-out. So, think again before putting the transceiver innards way back in the trunk.

No, I don't suggest you mount the transceiver innards under the hood, either. This gets everything way too hot for those 100W finals to cool off. I would suggest you look for an open area behind the front seats of a passenger car or behind the navigation station on boats. Who knows — maybe you have enough room actually under a car seat or under the operator's bench on your boat or motorhome. Wherever you decide to put the actual transceiver, make sure it has enough ventilation for the big heat sinks as well as plenty of 12-volts DC. If you plan to exceed the power cable run longer than what is shipped with the Yaesu 747, use power leads as big as your little finger to insure an adequate voltage supply. Nothing sounds worse than a garbled SSB transmission due to a voltage drop from insufficient wire size.

Both the head as well as the actual remote transceiver box must be well-grounded too. This means ground foil, copper strap or braid. Don't ground with round wires. They look too inductive at RF frequencies. The necessity for grounding the remote-control head (in addition to the main transceiver) stems from the fact that 100W of HF RF power could feed back into the remote-controlled microprocessor-based head module and cause erratic operation. Grounding the head dramatically reduces this problem.

ICOM does not manufacture a ham rig with a detachable remote-controlled head for high frequency operation. They do for VHF and UHF, but not for HF SSB. However, their $2,000 marine transceiver, the IC-M800, is a complete set-up with a remote-control head fed with fiber optics for interference-free digital commands. This marine rig covers all ham and marine frequencies from 2 through 29.999 MHz, including all popular emission modes. It's just as much a ham rig with complete VFO capabilities as it is a channelized marine single sideband. Just cut the "W1" wire on the main printed circuit board to enable full ham transmission capabilities.

The nice thing about the ICOM M800 is that the head is completely weatherproof for mobile marine or emergency command post outdoor use. The fiber optic cable is long enough to allow the head to be separated three

The ICOM M800 full remote control ham/marine transceiver with fiber optic control line.

times as far as the Yaesu remote set-up. And best of all, there is no RFI on the fiber optic links. The head only requires good grounding plus about 1 amp of 12-volt DC to run the internal microprocessor. And just like Yaesu, the main transceiver body goes out of the way, well-grounded, well-ventilated and fed with very large DC cables.

Kenwood's marine SSB transceiver, TKM-707, has many features similar to the Kenwood TS-140. Unlocking the marine transceiver for ham transmission and lower sideband is easy. Just cut diodes 312 and 313 on the control board. This wonderful ham/marine transceiver reveals a front control panel that looks easily remoteable with the right interface cable network. By the time you read this, the marine boys at Kenwood will probably have a remote-control feature as an accessory product. The Kenwood ham/SSB transceiver is specifically designed for the harsh environment; it works just as well out on a park bench for field day as it does in a very wet cabin of a boat.

So there you have it — remote HF SSB capabilities from Yaesu, ICOM, and (soon) Kenwood. If you absolutely have no dash to accommodate the big HF box, do consider going remote-control. □

Some people have asked, what is the purpose of QCWA? Well, QCWA means many things to many people. To some it is primarily the fellowship of "the lunch bunch" or a friendly group on the air. To some it may be the challenge of QCWA contests. To most, there is an underlying concern for the potential of QCWA to provide a service to the Amateur Radio community and to the public welfare.

QCWA President Harry Dannals, W2HD, discussed the purposes and potential of the organization at a September meeting of Chapter #119 at the ARRL Roanoke Division convention in Virginia Beach, VA. There is no doubt, he said, that the fellowship of our nets and chapters and conventions is an essential part of QCWA. Without fellowship there would be few organizations of any kind. But QCWA offers a unique opportunity for contributing to the general welfare. There is a wealth of knowledge and experience represented within our membership and that potential can be put to good use. Dannals plans to outline some of his objectives at the national convention in Kansas City in October. Look for some interesting challenges.

So many people have made significant contributions to QCWA over extended periods of time that it becomes difficult to single out any one person for special credit, but one who has certainly earned extra recognition is Herb Gleed, W6FQ, the manager of the QCWA Sunday afternoon net. Herb was presented the QCWA Member of the Year award in 1982 but it is most appropriate that he be recognized again now after another eight years of outstanding service.

Herb has been running the QCWA 20M SSB net almost every Sunday for the past 22 years. We have to say "almost" because once or twice a year he takes a day off for a family wedding or funeral, etc. Otherwise he has been there every Sunday. The net runs like clock-work, with an average check-in of around 80 members. Attendance has gone as high as 110! Herb has an outstanding station and an ideal location for covering the entire country. He also has the expertise of a drill sergeant, the diplomacy of Henry Kissinger, and the patience of Job!

Right now we are getting a good reminder of just how indispensable Herb has been. He recently encountered some health problems and has decided to take some time out from his NCS duties. Filling his shoes, even temporarily, has proven to be quite a problem. It is probably going to take a "rotating staff" of qualified stations around the country. We are hoping to have Herb back on the job in the very near future.

If you haven't been checking in, or at least listening in, to this interesting net, next Sunday turn your dial to the upper end of 20M (14347 kHz) at 2000 hours UTC. We believe you will find the net worthwhile. There is always some interesting tidbit from the officers, reports of the successes and problems of the members and an update of Silent Keys.

Another choice is the 40M CW net held every Wednesday evening at 8 p.m. EST. Richard Roderick, W5QU, and Bill Waldo, W4PI, have been sharing the NCS duties on this net for a number of years and they deserve much credit for holding it together. For those of you who still take pride in CW, give this group some encouragement. They will be delighted to have you check in. The frequency is 7035 kHz.

Don't forget that bargain hunters special on QCWA dues. Dues will be going up the first of the year but you can renew your membership at the current prices until the end of this year. There is no limit on the number of years you may renew. The present Life Membership is an especially good bargain. Take advantage of it now.

It is almost too late to file petitions for the 1991 election. All officers and five directors will stand for election this coming year. The nominating committee has published a slate of candidates but additional nominations by petition may still be submitted. Petitions must be postmarked to the secretary no later than December 31.

Milt Chaffee, W1EFW, has just been elected by the Board of Directors to fill a vacancy created by the resignation of Director Neil Foster, KC4MJ. Chaffee is well known in QCWA and was runner-up for Director *in* the last election. He will fill the full two-year term vacated by KC4MJ, who found business pressures too great. We welcome W1EFW to the Board.

It's not too early to mark your calendar for the QCWA QSO parties coming up in February and March. These are always a lot of fun. They have all the challenges of a contest with the friendly atmosphere of a party. There are certificates and plaques for top scorers in a number of categories but most participants take time out during the contacts for a few friendly words. It is a unique type of contest. The CW party is February 9-10. The SSB party is March 9-10. Don't miss them.

We were deeply saddened to hear of the death of Onie Woodward, W1ZEN, who was in charge of the QSO parties for the past seven years. She put up a valiant fight against cancer but lost the battle on August 26. See the Silent Keys in this issue of Worldradio.

Next month we will have a full report on the Kansas City convention. We hope many of you were there. □

The world's largest QSL?

A hill in New Zealand is now the place with the world's longest name because the previous record holder has shortened its name.

The Welsh village of Llanfairpwllgwyngyllgogerychwryndrobwllllantysiliogogogoch cut its 58 letter name to Llanfairpwllgwyngyll, so now the 57 letter Taumatawhakatangihangakoauauotamateapokaiwhenuakitanatahu holds the record. And its unofficial name is even longer: Taumatawhakatangihangakoauauotakoauauotamatea (turipukakapikimaungahorongahoronouku) pokaiwhenuakitanatahu.

The name means "the brow of the hill where Tamatea (the man with the big knees who slid, climbed and swallowed mountains) who traveled the land, played his flute to his loved one." -- *LEARA* □

Visit Your Local

RADIO CLUB

For information on how to get your club listed in "Visit Your Radio Club," plus receive many other benefits, write to Club Liaison, Worldradio, 2120-28th Street, Sacramento, CA 95818.

ALABAMA

Montgomery Amateur Radio Club (W4AP). Alabama State Trooper Dist. Office. Intersection of Coliseum Blvd. & Federal Dr. Fred Springall, KB4EGH, (205) 288-5831. Meets 3rd Mon./monthly, 7:00 p.m.

ALASKA

Arctic Amateur Radio Club. Geophysical Institute West Ridge U of A, P.O. Box 81389, College, AK 99708. 1st Fri./monthly, 7:30 p.m.

ARIZONA

Cochise Amateur Radio Assn. Meets 1st Mon./monthly, 7:30 p.m. Located 3 mi. East of Sierra Vista and 3 mi. South of HWY 90 on Moson Rd., Sierra Vista, AZ. Net each Thur. at 7 p.m. on 146.16/76. Further info call Rich (602) 458-3928.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:30 p.m., Pima Co. Communications Bldg., 2545 E. Ajo. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08+, 145.01s & 15-PKT), 448.550-.

Western Arizona Radio Club. Meets 2nd & 4th Thurs./monthly, 7:30 p.m., First Baptist Church, 1700 Palma Rd., Bullhead City, AZ. Net Tues. 7 p.m. on 147.12+600. Info call Dave Adams, W6DRM, (602) 758-5171.

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Senior Citizens Center, Jackson, CA. Meets: first Thur./monthly, 7:30 p.m. WA6WIY Rptr., 146.835, 146.235. Net Tues. 7:30 p.m.

Amateur Radio Club of El Cajon, (WA6BGS). P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thur./monthly, 7:30 p.m. at Buck Knives, 1900 Weld Ave., El Cajon, CA. Club Rptr. 147.675 (-); Nets Sat. & Wed. 7 p.m. on 147.570 simplex. Info (619) 698-6644.

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Fri./monthly, 7:00 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Butte Amateur Radio Club. Meets 1st Fri./monthly, Loma Vista School, 8:00 p.m. Marigold and East Avenue, Chico, CA. For info KE6EP or KB6COH, 893-5208.

Contra Costa Communications Club WD6EZC/R. P.O. Box 661, San Pablo, CA 94806. Meets 2nd Sun. at 9:00 a.m. Hickory Post Restaurant/Lucky Lanes. For info call Don K6DPQ, (415) 222-2449.

East Bay Amateur Radio Club. P.O. Box 1393, El Cerrito, CA 94530. Meets: 2nd Fri./monthly 8 p.m., Northbrae Community Church, 941 The Alameda, Berkeley. Nets: Slow CW, Wed., 8 p.m., 21.115; SSB, Wed., 9 p.m., 28.395; UHF, Tues., 7:30 p.m., 444.450. Info, Gordon Firestein, KC6JAE, (415) 524-1484.

The Electronic Museum ARC. Meets 1st Fri./monthly, 7:30 p.m., Electronic Museum at Foothill College, Los Altos, CA 94022. Call-in 145.27/145.67.

Escondido Amateur Radio Society (E.A.R.S.). Meets 4th Thurs./monthly, 7:30 p.m., New Life in Christ Church, 300 N. Broadway, Escondido, CA 92025. Info Net Sundays, 8:00 p.m., 146.88 (-) or 743-4212.

Fresno Amateur Radio Club, Inc. P.O. Box 783, Fresno, CA 93712. Meets 2nd Fri./monthly, 8:00 p.m., Manchester School, 2307 E. Dakota, Fresno, CA. W6TO/R 146.34/94.

Fullerton Radio Club, Inc. W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Center, 340 W. Common Wealth, Fullerton. Net: ea. Tue., 8 p.m. 147.495 simplex. Info, Gracie Hastings, N6FSL (714) 990-9203.

Golden Empire Amateur Radio Society (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, Repeater 146.25/85. Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Room 110B, Chico.

Hilltop Amateur Mastertle System (HAMS). Informal mtgs. weekly/Mon. 5 p.m. at Shakey's Pizza, 12924 Washington Blvd., Mar Vista, CA, except 3rd Mon. Call for location. Info, N6FD 213/823-0767.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly at 4 p.m. (Pot Luck). Veteran's Hall, Lake Isabella WB6ODZ Rptr. 224.50 down 1.6 low-level, 144.50 simplex.

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. Elizabeth Zalaznik, KB6DLT, (415) 455-0361.

Marin Amateur Radio Club (MARC) W6SG. Box 1231, San Rafael, CA 94901. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

Monterey Park Amateur Radio Club (MPARC), K6GIP. P.O. Box 403, Monterey Park, CA 91754-0403. Meets 2nd Thurs./monthly, 7:30 p.m., Community Rm.—City Hall, 320 W. Newmark, Monterey Park. Nets: Tues. 7 p.m. 147.48 Simplex — 7:30 p.m. 28.385 MHz. Info: John Duce, N6EDX (818) 280-7052.

Moreno Valley Amateur Radio Assoc. P.O. Box 7642 Moreno Valley, CA 92303. Meets 4th Mon./monthly 7 p.m., Park & Rec. Bldg., 13671 Frederick Ave. Net: Tues. 8 p.m. 146.655- (PL 1A) & 224.460-. Info: Larry KA6GND (714) 656-1643.

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets: 3rd Fri./monthly, 8 p.m., Grace Presbyterian Church, 2100 Tice Valley Blvd., Walnut Creek, CA. Net Thur., 7:30 p.m. 147.06+. Info, Vicki, (415) 458-4527.

North Hills Radio Club. P.O. Box 41635, Sacramento, CA 95841. 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress Ave., Carmichael, CA. Net 145.19 Thur. at 8:00 p.m.

North Shores ARC. (619) 272-1409 So. Clairemont Recreation Center, 3605 Clairemont Dr., San Diego, CA. 1st Tue./monthly, 7:30 p.m.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Mercury Savings & Loan, 1895 Irvine Blvd. (4th becomes Irvine), Tustin, CA 92680. Net each Wed., 9 p.m., 146.55 Simplex.

Radio Amateur Mobile Society. P.O. Box 214091, Sacramento, CA 95821-10091. Meets 2nd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress Ave., Carmichael, CA. Net Saturday a.m., 224.84 at 8:30 & 146.79 at 9:00.

River City A.R.C.S. Meets: 1st Tue./monthly, 7 p.m. SMUD Bldg., Room B & C, Elkhorn & Don Julio, Sacramento, CA. For info: (916) 483-3293.

Riverside County Amateur Radio Assoc. c/o County Emergency Services Div., 4080 Lemon St., Ste. 8, Riverside, CA 92501. Meets: 2nd Thur./monthly, 7:30 p.m., Riverside County Office of Ed., 3958 12th St. Nets: Mon., 7:15 p.m., 222.860/224.46 and 7:30 p.m., 146.28/88. Info, call Steve Rathbone, KF6ZH, (714) 687-7793.

Sacramento Amateur Radio Club. Contact: Gary Bryant, KB6KZZ, (916) 646-1171. Meets Sacramento Blood Bank, 32nd St. & Stockton Blvd., Sacramento, CA, 2nd Wednesday/monthly, 7 p.m. Info net every noon on Rptr. W6AK/R 146.910.

Sacramento "Old Timers" Ham Radio Brkfst. Club and Sacramento Valley Chapter #169 QCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830.

San Gabriel Valley ARC. P.O. Box 88, Monrovia, CA 91017-0088. Meets 1st Tues./monthly, 7:30 p.m. (except Dec.) at Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. W6QFK, Rptr. 147.165/765.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets: 2nd Mon/monthly, 7:30 p.m. at Agnews Developmental Center Aud., corner of Circle Dr. & Palm Dr., Santa Clara. Net all other Mon., 7:30 p.m. W6UU/R 146.385+ PL 100.0 / 442.425+ PL 107.2

Santa Clara Valley Rptr. Society (SCVRS). P.O. Box 2085, Sunnyvale, CA 94087. (408) 247-2877. 146.76 (-600 kHz), 224.26 (-1.6 MHz), 444.60 (+5 MHz). 2 meter/220 net Mon. 9 p.m. Mtgs.-3rd Fri.

Shasta Cascade Amateur Radio Society (SCARS) P.O. Box 664, Anderson, CA 96007. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm., Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m.

Sierra Foothills Amateur Radio Club. P.O. Box 3262, Auburn, CA 95604. Meets: 2nd Fri./monthly at Auburn Fire Station, 226 Sacramento St., Auburn, CA. Nets 7:30 p.m. Tue. 28.443 MHz, Thur. 145.43 MHz link with 223.86 MHz.

Simi Settlers Amateur Radio Club. P.O. Box 3035, Simi Valley, CA 93063. Meets: 2nd Thur./monthly, 7:30 p.m., at Seventh-Day Adventist Church, 1636 Sinaloa, Simi Valley. Rptr. 147.93/33.

Southern California Amateur Transmitting Society, SCATS, WB6LRU. P.O. Box 1770, Covina, CA 91722. Meets 1st Mon./monthly, Community Presbyterian Church, 540 E. Vine St., West Covina, CA. Net, Sun., 7 p.m. 147.765-, W6QFK/R. Classes. Contact: Pat McNulty, N6GXZ (714) 622-8315.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150 and 8:30 p.m., 28.400. FM Rpt. Net Wed., 7 p.m., 52.18/98 and Thur., 8 p.m., 52.28/88. FM Smplx call freq. 50.300.

Southern Humboldt Amateur Radio Club, (SHARC). P.O. Box 701, Redway, CA 95560-0701. Meets 4th Mon./monthly. 8 p.m. SHARC Clubhouse, Garberville. Rptr. 146.19/79. Info (707) 923-2373.

Stanislaus Amateur Radio Assoc. (SARA). P.O. Box 4601, Modesto, CA 95352. Stanislaus Co. Administration Bldg., 12th & H Streets, 3rd Tues./monthly, 7:30 p.m. 145.39 MHz WD6EJF, 223.68 MHz.

The Trinity County ARC. P.O. Box 228, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WA6BXN Rptr. 146.13/73.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., 703 N. College Way, "The Faculty House," (lower level), Claremont, CA.

United Radio Amateur Club K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly except Dec., 8:00 p.m. Talk-in 145.58 Simplex.

West Coast Amateur Radio Club. Fountain Valley School. Talbert/Bushard. Fountain Valley, CA. Meets 3rd Thur./monthly. 145.44-4Z.

Western Amateur Radio Assoc. Meets 1st Tues./monthly, 7:00 p.m., Cerritos Park East, 166th St. and Carmenita Ave., Cerritos, CA. Rptr., N6ME 145.400-/224.180MHz.

Westside Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Santa Monica Red Cross, 1450 11th St., Santa Monica, CA. Info Net every Tues., 8 p.m., 146.670, -600.

West Valley Amateur Radio Assoc. 18011 Saratoga — Los Gatos Road, Los Gatos, CA 95030. Meets: 3rd Wed./monthly, 7:30 p.m. W6PIY/R. Net Tue., 8:30 p.m., 147.39+, 223.96-.

CONNECTICUT

Tri-City ARC. Groton Public Library, Route 117, P.O. Box 686, Groton, CT 06340. Meets: 2nd Tue./monthly. 7:30 p.m.

DELAWARE/PENNSYLVANIA

Penn-Del Amateur Radio Club. P.O. Box 1964, Boothwyn, PA 19061. Sponsor of KA3TWG/Rptr. on 224.220 serving all of S.E. Penn. and Northern Del. Info/net every Thurs. at 20:00 hrs. or call Hal Frantz (302) 798-7270.

FLORIDA

Gulf Coast ARC, Inc. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., Colonial Hills Civic Ctr., 87 Peacock Dr., New Port Richey. WA4GDN Rptr. 146.67/.07.

Indian River ARC, Inc. (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931. Martin Andersen Senior Center, 1025 S. Florida Ave., Rockledge, FL. Meets: 1st Thur./monthly, 7:30 p.m.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tue./monthly, 7 p.m., Melbourne Public Library, 540 Fee Ave., Melbourne, FL.

West Palm Beach Amateur Radio Club, Inc. P.O. Box 6834, Southboro Station, W. Palm Beach, FL 33405. Meets: 2nd Tue./monthly, 7:30 p.m., Palm Beach Emergency Op. Cntr., 3723 Belevedere Rd., W. Palm Beach. Info: Jeff, WB2OUK, 586-5120, Henry, WA4HXZ, 655-4632 or Hyacinth, N4QWN, 848-0513.

GEORGIA

Dalton Amateur Radio Club (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4 Mon./monthly, 7:30 p.m., Dalton College Voc. Tech. Bldg., Dalton, GA. Info net: Sun. 9:30 p.m., 145.230 MHz; Wed. 9 p.m., 147.135 MHz.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., Helco Auditorium, 1200 Kilauea, Hilo. Talk-in on 146.76(-).

ILLINOIS

Amateur Cross Link Repeater. 10, 6, 2 mtrs., 220, 440, 900, 1.2 MHz, ATV. Meets: 1st Sat./monthly, 7:30 p.m. Info: net Sun., 8 p.m., 147.225 MHz. KD9FA Rptr./Chicago.

Bolingbrook Amateur Radio Club. Meets 3rd Mon./monthly, 7:30 p.m., Bolingbrook Pk. Dist. Rec. Ctr., Briarcliff Rd., Bolingbrook, IL. Info net Thursdays, 8 p.m., WD9AKO/R 147.33 MHz +.600 and WA9DIP/R 224.54 MHz -1.6. Info hotline (708) 759-7005. ARRL affiliated club.

Central Illinois Radio Club, W9AML. Meets 4th Wed./monthly, 7:30 p.m. (from Sept. to May), McLean Co. Law & Justice Center, ESDA Rm., Bloomington, IL. Club Rptr. 146.94 -600kHz.

Chicago Amateur Radio Club. Founded 1926. Meets 1st and 3rd Wed./monthly on Northside of Chicago, 7:30 p.m. Info call (708) 869-HAMS or (312) 545-3622.

DuPage Amateur Radio Club, (DARC). Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Catholic Church, 111 S. Cass Ave., Westmont, IL. Club rptrs. are 145.25-, CTCSS 107.2; 224.68- and 442.55+ CTCSS 114.8.

Elgin Amateur Radio Society. P.O. Box 1351, Elgin, IL 60120. Meets in EOC Rm. of Elgin Municipal Bldg. 2nd Fri./monthly, 8:00 p.m.

Fox River Radio League. Valley National Bank, Lower Level, Northgate Shopping Ctr. & RT. 31, Aurora, IL (312) 584-4925 for more info. Meets: 2nd Tue./monthly, 7:30 p.m.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m., Crestwood Civic Center, 139th & Kostner Ave., Crestwood, IL. Nets: Sun. 8 p.m., 28410 MHz and Mon. 9 p.m., 146.43 MHz.

Metro DX Club. Meets 3rd Fri./monthly (except Dec.), at Oak Forest Hospital, (employee quarters), 159th St. and Cicero, Oak Forest, IL, at 8 p.m. Christmas party in Dec. Net: DX/Club info, every Tues., 8 p.m., 146.46 Simplex.

Northwest ARC/W9LM. Meets: 2nd and 4th Tue./monthly, 7:00 p.m., Oehler Funeral Home downstairs community room, Lee & Perry Street, Des Plaines, IL. Net 28.375, 8:30 p.m., non-meeting Tuesdays.

Peoria Area Amateur Radio Club. Meets 2nd Fri./monthly, 7 p.m., Red Cross Bldg., corner of Knoxville & Armstrong, Peoria, IL. Info on W9UVI rptr. 146.250/146.850.

Schaumburg ARC (SARC). Meets: Schaumburg Park District Community Rec. Cntr. at Bode and Springinsguth Roads, Schaumburg, Illinois. Third Thur./monthly, 7:30 p.m. Net 28.350, 8:00 p.m. Thur.

Six Meter Club of Chicago K9ONA. Bank of Lyons, Lower Level, 8601 West Ogden Ave., Lyons, IL. 2nd Fri./monthly, 7:30 p.m. Club Rptrs: 146.37/97, 448.30/443.30.

Wheaton Community Radio Amateurs, (WCRA), P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Glen Ellyn, IL. Nets Sun. & Tue. 8:00 p.m., 145.39 MHz.

York Radio Club. Meets: 3rd Fri./monthly, 8 p.m., Elmhurst College (Science Bldg.) Elmhurst, IL. Net Mon., 8 p.m. W9PCS/147.42 simplex.

KANSAS

Pilot Knob Amateur Radio Club. Meets 1st Thurs./monthly, 7 p.m., 525 Shawnee St., Leavenworth, KS. ARES net every Thurs., 7:30 p.m. 147.60/147.00. For info call (913) 682-6904.

LOUISIANA

Baton Rouge Amateur Radio Club W5GIX. P.O. Box 4004 Baton Rouge, LA 70821. Meets last Tue./monthly, 7 p.m., Catholic High School cafeteria, 855 Hearthstone Dr., Baton Rouge, LA. Net 8:30 p.m. each Sun. on 146.79.

MARYLAND

The Peninsula Radio Operators Society (PROS). Family oriented activities, training and exams held throughout the year. PROS Rptrs. 146.925 and 146.625. PROS, P.O. Box 2315, Salisbury, MD 21801.

MASSACHUSETTS

Mohawk Amateur Radio Club. Meets: 4 Wed./monthly, 7:30 p.m., American Legion Hall, 325 Pequoig Ave., Athol, MA. (One block north of downtown traffic lights, past the bridge.)

MICHIGAN

Black River A.R.C. Meets 2nd Sat./monthly, 7 p.m., Chicken Chalet, Hwy 43 East, Bangor, MI. Contact Wm. Lee, KB8DWQ, (616) 764-8480. Rptr. 147.360+.

Farmington Amateur Radio Club. Meets 2nd Wed./monthly, 7:30 p.m., Wheeler Street Fire Station, Farmington Hills, MI. Contact: Jim, WA8SEL, 474-8765. Talkin: 146.49MHz.

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 147.51 Simplex Call-In. W8JXU Club Call.

Oak Park Amateur Radio Club. Oak Park Community Center, 14300 Oak Park Blvd. (same as 9½ Mile Rd., west of Coolidge). Oak Park, MI 48237. 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

Top-Of-Michigan A.R.C. Meets 2nd Tues./monthly, 7 p.m. at the State Police Pst., Gaylord, MI. Net Tue., 9 p.m. EDT 146.82/22.

MINNESOTA

Minneapolis Radio Club. P.O. Box 25167, Minneapolis, MN 55458. Meets 3rd Fri. (exc. June, July, Aug.), Mpls. Red Cross, 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916.

MISSOURI

PHD Amateur Radio Assn. Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tue./monthly, 7 p.m. Red Cross Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m. Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info, Tom Bull, NW7S, 642-5033.

Las Vegas Radio Amateur Club (LVRAC). Meets: 2nd Tue./monthly at 7 p.m., Nevada Power Bldg. Wengert Rm., 6226 W. Sahara Ave. (Near Jones). Net Tue. 8:00 p.m. on 146.94 MHz. Info: Call George at 459-2586.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 882-0451. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/742-1374. 2nd Sun./monthly, 7:00 p.m. Dover City Hall. Talk-in 147.57.

NEW JERSEY

Bayonne Emergency Mgt. ARC (BEMARC). 16th St. & Ave. A Firehouse, Bayonne, NJ 07002. Meets 2nd Tue./monthly, 7:30 p.m. Tri-Band linked repeaters: 145-430/224.280/445.575 MHz.

Delaware Valley Radio Assoc. (DVRA). Our Lady of Good Counsel Church. 137 W. Upper Ferry Rd., West Trenton, NJ 08628. Meets: 2nd Tues, Wed./monthly, 8 p.m.

Garden State Amateur Radio Assoc., W2GSA. Meets 1st & 3rd Wed./monthly, 8 p.m. at Bicentennial Hall, Fair Haven, NJ. All are welcome.

Jersey Shore Chaverim. Meets 1st Sun./monthly, 9:30 a.m., JCC, 100 Grant Ave., Deal, NJ, Sept. thru June. Net 1st Thurs./monthly, 9 p.m. local on 145.110, KC2Q. For info call (201) 222-3009.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remington Ave., Pennsauken, NJ 08109. Jan.-Oct. 4th Wed./monthly, 7:30 p.m. Nov.-Dec. 3rd Wed. due to Thanksgiving and Christmas. Talk-in 145.290 rptr. Club call K2AA.

NEW YORK

Communications Club of New Rochelle, NY. Harrison Street Firehouse. Richard Sandell, WK6R, (914) 834-2322. Meets: 1st Mon./monthly, 8 p.m.

Genesee Radio Amateurs (GRAM). N.Y.S. Civil Defense Center, State St., Batavia, NY 14020. Meets: 3rd Fri./monthly, 7:30 p.m. 147.285+ W2RCX.

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. The tristates' only 3-band linked rptr. system 144.300 S/223.600 – /445.225 –.

Lancaster Amateur Radio Club (LARC). Meets 1st Tues./monthly, 7:30 p.m., Aurora Middle School, 147 Aurora St., Lancaster, NY. Net: W2UJR every Monday, 7:30 p.m. 146.55. Contact Luke Calianno, N2GDU, (716) 683-8880.

Orleans County Amateur Radio Club (WA2DQL). Meets: Office of Disaster Preparedness (CD), West County House Rd., Albion, NY 14411, 4th Wed./monthly, 7:30 p.m., 145.270 – WA2DQL.

PROS, Pioneer Radio Operators Society. Meets: 1st Wed./monthly (except July/Aug.) 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wed., 8 p.m. 145.170/144.57- Repeater KC2JY.

The Radio Club of J.H.S. 22, N.Y.C., Inc. WB2JKJ, P.O. Box 1052, New York, NY 10002. 24-hr. hotline, (516) 674-4072, FAX, (516) 674-9600. Non-profit org. using Ham Radio to enhance the education of youngsters, nationwide. Join us — "Classroom Net", 7.238 MHz, 7 a.m. E.S.T. PSE QSL!

Suffolk County Radio Club. 3rd Tue./monthly, 8 p.m. Bohemia Rec. Ctr., Ruzicka Wy. W2DQ/R 144.610/145.210, 223.080/224.680 rptr. Info call Jim Heacock (516) 473-7529.

Westchester Amateur Radio Assoc. (WARA). Scarsdale Village Hall, Scarsdale, New York. Meets: 1st Wed./monthly, 8:00 p.m. For info call Dan Grabel, N2FLR, Pres. (914) 723-8625.

Westchester Emergency Communications Assn. (WECA) 147.66/147.06, 222.80/224.40, 447.475/442.475. Meets: 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Info: P.O. Box 831, N. Tarrytown, NY 10591. (914) 631-7424.

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets: Mondays, 28.350 on the air, 8:30 p.m. local time. "The Alligators" — all mouth, no ears.

OHIO

Amateur Radio Fellowship (ARF). Greg Ash, KA8TOA, Sec. 423 Pioneer Ave., Kent, OH 44240. Meets: 1st Sat./monthly at Kent Wally Waffle. KA8YKT rptr. 147.075.

Ashtabula County ARC. Ken Stenback, AI8S (964-7316). County Justice Center, Jefferson, OH. 3rd Tue./monthly. 7:30 p.m. County Rptr., 146.715.

Clyde Amateur Radio Society (C.A.R.S.) Meets: 2nd Tue./monthly, 7:30 p.m. Municipal Bldg., Clyde, OH 44811. NF8E Repeater 144.75/145.35. Net Sun. 9 p.m.

Dayton Amateur Radio Assoc. P.O. Box 44, Dayton, OH 45401. Meets 1st & 3rd Fri./monthly (Sept. thru June) 8 p.m., Career Academy on River Corridor Dr. Info on W8BI 146.34/94 & 222.34/223.94.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., City Hall, Basement Club Rm., Broad & Main. Info Net every Mon., 8 p.m. K8QIK/R 147.63/03 Rptr.

North Coast A.R.C. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly, 7:30 p.m. at North Olmsted Town Hall on Dover Center Rd. between Lorain & Butternut Ridge Rds. 10 miles west of downtown Cleveland.

Silvercreek Amateur Radio Assn. (SARA) Meets 3rd Thur./monthly, 7:30 p.m., Doylestown Village Hall, Doylestown OH. WD8PNF/R 147.99/39 rptr. For info call 216-925-2363.

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. W8HHF 147.87/27 Rptr. Rptr. info/swap & shop, Sundays, wkly — 8:30 p.m.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.480 at 8:30 p.m.; 7259 at 9 p.m. Rptrs. 146.31/91 and 146.115/715. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Warren Amateur Radio Assn. Meets 1st & 3rd Tue./monthly, 7:30 p.m. at Kent State Univ. Trumbull campus, Rt. 45 in Champion, OH. Club rptr. W8VTD 146.97MHz.

OREGON

Keno Amateur Radio Club. P.O. Box 678, Keno, OR 97627. Meets 3rd Thur./monthly, 7 p.m., Keno Fire Station. Rptr. 147.32+ W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

PENNSYLVANIA

Butler County Amateur Radio Club. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tue./monthly, 7:30 p.m. at Red Cross Bldg., 312 Mercer St., Butler PA 16001. Call-in: W3UDX 147.96/36. Net 10:10 p.m. nightly.

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets: 4th Tue./monthly at 7:30 p.m. at Shenango Valley Medical Center, Farrell, PA. Net, Thur. 9 p.m. on 147.75/15 W3LIF/R.

RF Hill Amateur Radio Club. Meets last Thurs./monthly, 7:30 p.m. at First Federal Savings & Loan of Perkasie, 600 Market St., Perkasie, PA. Nets: Wed. & Sun., 8 p.m. on 144.71 — 147.310.

Warminister Amateur Radio Club, WA3DFU. P.O. Box 113, Warminister, PA 18754. (215) 443-5428. Meets 1st Wed./monthly, 8 p.m., St. John's Evangelical Lutheran Church, Hatboro, PA. Net on 147.690/147.090 Wed., 8:30 p.m.

TENNESSEE

Nashville Amateur Radio Club. Meets 3rd Thurs./monthly at Lock 2 Metro Park off Pennington Bend Rd. Grilled hamburgers at 6 p.m., mtg. at 7 p.m. Call Jerry, KK4TV, at 754-2326 for info.

TEXAS

Beaumont Amateur Radio Club. Meets last Tues. of each month at the GSU Aud., South and Oxford Streets, Beaumont, TX, 7:30 p.m. Talk-in on 146.16/76 or 146.10/70. Join the fun!

Sun City Amateur Radio Club. Meets 1st and 3rd Fri./monthly, 7:30 p.m., 3709 Wickham Ave., El Paso, TX. K5WPH 147.240/147.840 Rptr. with remote operation on 220, 440, 6M, and 10M.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Operates 146.13/73 Rptr., VEC Information (804) 898-8031.

Virginia Beach Amateur Radio Club (VBARC). Open Door Chapel, 3177 Virginia Beach Blvd., Va. Beach, VA. Meets First Thur./monthly, 7:30 p.m. For info (804) 497-1235.

WEST VIRGINIA

Jackson County Amateur Radio Club. Robert D. Morris, WA8CTO, Sec.-Treas. 308 Edgewood Circle, Ripley, WV 25271. Meets 1st Thur./monthly, 7:30 p.m., United National Bank of Ripley. Net Mon. 9 p.m. on 146.67/.07 WD8JNU/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76(–) W8VA/R. Info KB8EHJ (304) 824-5958.

WASHINGTON

Mike & Key Amateur Radio Club. 3rd Sat./monthly, 10 a.m. Tukwila Com. Ctr., 4101 So. 131st St., Seattle, WA. Net. Wed. eve., 7:30 p.m. 146.22/146.82 rptr.

WYOMING

University ARC. 146.01/61 Meets: 1st Tue., 7:30 p.m. Sept.-May U.W. Physical Plant Bldg., 15th & Lewis St., P.O. Box 3625, Laramie, WY 82070. June-Aug: Bernie Club picnics Wed.

YL Roundup

YLs are some of the most active people in America. They tend to involve themselves in a variety of interests — not just Amateur Radio. Between career, motherhood and volunteer activities, YLs squeeze in time for studying and enjoying Amateur Radio. I guess we might coin the term, "superYL."

My OM often jokes that I am too busy writing or talking about ham radio to get on the air. However, a check of my log book proves that I do make a few contacts here and there. And at a recent local YL luncheon, we scheduled events for the next three months. Most of the YLs carry pocket calendars — it's a good thing! We had to try several dates before the majority of the group could make it even for an event three months away.

So it isn't too surprising that Donna Burch, W8QOY, of Portland, Michigan says, "I have so much going on in my life, I am busy all the time."

But Donna is not too busy to help others with Morse Code. "Those in the local area have come to my house. I also encourage those who have problems with CW by getting on the air with them, using schedules, to help them upgrade," she says.

Until Donna met her husband, Ralph, W8LCU, in 1952, she had not concerned herself with Amateur Radio. But Ralph had a "big Harvey Wells in his car, and everywhere we went, the radio was sure to go," says Donna.

She didn't let the rig get in her way; Donna married him anyway. And it follows that six months into the marriage, she got her Novice license. "I figured instead of beating him, I would join the ranks," Donna remarks. She received her Novice in March, 1954. Now, after 37 years, she proudly states, "I am married to the same guy; and I am an Extra."

Donna and Ralph teach radio classes, give talks, and encourage new hams to become active. She says, "It's very important to encourage the students and help them after they have their Novice. We get them interested in our local activities such as Field Day, RACES and emergency training."

One tip for upgrading and getting your code speed up "is to study at least 15 to 20 minutes every day without missing a day," she says. "If you miss one day, you back up two, so to speak."

You can hear Donna on many of the YL nets, such as QCWW (Quarter Century Wireless Women), YL Open House, Tangle, The Michigan TASYL (The Auto State Young Ladies), Buckeye Belles and Indiana Hawks. She is also the net control for the Great Lakes Emergency and Traffic Net, plus she gets on the local ARES/RACES net in Portland. She says her claim to fame is that she gives out "thoughts for the day" on all her nets. Donna is the president of the Michigan TASYL. She is secretary to the EC (Emergency Coordinator) of Ionia County. She is also taking emergency management classes offered by Ionia County.

Adopting a YL in a foreign country can be rewarding, Donna says. It is a YLRL (Young Ladies Radio League) sponsored program. YLs in the US adopt DX YLs, pay for their membership in YLRL, and correspond with them. Often, the YLs meet each other. "I sponsor two adoptees: Jean, G3JZP, in England and Christine, VK7CC, in Tasmania. We correspond via letter, tapes and gifts at Christmas, and I talk with Jean on 10M whenever conditions are favorable," she says. For more information about this program, contact Mary Ketzler, WO9R, Rt. 1, Box 194AA, Mondovi, WI 54755.

But even when conditions are at their worst, Donna has found unusual and exciting ways to enjoy radio — sometimes not even in her shack. She notes, "My most exciting radio experience was having my husband send Morse Code to me on my wrist after his quadruple heart bypass the evening of his surgery."

During a different hospital stay, Donna was recuperating from surgery. Like any dedicated ham, she had packed her 2M rig along with her gowns, books and writing material. While monitoring, she heard a motorist passing through Lansing (Michigan), calling for help. She answered him and after learning of his plight, she had a nurse come into the room and gave her the mike. With her help, an ambulance was dispatched, and all turned out fine.

During a snowstorm, in the 70s, Donna recalls spending three days in the radio room passing traffic to many states from the motorists who were stranded.

She says her myriad of radio experiences has been exciting. And though she has never gone on a DX-pedition, she says, "we have often packed the radio on our backs and backpacked to the beaches of Lake Michigan."

Ragchewing is also one of Donna's radio pastimes. So listen for this YL around the bands and ask her about holding office in various clubs. Or get her to tell you about Ralph's Harvey Wells.

While talking with Donna, don't forget that the TASYL are offering a 25th Anniversary Certificate. Make 25 US contacts with YLs on any Amateur frequency before the end of 1990, the TASYL anniversary year, and make sure that one of the 25 YLs is a TASYL member. Submit all log data: date, time, frequency, call, RST and TASYL number. This log must be signed and dated by the applicant as well as one of the following: two non-family licensed Amateurs, general class or higher, one officer of a recognized radio club or organization or a Notary Public or other official authorized to take oath. Certifying officials should show their call sign, if any, and full QTH. Certifications and endorsing signatures must be on the log sheet. The deadline for contacts is Dec. 31, 1990. Logs must be submitted by Jan. 31, 1991. There is a fee of $2.50 to cover mailing costs. Send applications to Elaine Matyjaszek, KA8KAK, 1127 Hillcrest Dr., Boon, MI 49618.

And if you're planning a trip to Michigan during August, 1991 (if not, plan one), Donna says the TASYL will be hosting the Ladies' Lounge at the ARRL National Convention in Saginaw, Michigan, on August 23, 24, and 25. She says there will be a craft table, coffee, cookies, possibly a forum and eyelash QSOs.

If you have suggestions for columns, write to me at 1916 Parkside Dr., Denton, TX 76201. □

For your personally autographed copy of ***Night Signals,*** please send $6 (includes $1 postage and handling) to:

Cynthia Wall, KA7ITT
1531 Wiltsey Rd. S.E.
Salem, OR 97306

This will be my last column for Worldradio. Due to a number of reasons, I can no longer continue this column. As many of you know, I have my own business besides my regular job. That combination, coupled with some other reasons, will prevent me from continuing on in this capacity. I wish to thank Armond and Helen Noble and their fine staff for their help over the past three and a half years. It has been much appreciated. I would like to suggest that you consider, as a replacement for this column, a subscription to *The KA3B 6 Meter Report* by Harry Schools, KA3B, 1606 South Newkirk St., Philadelphia, PA 19145. The subscription rate is $20 (First Class) US and Canada, $25 (Air Mail) Foreign DX. The newsletter covers strictly 6M activity and is published biweekly. It contains DX reporting, beacon information, QSL information, DXpedition plans and results, plus much more. Check it out.

As a final column, I am going to pass on to you some information provided to me by Shel Remington, NI6E/KH6, which might be of great importance to you in determining when you might be able to make those rare contacts deep into the Pacific area. I think it warrants attention.

We Pacific Islanders have been reading and hearing about the wonderful explosion of 6M activity in Europe. We are all very eager to work European stations, and undoubtedly the interest is equally high on the other end. In previous solar cycles, there seems to have been virtually no contacts made on these paths, largely due to inactivity at one end or the other. But in Cycle 22, which began about two years ago, numerous openings have been observed which demonstrate the existence of a wide variety of propagation modes. This guide summarizes those observations and attempts to generalize about optional strategies for European DXers. Please disseminate this information freely, including reprinting in European 6M newsletters. All dates and times are UTC.

Morning short and side-scatter paths

For stations in the western Pacific and southeast Asia, this is the most productive route. In the Fall of 1989, at least 28 dates between Sept. 17 and Dec. 7 produced openings in the 0600-1200 period. The peak was around late October. In the Spring of 1990, at least seven dates between Feb. 28 and April 3 showed openings between 0900 and 1100. Unfortunately, antenna headings are often omitted from published reports, but at least one of the Spring openings involved side-scatter from the Indian Ocean region.

Generally though, bearings are direct from Europe, from about 20 degrees for northern Japan to 100 degrees for western Australia. Countries involved on the Pacific end included Hong Kong, Phillipines, Japan, Saipan, Guam, Micronesia, Fiji, South Cooks, Norfolk and Australia. The Micronesia, Fiji and South Cooks openings were rare and brief, and certainly there was no propagation into the eastern Pacific, so it appears that the practical eastward limit on this path is typically around 155 degrees East longitude. Occasionally the path from Guam to the Mediterranean is so efficient that it links up with the trans-Atlantic F2 to yield long-path signals from equatorial South America. In the European region, participants included OH, SM, LA, PA, several G prefixes, F, CT, ZB, EA8, CT3, 9H, LX, SV, ZC and 5B.

Morning long paths

There are just two recorded examples of this path — one very solid and the other tentative. On March 21, 1989, AH6IO in Honolulu heard a very weak CW CQer on 50.105 around 1115-1130 which he believes was a G3. The other occasion was the spectacular propagation of Oct. 14, 1989 which was probably the greatest 6M long-path opening ever observed in terms of efficiency and duration.

It began when KH6VP on Oahu copied the 5B4CY beacon around 0805, peaking slightly west of the South Pole. He alerted other Hawaiians, and at 0824 I completed the first Hawaiian WAC with a contact with SV1DH. The opening spread out and for a long time the entire Mediterranian from Cyprus to Gibraltar was simultaneously audible. Signal strengths were so high that stations on both ends of the path made comfortable QSOs using nothing more than 3-10W to quarter-wave antennas . . . on a 26,000 Km path! The path was still open at 1200, after four hours of continuous propagation. Later, a report was received that KH6HI was heard in the UK during this opening, but the only countries actually worked were 5B4, ZC4, SV, 9H and F.

Many tests were made of short-versus-long path antenna headings, and everyone agreed that signals were peaking near the South Pole (160 degrees for the Mediterranean ops and 200 degrees for the KH6s). During this opening, the normal daily TEP path to the south Pacific was open, so those ops were hearing the KH6 end of the activity, but none of them had any trace of the Europeans. There were no other active stations within several thousand kilometers in the north Pacific, so it's impossible to determine the size of the "footprint." Interestingly though, ZK1CG in Rarotonga copied OH1-SIX/B on short path about one hour earlier, and KG6DX worked OH2TI on short path at 0800, as did some JAs. Later, from 1330 to 1600, western Japan worked long-path into Florida.

So, after 40 plus years of dedicated KH6 6M DXing, why didn't this path ever open before? The answer probably lies in the extremely quiet geomagnetic field; the A-Indices for the 13th, 14th, and 15th were 2, 0, and 0, which is unprecedented. Apparently the polar regions, which normally have heavy absorption, settled down enough for F2 or Es propagation to link with the Indian Ocean F2 and the Pacific TEP. It may never happen again, but Europeans should check the KH6 beacons on 50.061 and 50.073 in the 0800-1200 period whenever the geomagnetic field becomes unusually quiet.

Afternoon short path

This one is also quite rare and, so far,

it hasn't actually produced Oceania contacts. But on June 1 and 2, 1990, JA3 and JA4 worked into Greece in the period 1430-1725. Since most of the path is in darkness at that time, this was probably either many-hop Es or TEP sidescatter via the southern Indian Ocean (headings were not reported). Clearly, it is a rare but viable possibility and could extend further on both ends.

Sunset short path

Surprisingly, this has never opened, despite some watchfulness in Hawaii. Even more surprising is that the Alaska to Europe path also has never been worked. Here we have another case of polar absorption, although if the magnetic field becomes unusually quiet, signals may break through. Even on 28 MHz, it's unusual for European signals to be workable in KH6, despite the short distance involved. Nonetheless, if it opens, we Hawaiians will be ready, and we do check the European 6M beacons regularly.

Evening long path

On April 16, 18, and 21, 1989, stations in ZL2 and ZL7 copied the ZB2VHF beacon during the 2010-2110 period, and on that last date, ZL7TPY also heard the OX3VHF beacon at 2000. Bearings from ZL were around 140 degrees, which indicates a slight deviation from true long path. No contacts were made, and the path has not been reported open since then.

On March 29, 1990, N6AMG/KH8 worked ZC4MK at 2045, and Adrian copied Samoa for another 40 minutes. This is a true long path, but unlike those previously mentioned, it never strays far from the equatorial regions. Unfortunately, there is no permanent 6M station in KH8, although nearby 5W and FO have several.

On March 5, 6, and 17, 1990, Japanese ops worked into CT, 9H and SV in the period 2320 - 0115. This is another equator-hugging long path, but as it traverses the entire Pacific, it seems possible that ops in such places as Guam, Marshalls, etc. could get into it.

All of these evening long paths require the presence of TEP to link the European region up to the emerging F2 coming across the central or southern Atlantic. Perhaps the presence of PY, CX, LU or ZD8 signals would be a useful indicator for this TEP.

Evening side-scatter path

For the Hawaii-to-Europe route, this mode shows real promise. On October 30, 1988 around 0000 hours, 9H1CG heard KH6IAA, with both stations beaming toward (and copying) Brazil. On March 4, 1989, KH6HI was working Ecuador and Panama around 1920, and many months later, he received an SWL card from a station in Vilnius, Latvia who had heard his signals! On March 26, 1989 at 2015, KH6JJK worked EA8AKN while both stations were beaming toward (and copying) Buenos Aires-area stations. Then on Nov. 5, 1989 three Hawaiians, including myself, heard and worked stations and beacons in Malta, Greece and Cyprus from 1810 to 1850; our beams peaked at about 140 degrees (toward southern CE-LU). And on at least four other occasions in the Fall of 1989 and Spring of 1990, I have copied 48.25 MHz video carriers in the period 1815-2010, always peaking toward South America (which assuredly does not use that frequency for TV). Note that all these openings are neither short-path nor long-path but rather halfway in between. Thus the signals from Hawaii travel southeastward via F2, take a 90 degree sideways bounce, then propagate northeastward via TEP into Europe. Being a scatter mode, signals are always weak, so large antennas and at least 100W class amplifiers are important, as is the use of CW. But it is definitely a viable path and Europeans would be well advised to try it. In fact, I believe that contacts from Europe to western North America are also a good possibility via the side-scatter path. The W6, W7 and W0 ops rightly complain about the difficulty of punching 6M signals through the auroral zone to Europe, but there are some enormous antennas and amplifiers in those areas which would work very well on side-scatter.

Correspondence can be directed to Shel Remington, NI6E/KH6, Box 1222, Kea'au, HI 96749. Any European station who hears KH6 signals but cannot raise us on 50.110 or 28.885 may telephone me at 808/966-6946 anytime, or try KH6IAA at 808/935-0625. Aloha!

I hope the above will be beneficial to all those attempting to bridge the gap between Europe and the Pacific. Thanks for your comments, Shel.

By the time you read this, the new SMIRK 100 Countries Club award should be available. It is in the final stages of development as I write this. Contact the SMIRK awards manager for details. I am waiting for the results of the June SMIRK Party Contest from the contest manager so I can write the next *Six Shooter* newsletter.

Any DX reporting should be sent to Harry Schools, KA3B. Please do not write me about the SMIRK awards programs (write to Don Abell, KC5TK, the awards manager) or the SMIRK Party Contests or Technical Information (write to Lisa Lowell, KAONNO, P.O. Box 307, Hatfield, AR 71945). Beacon or QSL information can be obtained from the *KA3B* newsletter (Harry, KA3B, was looking for someone to take over the duties of beacon reporting). Do not send me any Worldradio subscription renewals. They now go straight to the magazine. The *only* thing I am handling are new SMIRK memberships and dues. The AMTOR DX reporting has been put on hold because there is no one locally who will handle the DX report collecting and replacement on AMTOR. I can no longer do this because I am usually not home to collect the information and put it onto AMTOR. The club does not have any equipment to loan, so please do not write me about that.

I want to wish you and yours a very Merry Christmas and a Happy New Year. May your stocking runneth over with much DX in 1991. See you on The Magic Band all of a sudden! □

WITH THE HANDI-HAMS

Maureen Pranghofer, KF0I

How many of you have ever attended a football, baseball or basketball game? I suspect that most of the Worldradio readers have had the experience of being sports spectators at one time or another. Since last June I have been able to have box seats for one of the most interesting sports I have ever had the pleasure of observing. The sport is Morse code and the teams are the waivered vs. the unwaivered.

It all began sometime last June when I first heard of some dramatic changes in the world of testing disabled applicants for license upgrades. Almost immediately, before Handi-Ham staff knew what was happening, phones began ringing off the hook. Everyone wanted to know "What is Handi-Hams' policy or thoughts on this?" We have never been a group which in any way sets policy concerning Amateur Radio, and it was made clear that although we were sort of right in the middle of this game because we serve various disabled clients, we were only spectators. It is not the purpose of the Handi-Ham System to set policies, but to assist disabled folks in obtaining Amateur Radio licenses by providing them access to study materials, equipment loans and linking them with local hams who act as tutors.

And so it was that my role as a spectator in this most interesting phase of Amateur Radio began. Since last summer I have had perhaps 500 phone calls regarding the waiver. As someone sitting on the sidelines I have simply answered questions to the best of my ability and provided information. This is what the reaction has looked like from my unique vantage point working with radio clubs, tutors, VEs and handicapped folks looking to join the hobby or upgrade.

Note that these are strictly observations and are in no way meant to imply a viewpoint of the Courage Handi-Ham System toward the waiver.

Only a dozen of the 3,000 Handi-Ham participants, to my knowledge, have applied for the waiver.

It has not been the most severely involved Handi-Ham participants who have shown interest in the waiver. Those people who are high quadriplegics (paralyzed from the chest down), those on respirators and those with severe cerebral palsy have wanted the code because they are hoping to use it as an alternative means of communication.

We have had an increased number of phone calls from the mentally ill, developmentally delayed and learning disabled populations regarding ham radio. Previously it was rare that we received inquiry calls from these groups. The Courage Handi-Ham System is not chartered to serve folks unless they have severe physical disabilities and most of these folks have not been eligible for our services.

Reaction to the waiver differs as much as the people differ from one another. On any given day I can receive a dozen calls from people who all have the same disability. Fifty percent will be interested in the waiver and how it works and the other half want nothing to do with it.

And that's it folks. Personally I have enjoyed being a spectator and have really tried hard not to give any hint as to my own personal convictions regarding the waiver. You can guess at my personal opinion if you have followed this column for long and know of my love for code. But the whole sport of the waivered vs. the unwaivered is an interesting one to watch, so stay tuned.

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

LOGic: the ham radio logging system

In the February issue of Worldradio I did a review of a computer program for logging all of your contacts called LOGic. The program worked well and I was especially critical regarding its application to logging and tracking 10-10 numbers. I have received the new updated version II and am pleased to see many, many revisions and corrections. Dennis Hevener, WN4AZY, has listened to the users and made a good program even better!

LOGic now supports color. One screen now supports both logging of regular contacts and contest contacts. Previously two different screens were used. This is a big improvement. You may now set up a non-contest screen, and you can customize your screen for each of your activities — ragchewing, DXing, county hunting, 10-10 etc.

An express-key feature has been included, allowing you to jump to any field on the logging screen — a real time saver. The Notes field has been made more accessible and appears on the screen as a normal field. The use of a mouse now allows easy access to certain fields. In the contesting mode, the program now includes automatic scoring and a real-time multiplier list. The contest portion is user defined, so you can set up almost any contest requirement. Automatic dupe checking is included.

The input to the Misc. and Comment fields may be automatically converted to "tagged fields." This means that if you require that 10-10 numbers be logged, they are automatically converted to a tagged field and used toward 10-10 awards. No more manually tracking your 10-10 bars, states, countries, counties, continents etc.

I have covered only a small portion of the features of LOGic II, but I have used this new version and believe me it works! It takes some time to get familiar with the many features, but in the long run the time spent is well worth it. In order to get some experience with the program, I used my hand written log from the latest 10-10 contest, and input the contacts, including the dupes. The program ran everything OK including the dupe check and printed out the log sheets ready for submittal. I recommend a "sample run" such as this using maybe 100 or more contacts to get familiar with the program before you begin for real.

Dennis has provided an excellent instruction manual. This is in addition to on-screen help that is available any time by pressing the F1 key. For complete details write to Dennis Hevener, WN4AZY, Personal Database Applications, 2634 Meadow Bend Court, Duluth, GA 30136-6037. The program will run on IBM, Amiga and Atari ST. A Mac version is in the works, and may be available by the time you read this.

The "2300 Net"

Each day, seven days a week, the "2300 Net" meets at, what else, 2300 UTC on 28.390 MHz. This informal net tries to put stations in contact with each other and has informal ragchews. This would be a great place to start looking for 10-10 numbers or just add a few new ones to your collection. Jim Rogers, N6WUQ, 10-10 #54715, has been checking into this net for some time and sends 10-10 Info Packs to prospective new 10-10 members. This must be an active group as Jim sends out 15 to 20 10-10 Info Packs each week. Look in on this active group — 2300 UTC on 28.390 (plus or minus depending on QRM).

10-10 Scholarship Fund

Last month I discussed the 10-10 Scholarship Fund and announced the two winners for 1990, Mark Horwath, KA1SPU, 10-10 #51203 and Nathan Willingham, KA0UFO, 10-10 #48785.

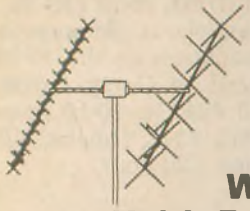
I also suggested you might want to send your contribution to the 10-10 Scholarship Fund to Gerry Gross, WA6POZ, 10-10 #21274, 10-10 Treasurer, 643 N. 98th #142, Omaha, NE 68114. I sent mine. Did you?

Finally

If you are interested in obtaining an information pack and application form for joining 10-10, send me a "green stamp" ($1) and one of your address labels. You will also receive the latest copy of the official 10-10 magazine, *10-10 International News*. My address is 18130 Bromley St., Tarzana, CA 91356-1701.

If you are one of the "lost sheep," who has lost his 10-10 number, send me your current call and *all* previous calls for a computer check of your previously issued number. An SASE will be appreciated. That's it for this month. Don't forget your letter to the FCC and your Senator (and a QSL to me). 73, es cu next month. □

Amateur Satellites



WB5ZDP
Keith Berglund

Well, I'm off to the AMSAT national convention. It's going to be held at the Johnson Space Center just south of Houston, Texas. This gathering is a Who's Who in the Amateur space program. Amateurs from all over the US and from many countries will gather to share and discuss the latest satellite info.

Phase III-D (the next high altitude elliptical satellite) and Phase IV (geostationary) topics will be covered as well as proposals for entirely new satellites. Along with the latest ideas on the new bids, progress reports on the Micro-Sats and OSCAR-13 will be given. I'll be sure to give you a full report next month.

Last month we covered many of the Amateur satellites now in orbit. The 11 active Amateur satellites now in orbit are AMSAT OSCAR-10, Radio-Sputnik-10/11, UoSat OSCAR-11, AMSAT OSCAR-13, UoSat OSCAR-15, AMSAT OSCAR-16, DOVE OSCAR-17, Weber-OSCAR-18, LU-SAT OSCAR-19, Fuji-OSCAR-20 and BADR-1. Informally, I group them into three categories.

1. Two way communications satellites
2. Experimental/SWL satellites
3. Other "things"

Last month we talked about the two-way communications birds now serving Amateur Radio. This month we'll cover the Amateur satellites now flying which are not communications birds, but are interesting and useful nevertheless. The are: UoSat-OSCAR-11, UoSat-OSCAR-14, DOVE OSCAR-17, WeberSat-OSCAR-18 and BADR-1.

OSCAR-11

UoSat OSCAR-11 was launched on March 11, 1984 aboard a US Delta rocket into a 700 km polar sun-synchronous orbit. It was designed and built by the University of Surrey in England.

The main mission of this satellite is to act as a test bed for orbiting digital communications experiments. In fact this bird paved the way for a lot of technology now found on the Micro-Sats. UO-11 can be heard many times per day on 145.825 MHz FM on any ordinary 2M rig. The downlink that you'll hear is 1200 baud inverted AFSK ASCII. The tones are standard Bell 202. This can be copied by an AEA-PK-232 with a very slight hardware modification.

One of the interesting things that this satellite has on board is a synthesized voice digi-talker. They usually have it turned on Wednesdays UTC. Again, when it's on you can hear it on 145.825 MHz FM with any 2M rig.

Though I've never used it, I understand that there is also a medium resolution CCD camera on board. They store a frame digitally and periodically downlink it. With the correct software, you can reconstruct the image.

UoSAT OSCAR-14

UO-14 is brought to you by the same folks that gave us UO-11 and the now crashed UO-9. It was the first deployed of the six Micro-Sats, all of which were launched nearly simultaneously on Jan. 20, 1990.

UO-14 is packed full of neat stuff even though it is packaged in a cube measuring only 10 inches per side. The primary payload of UO-14 is a packet communications experiment. This package is an orbiting node with four Mbytes of message memory and continues the work pioneered on UO-9 and UO-11. The main mission is to implement a sophisticated store-and-forward mailbox system that can be used with simple antennas in remote areas.

The Packet Communications Experiments (PCE) use 9600 bits-per-second frequency-shift-keying (FSK) on both the uplink and downlink. The uplink is on 2M and the downlink is in the 435 MHz band (a.k.a Mode J).

In addition to the PCE, UO-14 has a CCD camera that will generate 96K byte images, a cosmic particle detector, a total dose radiation monitor and a few other experiments to determine the effects of radiation on semiconductor materials.

The reason that I group UO-14 as a non-communications bird is that the transponders are not open to the general Amateur population. They are, however, available on a coordinated basis to Universities or other scientific groups. Keep in mind, though, that anybody can listen!

DO-17

DOVE-Oscar-17 is another of the Micro-Sat satellites launched on Jan. 20, 1990. DOVE is an acronym which stands for Digital Orbiting Voice Encoder. DO-17 was sponsored by AMSAT Brazil and, like its namesake bird, its mission is to promote goodwill by bringing digitized voice messages to classrooms throughout the world.

In addition to the digitized voice encoder, DO-17 transmits ordinary AFSK terrestrial packet radio on 145:825 MHz. The satellite transmitter output is a full 4W, so it is very easy to get reams of packet data with an ordinary 2M rig and any omni 2M antenna. I have known a few folks that get good copy using a Bearcat scanner and an indoor mag-mount antenna. If you have a 2M rig and a packet TNC, just leave your radio on 145.825 MHz and you'll

copy DO-17 as it flies over. Be sure to disable your "beacon" and other transmitting functions though.

In the near future, there are plans to have DO-17 serve as a communications platform for disseminating information to Amateurs around the world. DO-17 has eight Mbytes of on-board memory and can receive, store and downlink regular packet information of interest such as keplerian data and late breaking Amateur bulletins. The latest information would be repeated every few minutes so that all information could be received in an average pass.

DO-17's orbit takes it over the North and South Pole and it makes about 14.4 orbits per day. This means that the satellite will be over your QTH at least six times per day. Tracking is easy with a computer and any of a variety of AMSAT tracking programs.

Early in DO-17's history there was an "oops" with the 2M transmitter being on simultaneously with the 2M receiver. Fortunately, due to the heroics of W5UN and N4HY, the bird was reset and new software loaded. At this writing it's doing well and in the packet telemetry data mode. There are plans to turn on the voice encoder in the near future as soon as the new software can be loaded. The uplinking and dissemination of bulletins is not yet scheduled, but it's sure to come soon.

WO-18

WeberSat OSCAR-18 is still another of the Micro-Sats launched earlier this year. This satellite was designed and built by the teachers and students at Weber State University in Ogden, Utah.

This satellite is slightly larger than the other Micro-Sats at 9×9×12 inches. In addition to the transmitter, receiver, battery and computer modules, which are the same as the other Micro-Sat modules, WO-18 has an extra three-inch module which houses a few unique experiments.

The experiments in WO-18 include a color CCD camera, a high speed flash digitizer, an "L" band television receiver, a particle impact detector, an Earth horizon detector, a visual light spectrometer and a flux gate magnetometer.

The main experiment of interest to most people is the CCD camera. The picture is digitized and stored for later downlinking. The satellite will downlink the picture to you as raw ASCII. This can be captured and stored in a file using any TNC capable of operating in the KISS mode and a PC compatible computer. The digital file is then turned back into a color picture using WeberWare 1.0, a software package available from AMSAT.

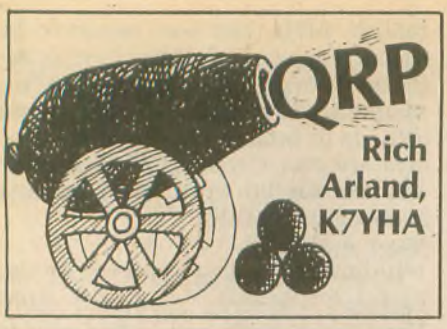
In addition, WO-18 has the full capability of functioning as a backup packet radio satellite such as AO-16. As of this writing WO-17 is pointed towards the Earth and capturing and sending three or four pictures per day.

BADR-1

BADR-1 is a very strange animal. It was built by students in Pakistan and launched on July 16, 1990 aboard a Chinese Long March rocket into a 220 X 1000 km elliptical orbit. The launch caught us all by surprise and details on just what this bird is supposed to do are still sketchy. What is known is that the bird is virtually a clone of UO-11 and initally had an AFSK beacon on 145.825 MHz, but now seems to be transmitting just a carrier, and sometimes not even that. It is thought that whatever was aboard the satellite went belly-up (it broke). The exact orbit is a mystery also. Given its present geometry, the satellite will probably re-enter in about six months.

Next month

When I return from the AMSAT convention I'll be sure to give a full report. Keep those cards and letters coming (thanks KA1JL, WØODD, KC4IOT). Remember, I've moved to the corn fields of Nebraska and can be reached at RR#1 Box 123A, Hubbard, NE 68741. □



The steady rhythm of "CQ DX" drifted from the speaker next to the newly assembled Heath HW-9. A solid S-7 signal on the meter led me to believe that it might be a stateside ham, since I was listening at 14.060, a ways up from the DX portion of 20M. The first pass on the call sign was a bit confusing . . . "9X" something. On the second pass "9X5HG" was copied which sent me scrambling for the Bencher paddles in a frantic flurry of activity! As calmly as I could, I listened on the 9X5's frequency but could hear no one coming back to him. Then he started calling "CQ DX" again.

It was hard to comprehend; here on a clear 20M frequency, a rare DX station in central Africa was calling "CQ" and nobody was paying any attention. Nobody but this QRPer, that is. As soon as the 9X5 signed his last call, I gave him a very quick one-by-one return and prayed. Sure enough, I was rewarded by hearing "K7YHA de 9X5HG FB OM ES TU CALL - UR 559 HR IN KIGALI - NAME HARTMUT - BK." A quick report from my end followed by the QRP info and a swap of QSL info and I had a new one in the log book.

If only they were all that easy. The aforementioned QSO occurred on August 11, just prior to the start of the European CW contest. My Rawanda QSO was followed by an OZ2, RB5, F8 and an ON4, all before the contest. During the test I managed to work about 20 stations without really trying, which netted additional new DX countries in the form of DL, UA1, Y33, OK1, G4, YT2, I2, HB0, OE, HB9 and several others. In short, I had a lot of fun, worked very little and was able to make a good gain on my DXCC countries list, all while using 2W or less on the *low* end of 20M. My current DXCCs total 19 countries, all on CW with only 2W output using the HW-9 (I'm starting from scratch from the new QTH with a new rig and antenna farm).

Although the 9X5 QSO was done on 20M using only 2W output, the real kicker was that the antenna I was using was an Ant Farm 51 ft. sloper tied to the end of my house. Height on one end was 30 feet dropping to about 12 feet near the fence in the back yard. Who says you can't work DX with QRP and a "wet noodle"?! This same weekend, I finally managed to erect the Butternut Butterfly Beam on the small flat roof of our dining room. Even though the beam is only 15 feet off the roof, it performs quite well and will be the basis for another QRP column on antennas. The Butterfly beam was pressed into service during the CW contest with outstanding results. Forward gain on 20M is pretty low due to the short boom and folded element design. However, the front to side ratio is quite good, enabling me to swing the beam around to the desired target area and substantially reduce the QRM from other stateside DXers.

This whole resurgence into QRP DXing came about after purchasing the HW-9 kit from Heath in early July. The HW-9, optional band-pack, SWR/PWR meter and antenna tuner were purchased and assembled in about two weeks. After about three days of debugging on the transceiver I managed to work KB7IMC in Yuma using 2W and the sloper. This is really no big deal except for the fact that the prop forecast listed the flux at 173 and the A index at 50. According to N7ZR from the Western Washington DX Club (WWDXC, of which I'm a member), I should not have been able to work across town, let alone across two thirds of the US!

Now a few words about the Heathkit HW-9 transceiver. This rig is the third generation of the famous Heath QRP line. Base price for the HW-9 is around $250; with the optional band pack (which adds all the WARC bands and 10M coverage), the price sits just under $300. In my humble opinion this price is a bit high for the rig considering a used Ten-Tec Argonaut 509 in excellent condition can be procured for around $225, and a model 515 Argo will cost about $350 used. Both the Argonauts will provide CW and SSB operation, while the HW-9 is a CW-only transceiver.

Unfortunately Heath underdesigned the radio from the get-go. One major problem is the countless birdies present in the superhet receiver. These can be minimized (but not eliminated) by careful alignment and tweaking of the HFO injection.

Another area that could use some redesign is the IF strip. Once again Heath insists on putting SSB bandwidth in a CW receiver. The 8.3 MHz crystal filter is a 2.7 kHz filter that does little to provide good CW reception. Even with the onboard active audio filter in the narrow position the radio suffers from poor dynamic range and intermod under crowded band con-

ditions. Several mods have appeared in the QRCI *QRP Quarterly* newsletter dealing with this problem. Unfortunately, they all require the HW-9 owner to purchase an additional crystal filter and modify the IF strip. One mod actually suggested that a second 2.7 kHz crystal filter be cascaded with the original filter to "tighten" the IF bandwidth. This is not a very cost effective alternative, since the Heath crystal filter costs $69, and when placed in cascade with the onboard filter the overall bandwidth will still be 2.7 kHz. Only the skirt selectivity will be narrower, which won't do much for the CW reception.

Probably the best solution to this problem of excessive IF bandwidth is to place a good 8.3 kHz CW filter (500 or 250 Hz), offered by the Kenwood users club in the IF chain, ahead of the normal filter and just behind the mixer. This will not be a cheap mod, as the cost of these filters is around $80, but the overall increase in performance is well worth the expenditure.

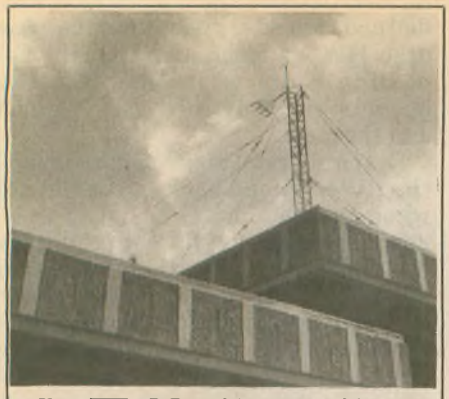
Another problem with the HW-9 is excessive VFO drift. Several dozen mods are offered for this problem, and they mainly consist of replacing some caps in the VFO circuit with some Silver Mica caps. Fortunately, I have had little problem with VFO drift after the first 10 minutes.

One nagging deficiency with my HW-9 is the erratic output on 80, 15 and 10M. The 10 and 15M output is only 1W. There are several things to try, and as time permits I'll delve into this and report back via this column. The problem with 80M is a power fall-off. Initially the ouput goes up to about 3.5W and rapidly falls off to about 1.5W. If I adjust the output to 1.5W initially, there is no power fall-off. This problem may take a while but rest assured, I will prevail.

The very first mod that I performed on the HW-9 was to install two 12-volt DC pilot lamps to light the tuning dial and the meter. The local Radio Shack has these 12-volt bulbs which are perfect for the job at hand. Drill two holes about ⅜ inch down from the top of the chassis and just to the left and right of the tuning dial. Carefully enlarge these holes to accept the bulbs. Either the red or white wire of the bulb can be grounded. There is a ground lug at each end of the chassis where the bulbs can be grounded. The remaining leads are tied together and soldered to the +12-volt lug on the multi-pin connector just to the rear of the dial on the top of the oscillator board. This provides +12 volts DC when the rig is on. The soft glow that now emits from the dial and the meter makes the otherwise drab HW-9 a much more visually appealing radio while enabling the operator to easily read both the dial and the meter.

Despite several major shortcomings, the HW-9 is not a bad rig. I would not recommend it for the new QRPer or anyone who doesn't have experience in building kits. The receiver section seems to perform well except under crowded band conditions, where the IF strip tends to get "crunched" easily due to the excessive bandwidth. The transmitter appears to be clean with good keying characteristics. The reduced power output on 10 and 15M can be traced to several design problems that can be fixed with some effort and a hot soldering iron. Hopefully Mike Bryce, WB8VGE, will have the third edition of the *Hot Water Handbook* ready for sale by the first of the year, and it will include many of the mods to improve the HW-9 as well as mods for the HW-7 and HW-8 QRP rigs.

I would like to ask the readers of this column to provide me with any mods that they have done to their HW-9s to improve performance. I will provide space in this column to cover HW-9 mods in future issues. 73s es gud DX. □



AERIALS

I was looking through a recent issue of *Chicken Quack* magazine when an advertisement caught my eye. There in black and white, I was promised an antenna array that would deliver, and I quote, "23 dB real gain."

It's that "real gain" I certainly want. You bet. None of that not-real gain for me. OK, how do I get this? 23 dB, powee! They tell me all I have to do is buy four of their antennas.

I'm ready to write out the check but I stop and think, hey, why not settle for only 20 dB? Why be so greedy? I'll only have to buy two antennas that way.

Lil, bless her Scottish soul, says then that I should forget buying two antennas, buy only one and be content with a 17 dB gain antenna. I agree.

What great magnificent antenna will give me 17 dB gain, you may ask. Well, according to the manufacturer, it is (on 6M) an 8-element antenna on a boom about two wavelengths long.

Prudent Lil decides to check this out. Turning to the book *Yagi Design* by Dr. James Lawson, W2PV, she finds that an 8-element Yagi on a two-wavelength boom has a gain of 12.6 dB over isotrophic. We know that this book, published by the ARRL, contains the straight scoop.

Plus, the figure jibes closely with the National Bureau of Standards reference antenna of the same size, which also means that over a dipole this antenna only has about 10.5 dB gain. Have I, the Masked Crusader, found a bit of (let's say) enthusiastic embellishment?

Well, I certainly can't believe that in hamdom there are some who would deliberately try to hornswaggle their fellow hams. Nope, just can't believe such a thing. There's no future in it because the dim bulbs usually don't have enough money to buy expensive toys. Next, those who have been around a bit will talk disdainfully about the claims of massive dBs. The knowledgeable are not the market for the dB horsepower claims, and they will dissuade others.

We welcome comments from readers and the company itself. 23 dB gain? Gain over what? Just what is "real gain"? I've never seen the expression "real gain" in any of the tomes.

Now we turn to something forwarded to me from **Worldradio's** international headquarters. I will first let "Kuby" tell his story and then I'll comment.

Have HT will travel!

D.R. Kubichek, N6JSX

Traveling Amateurs can find comfort and security in operating their Handy-Talky (HT) portable FM radio transceivers on local repeaters. Amateur Radio yields a great service in making strange lands less alien and more pleasurable. I've found that Amateurs love to help that lost out-of-towner. Local Amateurs can steer you to the best restaurants, services, and of course get emergency help. If you want to start a conversation just ask for some advice over the local repeater. All this action is at the push of the pickle (HT transmit button).

But this communication desire may lead to problems. Have you ever noticed when visiting relatives or friends the slight dismay when you pop a magnetic mount antenna on *their* car roof? I took my family back to Wisconsin for the holidays a few years ago. I got some very apprehensive looks from my father when I put my magnetic mount antenna on his *new* truck. He didn't say anything but his looks talked. The antenna was tolerated considering that my wife Becky, N6KUV, could always contact me from my parents' home when I was driving Dad's new truck.

This antenna problem plagued me when I was an aerospace field engineer visiting different locations in the US. I was usually rechecked by airport security because the magnetic mount antenna in my carry-on luggage looked suspicious. Rental car agencies gave me a jaundiced eye when I attached my antenna to their vehicle. An HT flexible antenna (known as a rubber-duckie) in the car on HT power just doesn't make it. Constant fade in and out of repeaters leads you to spend most of the QSO repeating what you have already stated.

My requirements for an alternate antenna mount was to keep the mount small, lightweight and durable. I came up with a gutter mount antenna by using a BNC double female feed-thru bulkhead connector into a Radio Shack gutter mount clamp. All I needed for installation was a small screwdriver. But with the new gutterless cars this mount lost its glimmer.

Dick McGearty, N7POI, came up with an idea. By using the same basic concept of my gutter-mount design, a mount was developed to slip over the edge of a car window. The window can still be rolled up for weather tightness and security. The same BNC coax cable was used between the HT and mount via the door jam or the top track of the window. This mount just extends the HT rubber-duckie antenna to a firm outside position. I consulted with my father, a machine shop supervisor, about the best material to use. Stainless steel was found to be stronger, thinner, and allows a tighter car window closure.

Major attributes of this antenna mount design are: small size, very compact, light weight, *no* tools needed, rigid, durable, versatile, strong, low wind loading, does not scratch the vehicle roof and multi-banded (limited by an acceptable transmission line loss).

Three-piece (soldered on tip) BNC and TNC connectors are used on the 10-ft. coax cable to insure a reliable and durable connection. The mount can easily be slipped off and tossed into the vehicle for security, but with the window rolled tight, the mount is secure to the vehicle. Amateurs who commute by ride-sharing can continue to operate in other vehicles. This mount can also be used with hand-held scanners.

This antenna mount was designed to be used with the supplied HT rubber-duckie antenna. HT telescopic antennas may suffer wind damage. I have used a thin one-half-wave 220 MHz telescopic antenna (overall dimension of 26 inches) with no problems. Larger antennas will exhibit increased wind loading. Antennas exhibiting excessive wind loading can cause damage to the automobile's glass window! All my testing shows that the supplied HT rubber-duckie antennas cause no wind loading problems.

This antenna mount is also available for Cellular telephones using a TNC connector. The mount will use the existing TNC antenna from the portable telephone.

I donated a BNC and TNC antenna mount to the Los Angeles Walnut Sheriff station Amateur DCS/RACES group for use in the patrol cars with the Ham Watch program.

KEEP YOUR COOL

with AEA's NEW LA-30 HF Linear Amplifier

WHAT DO HAMS EXPECT WHEN THEY SEE THE AEA NAME ON A PRODUCT?

Quality and Value.
They expect mechanical and electrical integrity.
They expect the best possible physical construction.
They expect a product that will look and perform as advertised for years to come.
They expect the support they need, before, during and after the sale.
They don't expect promises that can't or won't be delivered.
They don't expect the frustration that comes from products that don't perform as advertised, or technical support that's less than supportive.
They don't expect to spend their hard-earned money, just to lose their cool.

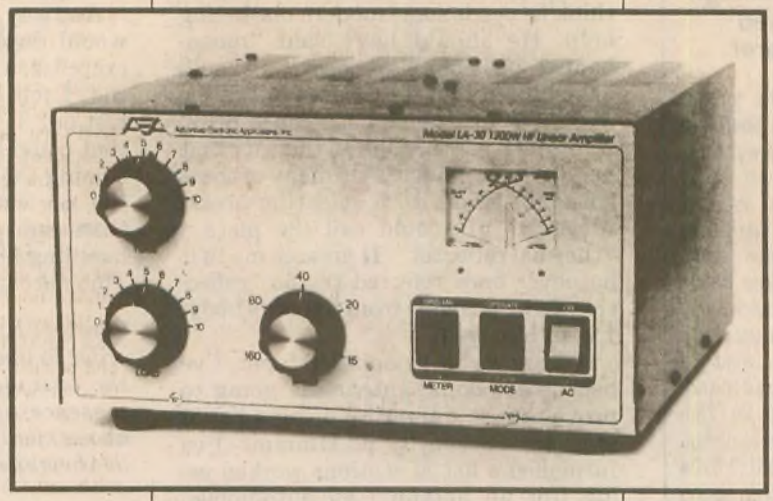
THE LA-30 DELIVERS!

The LA-30 HF Linear Amplifier delivers what hams expect from AEA.

Designed to provide reliable, stable, high RF output power, the LA-30 is equipped with a pressurized plenum and chimney cooling system to ensure extended periods of continuous use and longer tube life. We use a low-noise "squirrel-cage" blower that moves 30 cubic feet of air per minute past the tube and its base seal to help the LA-30 keep its cool. Others use computer type "muffin" blowers that don't cool the tube seals, and therefore shorten tube life.

Have you priced RF power tubes lately? They're not cheap. And when one goes out before you expect, you're bound to lose your cool.

QUALITY
We install parts that are designed to last, rather then cutting corners to reduce costs.



You won't find any shortcuts in our amplifiers. The LA-30 is the latest in a long line of high quality AEA products, going back over 12 years.

All aluminum parts are "alodized" to keep your LA-30 looking new. Alodizing is an expensive priming process that improves the metal's appearance and helps protect against scratching and corrosion. Make sure the amplifier you choose has alodized aluminum to keep it looking new for years to come.

We could cut manufacturing costs in other ways—such as using cheaper "self-tapping" screws and lower-quality aluminum—but then the unit just wouldn't meet our standards. Remember, only AEA amplifiers are built with AEA quality.

EASY TO USE.
With the LA-30's patent-pending cross-needle tuning bar meter system, we've eliminated the guesswork. You always know at a glance if the LA-30 is in tune. One dual-movement meter measures both plate and grid current simultaneously, which are both crucial to proper operation and extended tube life. The front panel controls are logically arranged and are marked with clear, easy-to-read markings and scales.

KEEP YOUR COOL!
Don't be fooled into buying an imitation when you can own an AEA. This compact self-contained tabletop unit will provide you with years of excellent performance. The LA-30 Linear Amplifier is the best HF amplifier value on the market today, because of AEA.

Engineering Makes the Difference!

SPECIFICATIONS:

Freq. Range	Amateur Bands 160-10 meters*
RF Input Power	SSB 1.2 KW P.E.P. CW/RTTY/AM/FM/ SSTV 1.0 KW
Power Tube	3-500Z zero-bias triode
Supply Voltage	110 VAC
Dimensions	14"W × 7½"H × 16½"D (36 × 19 × 42 cm)
Weight	35 lbs. (15.9 Kg.)

QSK modification available.
*10 meter mod. requires amateur license.

Advanced Electronic Applications, Inc.
2006-196th St. S.W./P.O. Box C2160 Lynnwood, WA 98036 (206)775-7373

Prices and applications subject to change without notice or obligation.

The BNC (50 ohm Amateur Radio and Scanner) and TNC (50 ohm Cellular telephone) antenna mount with a ten foot coax cable are being manufactured and sold by Kuby Kommunications, 19254 Tranbarger St., Rowland Hts., CA 91748; 818/964-1188. Extra: Beldon RG-58 or RG-174 coax cable selection will be available for either models by 1991. Antennas, radios, and telephones are user supplied. All coax cable connections are factory tested and carry a 90-day limited warranty. There is a one-year limited warranty on the antenna mount bracket assembly. Kuby Kommunications assumes NO liability for improper usage.

OK. I've got one of the units in my hand. It sells for $19.95 ($2.50 shipping and handling) or $12.95 (less cable).

It seems to be very nice, although I think he needs some modern marketing help. He should have said "moon-bounce possible." At least he should have hinted that it had been one of the nominees for the Nobel science prize. I've got to get through to this guy that he's just not going to sell many of these without calling it "a scientific breakthrough." He could call the plate a "thermal reflector." It amazes me that he never once referred to the "reflective gain" possible from the car's body. I wish him well.

And now, on to another topic. I've heard that some antenna is going to prove that it's great by using a list of stations worked by it. Hmmmf. I've furnished a list of stations worked using (for an antenna) an automobile, shopping cart, patio umbrella, hand umbrella, rain gutter and the like. The fact that you worked Southeast Moogoo Gaipan at the peak of the sunspot cycle really doesn't mean a whole lot. Look back some decades. Awful receivers. Inefficient tubes running but few watts input. (What's SWR? What's a tuner?) They just clipped a lead from the antenna right onto the final's coil, and they worked the world.

To prove the point, I had planned on introducing the SCR-6. I call it the SCR-6 because it is a shower curtain rod, six feet long. It's a no-cost antenna because it served a long life as something else (a shower curtain rod). Open wire line to the top and the bottom as it is supported vertically on a card table in the back yard. I thought about loading up my walker. I have a pair of aluminum crutches. I'll bet I could work DX with them.

It's been said that with my devices one needs an expensive tuner. Well, if somebody can't tear apart a Command Set or pick up some variable condensors and coil at a surplus store and build a cheap (and good) tuner, he ought to go back to 27 Mc. where he belongs.

Anyway, not expecting anybody would duplicate loading up a pair of crutches, a walker, or a shower curtain rod, I felt it would be more useful to test out a commercially made antenna that could be purchased. So, in the upcoming CQWW DX Contest, I'll be on the air with an antenna costing less than eighty bucks. ($4 shipping and handling.) I'll tell you how it works out. This antenna is 7½ feet long.

Cerebral Kurt goes by his pun name in order to avoid the slings and arrows of the outraged. He can also be in the presence of the decent folk (like the above mentioned) and not let on that he has bestowed a blessing. □

Where there's life

When all the power goes out, instead of just sitting there in the dark, why not try what they do in Vancouver, BC? Stick a couple of electrodes in the water and draw power from electric eels.

Amateur radio operators did it recently, in a demonstration of inventive ways to get the signal out when no power is coming in. The two fat eels were taking part in a worldwide test of disaster preparedness and charged a special battery.

Now, these creatures turn out up to 600 volts, so you have to be careful when you do this, or you'll create a new meaning for the term "fish fry." — *Hangtown ARC, Placerville, CA* □

Worldradio 1990 DXathon

ELIGIBILITY: All licensed Amateur Radio operators worldwide.

DATES: Jan. 1, 1990 through Dec. 31, 1990.

BANDS: Five bands •80 •40 •20 •15 •10

MODES: Five modes •phone •CW •satellite •visual (SSTV, FAX) •digital (includes RTTY, AMTOR and packet)

OBJECTIVE: Contact as many nations via as many different modes as possible. A nation is defined as an entity with enough sovereignty to issue its own postage stamps.

SCORING: Your final score will be the total number of nations worked per mode. You may count a nation only once per mode. An example of scoring: If you work Japan on CW and SSB on 20M, the point value would be 2 points. If you work Poland on CW on 10M and 20M, the point value would be 1, as a nation can only be counted once per mode.

SUBMISSIONS: All entries must be submitted on official DXathon entry forms or a reasonable facsimile and should include call, date, time, band and mode for each entry. Use separate sheets for each mode. QSL cards are not required. In addition, a DXathon summary scoresheet should be filled out with your score totals on it. All entries must be postmarked no later than Feb. 28, 1991. Entries must include your call, name, address and be signed with a declaration that the contacts were complete two-way contacts. Mail all entries to: **Worldradio**, 2120 28th St., Sacramento, CA 95818, USA. All participants will be listed in **Worldradio**. Decisions of the DXathon committee will be final. The committee reserves the right to disqualify an entry for violation of the letter or the spirit of the rules. By submitting an entry, the participant agrees to abide by the decision of the committee.

AWARDS: Will be given based on the number of entries. 100-point minimum must be accumulated to be eligible for an award.

RULE CHANGES: Rules may be modified over the years to reflect feedback from the participants. Please send copies of this notice to your DX friends. Send 45¢ business size SASE to **Worldradio** for entry forms and nations list. □

Florida

The SKY HIGH AMATEUR RADIO CLUB will sponsor its 11th Annual Citrus County Hamfest on Jan. 26, 1991 at the National Guard Armory in Crystal River.

Doors will open to exhibitors at 7 a.m. and to the public at 9 a.m. Admission is $4 if reservation is paid by December 20 and $5 thereafter. XYLs enter free with OM! Indoor tables are available for $8 each and outdoor fleamarket spaces are $5 each.

Talk-in on 146.355/955.

For further information call Ed Gaudet, K4BRC, at 904/746-2371 or Phil Crawford, WB8D, at 904/489-6179. □

Michigan

The SOUTHFIELD HIGH SCHOOL AMATEUR RADIO CLUB is sponsoring their 25th Annual Swap and Shop on Jan. 20, 1991 at Southfield High School.

Doors will open to exhibitors at 6 a.m. and to the public at 8 a.m. Admission is $4 (children 12 and under are free) and 8 ft. tables are $12 (reserved and paid in advance).

All profits from the Swap and Shop go toward electronic scholarships and the support of club activities.

For further information contact Robert Younker, 24675 Lahser Road, Southfield, MI 48034; 313/746-8675. □

Information in "New Products" is supplied by the manufacturers to acquaint *Worldradio* readers with new products on the market.

Night Signals

Cynthia Wall, KAITT, of Salem, Oregon has written a gripping new adventure novel about Amateur Radio, *Night Signals.* It's a story of a search for a young ham who has been injured while backpacking in the mountains of Oregon. Although originally intended to attract young people into our Amateur Radio service, it is fascinating for readers of all ages.

A young Amateur named Kim comes home after having a boring evening at her senior prom, turns on her rig and receives an answer to her CW CQ. It's a college student, Marc, who has strung a temporary antenna over a tree in the chilly mountains. They find much in common and make a sked for the next evening, but he doesn't show up.

We learn that he has been severely injured and is unable to walk. Events take us through the exciting, desperate effort to locate him. Interesting details of rescue teams and Amateur operations make the search exciting and suspenseful with unique technical experiments. Old-timers and newcomers will be intrigued.

A sequel entitled *Hostage in the Woods,* with the same leading characters, will be out shortly. If you would like further information on these books, contact Lenore Jensen, W6NAZ, at 14867 Round Valley Dr., Sherman Oaks, CA 91403. □

A Radio Journal

All old-time hams have many stories to tell about the good old days of the Ford spark coil and the Rolled Oats box coils, but few have the ability or the inclination to put them down in writing.

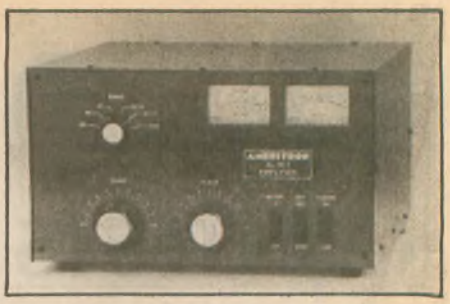
That's what makes *A Radio Journal* so unique. Russ Rennaker, a professional writer with four fiction titles to his credit, has described those early days with reality enough for the youngster who just likes to read about early radio, as well as the real dyed-in-the wool nostalgia buff.

Having acquired a ham license in 1920 at the age of 13 and a commercial license at the age of 19, the author has put the better part of 70 years into communications. Written from his personal diary (hence the title), the stories he relates are sometimes humorous, sometimes dramatic and always interesting. If you wonder what radio was like in the 1920s and 1930s this book is for you. For further information or to obtain a copy ($8 plus 90¢ postage), write to R&R Press, 1011 Linda Dr., Kokomo, IN 46902. □

Linear amplifier

Ameritron, the high power specialist, announces the release of the new AL-811 600W linear amplifier for only $599.

The Ameritron AL-811 uses three 811A tubes to deliver 600W PEP or 500W CW from 160 - 10M. (Easy modification instructions for



10/12 meters operation requires presentation of valid Amateur license.) A Pi-Network tuned input circuit matches the tubes to 50 ohm exciters. It lets even the fussiest solid state rig perform flawlessly with the Ameritron AL-811.

A vernier reduction drive on the plate control makes tuning precise and easy. Dual illuminated meters give you a complete picture of your operating condition. One meter gives you a continuous reading of grid current. A second switchable meter lets you monitor high voltage and plate current.

The rugged 811A tubes feature fast 3-second warm up time and extremely low replacement cost. An operate/standby switch prevents harmful thermal shock to your tube filaments by keeping them lighted while you are operating barefoot. The AL-811 also features a transmit LED. Pressurized ventilation keeps your tubes and power supply components at temperatures that are safely below the manufacturer's ratings, even when operating continuously at 600W.

The Ameritron AL-811 weighs 30 pounds. It measures 16 X 13¾ X 8 inches. It runs on 120 volts. The export model (Ameritron AL-811X) runs on 240 volts and covers 10-12M.

For more information contact your Ameritron dealer or Ameritron, 116 Willow Road, Starkville, MS 39759 or call 601/323-8211; FAX: 601/323-6551; or toll free at 800/647-1800 to request a free full line catalog.

Experimenter's manual

The ARRL UHF/Microwave Experimenter's Manual was written by a distinguished group of microwave engineers and experimenters, nearly all of whom are active Amateur Radio operators. It covers antennas and feed lines, transmission media, design and fabrication techniques, measurements, microcomputers and many other subjects.

The 448 page, soft cover manual is available for $20 (include $2.50 for postage and handling, $3.50 UPS) from the American Radio Relay League, 225 Main Street, Newington, CT 06111. □

Packet radio

Just released from Kantronics, Inc., the DVR 2-2 is a radio you can dedicate to your packet station without spending a fortune.

The DVR 2-2 was designed to provide rapid switching for high speed packet, but it operates equally well on your favorite voice repeater. Pin diode switching provides that quick turn around time, and separate rear panel connections for your microphone and TNC eliminate the need to switch cables. Contact your favorite Kantronics dealer for further information. □

Physonic Solution

Tayo Industries is proud to introduce a scientific breakthrough in audio and video enhancement products: Physonic Solution. Developed by Eric Data Systems, this electrical contact enhancement liquid will dramatically increase the sonic and visual quality of any equipment without it having to be dismantled.

Even if your audio and video cables have the finest gold-plated contacts, complete electrical conductivity cannot take place unless the two surfaces fit together perfectly. Usually only a small percentage of the metallic surface area actually conducts, when the molecules on each surface are in physical contact.

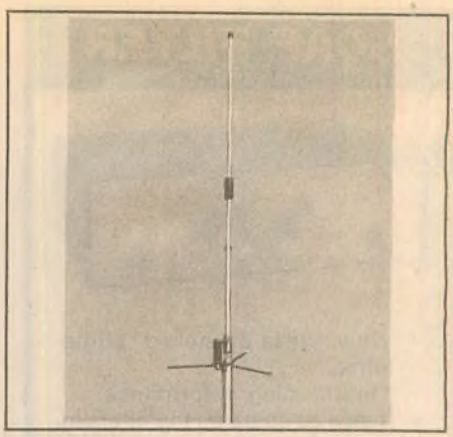
Physonic Solution is made of a computer synthesized polymer material which fills the microscopic pores and gaps between two metallic surfaces. By increasing the contact area in this way, you gain much more efficient signal transfer.

This product is non flammable and leaves no harmful residue. For further information contact Tayo Industries, 7510 Sunset Blvd., Suite 537, Hollywood, CA 90046; 818/765-0782. □

Dual Band Ringo

The new Cushcraft AR-270 Dual Band Ringo is the perfect antenna for any dual band 2M/70cm Amateur base station transceiver.

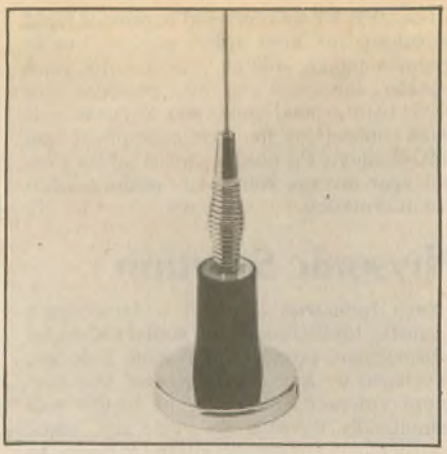
The antenna is a durable lightweight design that is all aluminum in construction and utilizes stainless steel hardware. It is compact, measuring 3¾ feet high. It has a 3.7dB gain on 2M and 5.5dB on 70cm. You can enjoy full bandwidth on 2M and over 15 MHz on 435



through 450 MHz to work your desired FM repeater.

With its two section vertical element, three short radials and weather sealed phasing coil, the AR-270 weighs only two pounds and is ready to install anywhere. It is ideal for limited space requirements such as apartments and side mounting off your tower.

This antenna is available from dealers worldwide. For further information write to Cushcraft, P.O. Box 4680, 48 Perimeter Rd., Manchester, NH 03108 or call 603/627-7877. □



Mobile antenna

The ideal companion for that new 10M mobile transceiver is the CS28M (magmount) antenna.

The CS28M is a new adaptation of the popular Cushcraft Signals mobile antennas, recognized by professional users around the world for their ruggedness and dependability.

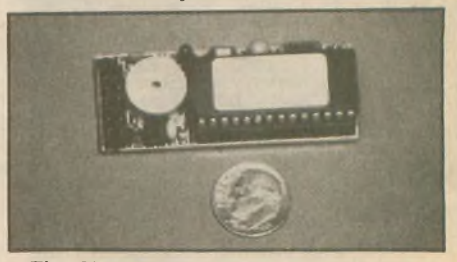
The antenna comes with a 49 inch stainless steel whip and spring, a standard 3/4 inch brass base, 90 lb. pull, chrome plated magnet, mylar pad and 15 feet of quality RG58AU with PL259 connector.

Whether it's local ragchewing or working exotic DX, the CS28M is the answer. The CS28M is available from dealers worldwide, or write to Cushcraft, P.O. Box 4690, 48 Perimeter Rd., Manchester, NH 03108. □

DTMF decoder

A micro-processor controlled DTMF decoder with program and store capabilities which can be user programmed to store and remember caller's ID number and eight distinct notification numbers, the Signal Sentry will solve many of the problems we face in using our hobby for emergency and public service situations.

It is small enough to fit into most radios, including some HTs. The board is four layers and measures only 2¼ x 15/16 x 7/16 inches.



The Signal Sentry requires 6 to 16VDC and uses only 12 microamps when in the sleep mode. A low current of only 12 milliamps is used when a call notification is in progress.

It is very usable as a radio remote controller. The unit provides serial output of all 16 DTMF tones for computer use.

This product is available from A&A Engineering, 2521 W. LaPalma, Unit K, Anaheim, CA 92801; 714/952-2114. For a fully assembled and tested unit, order #173-ASY ($89.95) or, for a kit version, order #173-KIT (69.95). Each unit comes with a full instruction manual. □

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Those just starting out in the world of OSCAR communications would like to know when they can hear a satellite. The following charts are produced to give you a rough idea as to when OSCAR-13 will be within range of your location. The three charts as printed are centered on the following geographic locations: East = New York City; Mid = St. Louis, MO; West = Reno, NV.

As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the telemetry beacon on 145.810 MHz. The letter "L" indicates the satellite is audible but you will hear signals between 435.650 and 436.000 MHz (SSB and CW).

Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

Station East

HOUR - UTC

```
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1/01 ----------BBBBBBBBBBBLLLLLLBBBBBBBBBBBBBb-------------------------
1/02 -------BBBBBBBBBBLLLLLBBBBBBBBBBBBBB----------------------BBBBBBBB-----
1/03 -----BBBBBBBBLLLLLBBBBBBBBBBBB-----------BBBLLLLLBBBBBBBBBBBB------
1/04 ---BBBBBBBLLLLLLBBBBBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBBBBb--------
1/05 --BBBBBLLLLLBBBBBBBBBBBB------BBBBBBBBLLLLLBBBBBBBBBBBBb-----------
1/06 -BBBLLLLBBBBBBBBBBB------BBBBBBBBLLLLBBBBBBBBBBBBb--------------
1/07 -LLLLLBBBBBBBBBB------BBBBBBBBBLLLLLBBBBBBBBBBBBbb----------------L
1/08 LLLBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBb--------------------B
1/09 BBBBBBBB--------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/10 -------------BBBBBBBBBLLLLLBBBBBBBBBBBb-------------------------
1/11 ----------BBBBBBBBBLLLLLBBBBBBBBBBBb-----------------------------
1/12 -------BBBBBBBBBLLLLLBBBBBBBBBBBb-------------------------------
1/13 -----BBBBBBBBBLLLLLBBBBBBBBBBb----------------------BBBBBBBB-------
1/14 --BBBBBBBBLLLLLLBBBBBBBBBBB----------BBBBBLLLLLBBBBBBBBBBB--------
1/15 -BBBBBBBLLLLLBBBBBBBBBB--------BBBBBBBLLLLLBBBBBBBBBBb---------B
1/16 BBBBBBLLLLLBBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-----------BB
1/17 BBLLLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-------------BLL
1/18 LLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb---------------LLL
1/19 LBBBBBBBBB--------BBBBBBBBLLLLLBBBBBBBBBBb-----------------BBB
1/20 BBBBB---------BBBBBBBBLLLLLBBBBBBBBBBb-------------------B-
1/21 ----------BBBBBBBBLLLLLBBBBBBBBBBb-----------------------------
1/22 --------BBBBBBBBLLLLLBBBBBBBBBBb-------------------------------
1/23 -----BBBBBBBBLLLLLBBBBBBBBBB-----------------------------------
1/24 --BBBBBBBBBLLLLLBBBBBBBBBBb----------------------BBBBBBBB---------B
1/25 BBBBBBBBLLLLLBBBBBBBBBB----------BBBLLLLLBBBBBBBBBB--------BBB
1/26 BBBBBBLLLLLBBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBB---------BBBB
1/27 BBLLLLLBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBb----------BBBL
1/28 LLLLLBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBb-------------BLLLL
1/29 LLBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBb---------------LLLBB
1/30 BBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBb-----------------BBBBB
1/31 BBBB---------BBBBBBBLLLLLBBBBBBBBBb-------------------BB---
     19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19
```

HOUR - LOCAL

Station Mid

HOUR - UTC

```
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1/01 ----------BBBBBBBBBLLLLLLBBBBBBBBBBBBb-------------------------
1/02 ---------BBBBBBBBLLLLLBBBBBBBBBBBBB---------BBBBBLLLLLLBBBBBBBBBBBB--
1/03 -------BBBBBBBLLLLLBBBBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBBBB-----
1/04 ------BBBBLLLLLBBBBBBBBBBBB------BBBBBBBBLLLLLBBBBBBBBBBBBb-------
1/05 ------BBLLLLLBBBBBBBBBBB------BBBBBBBBLLLLLBBBBBBBBBBBBb----------
1/06 -----LLLLBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBBBb--------------
1/07 -----LLBBBBBBBB--------BBBBBBBBLLLLLBBBBBBBBBBBBbb---------------
1/08 ------BBBBB---------BBBBBBBBBLLLLLBBBBBBBBBBBb-------------------
1/09 ----------BBBBBBBBLLLLLBBBBBBBBBBBb-------------------------
1/10 ----------BBBBBBBBLLLLLBBBBBBBBBBb-------------------------
1/11 ----------BBBBBBBBLLLLLBBBBBBBBBBb-------------------------
1/12 --------BBBBBBBBLLLLLBBBBBBBBBB----------------------BBBBBBBB----
1/13 ------BBBBBBBBLLLLLBBBBBBBBBB----------BBBBBLLLLLBBBBBBBBBB-----
1/14 -----BBBBBLLLLLBBBBBBBBBB------BBBBBBBBLLLLLBBBBBBBBBBb-------
1/15 ----BBBBLLLLLBBBBBBBBBB------BBBBBBBBLLLLLBBBBBBBBBBb---------
1/16 ---BBBLLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-----------
     18 19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
```

HOUR - LOCAL

Station Mid

HOUR - UTC

```
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1/17 ---LLLLLBBBBBBBBB-------BBBBBBBBBBBLLLLLBBBBBBBBBBBBb----------------
1/18 ---LBBBBBBBBB--------BBBBBBBBBBLLLLLLBBBBBBBBBBBBb-------------------
1/19 ---BBBBB----------BBBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/20 ---------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------------------
1/21 ----------BBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------------
1/22 ---------BBBBBBBBLLLLLBBBBBBBBBBBb-------------------------------
1/23 ------BBBBBBBBLLLLLBBBBBBBBBBBB----------------------BBBBBBBBB------
1/24 ----BBBBBBBLLLLLBBBBBBBBBB----------BBBBBLLLLLBBBBBBBBBB-------
1/25 --BBBBBBLLLLLBBBBBBBBBB-------BBBBBBBLLLLLBBBBBBBBBBb---------
1/26 -BBBBBLLLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-----------
1/27 -BBLLLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-------------L
1/28 LLLLLBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb---------------L
1/29 LLBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBb-------------------
1/30 -BBBBB----------BBBBBBBBBLLLLLBBBBBBBBBBb-------------------
1/31 ------------BBBBBBBBLLLLLBBBBBBBBBBb-----------------------
     18 19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
```

HOUR - LOCAL

Station West

HOUR - UTC

```
     0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
1/01 BBBBB---------BBBBBBBBLLLLLLBBBBBBBBBBBBb-------BBBBBBBBLLLLLBBBBBBBBBBB
1/02 BBb----------BBBBBBLLLLLBBBBBBBBBBBB------BBBBBBBBBLLLLLBBBBBBBBBBBBb-
1/03 -----------BBBLLLLLBBBBBBBBBBBB------BBBBBBBBBBLLLLLBBBBBBBBBBBBb----
1/04 -----------LLLLLBBBBBBBBBB-------BBBBBBBBBBLLLLLBBBBBBBBBBBBbb-------
1/05 -----------LLBBBBBBBBB--------BBBBBBBBBBLLLLLBBBBBBBBBBBBb----------
1/06 -----------BBBBBB---------BBBBBBBBBBLLLLLBBBBBBBBBBBBb--------------
1/07 ----------------------BBBBBBBBBLLLLLBBBBBBBBBBBBbb----------------
1/08 ---------------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------------
1/09 ----------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/10 ---------------BBBBBBBBBLLLLLBBBBBBBBBBBb-------------------------BBB
1/11 BB----------BBBBBBBBBLLLLLBBBBBBBBBBB-------------BBBLLLLLBBBBBBBBBB
1/12 BB----------BBBBBBBBLLLLLBBBBBBBBBB--------BBBBBBBBLLLLLBBBBBBBBBBb
1/13 b---------BBBBBLLLLLBBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBBBb----
1/14 ---------BBBLLLLLBBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb------
1/15 --------BLLLLBBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb---------
1/16 --------LLLBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------
1/17 --------BBBBBBB---------BBBBBBBBBLLLLLBBBBBBBBBBBBb----------------
1/18 ----------------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------------
1/19 ----------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/20 ---------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------------------
1/21 ----------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------BBBBB-
1/22 ----------BBBBBBBBBLLLLLBBBBBBBBBBBB------------BBLLLLLBBBBBBBBBB-
1/23 --------BBBBBBBBLLLLLBBBBBBBBBBBB--------BBBBBBBLLLLLBBBBBBBBBBBB---
1/24 -------BBBBBLLLLLBBBBBBBBBB-------BBBBBBBBLLLLLBBBBBBBBBBBBb-----
1/25 ------BBBBLLLLLBBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb---------
1/26 ------BLLLLBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------
1/27 ------LLLBBBBBBBBB-------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------
1/28 ------BBBBBBB---------BBBBBBBBBLLLLLBBBBBBBBBBBBbb---------------
1/29 ----------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/30 ---------------BBBBBBBBBBLLLLLBBBBBBBBBBBBb-----------------------
1/31 ------------BBBBBBBBBLLLLLBBBBBBBBBBBBb-------------------------
     16 17 18 19 20 21 22 23 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
```

HOUR - LOCAL

THE 1991 QSL BOOK!

Extending a 70 year tradition, we bring you three new Callbooks for 1991, bigger and better than ever! The North American Callbook, the International Callbook, and the new Callbook Supplement bring you accurate up-to-date QSL information on over 1,000,000 amateurs throughout the world.

The North American Callbook lists the calls, names, and address information for over 500,000 licensed radio amateurs in all countries of North America from Canada to Panama, including Greenland, Bermuda, and the Caribbean islands plus Hawaii and the U.S. possessions.

The International Callbook lists over 500,000 licensed radio amateurs in countries outside North America. Its coverage includes South America, Europe, Africa, Asia, and the Pacific area (exclusive of Hawaii and the U.S. possessions).

The 1991 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1991, this combined Supplement will include thousands of new licenses, address changes, and call sign changes for the preceding 6 months.

Every active amateur needs the Callbook! The 1991 Callbooks will be published December 1, 1990. Order now for early delivery as soon as the new books are available. See your dealer now or order directly from the publisher.

- Over 1,000,000 current amateur listings in all countries of the world • Telegraph Codes
- Then & Now call changes • Silent Keys • Census of Amateur Licenses in all countries
- Standard Time Charts • International Postal Information • World-wide QSL Bureaus
- Table of Amateur Prefix Allocations • Prefixes of the World • Plus many other features.

Publication: Callbooks - December 1, 1990
Supplement - June 1, 1991

	Including shipment to U.S.A. points	Illinois residents, incl. tax & shipping	Including shipment to foreign countries
☐ RC0191 Single 1991 North American Callbook	$33.00	$34.90	$39.00
☐ RC0291 Single 1991 International Callbook	33.00	34.90	39.00
☐ RC0391 Single 1991 Callbook Supplement	13.00	13.65	14.00
☐ RC01912 SPECIAL OFFER: Order both 1991 Callbooks at the same time for shipment to one address.	63.00	66.80	73.00

Name _____ Amount enclosed _____

Address _____

_____

radio amateur **callbook**

Dept RACM0006
925 Sherwood Dr., Box 247,
Lake Bluff, IL 60044, USA

Mon-Fri 8-4 Central
Tel: (708) 234-6600

VISA MasterCard

VE exam schedules

As a service to our readers, **Worldradio** presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid July.

Worldradio, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams."

List the location, and information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

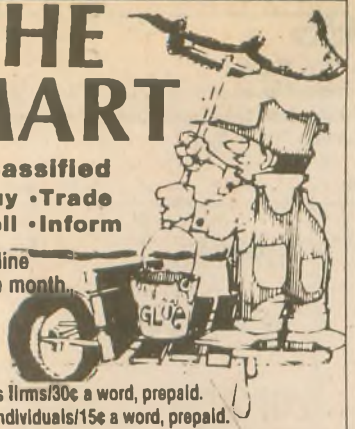
p/r = pre-register w/i = walk-in

Date	City	Contact	Notes
Alabama			
Dec 29	Montgomery	Leroy Bell Jr. (205) 269-4201	w/i
Arizona			
Jan 5	Tucson	K7OPX (602) 886-7217	w/i only
California			
Dec 3	Camarillo	N6SR (805) 484-4461	p/r pref; w/i OK
Dec 15	Downey	KA3DSE (213) 923-5598	w/i
Dec 20	Long Beach	KA6HOQ (714) 897-6331; NF6X (213) 434-8278	w/i
Dec 8	Novato	N6AQY (415) 897-8950	w/i
Dec 1	San Dimas	K6THQ (714) 596-9383	p/r 1 week prior
Dec 15	San Dimas	K6THQ (714) 596-9383	p/r
Dec 8	San Marcos	(619) 465-EXAM	p/r
Dec 29	Stockton	AA6NO (916) 662-0801	w/i
Colorado			
Dec 8	Denver	W0IJR (303) 366-9689	w/i OK
Dec 15	Westminster	N0CFM (303) 451-1231; N0HNR (303) 278-4280	p/r or w/i
Connecticut			
Dec 16	Milford	NB1M (203) 933-5125; WA1YQE (203) 874-1014	w/i
Dec 1	Norwalk	WB1U (203) 847-2541	w/i
Florida			
Dec 15	Melbourne	WB9IVR (407) 724-6183	w/i OK
	W. Palm Beach	W4SS (407) 967-1477; KG4U (407) 582-7617	w/i
Idaho			
Dec 8	Boise	W7JMH (208) 343-9153	w/i
Illinois			
Dec 15	Loves Park	W9SS (815) 877-6768	p/r; w/i
Dec 8	Oak Forest	KA9HDN (312) 247-0650	w/i
Indiana			
Dec 1	South Bend	NI9Y (219) 255-4455	w/i OK
Dec 2	Terre Haute	K9EBK (812) 466-2122	w/i
Iowa			
Dec 29	Council Bluffs	AA0BS (712) 322-1454	w/i OK
Kansas			
Dec 8	Olathe	WK0G (913) 764-2822	p/r pref
Maryland			
Dec 8	Kensington	W3QF (301) 564-0178	p/r pref
Massachusetts			
Dec 15	Melrose	WB1F (617) 322-7654	w/i
Michigan			
Dec 6	Trenton	(313) 676-6248	no w/i
Minnesota			
Dec 8	Bloomington	KD0CL (612) 881-7181	p/r pref
Mississippi			
Dec 18	Ocean Springs	AA5TX (601) 875-2142	w/i OK
New Jersey			
Dec 15	Bayonne	WA2QYX (201) 451-9471	w/i OK
Dec 20	Bellmawr	WA2VQG (609) 546-7710	no p/r
Dec 8	Cranford	N2XJ (201) 635-7686	
Dec 12	Fort Monmouth	KZ2P (201) 905-3146 or (201) 370-8055	w/i
New York			
Dec 23	North Babylon	KA2RGI (516) 957-0218	w/i OK
North Carolina			
Dec 9	Salisbury	N4UXO (704) 636-2853	w/i OK
Dec 8	Yadkinville	AB4TF (919) 838-9109; N4XRY (919) 699-8469	w/i
Dec 8	Yadkinville	N4AAD (919) 679-8059; N4UAN (919) 679-8954	p/r; w/i
Pennsylvania			
Dec 3	Center City	ND3Q (215) 482-0386	w/i OK
Dec 1	Erie	W3CG (814) 665-9124	w/i OK
Dec 29	McKeesport	KQ3W (413) 466-5204	p/r 2 days prior
Dec 17	Perkasie	Warren Erdman (215) 679-5764	p/r; w/i
Dec 3	Pottstown	K3ZXQ (215) 679-5764	
South Dakota			
Dec 8	Rapid City	KA0SEZ (605) 394-1298; NU0F (605) 348-6564	p/r 30 days prior; w/i OK
Texas			
Dec 15	DFW Airport	KF5BL (214) 252-8015	w/i
Dec 8	Eddy	N5KZD (817) 859-5374	w/i
	Midland	KT5G (915) 694-9450	w/i OK
	San Antonio	AA5HG (512) 680-2371	w/i
Dec 18	Sherman	AA5PP (214) 786-2644	w/i
Wisconsin			
Dec 1	Racine	NW9P (414) 658-8390	

ADVERTISER'S INDEX

THE MART

Classified
•Buy •Trade
•Sell •Inform



Mart deadline
20th of the month.

Business firms/30¢ a word, prepaid.
Private individuals/15¢ a word, prepaid.

THE MART *Worldradio*
2120 28th St., Sacramento, CA 95818

WORLDRADIO ON CASSETTES for the blind. For information, contact TOM CARTEN, K1PZU, 1602-Y King's College, Wilkes-Barre, PA 18711.

QSL SAMPLES — 25¢. SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239.

ELECTRON TUBES! Transmitting, receiving, military obsolete. . .all types. Large inventory. Fast delivery. DAILY ELECTRONICS, P.O. Box 5029, Compton, CA 90224. 213/774-1255, outside CA 800-346-6667.

RTTY JOURNAL published 10 times per year for those interested in digital communications. Read about RTTY, AMTOR, MSO'S, PACKET, RTTY DX and Contesting. Plus technical articles concerning the digital modes. $12.50 per year (foreign higher). RTTY JOURNAL, 9085 La Casita Ave, Fountain Valley, CA 92708.

CERTIFICATE FOR PROVEN TWO-WAY RADIO CONTACTS with amateurs in all 10 USA call area. Award suitable to frame and proven achievements added on request. Send $2 (USA) or $3 (DX) to cover certificate cost. W6LS, 2814 Empire Ave., Burbank, CA 91504.

SUBSCRIBE TO THE *DXers Magazine.* Gus Browning, W4BPD, editor. Only $15.00 per year. *The DXers Magazine,* Drawer DX, Cordova, SC 29039.

AMATEUR RADIO TRANSMITTERS, receivers, etc., that you can bujld dirt cheap. Write for list — WA4DSO, 3037 Audrey Drive, Gastonia, NC 28054.

QUADS

Includes all necessary parts.
(Balun optional)
Many models to choose from,
including W.A.R.C. models.

UPS Shippable

For more information contact:

Lightning Bolt Antennas
R.D. #2, Rt. 19
Volant, PA 16156
(412) 530-7396

CHASSIS & CABINET KITS, SASE, K3IWK, 5120 Harmony Grove Rd. Dover, PA 17315.

POST CARD QSL KIT — Converts post cards, photos to QSLs! Stamp brings circular. K-K LABELS, P.O. Box 412, Troy, NY 12181-0412.

STAMP COLLECTORS — SASE brings my price list of Worldwide Ham Stamps. PHIL SAGER, WB4FDT, 411 Sparta, Ruston, LA 71270.

PERSONALIZED HOURLY HF SKYWAVE PREDICTIONS from your city or town: SKYCOM 1.1 floppy disk for Apple Macintosh or IBM PC and compatible personal computers. Includes complete mathematical description of theory ($39.95). DX WINDOW floppy disk circular projection world radio map centered on your QTH shows sunrise-sunset gray line for any time of interest. Includes feature which displays any of 400 prefixes on world map instantly. For all Apple Macintosh machines ($39.95). SASE for more info: ATTN: DX; ENGINEERING SYSTEMS INC., P.O. Box 939, Vienna, VA 22183. Ph 703/255-6600.

AUTO-CALL MAGAZINE, official journal of the Foundation For Amateur Radio, a federation of over 50 clubs in the greater Washington, D.C. area. Great coverage of FCC, ARRL, VEC, Public Service and club activities in the area. A must for those even passing through the area. For sample copy write FOUNDATION FOR AMATEUR RADIO, P.O. Box 7612, Falls Church, VA 22046-1452.

AMATEUR RADIO REPAIR — experienced licensed, reasonable. ROBERT HALL ELECTRONICS, W6BSH, P.O. Box 280363, San Francisco, CA 94128-0363. 408/729-8200.

SELL: RARE COMPLETE 74 YEARS QST collection from issue one. Minimum offer $3,000 K6IR, 16904 George Washington, Rockville, MD 20853-1128. 301/774-7709.

FREE ham gospel tracts, SASE, N3FTT, 5133 Gramercy, Clifton Heights, PA 19018.

LEARN THE CODE — A course for family members and friends who don't know the difference between a dot or a dash. Monday through Friday, 0630-0700 California local time, 3760 KHz ± A2/A3/LSB, March, April, May, September, October, November, K6RAU. Starts first Monday of each month.

EDITING A CLUB PAPER? Need one for your club? Interested in Amateur Radio public relations? Need some help? Amateur Radio News Service would like to hear from you. For info write PAM MYERS, N8IAK, 510 W. Harrison, Alliance, OH 44601.

GET SMART POWER when you need it! Universal regulated multi-voltage DC for Experimenters! Laboratories! Industry! Send for facts! PEPPERKIT, 527-10th Street, Sparks, NV 89431-0811 USA.

WANTED: DAVCO DR-30 hamband receiver, working or not. AL FARAGHER, 318 W 3rd Ave. N, Aurora, MN 55705.

WE BUY ELECTRON TUBES, diodes, transistors, integrated circuits, semiconductors. ASTRAL ELECTRONICS, P.O. Box 707M, Linden, NJ 07036. Call toll-free 800/526-4052.

PICTURE QSL CARDS of your shack, etc., from your photo or black ink artwork. 500 $26.00, 1000 $40.50. Also non-picture cards. Custom printed cards, send specifications for estimate. Send 2 stamps for illustrated literature. Generous sample kit $2.00, half pound of samples $3.00. RAUM'S, RD 2, Orchard Road, Coopersburg, PA 18036. Phone 1-215/679-7238.

WANTED: BUY & SELL all types of electron tubes. Harold Bramstedt, C&N ELECTRONICS, 6104 Egg Lake Rd., Hugo, MN 55038, 1/800/421-9397 or 612/429-9397.

COMMODORE C64/C128 P.D. Amateur Radio, utility, business programs. Send SASE for list to WB1FOL, 77 Wentworth St., Malden, MA 02148.

CODE PROFICIENCY DRILLS are transmitted from WB3IVO Brass Pounders ARC, each Saturday, Sunday, Monday and Thursday on 7060 kHz, starting 2000Z. Each Tuesday and Friday on 14060 kHz, starting 2000Z. Speeds range from 20 to 60 wpm.

INTERESTED IN VHF-UHF-SHF try the VHFer now in its 10th year. Large SASE. VHFer, P.O. Box 685, Holbrook, AZ 86025.

ALL ABOUT CRYSTAL SETS. Theory and construction of crystal set radios, $7.95, ppd USA. ALLABOUT BOOKS, Dept. W., Box 14155, Fremont, CA 94539.

TRANSMITTING TUBES WANTED FOR MUSEUM. Amateur or commercial. Tubes purchased, traded or donations welcome. All correspondence answered. Visitors welcome. K6DIA. YE OLDE TRANSMITTING TUBE MUSEUM, P.O. Box 97, Crescent City, CA 95531 707/464-6470.

HAM RADIO REPAIR CENTER quality workmanship. Solid state or tube, all makes and models. Also repair HF amplifiers. A-Z ELECTRONIC REPAIR, 3638 E. Indian School Rd., Phoenix, AZ 85018. 602/956-3024.

IBM P.C. AND COMPATIBLE VIDEO DIGITIZER. Use TV camera, VCR or camcorder to capture 256 gray level 640 by 480 pictures on your computer, save to disk and paint programs. Card and software $85, demo disk $3. CODEWARE, Box 3091, Nashua, NH 03061.

R390, R390(A) SSB ADAPTER, excellent SSB RTTY, solid-state, $29.95. Ballast tube replacement, solid-state, $22.50. No receiver modifications needed. G.B. COMMUNICATIONS, INC., 963 Birch Bay Lynden Road, Lynden, WA 98264.

FIVE WATTS! Only nine parts! 30/40 meter transmitter! All parts from Radio Shack! Complete plans — $2 plus stamp! BILL LAUTERBACH, 1709 North West, #103, Jackson, MI 49202.

CUSTOMIZED BEAM HEADINGS! Worldwide headings from your QTH. Only $7.00! Unfolded NLQ printout. FUNDSERV, 1546B Peaceful Lane, Clearwater, FL 34616.

BROWNIE'S QSLs since 1939. Catalog & Samples $1.00. 3035 Lehigh St. (REAR), Allentown, PA 18103.

G5RV ANTENNA KIT only $29.95 + s/h. High voltage variable capacitors & roller inductors. SASE for catalog. KILO-TEC, P.O. Box 10, Oakview, CA 93022. To order call or FAX 805/646-9645.

AMP REPAIR CENTER — 35 years experience. Former Service Manager with amplifier manufacturer. 90 day warranty OMEGA ELECTRONICS, 4209 Live Oak Road, Raleigh, NC 27604. 919/231-7373. 73, Bill K4BWC.

FREQUENCY DIRECTORIES: Large selection, SWL and scanner books, frequency guides: SWBC, mediumwave, Utes, Spy, Press, Weather, FAX, RTTY, Military, Federal Agencies, Marine, Aero, Police, Fire, etc. Big FREE catalog! CRB RESEARCH, Box 56-WR, Commack, NY 11725.

COMMODORE 64 HAM PROGRAMS — 8 disk sides—over 200 Ham programs $16.95. 25¢ stamp gets unusual software catalog of utilities, games, adult and British disks. HOME-SPUN SOFTWARE, Box 1064-W, Estero, FL 33928.

QSL CARDS—Look good with top quality printing. Choose standard designs or fully customized cards. Request free brochure, samples, (stamps appreciated) from CHESTER QSL's, 310 Commercial, Dept. D, Emporia, KS 66801. FAX 316/342-4705.

NCL-2000 BAND SWITCH New, $30 p.p. MAXIMILAIN FUCHS, 11 Plymouth Lane, Swampscott, MA 01907.

PARAGON QSL'S, seventeen two and three color stock designs or your custom design. ARRL Member card. Prices start at $19.95/100. DX or Contest specials, $29.95M. Rubber stamps for every use. Send $.45 SASE for samples. PARAGON STAMP, 190 Arboleda Rd., Santa Barbara, CA 93110.

CONQUERING CW, realistic guide on how to prepare for and pass CW exams. Especially for new novices and upgrades. Free beam chart from your QTH with all orders. Send $12.50 + $1.00 shipping to NM3W, 543 Stanbridge Rd., Morton, PA 19070. All orders shipped same day as received!!

COMPONENTS MCL-SBL-1 mixers, FETs, RF transistors, trimmer caps, Jackson Bro's ball drives, much, much, more. LASE brings catalog. KA7QJY, Box 7970, Jackson, WY 83001.

QSL TEE SHIRTS: Your QSL card, photo, logo, drawing, etc. enlarged to 8x10 & transferred to white cotton tee or 50/50 sweat. Excellent color & resolution. Ts $16.00, sweat $20.00 + $3.00 postage. Specify size (S,M,L,XL). Satisfaction guaranteed. LAURELWOOD DESIGNS, 2728 SE Laurelwood Dr., Milwaukie, OR 97267.

QSLs. High quality, low prices. $1.00 brochure and samples. DON ELLIS, K3LQQ, 84 Chapel Drive, Zephyrhills, FL 33544.

PHASE V LICENSE UPGRADE SOFTWARE — $15.00 + $2.50 s/h per module. Novice through Extra. Material is current. Many features and simplified math formulas! Fast service. Full support. A great Christmas gift. Available in DOS, CPM, CX128. Want to pass your next exam? Order PHASE V. CALENE WARE PRODUCTS, 3102 Wilma, Wichita, KS 67211. 316/685-0747. Credit card or check. (A Ham Family Enterprise, WC0S/WS0X.)

TEST EQUIPMENT by HP, TEK, etc., parts, tubes, accessories. Catalog $2.00, (refunded with 1st order) R & D ASSOCIATES, 514 West Ave., Dept. A, N. Augusta, SC 29841. 803/278-0744.

ARRL HANDBOOKS (ALL YEARS) BOUGHT-SOLD-TRADED. Want list: 1982, 1981, 1980, 1968, 1967, 1958, 1956, 1952 and earlier. Also technical books such as "The Radio Hand Book," radio manuals, etc. Top dollar paid, fair prices. KF4FA, Box 70173, Denver, CO 80207 303/670-1566 or 305/667-8299.

WW-2 RAYTHEON MAGNETRONS, new in original box. Great display item for mantle or museum. Limited supply. $5.00 ea, plus $1.00 postage. DON SMITH, W6NKF, P.O. Box 5383 Concord, CA 94524.

KENWOOD R-2000, $465. Cleaning shack, sase for list. DICK KELLY, W6BKY, Box 593, Ventura, CA 93002.

STAINLESS STEEL U-BOLTS, turnbuckles, eyebolts, screw eyes, bolts, screws. Small quantities, free catalog. ELWICK, Dept. 801, 230 Woods Lane, Somerdale, NJ 08083.

DIGICOM/64 Master Command Guide. Keyboard Overlay. $5. ppd. FULLER, RD#2, Box 122, Saegertown, PA 16433.

$2.50 WORLD BEAM HEADINGS, 150 US cities selection with $6.95 handbook purchase listing 330 countries, prefix, zones, time, DXCC, QTH/QSL info, world grid maps, 300 Pacific islands, grid maps. DX BLUE BOOK, Dept.W, 4920 Mayflower St., Cocoa, FL 32927. 407/632-6809.

FANTASTIC DX LOCATION sixteen miles W. of Hot Springs National Park, AR. Eight-acre estate; (3) 100-ft. steel towers, (1) 40 ft., (1) 50 ft. 100' steel tower with 10 & 20m beam, 4 sides, 15" wide rotator; 100' with 20m beam; 100' supporting W8JK, approx. 1000' open wire feedline. Beautiful cedar home built for retirement. Guest house, shop, lots of decking, beautiful view near lake and beaches. Contact: MARVIN POE, Century 21, 4915 Central Ave., Hot Springs, AR 71913. 501/525-3256.

THE SPEC-COM JOURNAL is published bimonthly, 6 times per year. Dedicated to Fast Scan Television but committed to covering slow scan television, facsimile, RTTY, ASCII, AMTOR, packet radio, satellites, TVRO and all other specialized modes of communication. Now with thicker, color enhanced issues. Back issues and sample copies $3.50 ppd. Annual subscriptions: USA $20, Canada/Mexico $25, foreign surface $30. MC/VISA add 5% and Iowa residents add 4% for tax. KAØJAW has now joined WBØQCD to co-publish the SPEC-COM Journal for specialized amateur enthusiasts. Contact: MEMBERSHIP SERVICES, P.O. Box 1002, Dubuque, IA 52004-1002 or call 319/557-8791.

CAPACITANCE METER KIT. Measures capacitors 2pf to 2.2ufd using your digital volt meter. A must for the shack! $15.95. Digital Thermometer kit for your D.V.M. 10.95 Add $3 s&h. GARCO ELECTRONICS, 1326 N. 1050 W., Orem, UT 84057.

12V BATTERY MONITOR KIT. 7.95 A.C. line monitor kit. $13.95. Add $3 s&h. GARCO ELECTRONICS, 1326 N. 1050 W., Orem, UT 84057.

RADAR SIGNAL DETECTOR KIT. Tune to respond to frequencies 50 MHz to 50 GHz. Cigarette lighter plug included. $15.95. Add $3 s&h. GARCO ELECTRONICS, 1326 N. 1050 W., Orem, UT 84057.

VOX ACTIVATED SWITCH KIT. $8.95 + $3 s&h. GARCO ELECTRONICS, 1326 N. 1050 W., Orem, UT 84057.

COLLINS-S LINE 75S3B, 32S3,516PS, STATION CONSOLE. All manuals/hookup wires 750.00 FOB Pine Grove. WA6VZG, BILL 209/296-5053.

WANTED: Operating and service manuals (including schematics) for Lafayette signal generator TE-20. MEYER MINCHEN, AG5G, 4635 S.W. Fwy, Houston, TX 77027, 713/622-6161.

TRANSCEIVER AC/DC N.C.G. (QRP CW) 40/15/6. Like new — $300.00 p/p. JOSEPH LEWALSKI, 3512 Moraga Blvd. #4102, Lafayette, CA 94549.

K3UAL PRINT-QSL SPECIALIST. Send SASE for free samples. 1520 Jutewood Avenue, Hyattsville, MD 20785.

WE BUY ELECTRON TUBES, DIODES, TRANSISTORS, INTEGRATED CIRCUITS, SEMICONDUCTORS. ASTRAL ELECTRONICS, P.O. Box 707M, Linden, NJ 07036. Call toll-free 800/666-8467.

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033.

GET YOUR "FCC COMMERICAL GENERAL RADIOTELEPHONE LICENSE". Electronics Home Study. Fast, inexpensive! "Free" details. COMMAND PRODUCTIONS, D-173, Box 2824, San Francisco, CA 94126.

RUSPRINT QSLs. New full color satellite!! ARRL, cartoon, patriotic, mike & key, telegraph keys, economy, historic, state outlines. Quantities start at 100. Plastic cardholders. Display 20 cards. Three-$4.50. Four up $1.30 each. More information? Business SASE with 45¢ postage. RUSPRINT, Rt 1, Box 363WR, Spring Hill, KS 66083.

"INTENSIVE CARE FOR AILING RADIOS". Dr. K-GOR has the cure with a seven-day program guaranteed to stop your radio from smoking, overeating components and speech disorders. K-GOR ELECTRONIC REPAIR INC. 816/454-6700.

RADIO FUN! BP-80DX CW Transceiver. XV223-49 223 MHz FM Transverter (for RS TRC-501). Details: LECTROKIT, 401 West Bogart, Sandusky, OH 44870.

ELECTRIC RADIO magazine. In our second year. Articles on vintage ham and military gear; repair/restoration, history and AM operation. Large classified section. $2 for a sample copy. ER, 145 CR 123, Hesperus, CO 81326.

CYRILLIC HARD COPY OF SOVIET MARITIME RTTY TRAFFIC. For IBM PC-compatibles and multimodes: AEA PK-232, Universal M-7000, Kantronics KAM. Works with variety of printers including most Epson and IBM 9-pin and 24-pin printers. Each version $29.95, but please send business-size SASE for system requirements (specify demodulator type) and sample output to STEWART MORGAN, P.O. Box 37595, Raleigh, NC 27627-7595. Include separate SASE for each multimode.

AMIGA, MACINTOSH, ATARI XL/XE/ST Amateur Radio software. Send 2 stamp SASE for catalog of specialized public domain software collections for your computer for $4.00 per disk. Specify computer! KD HAMWARE, Box 1646, Orange Park, FL 32067-1646.

WANTED: KENWOOD TM-9130 2-meter all mode. Also want Cushcraft 2-meter vertical model Ringo Ranger ARX2 or ARX2B. JIM PITTARELLI, WA2Y, 153-17 78th St., Howard Beach, NY 11414. 718/845-1922.

Wanted: TUBES

I pay cash or trade for all types of transmitting or special purpose Tubes.

MIKE FORMAN
1472 MacArthur Blvd.
Oakland, CA 94602
(415) 530-8840

More MART

TEN-TEC, new boxed latest 1990 production models, USA made, 562 OMNI V, 585 Paragon transceivers, 425 Titan, 422 Centurion, 420 Hercules linear amplifiers, 238, 253, 254 antenna tuners, 239, 240 dry dummy loads, mobile HF antennas, keyers, cabinets, filters and accessories, VISA/MC or check. For best mail-order deal, write/phone Bill Slep, 704/524-7519, SLEP ELECTRONICS COMPANY, Highway 441, Otto, NC 28763-0100.

ICE ICOM CLONE PACKS, made in the USA. IC12 (BP-7 clone) 700mAh 12-volt pack — $59.00. 10AF (BP-8 clone) 800mAh 9.6-volt — $49.00, drop-in charge only. Dont have a drop-in charger? We have a slide-on board for $6.00, just hook it up to your 12-volt supply. Make your own ICOM battery — empty cases complete with all hardware — $12.95. Special! DC ACE BP-7 clone kit includes BP-7 500mAh insert and empty BP-7 battery case with all hardware — $42.00. ICE 580 drop in dual rate slow charger — $35.00 for ICE and ICOM batteries. Inserts: BP-3 — $18.00, BP-5 — $26.00, BP-7 — $29.00, BP-8 — $29.00. Kenwood 25/2600 — $26.00, 2400 — $24.00. Tempo S-15 — $26.00, Santec flat AA pack with connector — $26.00, no connector — $19.00. Yaesu FNB-4 — $35.00, FNB-2 — $22.00, FNB-10 — $26.00. Need your pack rebuilt? Add $1.00 and we will rebuild it for you, Just send us your old one. Nicads: Sanyo 600mAh AA — $2.00, 700mAh-AA — $2.50, tabbed 500mAh — $2.00, 600mAh tabbed — $2.50, 700mAh Sanyo tabbed — $2.75, 1/2AA — $2.10. P-130 SCR sub-C 1300mAh rapid charge — $3.50. 1/2 sub-C — $3.50. Uniden BC-200 200 channel 800 MHz+ scanner, covers 2 and 6 meters as well as 440, special — $249.95. Cobra 10 channel programmable desktop scanner 29-54, 136-174, 400-512MHz. Need something not listed? Call us at 1-708/634-3337, Don, daytime answering machine or 1-708/587-2291, Kevin. All orders please include $3.00 shipping and handling, any size order. IL residents add 6.5% tax. Send to: DC ACE ELECTRONICS, INC. P.O. Box 364, Lincolnshire, IL 60069. Ship address: 16737 Easton, Prairie View, IL 60069. Good checks OK. Send large SASE for catalog.

THE 50 MHz DX BULLETIN up-to-date worldwide 6M news. $1.00 for info and sample. HARRY SCHOOLS KA3B, 1606 S. Newkirk Street, Philadelphia, PA 19145.

HAMS, geography buffs and travelers, you can now purchase: state and city/county maps directly through TRI-COUNTY COMMUNICATIONS, 7501 S.W. 100 St., Miami, FL 33156, Attn: Kevin, KA4VAS, For $5.95 all U.S.A., includes p&h foreign add $2.00 for S&H. Please indicate state and county when ordering. Also world, Europe, Asia etc. maps available. Call or write for price to (305) 666-6272. VISA/MC accepted. An SASE gets list of all states, counties cities and countries.

WANTED ANTIQUE TRANSMITTER AND RECEIVER. For sale R390/URR. TMC master VFO large filter chokes and power transformer. List radio parts, K4UJZ, 608 W. Thompson Ln., Murfreesboro, TN 37129. 615/893-5344.

YAESU FT-ONE, series 10 (closest to commercial transceiver) Loaded with all options and filters. Perfect condx, $1650. OBO. W7JHQ, 10901 Saratoga Circle, Sun City, AZ 85351, Phone: 602/977-8734.

PLATE TRANSFORMERS for amplifier builders or replacement. Gonset P/N 271-107 for models 903, 913 linear amplifiers. 115VAC/1850V at 500MA, size 5¼L x 4¼W x 4½H, wt 18lbs, new $37.00. Have quantity. VISA/MC/check, write/phone, Bill Slep 704/524-7519. SLEP ELECTRONICS COMPANY, Highway 441, Otto, NC 28763.

ICOM, KENWOOD, YAESU, DRAKE, COLLINS & HEATH OWNERS: 8/10 Pole crystal filters. Are you plagued with interference during QSO's? Do you need improved selectively to hear weak signals in QRM? Yes to either, purchase our steep skirted SSB or CW Filters! Monthly separate ICOM, Kenwood & Yaesu Newsletters. Indexes and back issues available. High tech service dept. Authorized Kenwood Service Center. Our 11th year. Send .45 SASE for free 20 page catalog to: INTERNATIONAL RADIO & COMPUTER, INC./FOX TANGO, 751 South Macedo Blvd., Port St. Lucie, FL, 34983. 1-407/879-6868.

QUALITY SERVICE; Icom, Kenwood, Yaesu, Ten-Tec, Azden & Atlas repaired at reasonable cost. Optimized Alignment available, in our sophisticated lab. Fast Turnaround. Ship equipment with letter detailing problems & preferred method of payment to: INTERNATIONAL RADIO & COMPUTER, INC./FOX TANGO, 751 S. Macedo Blvd., Port St. Lucie, FL 34983, 1-407/879-6868.

WANTED: 8122 TUBES — for my NCL-2000 amp. Also 12JB6 tubes for my TR-3. Thanks from W8CAE. JOHN CHENOWETH, 9130 Yankee St., Miamisburg, OH 45342. Tel. 513/885-2566.

MORSE TERMINAL KITS allow sending and receiving Morse Code with your computer. For Tandy Color ($39.95), Tandy 1000 ($49.95), and IBM compatible computers ($49.95) plus $3 shipping. Other products. Free Catalog. State computer type. DYNAMIC ELECTRONICS INC., Box 896, Hartselle, AL 35640, 205/773-2758.

YAESU FT-726R VHF/UHF all mode transceiver with 2&6 mtr modules — $750. RICK 209/945-2266 (work), 209/583-9377 (home).

* Happy Holidays *

1991 CALLBOOKS: North American, $24.97; International, $24.97. Both $48.97. 1991 "ARRL Handbook," $23.97. Postpaid USA. California residents: add sales tax. Duane Heise, AA6EE, 16832 Whirlwind, Ramona, CA 92065. 619/789-3674 evenings.

NEW! THE ELECTRONICS FORMULA computer disk. Calculates more than 60 of the most used electronic formulas. Designed to be used at all levels of electronics, from Ohm's law to the most complex AF and RF formulas, plus many more features. Also included are many special function conversion programs, too numerous to belisted here. Easier to use than a calculator and hundreds of times faster. Guaranteed virus free! Limited time low price of $14.49 plus free electronics gift with order. Or send $1.50 for complete specs. For IBM and C-64. M. AMICO, 45-9th Street, Ronkonkoma, NY 11779.

SIX METERS — Heathkit SB-110 with power supply and speaker. Mint condx. $300 OBO. QRP station — Ten Tec Argonaut 509, cw/notch filter, power supply, linear 405. Mint condx. $400 OBO. K5JWK, 6302 Robin Forest, San Antonio, TX 78239, 512/657-1549.

GOULD BIOMATION LOGIC ANALYZER type K-100-D, $750. Cleaning shack, sase for list. DICK KELLY, Box 593, Ventura, CA 93002.

ACC RC-850 REPEATOR CONTROLLER with computer interface autopatch — $2200. RICK, 209/945-2266 (work), 209/583-9377 (home).

ROSS' $$$$ NEW DECEMBER (ONLY) SPECIALS: J.S.C. RG-213 500FT. — $150.00; Kenwood TM-631A — $629.90, TR-8400 — $349.99, TM-701A — $452-90, TH-41AT — $209.90, TM-241A — $394.90, TS-940S/WAT — $2055.00, TS-440S/WAT — $1199.90, TH-75A — $434.90, TH-315A — $339.99, TH-31BT — $229.90; ICOM IC-765 — $2609.90, IC-781 — $5099.90, IC-24AT — $529.90, IC-735 — $919.90, IC-2SA — $289.90, IC-2SAT — $317.50, IC-471H — $939.90; Yaesu FT-411E — $329.90, G-5400B — $445.90, FT-1000D — $3619.90, FT-470 — $394.90, FV-101DM — $229.90; FT-33R — $259.90, YR-901 — $499.99; Tokyo Hy-power HC-200 — $109.90, HL-102V — $239.99, HL-160V — $299.90, HL-82V — $139.90; MFJ 1278T — $299.90. All L.T.O. (limited time offer) Looking for something not listed?? Call or write. Over 9004 ham-related items in stock for immediate shipment. Mention ad. Prices cash, FOB Preston. Hours Tuesday-Friday 9:00 to 6:00, 9:00 - 2:00 p.m. Mondays. Closed Saturday & Sunday. ROSS DISTRIBUTING COMPANY, 78 South State, Preston, ID 83263. 208/852-0830.

WEEKLY HAM TRADER. Mailed First Class every Friday. Subscriptions $13.00 for six months (26 issues) or $25.00 for full year (52 issues). Ad rates 20 cents per word non-commercial, 40 cents commercial. Prepaid ads and subscriptions to: WEEKLY HAM TRADER, P.O. Box 1159, Arnold, MO 63010.

WANTED: U.S. AMATEUR CALLBOOKS 1920 THRU 1945. BOB, W4JNN, 703/560-7161 or write P.O. Box 166, Annandale, VA 22003.

WANTED: HAM EQUIPMENT AND OTHER PROPERTY. The Radio Club of Junior High School 22 NYC, Inc. is a non-profit organization, granted 501(C)(3) status by the IRS, incorporated with the goal of using the theme of Amateur Radio to further and enhance the education of young people nationwide. Your property donation or financial support would be greatly appreciated and acknowledged with a receipt for your tax deductible contribution. As 1990 draws to a close please look over whatever unwanted equipment you may have, and call us. We will pick up or arrange shipping. You will receive the tax deduction, but most important,, the privilege of knowing that your gift really made a difference in the education and upbringing of a youngster. Write us at: RC of JHS 22, P.O. Box 1052, New York, NY 10002. Round-the-clock hotlines: Voice 516/674-4072, FAX 516/674-9600.

ROSS' $$$$ USED DECEMBER (ONLY) SPECIALS: Kenwood TS-830S — $899.90, TS-520SDC,CW — $499.90, R-5000, YK-88A, VS-1 — $869.90; TM-521A — $429.90, TS-930S,WAT — $1,300.00; ICOM IC-781 — $4,559.90, IC-761 — $1,699.90, IC-730 — $539.90, PS-15 — $122.90, AT-100 — $249.90; Yaesu FT-727R — $279.90, FT-225RD — $589.90, NC-8A $65.90; NC-3A — $39.90; MFJ-984 — $229.90, MFJ-989B — $229.90; Dentron GLA-1000 — $319.90; Clipperton L — $200.00 as is. Looking for something not listed? Call or send SASE. Have over 190 used items in stock. Mention ad. Prices cash, F.O.B. Preston. Hours Tuesday-Friday 9:00 to 6:00, 9:00 - 2:00 p.m. Mondays. Closed Saturday & Sunday. ROSS DISTRIBUTING COMPANY. 78 South State, Preston, ID 83263. 208/852-0830.

SG-230

SMARTUNER

HF ANTENNA COUPLER
SSB, AM, CW & DATA
FAST - INTELLIGENT - ACCURATE
OPERATES WITH ANY HF TRANSCEIVER

The *Smartuner* high technology coupler intelligently tunes any length antenna (8 to 80 ft) in the HF band. The unit will operate with any HF transceiver within its' specifications The *Smartuner* switches 64 input and 32 output capacitance combinations plus 256 inductance combinations in a "pi" network resulting in over a half-million different ways to ensure a perfect match for the transceiver. And, *it remembers the frequency and the tuning values* and will re-select these values in less than 10 ms next time you transmit on that frequency.

SPECIAL HAM PRICE: $555.00

- MICROPROCESSOR CONTROLLED
- NON-VOLATILE MEMORY
- WATERPROOF
- B.I.T.E. INDICATOR
- 1.8 TO 30 MHZ RANGE
- 10 TO 150 WATTS INPUT POWER
- 10 mS RETUNING TIME
- 8 TO 80 FT. ANTENNA (All Types)
- FOR MARINE, AVIATION, HAM AND PARA-MILITARY APPLICATIONS

The SG-230 Smartuner is available from:

Eli's Amateur Radio, FL - (305) 525-0103
Gordon West Radio, CA - (714) 549-5000
Henry Radio, CA - (213) 820-1234
Surplus Sales, NE - (402) 346-4750
Jun's Electronics, CA - (213) 390-8003

SGC Inc. SGC Building,13737 S.E. 26th St. Bellevue, WA. 98005 USA
P.O.Box 3526, 98009. Telex: 328834.Fax: 206-746-6384 Tel: (206) 746-6310

Amateur Radio hits the road

This fascinating collection
of Amateur license plates
belonging to
Michael Ludkiewicz, W1DGJ,
was a big favorite
of attendees at the
New England ARRL Convention
at Boxborough, Massachusetts,
October 13-14.