World Radio
Year 19, Issue 2 August 1989 • $1

Scenes from Dayton

April 28-30

Photography by
Armond Noble, N6WR

For the big picture turn to page 6 and read as N6JM and W6QEU recount some of the events.

The folks at the MARCO booth were signing up more medical personnel.

Bill Pasternak, WA6ITF, was named Dayton Ham of the Year. Well deserved!

There is something for everybody at the flea market — from the ridiculous to the sublime.

No-code: A historical review

JEAN A. "Doc" GMELIN, W6ZRJ

There is a lot of talk lately about a no-code Amateur Radio license. Such talk is not new, nor is this the first time someone has proposed a specific band or bands for such operation.

Since a large majority of radio Amateurs have been hams for less than 15 years, and many less than 10 years, here is history going back even before that time span, regarding the license structure for Amateur Radio. I hope this review will be useful to some Amateurs in their understanding of no-code proposals. Part 2 will be featured in next month's edition.

Our present license structure dates from the late 1940s and early 1950s, when it was proposed that a new license should be instituted in place of the old Class A license. At that time an Amateur needed a class A to work 75 and 20M phone (there were no 40 and 15M phone bands). Everyone started with a Class B license (or C license if they lived further than 125 miles from an exam point), but after one year of operation, could take an additional written test to become a Class A Amateur.

The new license would have a higher level written exam and a 20 wpm code requirement. All those Amateurs who held Class A would have to take the new test if they wanted to continue to operate on 75 and 20M phone. Needless to say, the proposal met with much opposition.

But the result of the "brouhaha" was a spate of other proposals, including a "no-code" proposal. And the final result was the establishment of the high level license, now called the Extra Class, and two new licenses, the Novice and Technician.

The Novice idea was a compromise to the no-code proposal. After much discussion most agreed that you can learn 5 wpm very easily and in just a few weeks, and that the best way to learn code was on the air. Thus were born the Novice bands. As it turned out the license worked pretty well in most cases.

The Technician license resulted from discussions about individuals who were only interested in the technical aspects of Amateur Radio, and not in operating. Such individuals were said to be interested mostly in the VHF/UHF spectrum, which was the "frontier" of Amateur Radio then. There wasn't much VHF/UHF commercial gear available and that was primarily military surplus.

(please turn to page 14)

HENRY RADIO IS THE PLACE
. . .THE BEST PLACE
to fill all your data communications needs

The TEMPO MPP1

. . .a unique new mobile data printer, includes a packet controller and a 13.6 VDC printer that interfaces with any mobile radio. in a recent user test it proved to have about twice as much audio level range tolerance as other TNCs. It is also an ideal unit for emergency work and a commercial version is perfect for dispatching service, emergency and police vehicles.

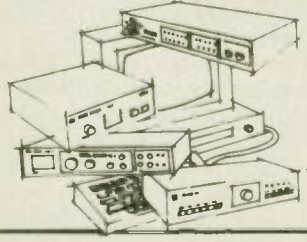
The FSTV-430, AEA's newest

The exciting FSTV-430 fast scan television transceiver makes getting on ATV easy and inexpensive. . .live or taped. Almost any video camera can be used. Simply plug it into the FSTV-430, connect to your 70 cm antenna and you're on the air. Use a standard TV for receiving signals and, of course, an amplifier will extend your range. It's reliable, portable and light weight and can be used in-station or mobile from any 12 VDC source. The only license required is a technician or higher.

The PK-232 by AEA

. . .the only controller offering Morse Code, Baudot, ASCII, AMTOR, Packet, and facsimile Transmission & Reception plus the ability to monitor the new Navtex marine weather and navigational system. . .7 modes in one controller. The PK-232 makes any RS-232 compatible computer or terminal the complete amateur digital operating position. All decoding, signal processing and protocol software is on ROM. Only a simple terminal program (like those used with telephone modems) is required to interface the PK-232 with your computer.

Obviously, we can fill in a system that you have already started. Or we can furnish a complete system to fit your needs and budget. For example, here's some suggestions for the amateur just entering the exciting field of data communications, or for the amateur who wants the best available.



NO. 1 For the fun (and very affordable) mode, VHF Packet, AEA PK-88 with personal mailbox, 8K programmable memory and TCP-1 P compatability.
For serious 20 M world-wide DXing on Packet, 200 or 600 Hz shift. . .add the superb HAL ST-7000.

NO. 2. . .top of the line! The HAL ST-8000 or HAL ST-6000 and AEA's PK-232 . . .the winning combination. You can't do better for all-mode, all-band enjoyment of hi-speed data communications.

If you have any questions concerning these units, or would like to discuss your requirements with a knowledgeable specialist, please call and ask for George Sanso, AB6A. We also carry a large selection of excellent commercial products for data communications and emergency systems as well as a complete inventory of amateur equipment and linear power amplifiers.

HENRY RADIO 62 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

Canton on display

The island of Canton in the South Pacific Ocean lies about 2,000 miles southwest of Honolulu. It was jointly ruled by the US and Great Britain until the independence of Kiribati in 1988.

Last being used for space exploration, Canton was strategically important until 1969, when US forces left. During WW II Canton was a staging base and had about 20,000 servicemen on it, complete with a runway suitable for B-29 aircraft. After that war the island was used as a missile and space tracking base.

Jim Smith, VK9NS, who has been in Canton, was not at the International DX Convention in April, but a travelogue was given by Bruce Butler, W6OSP, with audio tape from Jim.

The tropical island is very picturesque; Jim found a 35 ft. utility pole among the ruins on which he mounted a tribander and rotator. The island had a huge power plant at one time, but it is now in ruins. He was able to operate his equipment by taking along 400 litres of fuel together with his own AC generator. In addition to CW and SSB, Jim operated RTTY.

The island has a population of 16. It is a ghost town with all the ruins of past military and civilian operations. A member of the local population operates the radio message and postal service and has a 100W commercial transceiver.

This operation gave us another island. Canton's status as a new country, aside from Kiribati, is to be decided soon by Newington. □

Amateur graduates with honors

Seventeen-year-old Alfred "Freddie" Wasielewski, KA5UVY, was named Salutatorian of his 1989 graduating class from the San Benito (TX) Consolidated Independent School District. His grades ranked him second out of 389 students.

Principal R.L. Tumberlinson said of Freddie, "Throughout his high school career he has been a leader, a good example for his peers and a superior student."

While still managing to maintain excellent grades and get the most from his high school experience, Freddie was a devoted Amateur. He is a member of ARRL, RACES, ARES, The San Benito ARC and the South Texas Amateur Repeater Society.

In September Freddie will be attending the University of Texas at Austin, majoring in Computer Engineering. Undoubtedly he will also excel at this latest undertaking and continue to be a source of pride to the Amateur community. — *Information submitted by Fred Wasielewski, WA2VJL, Proud Papa.* □

The world at your fingertips

Worldradio

CONTENTS

FEATURES

A short vertical for the top band — 20
Azimuth folks enjoy Dayton — 22
Dayton forums — 6
Firemen become hams — 11
No-code: A historical review (part 1) — 1
Parents With Partners — 26
Trap antennas and tuners — 6

COLUMNS

Advertisers' Index — 63
Aerials — 48
Amateur Radio Call Signs — 10
Code Matters — 28
Contests — 54
Digital Bus — 37
DX Prediction — 35
DX World — 30
FCC Highlights — 10
Hamfests — 52
MART Classifieds — 61
Mobile — 41
New Products — 56
Off The Air - 18
Product Review — 54
Propagation — 43
Public Service — 23
Publisher's Microphone — 4
QCWA — 29
QRP — 50
Six Shots! — 46
Special Events — 16
Subscription, **Worldradio** — 9
10-10 International News — 45
VE Exams — 60
When will AMSAT OSCAR-13 be in range? — 59
With the Handihams — 27

DX Convention fun

Among the 600 attendees really enjoying themselves at the DX Convention in Visalia in April was Jim Knochenhauer, K6ITL.

BE ALERT AND IMAGINATIVE. Before you or the XYL toss out an item after its useful household life, look it over. Does it have rubber or plastic feet, knobs, or useful metal parts like brackets, nuts, bolts, washers or screws? Why throw these away and then go to the hardware store at a later date and buy them? *—Bob Lasater, KA9SEO; Sterling-Rock Falls ARS, IL*

Worldradio

August 1989
Vol. 19, No. 2

TM

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

Subscription Dept. Worldradio 1779 Tribute Rd., Ste. L Sacramento, CA 95815
1-800-365-SUBS

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: $12 per year, $23 for two years, $33 for three years and $120 for life; $10 extra per year for surface mail delivery outside the U.S. Please remit international postal money order. IRCs will be accepted.

PUBLISHER'S MICROPHONE

First off we toss a snappy salute to the latest to sign up as Worldradio Super-Boosters (Lifetime Subscribers): G.W. Lanham, WA3OYW, Gaithersburg, MD; Ted Medin, N6TRF, Poway, CA; and Charlie Kelley, W5SPK, now raising good-size pileups from HL9CK.

As promised last month we'll present our version of a solution to the dilemma facing Amateur Radio: How to increase the numbers without giving away the licenses.

First, a strange fact is that only about one out of ten people purchasing all the starter packages (ARRL's *Tune in the World*, Gordon West's, AMECO, W5YI) ever show up to take the Novice exam. Interest is there but, somehow, they bog down.

It was suggested to the League that in everybody's package there be an 800 number with: "Stuck? call this number." The league replied that they have neither the funds nor the manpower to staff such a program. It would be nice to refer all callers to some club or capable person in the callers' immediate area.

It is much easier to learn in a class than by oneself. That is, of course, if the instructor does more than just stick his nose in the book and read questions and answers. There are many well-meaning, but rather poor instructors out there.

A solution is when a good one is found, PAY him/her to keep doing it. It's amazing what an incentive money is!

Today Amateur Radio must be truly MARKETED just like everything else. We need true professionals sprinkled across the country who would promote the cause of Amateur Radio (to digress for a moment — One of the great periods of growth in AR came during the 30s depression! Reduced incomes forced many to cast about for low-cost hobbies, so they amused themselves by tearing apart broadcast receivers and building transmitters from the parts obtained. The knowledge they gained in building their own equipment strengthened their bond to the hobby).

Amateur Radio must compete for attention with all sorts of competition for the dollar and the allotted spare time. One doesn't have to study or take a test to run a video camera. And, judging from some of the results seen, that's a pity.

So, where is all the money going to come from to have professionals contacting TV stations, newspapers, radio stations, mall displays and the like to drum up the PR for Amateur Radio?

Answer: The American Radio Relay League! And, you (and they) are asking, where will they get it?

Answer: For some arcane reason *QST* insists on giving its advertising away. They could easily raise $1,000,000 a year more by raising their rates to a realistic level. There isn't a magazine in the United States in specialized fields (photography, hi-fi, guns, etc.) that doesn't charge more than *QST* on a per-subscriber basis.

Oddly enough, there are many businessmen in the AR field who say *QST* is the most expensive of all the magazines. Actually it is the LEAST expensive when one looks at the cost per person reached.

QST has 146,000 subscribers and charges $2,976 for a page (1X) for a cost of 2.02¢ a subscriber. *Ham Radio* has 28,098 subscribers and charges $1,399 for a cost-per of 4.97¢ each. In advertising jargon *QST* has a CPM of $20.26 and *HR*'s is $49.79.

CQ has 42,196 subscribers and charges $1,595, $37.79 CPM. *73* has 27,104 subs and charges $1,470 for $54.23 CPM.

QST's three slick-paper competitors combined have 97,398 subscribers ($4,464 for a page in all) to *QST*'s 146,822 for $2,976. Or, 1.5 times the subscribers at ⅔ the cost!

QST also sells 5,604 on the newsstand. *Ham Radio* has 2,764. *CQ* reaches 33,177 more and *73* has 17,496. Even with all that added in, *QST* still has more than all combined. And a lower cost per.

All the figures above are from the May 1989 issue of *SRDS* (Standard Rate and Data Service — the bible of the advertising industry) and are sworn statements of the publishers reflecting previous six month averages.

(How 'bout Worldradio? Partisanship has no place in this discussion. But we'd never have brought this up unless. . .)

So, as you see *QST* is far underpriced compared to their worthy rivals.

Manufacturers should have no objection to higher rates if they knew that a percentage was earmarked for their very future.

This would be the water poured on the "plants." This would be "growing" their future customers for equipment.

Let's advertise Amateur Radio in new places such as *Harper's, Atlantic, New Yorker, World Press Review, Smithsonian, National Geographic,* etc., and attempt to bring people into Amateur Radio from more diverse avenues of interest.

—Armond, N6WR

A smile is contagious

OUR COMPLETE LINE OF PORTABLE POWER TOOLS.

When you're talking Yaesu handhelds, power takes on many meanings.

Like maximum RF output. Sophisticated microprocessor control. Deceptively simple operation. Even cost savings—as most accessories are interchangeable throughout the line.

Added up, it's no wonder amateurs choose Yaesu HTs more than any others.

FT-470. DUAL-BAND OPERATION PERFECTED.

2 meter and 430-450 MHz. 42 memories. Simultaneous receive of both bands. Dual VFOs each band. PL encode/decode. Paging feature. DTMF autodialer (10 memories, 15 digits each). Auto repeater shift. Scanning features. Auto power-off. Battery saver. Extended receive. Audible command verification. Keypad and rotary-dial frequency entry. Battery packs available from 2.3 to 5 watts. More.

FT-411 SERIES. MAXIMUM SINGLEBAND PERFORMANCE.

2-meter FT-411 and 440-MHz FT-811. 49 memories. Dual VFOs. PL encode/decode. DTMF autodialer (10 memories, 15 digits each). Auto repeater shift. Scanning features. Auto power-off. Battery saver. Extended receive. Audible command verification. Keypad and rotary-dial frequency entry. Many battery packs available, from 2.3 to 5 watts. More.

FT-23R SERIES. SMALL, SMART, RUGGED.

2-meter FT-23R, 220-MHz FT-33R, and 440-MHz FT-73R. 10 memories (7 store odd splits). Memory scan at 2 frequencies per second. High/low power switch. LCD power output and "S"-meter display. Many PL features. Auto-battery saver. Aluminum-alloy case. Water-resistant seals. Many battery packs available, from 2 to 5 watts. More.

Want more information? Call **(800) 999-2070** toll-free. Or ask your dealer about Yaesu's FT-470, FT-411 and FT-23R Series handhelds. The power in handheld performance.

YAESU USA 17210 Edwards Road, Cerritos, CA 90701 (213) 404-2700. **REPAIR SERVICE:** (213) 404-4884. **PARTS:** (213) 404-4847

YAESU

Prices and specifications subject to change without notice. PL is a registered trademark of Motorola, Inc. Specifications guaranteed only within amateur bands.

Trap antennas and tuners

PETER ONNIGIAN, W6QEU

Want to learn more about antenna tuners? How they work and how to make them? What they will do and what they won't do? You should attend one of Ken Glanzer's, K7GCO, talks that he gives at all large ham conventions. Dayton this year was no exception and Ken had a standing room only session.

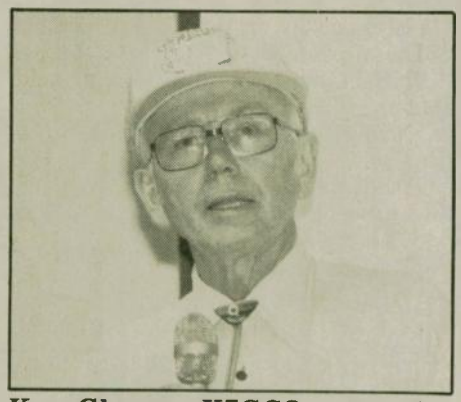
The pi networks found in transmitters with tube finals or transceivers have two knobs to turn and will match antenna VSWR values up to 3:1 with reasonable efficiencies, he said. But the modern day 50 ohm output transistorized transceivers have no such tuning controls for this purpose. Instead they start to reduce power output after about 1.5 to 1 VSWR loads. This then requires an antenna with VSWR under 1.5 to 1, or a tuner.

Ken explained the various antenna tuners which are available. Simply put, a tuner, located at or near the transceiver, cancels the reactance present at that point in the transmission line, and steps up or down the resistance also present to 50 Ohms. This then provides a 50 Ohm load into which the transceiver (or amplifier) can produce full output power.

Ken pointed out the little understood fact that the transmission line and the antenna still have the original high VSWR, but at the input to the tuner, there is now a non-reactive but resistive load for the transceiver to work into.

Trap Antennas

In antennas with traps using a tube over the loading or resonating coil as a capacitor, Ken pointed out that there is loss which is measureable, occurring at the ends of the coils due to the poor conductivity shorted turn presented by the round adjacent aluminum tube. While this can be corrected easily by cutting a slot or a V at the end of the tube, effectively removing this short, this procedure detunes the coil. Ken cautioned that the coil then must be retuned.



Ken Glanzer, K7GCO, gave the straight scoop on vertical antennas at the Dayton Hamvention. ***(N6WR photo)***

Ken has been preaching this story for several years, but none of the trap antenna manufacturers have picked up on it. His talks are funny and easy to listen to. One simply can't fall asleep! Be sure to take time and listen to Ken Glanzer's discussions at the next convention.

More Dayton forums examined

JOHN MINKE, N6JM

The Geratol Net

No, this session had nothing to do with tired blood. And it didn't have anything to do with old men, either. The purpose of this net is the promotion of ARRL's WAS award, with the special endorsement for working "one by two" or "two by one" calls in the Amateur Extra Class portion of 75M.

This one-hour session met Saturday morning at the Hamvention and was moderated by Bert W. Sullivan, W8EHX. Unfortunately, the main speakers failed to show and Bert was on his own. This also gave attendees a chance to express their opinions, as there were several net members present. Several, especially those residing on the east coast, stated that they still needed Hawaii and Alaska.

The group is a rather informal crowd. Many continue with the net after completing the special WAS. The certificate number becomes one's Geratol number and members continue to work on additional endorsements to their Geratol certificate (available to anyone who completed the ARRL requirements).

The Geratol Net meets formally two nights a week, beginning in October and running through April on 3.767 MHz. The time depends upon the propagation. Several Canadian stations report in and are good for the Canadian 2/80 Award, which is somewhat similar to the special WAS. All Amateur Extra Class operators are invited to participate. The net is also a good source for prefixes if you are working on your WPX.

Special Achievement Award

Each year an Amateur is selected for his contribution to the technical promotion of Amateur Radio. This year's winner of the prestigious award was Phil Karn, KA9Q.

Phil was first licensed in 1971 and obtained his Amateur Extra Class license two years later. He has been an AMSAT volunteer since 1980.

Phil has been actively participating in writing software for the complex orbiting satellites and developing high-speed software for Amateur Packet.

He is presently on the AMSAT Board of Directors.

Phil, in accepting his award, said that there are now 13 satellites in orbit and the goal is seven more within the next year. Sold on Packet Radio, he said that we must get moving with this technology if we are going to retain our bands.

College Radio Forum

The College Radio Forum was moderated by Jon Ogden, KE9NA, a senior at the University of Illinois. Jon discussed College ARCs and their activities. They are unique in that they provide a student a station to operate from when he or she is away from home, they enhance the student's technical skills, develop his leadership skills and provide a public service.

Unfortunately, the attitudes taken by the school administration is not always in the best interest of the clubs. Some clubs are financially supported by the school and some are not. And sometimes there is apathy among the students themselves, possibly due to the fact some students are very busy and don't have the time to operate at the club station.

Jon said he would like to see a National Organization of College or University ARCs. The benefit would be forums where clubs can help each other to strengthen individual clubs and give the student a voice to the ARRL and FCC.

As Jon will have graduated by the time this is printed, he is hoping his idea will be utilized. Attempts have been made to compile a list of active university ARCs.

Those in attendance were asked for their views, including this writer, who graduated from college 30 years ago. Actually, that doesn't matter, as we had the same problem then.

There were two faculty members present from the University of West Virginia and the University of Tennessee, who also added their views and their attempts to gain student interest. Other ideas for generating interest included the use of contests.

There are at least two college nets at the present time that meet on Saturdays. The 40M net meets on 7.280 MHz at 2100 UTC, followed by the 20M net on 14.310 MHz at 2130 UTC. Stations have been reported participating from Arkansas, Arizona, Illinois and Michigan.

Those with an interest in promoting this National Organization should contact Jon at 402 E. Daniel, Champaign, IL 61820. Perhaps the time is ripe for such a column in **Worldradio.**

DX Forum

The DX Forum took place for four hours Saturday afternoon. First up was a report on the DX Advisory Council. The main item of the DXAC concerned point two in the Countries List Criteria of the DXCC rules. Most DXers are aware of the recent clarification of the rules which, as a result, added several new ones to the ever growing DXCC Countries List.

Point two concerns those little islands "separated by water." If you are not familiar with this point, I suggest you obtain the latest copy of the DXCC rules. Rick Roderick, K5UR, stated that in meeting the criteria, point 2a must be satisfied before considering point 2b. As a result of new point 2a and 2b, six new petitions have been filed. Please refer to our coverage of the International DX Convention at Visalia (July issue) for this information.

Bert W. Sullivan, W8EXH, was moderator for the Geratol Net session. He ended up doing a solo. ***(N6WR photo)***

The man from the DXCC desk, Don Search, W3AZD, was on next to answer questions regarding DXCC matters. One concern was the North Yemen operation by 4W0PA that was sabotaged by two bitter DXers (neither were North American DXers). As for the operation that did occur, Don only has a copy of the operator's visa and nothing else.

(please turn to page 22)

What would *you* do?

Jerry Kohn, WD0EGK

Let's have some fun with a "what if" situation.

What if, in the course of a regular ragchew with Jim WB1XYZ, he says: "Say, I have a friend, Mrs. Johnson, who lives in your town. Would you give her a call and say hello for me." You, being the wonderful person that you are, say "Sure, be glad to." You make the phone call and talk to Mrs. Johnson, and of course, she is thrilled to hear from her old friend Jim. You being the good "ham", offer to return a message to him on the air, and give her your phone number.

A few weeks later, Jim asks again if you would mind calling Mrs. Johnson. When you do, the person who answers the phone says, "I'm sorry but she is in the hospital." You naturally report this to Jim.

A couple of days later, you get a call from Mrs. Johnson's friend in town who says: "Would you please tell Jim that Mrs. Johnson died in the hospital yesterday." What do you do?

While there are no apparent legal problems with this, there are some moral and social implications. First, a death message, whether formal or not, is — at best — difficult to deliver. Since Jim is not a family member, it is really not the place of an agency such as the Red Cross to deliver, nor would it really be appropriate for the local police or sheriff to deliver the message, which they occasionally will do.

So, what this really comes down to is, do you take the message and tell Jim that his old friend has died? Or do you politely suggest to the caller that it might be better for her or someone in Mrs. Johnson's family to inform Jim? In which case, the message might not be delivered until in the course of QSO with Jim, he mentions Mrs. Johnson. Now there's a shock for Jim!

What would *you* do? I would be interested in hearing your comments.

— *Lincoln Log ARC, Lincoln, NE* □

Club meeting news

The Great River ARC meets every second Friday of the month at the Main Fire House in Dubuque, IA, in the Civil Defense Meeting Room at 7 p.m. (Central Standard Time). □

Interesting facts department

ROBERT BEASLEY, K6BJH

Didju know that:

The old 1¼M band (224 to 230 MHz) and ¾M band (400 to 401 MHz) were changed to their present day frequencies?

For what specific reason these two bands were changed, I cannot say, but with the exception of the ¾M band, the "musical frequencies" upset the beautiful harmonic relationship the Amateur bands enjoyed prior to WW II. Each band had its second harmonic fall within another Amateur band. □

1, 2, 4, 5. . .?!

On page 29 of the April issue in the *DX World* column, our author lists the *Most wanted countries* survey as it appeared in *The DX Bulletin*. He listed the third most wanted in his manuscript, but we failed to print it in the issue. It happens to be Burma, prefix XZ, with 80 percent of those surveyed needing it.

Thank you to the observant reader who brought this to our attention. I always knew math wasn't my greatest subject, but I never knew it was just because I couldn't count.

—*Marra*

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 per issue)	$12.00
24 issues	(96¢ per issue • Save $1)	$23.00
36 issues	(92¢ per issue • Save $3)	$33.00
Lifetime	(Be a WR super booster)	$120.00

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 . . .

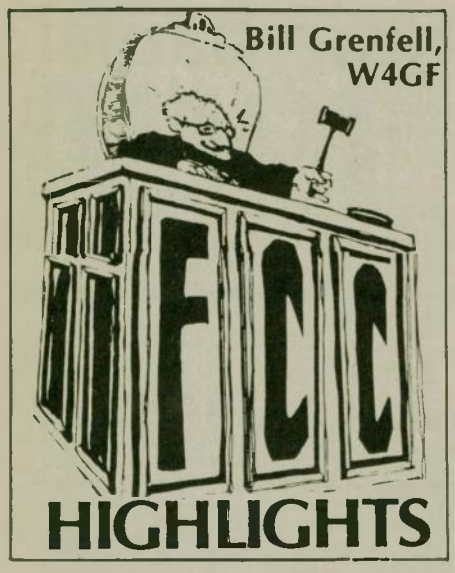
Worldradio™
1779 Tribute Road, Suite L
Sacramento, CA 95815

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.



The FCC "... announced on May 31 that it has revised and reorganized Part 97 in order to make the amateur service rules easier to understand and to provide a foundation upon which future advancements in communications can be incorporated into the Amateur service." The Commission said it also deleted unnecessary, obsolete and redundant rule provisions ... "Prior to the May 31 action, Part 97 had not undergone a major restructuring since 1951 . . . it has now been restructured into a format consisting of six subparts and two appendices.

"The revised Part 97 is expected to become effective on or about Sept. 1." (*ARRL Letter*, 06/02/89; *W5YI Report*, 06/01/89).

•

The June 1 issue of a well-known bimonthly report includes information on 24 petitions filed with the FCC to amend the Amateur Radio Service rules regarding examination requirements and/or operating privileges! (*W5YI Report*, 06/01/89).

•

The licensee of a Pasco, WA, Amateur station, N6FAQ, has been issued a Notice of Apparent Liability and a Notice of Forfeiture on charges of causing malicious interference. He was disrupting 146.04 MHz communications of other Amateurs already in operation on that frequency.

According to an FCC press release, the action was triggered by numerous observations by area Amateurs who are members of the Amateur Auxilliary Local Interference Committee. The FCC Assistant Engineer in Charge at Belview indicated his belief that this was the first use of the Amateur auxilliary to lead directly to enforcement action.

It is not known whether the licensee will appeal the action. (*Westlink Report*, 05/26/89).

•

"A fast-scan Amateur television repeater may not let its overall bandwidth extend beyond the boundaries of a repeater subband." So says the FCC in a letter to the Oregon Region Relay Council which had requested the information . . .

"The applicable requirement is Section 97.63(b): Sideband emissions resulting from modulation must be confined within the authorized band. This . . . puts coordinators and repeater operators on notice that overall bandwidth cannot go beyond the border of a subband" (by FCC's Personal Radio Branch Chief John Johnston). (*Westlink Report*, 05/26/89).

•

"More than a year ago the FCC proposed to allow Amateurs to select secondary call signs of their choice through a private Special Call Sign Coordinator." This special call sign proceeding is identified by the FCC as "PRB-3." The FCC's Personal Radio Branch Chief advises that the FCC staff has completed their work on the matter and it is before the Commissioners for a decision.

"FCC action could be taken at any time . . . The ARRL has reaffirmed its interest in, at minimum, finding a way to resume issuance of club and special event station call signs." (*W5YI Report*, 06/01/89; *ARRL Letter*, 05/08/89).

In a recent letter to an Amateur denying a request for authorization to use the numerals "89" in the call sign of a special event station, the FCC's Private Radio Bureau Chief Ralph Haller said: "I regret that your request cannot be granted." It is "in effect, a request for a special call sign and issuance of those call signs was discontinued over 11-years-ago because the processing of such requests delayed processing of other applications."

•

The ARRL has filed a Petition For Reconsideration and Motion to Stay with the FCC in the Docket 87-389 action which would relax the radiation limits on Part 15 restricted radiation devices. "ARRL's call for the Commission, on reconsideration, is to include the Amateur Bands among the restricted bands; not increase permitted RF emissions for non-licensed radiators over their former levels; and require that information on a manufacturer's responsibility to resolve RFI problems be included in the owner's or user's manual for home electronic equipment.

"In the Motion for Stay, The League establishes that irreparable harm will occur if the new rules are allowed to go into effect as scheduled on June 23, since it would be virtually impossible to remove from service the Part 15

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 June 1, 1989.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.51 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	WU0D	KF0DF	N0KSI	KB0ESV
1	NW1X	KC1PG	N1GQB	KA1UOA
2	WQ2O	KE2NQ	N2JNE	KB2HZB
3	NV3C	KD3NJ	N3HEE	KA3UUF
4	AB4OX	KM4TJ	N4VYU	KC4LCG
5	AA5LY	KG5UV	N5OOJ	KB5JJS
6	AA6OI	KJ6VH	N6VIG	KC6ECG
7	AA7AM	KF7UG	N7MXE	KB7HZR
8	WT8H	KE8ZS	N8KWU	KB8HOK
9	WI9O	KE9QP	N9IOJ	KB9CYJ
North Mariana Is.	AH0H	AH0AE	KH0AM	WH0AAL
Guam	KH2K	AH2CE	KH2DW	WH2AMF
Johnston Is.	AH3B	AH3AC	KH3AB	WH3AAC
Midway Is.		AH4AA	KH4AD	WH4AAF
Palmyra, Jarvis Is.	AH5A			
Hawaii		AH6JU	NH6TK	WH6CDN
Kure Is.			KH7AA	
American Samoa	AH8C	AH8AD	KH8AH	WH8AAZ
Wake Wilkes Peale	AH9A	AH9AD	KH9AD	WH9AAH
Alaska		AL7LG	NL7RY	WL7BVA
Virgin Is.	NP2E	KP2BP	NP2DD	WP2AGV
Puerto Rico		KP4QE	WP4VX	WP4IKJ

equipment that would then be permitted into the marketplace." (*ARRL Letter*, 06/02/89).

•

END-OF-MONTH LICENSE TOTALS

March 1989		April 1989
47,734	Extra	48,049
99,811	Advanced	100,183
114,606	General	114,975
105,002	Technician	106,341
82,259	Novice	83,371
449,412	Totals	452,919 □

New ARRL Director

Congratulations to John Kanode, N4MM, on his election as Director of the Roanoke Division of ARRL. He was the only new director elected to the Board in 1988.

John has been active in Amateur Radio for over 36 years and has, for the past 8 years, served as Vice Director of the Division under Gay Milius, W4UG. Prior to that he served as Assistant Director for 6 years.

Active on all bands, 1.8 MHz through 432 MHz, he holds over 400 operating awards, such as DXCC Honor Roll, 6-Band DXCC, 7-Band WAC, 8-Band WAS, VUCC (50 and 144 MHz), WPX, WAZ, public service awards and the Roanoke Division Certificate of Merit.

Past calls include W4WSF, K5UYF, KZ5II, HP1XWS, KJ4ITU, KK4ITU and N200MM. □

WANTED:

Picture stories about outstanding hams. Know of any? Let us tell the world!

Firemen become hams!

LORAINE McCARTHY, N6CIO

In January and February 1989, members of the Los Angeles Fire Department Disaster Preparedness Team participated in a Novice class to become Amateur Radio operators and to better enable them to interface with local hams in the event of an emergency. They attended a five-week Novice course covering Novice theory, code and operating practices with many live demonstrations. Code practice included sending and receiving and fun was had by all!

The participants talked third party to operators who wished them well on 450 and 220 MHz and 2M. Outside the classroom we talked using a mobile whip on my truck to Amateurs in Texas and to a mobile station in Florida. Every student talked to someone!

Each student received literature from many manufacturers, showing them the variety of equipment avail-

(turn to next page)

FCC declines to reconsider

The FCC announced in June that it had reaffirmed its decision to reallocate the 220 to 222 MHz band from the Amateur Radio Service to commercial land-mobile interests. In so doing the FCC rejected arguments presented in some 700 petitions for reconsideration which said its original decision had failed to adequately consider the impact of the reallocation on radio Amateur volunteers who supply public service and disaster communications services to government agencies and to the general public. The ARRL was among the parties requesting reconsideration.

"The Commission's action today is a disappointment, but not a surprise," commented ARRL Executive Vice President David Sumner, K1ZZ. "The entire history of this proceeding is one of the Commission ignoring evidence that did not support its preconceived position. Now it will be up to the Federal Court of Appeals to determine whether, by so doing, the Commission overstepped its bounds."

Sumner observed that the ARRL Executive Committee had already decided to ask the US Court of Appeals for the DC Circuit to review the FCC decision in the event the Commission refused to reconsider on its own.

In May a Congressional subcommittee chaired by West Virginia Congressman Bob Wise had conducted an oversight hearing into the Commission's decision making process on the 220 MHz issue (see July issue, page 49).

"During the hearing, we observed a number of occasions where the FCC testimony overlooked evidence in the record or contradicted what the Commission had said last August when the decision was made," Sumner said. "We had hoped that their significance would not be lost on the FCC and that we wouldn't be forced to go to court to point them out. Instead, in the course of today's meeting, the Commission reverted to the rhetoric of last August."

On June 7 Representative Wise wrote to FCC Chairman Patrick urging consideration of four compromise scenarios in which the essential interests of all parties to the allocations dispute would be preserved. Mr. Wise stated his desire "that the Commission make sure that every possible compromise solution is considered before it takes action on the pending petitions for reconsideration." ARRL Counsel Christopher Imlay observed: "Despite Commission statements to the contrary, it was apparent today that no substantive consideration had been given to those alternatives. The US Court of Appeals for the DC Circuit has repeatedly held that an agency's stating that a factor has been considered is no substitute for considering it."

In the course of discussion, the Commissioners did indicate that they would be willing to entertain, in some future proceeding, the possibility of some shared use by Amateurs of the 216 to 220 MHz band.

"We don't hold out much hope of this coming to pass," Sumner said. "The way for the Commission to demonstrate sincerity would have been to deal with this possibility now, rather than to relegate it to some uncertain future time."

Amateurs use the 220 to 222 MHz frequency band for a variety of purposes, including development of a state of the art inter-city data communications network that offers a backup emergency communications capability to the government and the general public. No date has been set by the FCC for terminating Amateur access to the band. — *ARRL News Release* □

FIREMEN hams

(continued from page 11)

able and also copies of current magazines and information from the ARRL.

Then came the fifth week, test week! Just prior to the test we took a few minutes break and, in order to see just how easy it could be to have a worldwide station, we unboxed and built a five band trap vertical antenna. Then the students took the Novice test and all did well!

I taught the course. If you have questions about it or would like to offer a similar course in your area, you may reach me at 714-979-CODE (2633).

Loraine and the new hams lend support to their trap vertical.

• *For the gift that keeps on giving, see p.9.*

BEST OF MFJ

MFJ, Bencher and Curtis team up to bring you America's most popular keyer in a compact package for smooth easy CW

MFJ-422B **$129.95**

The best of all CW worlds - a deluxe MFJ Keyer using a Curtis 8044ABM chip in a compact package that fits right on the Bencher iambic paddle!

This MFJ Keyer is small in size but big in features. You get iambic keying, adjustable weight and tone and front panel volume and speed controls (8-50 WPM), dot-dash memories, speaker, sidetone and push button selection of automatic or semi-automatic/tune modes. It's also totally RF proof and has ultra-reliable solid state outputs that key both tube and solid state rigs. Use 9 V battery or 110 VAC with MFJ-1305, $9.95.

The keyer mounts on a Bencher paddle to form a small (4 1/8 x 2 5/8 x 5½ inches) attractive combination that is a pleasure to look at and use.

America's favorite paddle, the Bench, has adjustable gold plated silver contacts, lucite paddles, chrome plated brass, and a heavy steel base with non-skid feet.

You can buy just the keyer assembly, MFJ 422BX, for only $79.95 to mount on your Bencher paddle.

Artificial RF Ground

MFJ-931 **$79.95**

You can create an artificial RF ground and eliminate RF "bites", feedback, TVI and RFI when you let the MFJ-931 resonate a random length of wire and turn it into a tuned counterpoise. MFJ-931 also lets you electrically **place a far away RF ground directly at your rig** - no matter how far away it is - by tuning out the reactance of your ground connection wire. 7½x3½x7 in.

Antenna Bridge

MFJ-204B **$79.95**

Now you can quickly optimize your antenna for peak performance with this portable, totally self contained antenna bridge.

No other equipment needed - take it to your antenna site. Determine if your antenna is too long or too short, measure its resonant frequency and antenna resistance to 500 ohms. It's the easiest, most convenient way to determine antenna performance. Built in resistance bridge, null meter, tunable oscillator-driver (1.8-30 MHz). Use 9 V battery or 110 VAC with AC adapter, $9.95.

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is "a first rate easy-to-operate active antenna .. quiet ... excellent dynamic range .. good gain ... very low noise factor... broad frequency coverage ... excellent choice."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. MFJ-1024 covers 50 KHz to 30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control. ON LED Switch two receivers and aux. or active antenna. 6x23x5 in. Remote unit has 54 inch whip, 50 ft. coax and connector. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $9.95.

MFJ-1024 **$129.95**

• One year **unconditional** guarantee • 30-day money back guarantee (less s/h) on orders from MFJ • Add $5.00 each s/h • Free catalog

MFJ Coax Antenna Switches

$34.95 MFJ-1701

$21.95 MFJ-1702

New **$59.95** MFJ-1704

Select any of several antennas from your operating desk with these MFJ Coax Switches. They feature mounting holes and automatic grounding of unused terminals. They come with MFJ's one year **unconditional** guarantee.

MFJ-1701, $34.95. Six position antenna switch. SO-239 connectors. 50-75 ohm loads. 2 KW PEP, 1 KW CW. Black aluminum 10x3x1½ inch cabinet.

MFJ-1702, $21.95. 2 positions. Cavity construction. 2.5 KW PEP, 1 KW CW. Insertion loss below .2 dB. 50 dB isolation at 450 MHz. 50 ohm. 3x2x2 in.

MFJ-1704, $59.95. 4 position Cavity Switch with Lightening/Surge protection device. Center Ground position. 2.5 KW PEP, 1 KW CW. Extremely low SWR. Isolation better than 50 dB 500 MHz. Negligible loss. 50 ohm. 6¼x4¼x1¼ in.

"Dry" Dummy Loads for HF/VHF/UHF

MFJ-260 **$28.95**

MFJ-262 **$69.95**

New MFJ-264 **$109.95**

MFJ has a full line of dummy loads to suit your needs. Use a dummy load for tuning to reduce needless (and illegal) QRM and save your finals.

MFJ-260, $28.95. Air cooled, non-inductive 50 ohm resistor. SO-239 connector. Handles 300 watts. Run full load for 30 seconds, derating curve to 5 minutes. SWR less than 1.3:1 to 30 MHz, 1.5:1 30-60 MHz. 2½x2½x7 in.

MFJ-262, $69.95. Handles 1 KW. SWR less than 1.5:1 to 30 MHz. 3x3x13 in.

MFJ-264, $109.95. Versatile UHF/VHF/HF 1.5 KW Dry Dummy Load. An MFJ first. Gives you low SWR to 650 MHz, usable to 750 MHz. You can run 100 watts for 10 minutes, 1500 watts for 10 seconds. SWR is 1.1:1 to 30 MHz, below 1.3:1 to 650 MHz. 3x3x7 inches. SO-239 connector.

New MFJ-1286 Gray Line DX Advantage

$29.95 MFJ-1286

Snag rare DX for only $29.95! The MFJ-1286 is a computerized DXing tool that predicts DX propagation. Even the casual DXer can work rare DX by knowing when conditions are best for DX. The Gray Line is the day/night divider line where the most amazing DX happens every day. Now you'll know **exactly** when to take advantage of it.

Gives detailed world map. Shows Gray Line for any date/time, UTC in 24 user chosen QTHs, time zones and more. IBM compatible. Any graphics.

MFJ's Speaker/Mics

For Kenwood, Icom, Yaesu, Santec

MFJ-284 or MFJ-286 **$24.95**

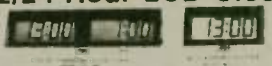
MFJ's compact Speaker/Mics let you carry your HT on your belt and never have to remove it to monitor calls or talk.

You get a wide range speaker and first-rate electret mic element for superb audio on **both** transmit and receive.

Earphone jack, handy lapel/pocket clip, PTT, lightweight retractable cord. Gray. One year **unconditional** guarantee.

MFJ-284 fits Icom, Yaesu, Santec. **MFJ-286** fits Kenwood.

12/24 Hour LCD Clocks



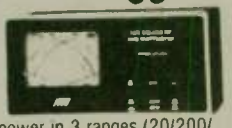
$19.95 MFJ-108B **$9.95** MFJ-107B

Huge 5/8 inch bold LCD digits let you see the correct time from anywhere in your shack. Choose from the dual clock that has separate UTC/local time display or the single 24 hour ham clock.

Mounted in a brushed aluminum frame. Easy to set. The world's most popular ham clocks for accurate logs. MFJ-108B 4½x1x2; MFJ-107B 2¼x1x2.

Lighted Cross/Needle SWR/Wattmeter

MFJ-815 **$69.95**



MFJ Cross-Needle SWR/Wattmeter shows you SWR, forward and reflected power in 3 ranges (20/200/2000 watts forward/5/50/500 reflected). Push button range selection. 1.8-30 MHz.

Mechanical zero adjust for movement. SO-239 connectors. Light requires 12 VDC or 110 VAC with MFJ-1312, $9.95.

Deluxe Code Practice Oscillator

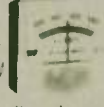
New MFJ-557 **$24.95**

MFJ-557 Deluxe Code Practice Oscillator has a Morse key and oscillator unit mounted together on a heavy steel base so it stays put on your table. Also portable because it runs on a 9 volt battery (not included) or an AC adapter ($9.95) that plugs into the side.

Earphone jack for private practice. Tone and volume controls for a wide range of sound. Speaker. The key has adjustable contacts and can be hooked to your transmitter. Sturdy 8½x2¼x3¾ in. One year **unconditional** guarantee.

MFJ AC Voltage Monitor

$19.95 MFJ-850 New



Prevent damage to rig, computer or other gear. Monitor AC line voltage for potentially damaging surge/brown out conditions on 2-color expanded 95-135 volt scale.

Plugs into any AC outlet. 2% accuracy. 2¼x2¼x1½ inches.

MFJ ENTERPRISES, INC.
P.O. Box 494, Mississippi State, MS 39762
(601) 323-5869; TELEX: 534590 MFJSTKV
Nearest Dealer or Orders only: 800-647-1800

MFJ

MFJ ... making quality affordable

NO-CODE history

(continued from page 1)

The idea of the Technician license was that those interested in the experimental and technical aspects of Amateur Radio would take a 5 wpm test (you had to have a knowledge of the code by international agreement) to prove ability traditional Amateur operation. Additionally, a more difficult technical test was required. Then they could work on the largely unused VHF/UHF bands to their heart's content.

That's not the way it worked out.

The idea of the Tech exam sounds strangely familiar to the present day proposal for a high tech no-code license that would be mostly for packet and other highly technical modes of communication. Most discussion on the bands today suggest 900 MHz frequencies for this class of license. This is similar to a license Canada has had for several years. That license has not been successful, with only something over 100 Amateurs holding that class of license at last report.

Did the Technician class license fail after it was established in the late 1940s? After all there are nearly 100,000 Technician licenses today.

Yes, it did fail in its original objective. A very large percentage of the present Techs are not highly technical, and in fact, the Technician License is now just an intermediate license between Novice and General Class, but featuring fewer privileges than the General.

Here's why it failed: Like the No-code license in Canada that went into effect 12 or 15 years ago, the Technician license was designed to attract highly technical individuals who wanted to experiment with radio. We have seen in the experiment in Canada that not many individuals have taken advantage of this type of license. Not many really took advantage of the Technician license in its early days for the reason it was originally established.

Our Technician license was supposed to attract the same type of individuals as the Canadian License was originally. At the time the Technician License was established in the United States, five wpm CW was thought to be an easy speed, a skill anyone could acquire.

Well, the license generally did not attract a large number of Amateurs just interested in the technical aspects. It was the Novice License which attracted the most applications in the days just after the new license structure went into effect. Most individuals who become interested in Amateur Radio would like to have the full Amateur privileges and the Novice was a good way to start.

But not everyone who became a Novice managed to upgrade in the one year of privileges given to Novice License holders at that time. And the license was not renewable in those days. Not many newcomers originally applied for the Technician license first. There wasn't much commercial gear available for VHF/UHF and most were not interested in experimenting, but rather in operating.

When the Novice license was instituted, Novices were allowed to work 2M phone. Many did go to this mode and never used the one year period to practice, as is the case of most of us when we became interested in ham radio, they wanted to work phone and not CW.

What did happen was that many who did not make General within the one year period took the Technician license just to keep the call sign they held as a Novice. In fact the Technician call was the same as General. Only the Novice call was special, being WN. . .or KN. When you became a higher class licensee, you dropped the "N." I was teaching ham radio in those days and remember many individuals telling me that was what they were going to do.

From the call alone you could not tell that they held a Technician license unless they told you. The Callbook didn't show class of license in those days.

Be sure to catch the second part next month when we learn more about the older license structure and find out what the author thinks are questions crucial to the future of our hobby. □

Conflict of interest?

Mimi Dawson, the now former FCC Commissioner, has joined the law firm of Wiley, Rein and Fielding. This is the same group of lawyers which is handling the lobbying effort for United Parcel Service in regard to the company's claim for need of spectrum in its digital/voice national dispatch system in the recently reallocated 220 to 222 MHz Amateur Radio band.

Although President Bush has not yet named a replacement for Dawson, one of the names which appears to be under consideration is Sherrie Marshall. Interestingly, Marshall is also currently an attorney with the Wiley, Rein and Fielding law firm.

If Marshall is nominated and confirmed by the Senate, it would probably be a blow to the Amateur community in the matters of retention of current spectrum allocations and in issues such as the recent reallocation of the lower 40 percent of 1¼M.

Further, it would make it difficult, if not impossible, for a three member Commission to effectively and impartially deal with the 87-14 reallocation forcing the FCC to go to a four member or full five member level to function on this issue — *Westlink Report* □

The deadline for news releases and special announcements is the 10th of the month, *two months prior to issue date.* Example: Deadline for the August issue is 10 June.

SPECIAL EVENTS

It's distiller time!

The Scottish Tourist Board (Radio Amateurs) Expedition Group will operate special station GB2SSD (Scotland's Smallest Distillery) from 1000 GMT to 2300 GMT Saturday, August 26, and from 1000 GMT to 1600 GMT Sunday, August 27, from Edradour Distillery in Pitlochry, Perthshire.

Established in 1825, the distillery, whose name comes from the bubbling burn that runs through it, is virtually unchanged since Victorian times. A 10-year-old malt, "The Edradour," is made here and a small part of this malt whiskey forms part of the International Blends Clan Campbell and House of Lords.

Frequencies are 3.7-7.065-14.140 and 14.240-21.250 and 28400/600 plus or minus QRM. *CW:* Plus 10 kHz on each band. *RTTY:* 14.085-21.090. □

ARRL conference

The 8th ARRL Amateur Radio Computer Networking Conference will be held on Saturday, Oct. 7, at the Air Force Academy in Colorado Springs, CO.

Topics are expected to include HF packet modems and protocol, AX.25 versions 2.1 and 3.0, packet satellites, higher level protocols network development and international matters.

Prospective contributors should request an author's kit and identify the topic of their papers immediately. Requests and papers should be sent to Lori Weinberg at headquarters. The deadline for receipt of camera ready manuscripts is Aug. 28.

Proceedings will be available at the conference and by mail from HQ. —*Westlink Report* □

Rain or shine

The San Benito ARC (ARRL # 2247SSC) will operate special event station WA2VJL to commemorate the "Dog Days Of Summer" by exchanging local weather conditions!

Operation will be on approximately 28.325, 21.360 and 14.095 RTTY. What's it like in your neck of the woods?

Exchange local weather conditions, such as temperature, humidity, sky condition, rain status, etc.

Operation will be from Aug. 4 through Aug. 6 from 1500 to 0300 daily.

For a certificate send a business size SASE (9½ x 11 for flat mailing) and (if available) weather report from your local newspaper to: San Benito ARC, Attn: Brenda V. Ryan - QSL Manager, P.O. Box 1382, San Benito, TX 78586-1382. □

Cosmic celebration

The Jet Propulsion Laboratory ARC will operate special station W6VIO from 0000Z on Aug. 19 through 2359Z Sept. 3 to commemorate the Voyager 2 encounter with Neptune. This completes the craft's Grand Tour.

Previous special events commemorated the Voyager 1 and 2 encounters with Jupiter and Saturn and the Voyager 2 encounter with Uranus.

The primary SSB and SSTV frequency will be 14.235, but also look for SSB on 28.485, 21.335, 7.235 and 3.865 and CW on 14.035 and 7.035. Also check OSCAR 13 and FM in the Los Angeles area on 146.52, 223.5 and 224.04.

Greatest activity will be weekday noons and evenings and weekend days and evenings local time. For a QSL send a QSL and SASE to W6VIO, JPL ARC, S. Sander, 4800 Oak Grove Dr., Pasadena, CA 91109. DX stations QSL via buro. □

Old Threshers Reunion

The Mount Pleasant, IA, ARC will once again be operating a station at the 40th annual Midwest Old Threshers Reunion in Mount Pleasant from Aug. 28 through Sept. 4. Using club call WØMME, the operators will monitor 3970, 7250 and 14271 kHz throughout the event.

An Old Threshers QSL card is being issued to those who work the station. It can be obtained by sending a SASE to Dave Schneider, WDØENR, 507 Vine, Mount Pleasant, IA 52641.

Mount Pleasant Amateurs will also be providing a message handling service, emergency communications on the grounds and talk-in on 147.99/.39 and 449.95/444.95 for those attending.

The Old Threshers Reunion began in 1950 with a gathering of 15 steam engines and eight separators. After 40 years the annual show, held five days ending Labor Day, is an established celebration of the rich agricultural heritage that attracts visitors from across North America. Throughout the 40 acre park and adjacent 60 acre campground, are over 100 operating steam engines, 800 gasoline engines, 300 antique tractors, cars and trucks, electric trolleys and steam trains and several museums, plus a huge craft show.

Heading the Amateur Radio operations at Old Threshers will be Dave Ruby, KAØFBL; Gary McMeins, NØFIB; Bill Barber, NOØJ; Julie Billingsley, KAØUCN; and Dave Schneider, WDØENR. □

'Soap box' time

The Cuyahoga Falls ARC will operate special event station W8VPV in honor of the 52nd running of the All-American Soap Box Derby from Aug. 7 to 12. The hours Monday through Friday are 2200Z to 0300Z. The times Saturday are from 1100Z to 2000Z.

Suggested frequencies are 3.860, 14.240 and 28.420.

For a certificate send a large SASE to W8VPV, P.O. Box 614, Cuyahoga Falls, OH 44222, by Sept. 20. □

Ham-Con station

The Inland Empire ARC Inc. will be running special event station WA6ZEF from the the floor of the Southwestern Ham-Con Convention at the LAX Hilton in Los Angeles.

The club will be on the air Aug. 21 to 27 between the hours of 1700Z and 0900Z. The station will operate on 10 through 75M in the general portions of the bands.

For the multi-colored certificate send a SASE to WA6ZEF, 1248 N. Cypress Ave., Ontario, CA 91762. □

Railroad 'station'

From the "birthplace of the Oil Industry," Titusville, PA, a special event station will be operated again this year. Sponsored by the Oil Creek Valley Radio Society, this event commemorates the fourth year of operation of the Oil Creek & Titusville Railroad.

Station K3HWL will be on the air Aug. 5 and 6 on site at the historic Perry Street railroad station, from 1400Z to 2300Z each day.

Suggested modes and frequencies are: *CW* — 3.710, 3.675 and 7.110: *SSB* — 7.250, 14.275 and 28.350 MHz.

Other frequencies, modes and operating hours are possible.

For a QSL send a QSL and #10 SASE to Robert E. Myers, K3HWL, RD 1 Box 143-G, Titusville, PA 16354. □

Football Hall of Fame

The Canton (OH) ARC will operate special event station W8AL to celebrate the Pro Football Hall of Fame Greatest Weekend on July 31 through Aug. 4 from 2200 to 0200 UTC and on Aug. 5 to 6 from 1700 to 2300 UTC.

Frequencies: *SSB* — 28.350, 21.350, 14.270 and 7.270; *CW* — 28.150, 21.060, 14.060 and 7.060. RTTY operation also. SWLs welcome!

For an unfolded certificate send your QSL and a 9 x 12 SASE with two units of First Class Postage. For a QSL or folded certificate, send your QSL and a #10 (Business Size) SASE to Randy Phelps, KD8JN, 1226 Delverne Ave. SW, Canton, OH 44710. □

For the children

The Southcentral Connecticut ARA will operate special station W1GB on Aug. 12 and 13 all day in the General portion of 80 through 15 and Novice portion of 10M from Paul Newman's "Hole in the Wall Gang" camp for children with cancer and blood disorders.

For a special QSL send a QSL and SASE to Bill DeBenedetto, K1PVT, 55 Thompson St. 13E, East Haven, CT 06513 □

--YEAH, I WORK FOR A CIRCUS SIDESHOW--AND NO, I DON'T HAVE ANY PROBLEM OPERATING THE RADIO IN TRAFFIC

National Scout Jamboree

Amateur Radio operators will showcase their hobby at the 1989 National Boy Scout Jamboree between August 2nd and 8th. Hams will use the Boy Scouts of America's Amateur Radio call sign, K2BSA, to demonstrate Amateur Radio at Fort A.P. Hill, VA, to 34,000 Scouts and leaders. Stationed near the Merit Badge Midway, hams will teach radio skills to Scouts and provide for them a shortwave listening post.

1989 NATIONAL JAMBOREE
Boy Scouts of America
August 2-8, 1989 Fort A.P. Hill, VA

In addition message-traffic-handling services will be provided to Jamboree participants. Most of the traffic will be routed in and out of the Jamboree site via packet. Two on-site repeaters (144.57/145.17 and 223.00/224.60 MHz) will be set up and monitored during the Jamboree by the K2BSA staff.

Major equipment manufacturers have loaned almost all the equipment necessary to put K2BSA on the air at the Jamboree, to show their support for Scouting's role in the growth of Amateur Radio, and in providing America's youth with important knowledge and skills.

K2BSA will be active for the entire Jamboree period, on all bands and modes. You can earn a special QSL card for contacting K2BSA on the air, or stop in and sign the log. You should realize K2BSA's first priority is to handle message-traffic and that the staff has a limited number of operators, so monitor the frequencies for congestion prior to calling. Agreed World Scout Frequencies (MHz) include *CW:* 3.590, 7.030, 14.070, 21.140, 28.190; and *SSB:* 3.740, 3.940, 7.090 (outside US), 7.290 (in US), 14.290, 28.350 and 28.990. —*ARRL News Release* □

Can you help?

WANTED!! AEA MM-3 KEYER (The Morse Machine), serial number 43, stolen from DEN-TRONICS' booth at the Dallas Hamfest.

Unit may be returned to either AEA or DEN-TRONICS, no questions asked. If not returned, surveillance video tapes will be released to local law enforcement agencies.

Contact DEN-TRONICS, 6102 Deland Rd., Flushing, MI 48433. □

Club busy in 1988

Members of the St. Clair ARC, of St. Clair County, IL, found themselves quite busy during 1988. Public service, training classes, technical advancement and social events kept everyone hopping.

Some specific activities were the weekly ESDA training net, the weekly club net and the "River-Crossing Net," which was a cooperative venture of the Egyptian Radio Club of Granite City, the Lewis and Clark Radio Club of Alton and the St. Clair ARC (this net was formed at the request of the Illinois Department of Transportation to assist state emergency service trucks and state, county and local police during bridge repair work across the Mississippi River on I-70 and 55 during peak traffic hours). The club also participated in WalkAmerica; Sprint For Life; the Walk for Darlene and the Midnight Ramble in St. Louis, in which over 30,000 bike riders took part.

Classes produced new Amateurs of all ages, a packet seminar was given and technical assistance was provided among members to aid in advancement, both in license class and skill. VE exams were also regularly conducted.

There was also participation in Field Day, with the endless extension cords, dead batteries, hot soda, stale chips and cold coffee, not to mention the sandfleas and chiggers you find on Sunday night.

Hamfests were attended at which a vain search is conducted for the perfect rig, the absolute bargain or that item that no self-respecting Amateur can do without. Contests were participated in, during which the XYL and Harmonics swear you've lost your marbles — prefering to sit before the glowing dials of that mysterious box you call a rig, talking to yourself (as far as they can see), only to emerge bleary eyed, thick of tongue and totally exhausted to exclaim what a wonderful weekend it's been.

Then there was our weekly gathering of the "Gourging Gourmets" at the local restaurant, the annual club dinner and the annual "Gastro-fest" in December.

No list of who, what and where is ever faultless. I know I've missed someone or something (Murphy says I got to), so a collective "Thanks and well done all hands." Our commitment to the Amateur's code has been fulfilled and we need not fear the dreaded "Woulf-Hong."

TOD WEST, KB9AIL
Troy, IL □

Reader dissents

I am very disappointed in your editorial comments regarding no-code (page 4, May issue). Should "no pain, no gain" be applied to an archaic skill? If so, let's require the use of slide rules in American engineering schools. Let's require all Amateurs to know spark gap transmitters.

And how can you argue that the Japanese might view no-code as proof of American laziness? More likely, they hope we keep the Morse code as a barrier to young Americans who might otherwise become Amateurs and add new energy and skills to what is left of our electronics industry.

No, the real laziness is our continued reliance on the spectrum efficiency of code rather than developing new modulation techniques for Amateur Digital-audio and Amateur HDTV! I think code can be fun, but we need to move beyond it — now.

HAROLD A. LAYER, N6SPD
San Francisco, CA □

Another idea

The following is an idea I have come up with to defend against any ideas of a no code license.

With all this talk lately about the no code possibility, I have decided to approach the problem from a different angle.

When was the last time you tuned into the citizen's band? You probably noticed a large degree of nonsense fighting and interference going on. But it doesn't have to be this way. With more concern from Amateurs we can associate with the CBer and utilize the band ourselves.

If a no code license comes into reality, you will see many CBers moving into the ham ranks by the masses. I think it would be wise to work with them rather than disassociate ourselves. What could be a better way to raise camaraderie and at the same time expand the interests of Amateur Radio than by bridging the gap through proper use and enjoyment of radio communications.

To attack this issue a friend and I recently started a citizen's band net. We call it the Citizen's Band Radio Forum, patterned after NR9Q's Amateur Radio Forum on 7247, at 1730Z daily, and 3950 on Thursday night.

We are a current events discussion

group dealing with international and local happenings. Since the start of our CB net (in about mid-Dec. 1988), we have had reasonably good turnouts, with the comments of the participants being quite complimentary.

The most surprising result of this is the fact that we have had absolutely no QRM at all. Since I live in a small community of about 15,000, we have no problem keeping a clear frequency in the evening on Saturdays.

The one thing I have learned from my sojourn into the citizen's band is that people, no matter what band you work, are basically the same. Many CBers graduate into the Amateur ranks and I believe that by communicating instead of ignoring or blasting them, we will help to produce a more qualified ham operator in the future.

What do you say, let's start our own public relations. Maybe then we can do away with the idea of a no code license and raise the CBers interest enough that they want to learn the code.

So come and lend a helping hand. It's for our own good. I refuse to believe that we really need more clout in Washington DC. Do we want to give up QUALITY for QUANTITY? I know I don't.

TOM FREDERICKS, KA9ZGK
Sterling, IL

Now is the time

After several discussions concerning the impending "no-code" license, I decided to relax my opinion and go with the flow. At this point I chose to tune in the Citizens Band frequencies to hear what was going on for myself.

Now don't get me wrong, I too was a CBer for quite some time. Several of my friends took up ham radio, and I chose to stay behind due to the license requirements. Not knowing what I was missing by my reluctance and sincere thoughts that the code was not attainable in my brain, I continued to use the CB in earnest.

Well, as time went on, so did my disgust with the things that I was hearing over the air on the CB portion of the bands. Not only did my rig get turned off more than it was used, but ultimately it was removed from the house and the car. I could not reach across town anymore without being blasted by someone transmitting a dead carrier or cussing me out for being on "their" frequency! The language used then and now would make any old salt blush with embarrassment, to say the least.

Unfortunately, there was not any agency or group of administrators from whom to seek relief, so I made the decision to remove myself and my transceivers from service. A trip to the nearest radio store provided me with the information and tapes necessary to achieve "ham" status. Only being on the air since August of 1988, and having studied long and hard, I have now achieved the General license status. I thoroughly enjoy every contact made and work mostly CW. Code! That was my fear all along.

I now kick myself every time the HF is turned on and I hear that elusive foreign sound that DX gives out when received in your shack. Why did I wait so long? What a thrill to be able to contact and QSO with our friends and neighbors all over the world. Even the phone band holds its own thrill and I often utilize it for a break.

Now, the subject of "no-code" has been shoved down all our throats and it seems as though it will indeed be adopted. Maybe! We all are guilty of sitting back and complaining about it to other hams on frequency but it's time to get more involved, NOW!

Imagine for just one moment you are in QSO with your friend, relative or DX. Along comes the new license holder who will have just about all the privileges you have, covering you up or telling you to get off his frequency! You say it won't happen? Keep listening my friend, I have only been a ham for about a year and recall talking on the CB about what I would do with that fancy equipment the hams have in their shack. Hey good buddy, look at all that power!

Years of study and lots of money have been put to your hobby. Are you willing to let go so easily? Are you afraid of writing to someone at the government level expressing your feelings, in fear that someone will read it? Are you ready to watch your investment become nothing more than junk replaced by $200 QRM makers? Are you ready to become one of the used-to-be's that was overrun by big business? I'm not, and I know that you aren't either.

So hams of the world, UNITE AND WRITE! Save what you have built and labored for. Keep your license sacred and your frequencies clear. To those of you who aren't interested in saving what you now have, tune in the 11M band and listen.

DON NELSON, N6UMN
Chico, CA □

Be careful of your frequency

There is a big problem with terrestrial 10M stations, particularly FM and RTTY, transmitting in the 29.300 to 29.500 MHz range, causing QRM to satellites operating there.

The frequency range of 29.300-29.500 MHz has been set aside under International Radio laws as *a satellite downlink only segment.* There are not supposed to be any signals of terrestrial origin at all in this range.

Please! folks, you are wiping out satellite operations for the rest of us. You have plenty of spectrum above and below there for modes of operation.

CAPTAIN JOHN H.
McREYNOLDS, N7JBO
Charleston, OR □

A short vertical for the top band

PHIL SCOVELL, AF0H

I got into ham radio because I am blind. Shortly after going blind in 1964, I began attending the Nebraska school for the blind at the age of 13. The school had a club station and a year later I was a Novice. Ham radio has played an important part of my life not only in the area of electronics, but also through meeting many different people worldwide. I began reading **Worldradio** *several years ago through a couple of dedicated hams who read and duplicate the magazine on cassette tape for the blind.*

Ham radio provides a great many activities within the hobby for blind hams, besides simply operating on the air. I've been a DXer for 20 years on all bands, including 160 and 80M, but my greatest enjoyment is making antenni.

I have tried various loops, slopers and verticals over the years and have decided to try writing about my experiences.

Soon after purchasing a transceiver with 160M capability, I decided to try the top band. At the time, I was renting a bi-level duplex with the smallest yard I had ever seen as a ham. The back yard was about 30 x 40 ft., and the front was even smaller.

To complicate matters, I had 38 ft. of Rohn 25 G bolted to the back of the house at the 14 ft. level, with a single set of guys at 35 ft. On top sat a 4 element 20M yagi on a 24 ft. boom. The tower was simply too short to shunt feed for 160 and an inverted L was out of the question.

Even an adequate ground system in such restricted space was impossible. I did the only thing left to do; I built a short top loaded vertical.

Most of us consider 160M to be limited to those hams with acres and acres of land and super tall towers. Few of us in the city have 260 ft. of yard space, the length of a halfwave dipole on 160, or even enough room, not to mention money, for a 130 ft. tower; the length of a quarterwave vertical at 1.8 MHz.

For those of us with small yards and even smaller towers, therefore, is there no hope? Not so! My 160M vertical was only 32 ft.

The advantages of top loaded verticals are numerous. First, they can be incredibly short. Second, they need almost no ground system and third, the signal pattern of a top loaded vertical is radiated from the top of the antenna rather than the bottom, as is the case with a base loaded antenna.

Construction

Using the remains of a telescoping push-up mast from Radio Shack, I bolted 24 ft. of vertical mast to the peak of my duplex on the west side of the house at the 20 ft. level. Bolting the house bracket through a piece of plastic helped to insure the antenna was insulated. My telescoping mast originally had been 40 ft., but remained on 24 ft. following a 100 mph wind storm. You use what you have.

Setting the vertical on a block of wood, I sandwiched another piece of plastic between antenna and wooden base; again to insure insulation from ground. The antenna is fed at the base with the center conductor of the coax. The shield of the coax goes to a ground rod, or in my case, a nearby wire fence.

The first 20 ft. of my antenna was below roof level and only 12 ft. was above in the clear.

Top assembly

The top of the vertical was made up of 4 ft. of one inch aluminum tubing, 3 ft. of 2.5 inch plastic PVC pipe and an additional 7 ft. of one inch aluminum tubing above the plastic pipe. I used 2.5 inch diameter PVC for my coil form because I had no idea how big a resonator for 160 should be. Later, of course, I discovered I could have gotten along with something much smaller. Learning is what homebrewing is all about.

I bolted the 4 ft. and 7 ft. pieces of aluminum tubing about 1 ft. down, inside either end of the PVC to assure structural strength.

The resonator

The coil, or the 160M resonator, was a winding of 14 gage insulated wire rapped around the middle of the 2.5 inch PVC pipe. How much wire did it take? I wanted my antenna to resonate near the bottom of the band, 1.8 MHz, since I was mostly interested in working CW. A quarter-wave at that frequency is 130 ft.

The total length of my vertical, I judged, was going to be about 32 ft. so I wound the difference, 98 ft., around the PVC and tied the ends to the bolts used to hold the aluminum tubing to the plastic pipe.

High voltage

The voltage on the coil is very high and if high power is to be used, a heavier insulated wire, such as RG8, should be used for the winding to prevent arcing. Some hams even use quarter inch copper tubing wound on a coil form when using a kilowatt or more. My 100W, however, presented no such problem, thus, the 14 gage insulated wire was sufficient.

After dropping my top assembly a foot or so down inside the 24 ft. vertical mast already bolted to the edge of the roof, and securing it with a U clamp, I hurried to the basement and fired up the transmitter. It was disappointing to discover that not only would the antenna not load, but there was no resonate frequency to be found anywhere on the band.

I rechecked everything and made numerous adjustments but the results were the same. I even added and subtracted wire to the length of my coil, but nothing was to be gained.

Next month see how Phil resolves his dilemma. □

Towers taxed? It could happen

A bill has been introduced into the current New Hampshire legislature that will enable cities and towns to tax communications antenna towers as real estate!

HB-243-FN, while aimed primarily at commercial and broadcast towers, includes CB/ham radio towers, backyard satellite dishes and even private TV antennas!

The bill authored by Representative McRae of Hillsborough District 6 has been referred to the Ways and Means Committee. —*Greater Milwaukee DX Association* □

If you're not subscribing to Worldradio, you're missing a lot of Amateur Radio news.

DAYTON Hamvention

(continued from page 7)

As for the DXCC applications, Don said that all those received in January have been completed, plus all those for February (except the phone/CW). They are presently working on applications received in March. Don also was available to check cards in person at the Hamvention.

Don was asked the status of the Iranian stations that had been heard operating recently. He said they are illegal and has letters from both the government and the national club stating such.

"3D2XX Rotuma Island the Newest DX Country" was the next item of the program. This presentation was given by Eric Scace, K3NA, one of the DXpedition team members. This presentation was supported with many slides taken during the operation.

Following Eric's presentation, Dave Heil, J52US, talked about his operations from Guinea-Bissau. Dave said he had made about 40,000 contacts since mid-January 1988.

Bob Winn, W5KNE, discussed his 1988 trip to St Paul Island, off the east coast of Nova Scotia. Operating as CY9DXX, Bob said the team made about 13,000 contacts with very little activity on 10M.

The Colvins, Lloyd and Iris, were on next. Each year the couple take off on another one of their Yasme DXpeditions. This time they operated from Cyprus as W5KG/5B4, from the British section as ZC4ZR and as 9H3JM in Malta. When they applied for the licenses for Cyprus, they were given an operating period of one month — both of them the same period. As a result they operated only two weeks from each.

To get to Malta from Cyprus they had to travel via Frankfurt. During their stay on Malta they celebrated Christmas and were even on local TV.

From Malta they traveled down to Nigeria for additional DXing. They also tried to get permission to operate from Niger but were turned down.

The final presentation was last summer's DXpedition to Malyj Vysotskij Island, where six operators (three from Finland and three from the Soviet Union) operated as 4J1FS. The kingpin of this operation was Martii Lane, OH2BH. Ika Reittilla, OH2BVI, came all the way from Finland for this presentation, which was a video made in the United States. This new DXCC country was the fourth new one spearheaded by OH2BH.

For those who missed the initial operation, another DXpedition to Malyj Vysotskij (pronounced Mali Vi shot ski, or, if you give up, just MV Island) this May 23rd. Ten operators were scheduled with four stations on simultaneously. No call had been selected at the time.

Azimuth folks enjoy Dayton

The dust is settling after a very active Dayton Hamvention. Azimuth's sales were highlighted by the launch of The Azimuth Awards QSL Library. A unique new series of albums designed to collect QSL cards on an award by award basis. The company also markets the popular Azimuth Weather-Star Computerized Weather Stations and Dual Zone 24 Hr Clocks.

The Azimuth booth has evolved over the years to be a favorite "check in" point for the 30,000+ hams visiting Dayton. And this year was no exception. "Doc" Dean commented, "We had great interest from everyone this year. I feel our sales support personnel, featuring the lovely Tara Arnold (Miss Azimuth) were the best ever!"

Tara, a young student nurse from the Dayton area said, "I found all the hams at the Hamvention most appreciative. It was great fun for me and my first Dayton ever. At times it was a bit cool in my bikini, but I'm looking forward to seeing everyone again next year!"

Throughout the year, Miss Azimuth will also be remembered by the many hams who had their Polaroid picture taken with her following a purchase at the booth. Tara also held her 20M fast-scan TV debut courtesy of the Robot Research gang's "hidden camera" from two booths away. How did it look on 20? Azimuth looks forward to your QSLs!

Miss Azimuth, Tara Arnold, 2nd from left (no kidding), drew a large crowd to the Azimuth booth. Wouldn't you have stopped for a ragchew? Pictured with her are (l to r) Ed Karagozian, K6JGN; Rosie Freeman, assistant to the president; and Merrill Dean, K6OXU, President.

Alinco promotion increases trade-in prices

Alinco Electronics kicked off a promotion at Dayton in April — the Alinco REWARD program. Very simply stated, Alinco is offering a REWARD on their two top of the line transceivers, the DJ-500T dual band handheld and the DR-510T dual band mobile.

When an Amateur trades his or her working 2M or 70 centimeter *mobile* transceiver (any brand) toward the purchase of an Alinco DR-510T dual bander, the dealer will AUTOMATICALLY add $100 to the value of the trade-in offered.

In addition if a working 2M or 70 centimeter *hand-held* transceiver (any brand) is traded toward the purchase of an Alinco DJ-500T dual band handheld, an additional $50 will be added to the trade-in value!

All Alinco asks in return are three small requests: 1. Please allow the dealer to mail in the warranty card for the new unit. 2. Please tell all the Amateurs you talk to about the REWARD Alinco is offering. 3. Remember Alinco Electronics!

The REWARD program will run through August 31. □

WRITE!

If you have something important to say, and the spouse is getting tired of hearing it — tell us! We always lend an ear, plus we'll tell 27,000 people who want to hear what you have to say!!

Amateur Radio "blind" to disabilities

The following is a synopsis of an article entitled "Handicaps don't hinder Amateurs on the airwaves," by Edward Stiles, which appeared in the Dec. 6, 1988, edition of the Tucson Citizen.

Amateur Radio is a hobby that is accessible to everyone, including those suffering from disabilities that might close doors on other pursuits. According to one blind radio operator, Amateur Radio has in fact made a big difference in the lives of many handicapped people.

Doris Rieke, KC7AQ, said the hobby gives the disabled a way to contribute to society, in a large group of friends who are only as far away as the power switch on their radios. It's a way to talk to people without being judged by handicaps.

In many cases the person with whom the disabled Amateur is communicating via radio never knows his contact is not just like him. In some cases they forget they're not.

Doris said she recently talked to a friend who knows her very well. He had just finished repairing his radio and wanted Doris to read the signal strength meter on her rig and tell him how he was coming across. Doris jokingly reminded him that this was impossible, because she couldn't see the meter.

Amateur Radio can sometimes be the salvation of someone alone. Doris recalled that before she married her husband, Walt, she sometimes awoke at night feeling lonely and unable to sleep.

"I would just get on the air and talk to somebody in Australia or New Zealand. In fact we had a group of regulars who got together at 11 p.m. One was in Liechtenstein, one in Costa Rica, one in Japan and a guy on a tanker out in the Caribbean. So you have company all the time."

Doris and Walt, also an Amateur, aren't content just to take what Amateur Radio has to offer *them*. They want to see to it that other disabled people can reap the benefits of the hobby. For about five years the Rieke's worked at a summer camp for handicapped people interested in Amateur Radio. They taught Morse code.

Doris said that while they taught all sorts of people with different disabilities, their biggest challenge came in teaching code to a person who was both blind and deaf. "We set up a situation where he could feel a vibrating ping pong ball to get his code."

She said there is great satisfaction in doing such volunteer work. "Working in radio camps, it was so satisfying to see the happiness of those people when they would pass a test. Like this fellow who was blind and deaf. He was just beside himself when they told him he had passed." —*Information submitted by Robert E. Olson, WV7P* □

Upgrade your call

Gerald Wetzel, W3DMB

If you are rather new to Amateur Radio and you upgrade, seriously consider requesting a *new* call to go with your *higher* class license. You did earn the privileges, so you might as well have the call to go with them.

If you want to change your call, you don't have to wait until the expiration date on your license. You just have to submit an FCC Form 610 to request the necessary action (or request it on the 610 when you take an exam). Of course, if you have an "old" call or just ordered 25,000 color photo QSL cards, you may want to think about it for a while. □

PUBLIC SERVICE

UK Amateurs acknowledged

Pan American World Airways has thanked the Amateurs of the United Kingdom for the aid and assistance they rendered following the terrorist bombing that destroyed Flight 103 last December.

In a letter to the Radio Society of Great Britain, Pan Am wrote: "On behalf of Pan American World Airways we would like to thank the members of Raynet who provided invaluable communication assistance at the Lockerbie air disaster and to those who attended the memorial services."

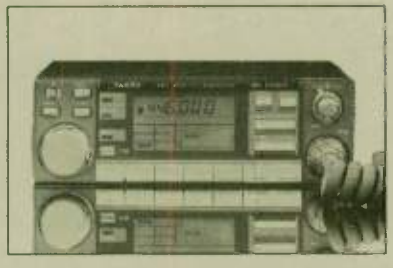
Club helps during weather crises

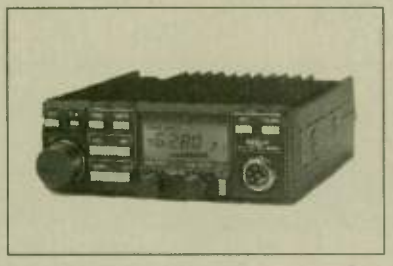
A band of tornadoes being chased through Illinois by a blast of winter caused one death and injured at least eight others as it overturned homes, downed power lines and uprooted trees, said the Nov. 16, 1988, *Macomb*

(please turn to page 42)

WANTED

$100.00 REWARD





$50.00 REWARD

For a limited time Alinco Electronics will give a $100.00 "Reward" for your working, 2 meter or 70 centimeter Mobil Tranceiver, or $50.00 for your working 2 meter or 70 centimeter Hand-Held Transceiver.

The way it works is really quite simple. Just take or send your old, but working, transceiver to your favorite dealer for **TRADE-IN**. Whatever the dealer offers for Trade-In allowance, Alinco will increase the amount by either $50.00 or $100.00 dollars. Depending on whether it's a Hand-Held or Mobile, **ON THE SPOT!** There are only two requirements:

1) The Trade-In "Reward" can only be used towards an Alinco DR-510T Dual Band Mobile or an Alinco DJ-500T Dual Band Hand-Held, on a Mobile for Mobile and Hand-Held for Hand-Held basis.

2) The Trade-In unit must be in good working order and salable.

Remember, the company that already gives you the best value for your dollar, and a two year factory warranty, now gives you something else that no other company does – A substantial Trade-In "Reward" for using our products! *****OFFER GOOD AT TIME OF SALE ONLY. OFFER EXPIRES AUGUST 31, 1989*****

ALINCO ELECTRONICS INC.

Joe Fairclough, WB2JKJ, instructs Kia Johnson in the proper use of the telegraph key as her mother, Betty White, looks on.

Parents With Partners

JOE FAIRCLOUGH, WB2JKJ

Visit a PTA meeting at an inner city school sometime. Usually they're held during the day since the folks who should be attending claim it's not worth their life to come out at night. But even on a calm spring afternoon, not a cloud in the sky and a temperature that is just right, you could shoot off a cannon right down the center of the meeting hall and not hit a soul. In fact no one might hear the blast.

So, with a 28 percent dropout rate, crack use at an all time high with no end in sight, the AIDS virus on the minds of everyone while a nationwide record is being set in the Bronx and not to mention Johnny still can't read, you get maybe six parents out of a possible 800 on a blissful spring afternoon who find their way to a parents' meeting.

The answers to these problems, just like the problems themselves, are endless. Aside from parents whose top priority is survival and kids who never have the luxury of childhood because they're going straight from babies to adulthood on the express track, there are the educators — the folks who run the community meetings for a community that often is too terrified or just too tired to take an active role in the, often, all too small educational experience of its children.

So what is the modern day Mr. or Ms. Chips to do? Hide out behind the *New York Times* for six hours and twenty minutes daily, living from holiday to vacation, praying for the 20 child rearing years to be done? Yep, it happens, and more times than we would like to admit, but there has to be a better way.

Parents With Partners is certainly one better way. Parents With Partners is the result of the combined efforts and resources of the Save The Children Foundation and The Radio Club of JHS 22 in New York, NY. Both are nonprofit organizations concerned with the well-being of the youth of our country. PWP brings children and their parents together after school for two hours of working, learning and having fun through the magic of Ham Radio.

When Ralphy, Delilah, Nickol or the rest of the Crew at 22 get on 21.395 during the day, it's "EDUCATION THRU COMMUNICATION," for credit in the only program of its kind anywhere that utilizes Amateur Radio as a teaching tool, full time, for the entire school year.

Nickol looks for WD6FWB and Ralphy and Delilah may call Hollywood Hal, KB6LF, while countless others wait their turn to work the "Crew."

While EDUCOM works as an incentive to come to school, PWP offers an alternative to the streets. It gives kids a place to meet on more than common ground with a parent or guardian. In this case the harmonic has one up on Mom. Through PWP a child can take Mom by the hand and lead her through the steps to a Novice license or simply spend real quality time with an adult, where the art of communication may have been long since lost or never even developed.

Getting more people into ham radio seems to be the hot topic on the bands and at the club. Code, no-code, better PR, more privileges and on and on. Talk to 50 people and get at least 50 different opinions. Likewise talk to anyone in public education and they all agree that better schools can only happen when a parent takes an active role in a youngster's education. Again, like the hams, there are a multitude of different opinions on how to attain parental involvement among educators.

Save the Children Inc. and The Radio Club of JHS 22 NYC Inc. are demonstrating that through the use of ham radio, both goals can be accomplished and complimented.

Next time you hear a hesitant voice on 21.395 calling CQ from WB2JKJ — At The Core of the Big Apple — give them an answer. It could be a new Mom or Pop being guided by their highly experienced harmonic.

For more information on this program or help in getting ham radio into the classrooms in your district, contact me at Radio Club of JHS 22 NYC Inc., P.O. Box 1052, New York, NY 10052; 516/674-4072.

Computer programs

JOE TOY, WB6KAI

Everyone is aware that computers must have software (programs) in order to work. Such software can sometimes be quite expensive. In a business environment, it is not unusual for the software to cost as much as the hardware.

For us hobby or personal computer users, however, there is a low cost source of programs called "Public Domain." These are programs that have been released to the public for use without charge. They are generally older versions of programs that have fewer features and may be more difficult to use.

In recent years a new class of programs has developed, called variously: Freeware, Shareware, User-Supported Software and similar names. These are programs that have been written by individuals or small groups of individuals and distributed without charge for trial use.

If the user finds the program of value, it is suggested that a donation or payment is entirely voluntary and the suggested amount can range from $10 to $75, depending on the complexity of the program.

Many users, such as hobbyists, would not use the programs enough to justify payment, but there is no obligation. To encourage serious users to send payment, some additional services are usually offered, such as program updates, newsletters about the program and even telephone privileges in case help is needed.

Freeware is usually written by professional programmers and is generally of high quality and well worth the cost. Together with the dropping prices for hardware, computing for the average ham is becoming more and more a reality.

—Golden Empire ARS, Chico, CA □

Maureen Pranghofer, KF0I

You've heard it before — the "you know you're getting old when ..." stories. Well folks, I can attest and my OM would gladly verify that after turning 35 last month, it's happening to me! This morning I went so far as to walk all the way to the other end of the building to the employee coffee area, picked up a full pot of coffee, had the packet of cream in my other hand and realized I'd left the mug in my office. That's pretty bad! We all like to joke around about the inevitable process of aging — but its reality has recently come home to me in several ways around Handi-Ham HQ.

Some time ago I received the usual phone call from a very excited Novice. Everything was great. He was on cloud nine. His club was the most wonderful bunch of guys that could ever be imagined. They had read him the exam since he was visually impaired, had assisted in the writing and spent hours working with him to ensure his readiness for test day. He could hardly wait until he received his call.

Finally the big day came and he again phoned, his voice filled with excitement. "Well, what kind of equipment would you recommend?", he asked. "The guys in the club have made some suggestions, but what do you think?" I gave him some ideas and he said that arrangements were being made to get an antenna up. It all sounded picture perfect.

After not hearing any reports from him in the next six weeks about the wonders of 10M or the latest country worked, I phoned and he said in a somewhat dejected voice, "Well, the club is trying to find someone to do the antenna. All the guys who are young enou h are South for the winter."

I told him we'd try to round up someone in his area. Unfortunately we ran into the same problem. Jokingly and with a bit of apology we were told that, "Well, you know it's cold now and the guys who are energetic enough to do antennas are down South and the rest of us up here are even too old to go down South."

Now almost five months after getting his Novice, this student has upgraded to Technician and is on the air with 2M. He was good at CW when he passed his test and had expressed an interest in working on all bands. He now has the antenna up because the folks who could do it have returned from their Southern paradise, but his initial enthusiasm is steadily waning.

So how do you know when your club has terminal longevity? These symptoms sound a little crazy but unfortunately contain some truth.

1. More people in your club own older tube type rigs than state of the art equipment.
2. One person in the club is seen as being a computer whiz because he bought a Commodore 64 five years ago.
3. No one in your club has been on packet because it's seen as being too complicated.
4. During coffee breaks folks sit around and talk about WWII.
5. One person does all the antenna work for the club.
6. Someone almost got licensed because the guy giving the Novice didn't realize that he/she gives the exam and was just planning on sending in the 610 form and awaiting the exams return from the FCC.
7. The youngest member of your club just became a grandparent.
8. The sunshine fund for sending cards and flowers to those having health problems has gone bankrupt.
9. Occasionally one or two teenagers have come to the meeting but never return.
10. The club opts for a luncheon meeting and 90 percent of the members can still attend because they are free during daytime working hours.
11. Over 50 percent of club members remember when the communications act was passed.

There are many fun and exciting ways you can beat this problem if any of the above sound like your club, but you'll have to wait to learn about those till next time. 73s for now. I have something I'm supposed to do if I can only remember what it was. □

Character speed change

Recently the ARRL initiated a change in the character speed on their examination tapes. These test tapes have been circulated to their examiners and are in use at this time.

The character speed for the Novice and Technician exams is 18 wpm and for the extra exam is 21 wpm. The W5YI VEC plans to retain the character speed of 15 wpm on the Novice and General exams and 20 wpm on the Extra exam.

At recent forums I gave in Dayton and Dallas, questions were asked by students and instructors alike about how best to prepare for the exams or to assist students in preparing for exams with the differences in character speeds.

How should I prepare?

I have always advised students to set a goal date for their preparation, and part of that goal preparation was to identify the examiners with whom they would be testing and the characteristics of their exams. This becomes even more important at this time. Use materials that simulate the character speed of the test you will be taking as closely as possible.

I have been practicing with a character speed of 14 to 15 and now I find the only examiners in my area use the faster character speed (or just the opposite). Now what?

If you're ready to test, go ahead and give it a try! If you have time or you need to re-test, obtain some material which uses the "correct character speed" and become familiar with the slightly different sound. There is a different rhythm. It won't take you long.

What is best for practice; tapes, computer disks or on the air?

Practice with what works best for you! Tapes and disks can assist you in preparing for the exam more specifically and rapidly. With disks you can vary your character speed.

On the air practice is great if you have the time and equipment and the ability to CHECK YOUR WORK. If you want to be an on the air code operator, it's time to get started! No two operators sound exactly alike.

Let's put it all together!

Remember the basic rules of good practicing at all times:

1. *Set a goal for yourself.* Have an approximate test date in mind which you can modify if necessary.

2. *Always check your work* after every five minutes of practice. What types of mistakes are you making? Identify them.

3. *Move forward in your practice* one wpm at a time. If you are at 10 wpm, don't suddenly go to 13 to hurry up the process. It usually doesn't work!

4. *Do all types of practice;* both random and text are important. Random is a good drill for speed building but tests are text. You need to practice writing text. Copy letter by letter just as you would random. This is necessary practice to overcome "anticipation."

5. *Always write your code practice.* Listening and hearing individual recognition of letters is not the same.

6. *Try to write at least five minutes at a time.* This helps build endurance. Never stop the recorder to start again if you miss a letter, as this keeps you from developing the skill of continued writing if you miss one.

7. *When you think you're ready, try the test!* There is no substitute for the real experience. If you do not achieve a passing score the first time, evaluate your performance and what needs improvement and try again at the next available opportunity!

If you have any questions about your practice or need examiners in your area, please give me a call or write a note. 714/979-CODE (2633).

If you are looking for a computer disk for IBM or compatible, the very excellent MORSE TUTOR is available. If you would like to order Morse Tutor you may write to me. □

•••

Experience is a wonderful thing. It enables you to recognize a mistake every time you repeat it.
—Trident ARC, Summerville, SC

Esther Given, W6BDE

George D. (Dewey) Wilson, W7HF, is the first west coast QCWA member to receive the 75 year certificate. A resident of Aberdeen, WA, Dewey received the award from QCWA Secretary Jim Walsh, W7LVN, at the annual meeting of Northwest Chapter 4 on April 29.

Dewey became interested in radio in 1909 when his cousin came home from the Navy and told him ships could talk to each other over great distances without wires. This was hard to believe but shortly thereafter the Navy installed a radio relay station on the hill above W7HF's house, and he was intrigued by the strange sounds emitted by the spark operation.

Boys of those days had to take a course in shop in the 8th grade. The more advanced students were permitted to wind coils with green wire. This activity, coupled with the noises from the Navy relay station, goaded him on. By high school days he had located some local radio enthusiasts who encouraged him to join them on the air.

His first transmitter was an AC doorbell with the clapper removed. The antenna was attached to one side of the contacts and ground to the other and it worked well enough to talk to the other hams in town. Meanwhile, he was building his own spark coils and transformers and visiting lumber schooners to talk with their radio operators.

In 1912, while still a high school freshman, he read in an early wireless publication that Amateurs were to be required to have a Federal license. Dewey applied for one and was issued 7GW, which he held until after graduating from high school.

In 1916 WW I called a halt to personal radio activity. Dewey is proud that his name and call appear in the very first call book, which in those days was published by the US Government.

After military duty in WW I, finishing college and earning a living, it was 1932 before the ham bug bit him again. A QCWA member since 1952, W7HF has a lifetime of interesting ham memories to enjoy and share with others.

•

Activities Manager, Onie Woodward, W1ZEN, has announced the winners of QCWA's 1989 QSO Parties. The five top US scorers in the CW Party conducted Feb. 11 to 12 are Jeff Bouvier, K1IU, 1st; Dave Fischer, W0MHS, 2nd; Hartin Weiss, W3OG, 3rd; Donald McClenon, N4IN, 4th and Jim Villasana, K6NQ/7, 5th. Europe's high man is Hans-Werner Liebig, DL6NB, and North America's (outside United States) is Marshall Killen, VE3KK.

Top ranking US winners in the phone portion held March 11-12 are Ralph Cabanillas, W6IL, 1st; John Zwaska, W4WKQ, 2nd; Herb Gleed, W6FQ, 3rd; Robert Reed, WB2DIN, 4th and William Branche, K9CLO, 5th. DL6NB was again high scorer for Europe. North American Dave Benton, VP2MDB, was also a winner.

Log entry response was good. 154 CW logs and 158 phone logs were processed this year by tellers of Cleveland Chapter 1, headed by Pete Marino, W8PBZ. Participants included chapter members and those who have no chapter affiliation, proving QCWA QSO Parties are an enjoyable experience for everyone.

•

When a QCWA member of great prominence joins the rank of silent keys, that person's achievements should be shared with our readers. Elizabeth Zandonini, W3CDQ, was a top notch CW operator for 67 of her 90 years, and rarely missed a day on the air.

"Liz" was known, loved and revered by Amateurs all over the world. She travelled widely and was acquainted with many famous hams. In return she opened her home to Amateurs visiting the D.C. area, where she resided.

She met personally with US Presidents Roosevelt and Truman in recognition of her handling Amateur Radio traffic in the "Governors to President Relays."

Starting work in 1921 in the radio department of the US Bureau of Standards, Liz devoted 44 of her 90 years to government service, retiring in 1965 from the Radio Activity Section of the US Central Radio Propagation Laboratory.

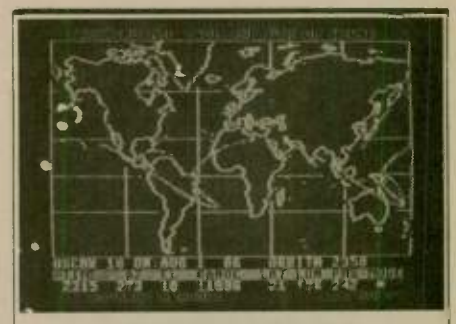
Over the years Liz received many awards and abundant recognition for her achievements in Amateur Radio Service. Her ham affiliations included ARRL (she served as Assistant Director in the D.C. area for many years); AWA; OOTC; QCWA; QCWW; YLRL (president 1944-45) and Amateur Radio clubs in the D.C. area, including FAR (since its inception in 1957), Rock Creek, WAYLARC and Washington D.C. ARC.

Liz' passing on May 16 truly exemplified the meaning of "silent key."

George D. Wilson, W7HF (l), received his 75 Year Plaque from Jim Walsh, W7LVN, in April.

●●●●●DON'T FORGET●●●●●

INCLUDE FIRST AND LAST NAMES with call signs.



DX WORLD

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

Activities Calendar

01-02 July	RCV Venezuela DX Contest (SSB)
08-09 July	IARU World Championships
15-16 July	LCRA Colombian DX Contest
15-16 July	MARTS SEA Net Contest (CW)
22-23 July	RCV Venezuela DX Contest (CW)

W-100-N

Our congratulations to the following DXer for completing the requirements for Worldradio's Worked 100 Nations Award:

359. JH8BOE Shinobu Kataoka

Oman (A4)

Several calls from Oman were reported in May, some of them quite active and representing both SSB and CW. For a CW contact you might look for the following:

A41JV	14.019 MHz	1415 UTC
A41JZ	14.029 MHz	0100 UTC
A41JV	21.024 MHz	0045 UTC

Most of the activity has been SSB and includes the following:

A41JR	14.148 MHz	0645 UTC
AA41JZ	14.160 MHz	0115 UTC
A41KB	14.226 MHz	0300 UTC
A41KC	14.255 MHz	1845 UTC
A41KJ	14.175 MHz	1500 UTC
A41KN	14.195 MHz	2130 UTC
A41KP	14.186 MHz	1815 UTC
A41KV	14.185 MHz	0145 UTC
A41KJ	21.209 MHz	1330 UTC
A41JW	28.470 MHz	2330 UTC

Some of the above frequencies for these calls, and other calls elsewhere, may be off limits for stateside DXers. Our input for this information comes from many sources, including overseas publications such as *DX News-Sheet*, published by RSGB, which would show those frequencies in many cases.

Not included in the above reports was the call of an A41XJ, reported on 14.169 and 14.171 MHz on May 21 and 22. A check with the 1989 Callbook proved unsuccessful as we found no A41 calls with a suffix beginning X. Just because it isn't in the Callbook and doesn't follow the logical order of call assignments doesn't mean it's a phony call.

United Arab Emirates (A61)

We only found one report for this one recently. *Long Skip*, the publication of The Canadian DX Association, reports A61AB having been worked in Ontario at 2100 UTC on 14.250 MHz.

Morocco (CN)

The Callbook reports that there are 191 licenses listed for this country. But this is not an indication as to the activity you may expect. Probably many of them are inactive calls with the licensees no longer on the air.

Of these calls the various DX newsletters report at least seven Morocco calls during the month of May and only five of them are listed in the Callbook.

The most active call reported was CN2AQ, and one of the calls was not listed. This operator was active on at least three bands. On the 16th he was in one of those 20M nets on 14.226 MHz between 0330 and 0600 UTC. Other spots on the band included 14.161, 14.179, 14.212 and 14.242 MHz. Take a listen for him from 0430 UTC.

On 15M CN2AQ was found between 21.229 and 21.260 MHz between 0230 and 0330 UTC and on 10M above 28.500 MHz after 1800 UTC.

Also from Morocco we have a few CN8 calls as follows:

CN8DQ	21.212 MHz	0615 UTC
CN8EL	21.238 MHz	2100 UTC
CN8EP	14.278 MHz	2242 UTC
CN8FZ	14.237 MHz	0200 UTC
CN8MW	28.442 MHz	1900 UTC

CN8FZ was found on CW, as he was reported on 14.033 MHz at 0115 UTC early in May working into Florida.

According to *The DX Magazine*, the licensee of CN8FC reports that he has not been on the air for years. The call reported during the ARRL SSB test was that of Morocco Slim; however, there were two reports of this station in May. One included contacts with Europe on 28.477 MHz at 1700 UTC and a May 10 contact into Maryland on 28.408 MHz at 1830 UTC. The Callbook lists the operator as Steve Hawley, with the QSL route as WA4QMQ.

We assume this is the same Steve who was the recipient of the South America plaque for our W-100-N Award back in 1979 when he was operating as WA4UAZ/HC1 (when Worldradio's W-100-N award was established, we presented plaques to DXers who were the first in each continent to apply).

Lebanon (OD5)

We found at least eight Lebanese calls reported recently and none of them are listed in the 1989 Callbook. All of the activity has been on SSB, except for that of OD5NG, whose activity appears to be RTTY.

If you care to have your fingers do the talking, look for this one near 14.085 MHz around 0315 UTC or 21.087 MHz at 0530 UTC.

For SSB activity look for these stations:

OD5MA	21.230 MHz	0230 UTC
OD5RA	21.338 MHz	1545 UTC
OD5SH	14.252 MHz	2330 UTC
OD5TS	14.182 MHz	0030 UTC
OD5VT	14.182 MHz	2345 UTC
OD5YO	14.226 MHz	2400 UTC
OD5YU	14.237 MHz	2315 UTC

Seychelles (S79)

W6YA was very active in early March, signing S79YA. He should be gone by now. There are other active calls, however, from this one. Look for S79MST on 15M. He has been worked between 21.245 and 21.330 MHz after 1700 UTC.

Also reported on that band was S79MC at 1730 UTC on May 3 near 21.236 MHz.

Worked on both 20 and 10M S79J, who was quite active and was reported on 14.171 MHz at 1200 UTC and 28.535 MHz at 1645 UTC.

Dodecanese Islands (SV5)

Look for SV5TS on Rhodes if you need this one. Vasilis seems to prefer SSB and was found on 10M early in May working the east coast on 28.521 MHz after 1630 UTC. He has also been worked on 15M between 21.252 and 21.280 MHz.

Try this one after 2300 UTC.

Ivory Coast (TU)

There were at least three very active DXers on from the Ivory Coast during May. Representing CW was TU4CO, who was worked on 20, 15 and 10M. Look between 14.008 and 14.022 MHz from 0400 to 0730 UTC, 21.010 MHz at 2130 UTC and 28.020 MHz around 2100 UTC for this one. TU4CO was the only station reported on this mode.

The other two very active calls were TU2JL and TU2PA. TU2JL could be found between 14.180 and 14.222 MHz from about 0400 to 0745 UTC, where TU2PA was worked on both 15 and 10M. His latest 15M frequency was 21.298 MHz at 1415 UTC working into the midwest and on 10M he was worked in California on 28.522 MHz at 1700 UTC.

Other calls from the Ivory Coast included:

TU2BQ	14.207 MHz	0200 UTC
TU2QQ	14.222 MHz	1615 UTC
TU2TB	14.118 MHz	0330 UTC
TU2TP	14.120 MHz	0330 UTC
TU2VE	21.335 MHz	1745 UTC
TU2VE	28.460 MHz	1445 UTC
TU4DH	28.580 MHz	1215 UTC

This country was one of the several elusive Ts that was established out of the former French West Africa (FF8) back in 1960.

Turkmenistan (UH)

The only SSB activity we found for this one was RH8AJ, worked on May 9 near 21.212 MHz from 1200 to 1245 UTC. All the other reports were for CW. These calls included:

RH8AO	14.028 MHz	0045 UTC
RH8BQ	14.028 MHz	2300 UTC
UH8AAG	14.050 MHz	0145 UTC
UH8BAD	14.021 MHz	2400 UTC

RH8BQ was also worked on 15M near 21.011 MHz at 1915 UTC.

Tadzhikistan (UJ)

Not only are some of these Soviet republics hard to catch, but some of them are just as difficult to pronounce. Anyway, we have a small selection reported on both CW and SSB for May.

UJ8AH	14.019 MHz	2315 UTC
UJ8JI	14.008 MHz	0215 UTC
UJ8JHM	14.207 MHz	0015 UTC
UJ9JWI	14.244 MHz	1615 UTC
UJ8JJ	21.319 MHz	0415 UTC
UJ8JMM	21.288 MHz	0015 UTC
UJ8XDH	21.262 MHz	0300 UTC

Moldavia (UO)

Remember one season when the TV series *Dynasty* involved the little kingdom of Moldavia? I think they attempted to use a fictitious country, but what they got was the name of one of the Soviet republics. Moldavia does exist and we have some activity reported.

UO5ODA had been reported on at least three bands. On 20M he was worked in the 8th call area on 14.032 MHz around 0445 UTC on March 12. Nine days later he was reported on 21.021 MHz at 0400 UTC. On 10M he was reported working the Canadians on 28.017 MHz at 1500 UTC.

Other calls include the following:

UO4OYD	21.012 MHz	0345 UTC
UO5OAL	21.015 MHz	2345 UTC
UO5OAS	21.263 MHz	2015 UTC
UO5OKS	14.022 MHz	0215 UTC
UO5OLW	21.009 MHz	1545 UTC
UO5ONV	21.012 MHz	0430 UTC

Until a few years ago the Soviet prefixes beginning with R were usually reserved for Novice calls and found on 10M. With their recent call sign restructuring, these calls were also assigned to other licensees. RO5OC, who is one of these, was worked in eastern Canada on 10M at 1700 UTC on 28.520 MHz. No, the "two by two" would not be a Novice call.

Swing your beam toward Sakhalin Island if you wish to work this guy. Vladimir Varaksin, UA0FF, runs 200W to a 4-element Quad on 20, 15 and 10M. Vlad has been on the air since 1972, originally as RA9AGF, and is a radio engineer with the Sakhalin Shipping Company (SaSCO). *(Photo courtesy of UA0FF)*

Swaziland (3DA0)

Recently it was decided that Swaziland had to give up their 3D6 prefix as it conflicted with that of Fiji calls with the 3D2 prefix. If you check the ITU allocations, you will see that 3DA through 3DM is assigned to Swaziland and 3DN through 3DZ is assigned to Fiji. Thus, we now have the new prefix of 3DA0 for Swaziland.

The most active call from Swaziland in May was 3DA0BK, and he was very active, mostly on 10M. I worked him long path one Saturday evening on 28.490 MHz at 0515 UTC. If you need him check between 28.460 and 28.535

MHz from 1200 UTC. He is also not limited to SSB, as he was reported working CW on 21.010 and 21.026 MHz around 1330 UTC two days in a row at the end of the month. His 10M CW spot was 28.018 MHz at 1645 UTC.

Several other calls were active on 10M.

3DA0AH	28.435 MHz	1800 UTC
3DA0AW	28.470 MHz	1415 UTC
3DA0AX	28.434 MHz	1800 UTC
3DA0BJ	28.580 MHz	1515 UTC

Activity on other bands was represented by these calls:

3DA0AH	14.171 MHz	1200 UTC
3DA0AL	14.272 MHz	0630 UTC
3DA0BL	21.233 MHz	2330 UTC

Guinea (3X)

This African nation is known as the People's Revolutionary Republic of Guinea and is about 20 degrees north of Equatorial Guinea. Activity has been limited to 3X1SG, who has been sporadic. I have seen only one report for May, and that was on 21.300 MHz around 2000 UTC on the 19th.

April activity included 14.241 MHz at 0100 UTC, 21.345 MHz at 1900 UTC and 28.470 MHz at 1900 UTC.

Cyprus (5B4)

Mike Smedal, 5B4TI, along with a few others, was the most active of the 5B4 types in May. All of Mike's reports were SSB and could be found on the choice DX bands. Twenty meters put him between 14.177 and 14.185 MHz after 0130 UTC. Most of Mike's activity, however, was on 15M between 21.304 and 21.313 MHz. Try looking for him on this band around 2000 UTC, although he has been reported earlier.

On 10M 5B4TI was found at the high end of the Novice band near 28.480 MHz after 1700 UTC.

5B4OK was the sole station reported on RTTY in May. Try looking for this one between 14.085 and 14.094 MHz or 21.085 MHz after 2330 UTC.

Other activity reports from Cyprus included:

5B4ES	28.556 MHz	1415 UTC
5B4FA	14.202 MHz	0330 UTC
5B4JE	28.492 MHz	1830 UTC
5B4SA	14.207 MHz	0330 UTC

5B4TT	14.225 MHz	0315 UTC
5B4UP	21.292 MHz	0630 UTC
5B4UZ	14.218 MHz	0400 UTC
5B4WW	14.224 MHz	0400 UTC

Unfortunately, none of the above activity revealed any CW.

Guyana (8R1)

Very active the last couple of months was 8R1AH. We have seen reports for this one on 40, 20, 15, 10 and 6M. Unfortunately, according to *QRZ DX*, he will have been relocated back to Canada by the time you read this.

There were two other calls reported in May and both of them were for 10M CW. On 28.038 MHz 8R1J was reported around 1800 UTC and 8R1PK was found on 28.027 MHz at 2015 UTC. Thanks to *Inside DX* for these two reports of activity into the midwest.

Zambia (9J2)

The most active DXer in Zambia these last few years is Brian Otter, 9J2BO. Brian is a CW man, although he has been known to frequent the SSB bands.

On 20M look for Brian between 14.023 and 14.030 MHz from about 1300 UTC. He has also been reported on 15 and 10M at the same low end of the band. On SSB 9J2BO was found on 14.184, 21.160 and 21.334 MHz later in the day, around 1900 UTC.

Also active from Zambia is 9J2KF, mostly on CW. Look for this one near 14.012 MHz after 0530 and 2200 UTC. He has also made a RTTY appearance as he was worked in California on 21.095 MHz at 2000 UTC the end of April. East coast DXers worked this one on SSB on 21.215 MHz at 1730 UTC and 28.505 MHz at 2230 UTC.

Other activity was reported by the following:

9J2AL	14.013 MHz	2130 UTC
9J2BF	14.086 MHz	2200 UTC
9J2CP	21.335 MHz	1930 UTC
9J2EG	21.222 MHz	1245 UTC
9J2LG	21.152 MHz	0400 UTC
9J2AL	28.478 MHz	2000 UTC
9J2LG	28.463 MHz	1445 UTC

14 MHz Beacons

Most DXers now are probably aware of the 20M beacon system that was established by the Northern California DX Foundation on 14.100 MHz. Those DXers who were at Visalia and Dayton must have seen the Beacon exhibit set up by the NCDXC.

Presently, there are nine beacons set up around the world on this frequency: 4U1UN/B, W6WX/B, KH6O/B, JA2IGY, LU4AA, 4X6TU/B, OH2B, CT3B and ZS6DN/B. The system was created to give DXers a practical opportunity to investigate propagation. There are several additional uses for the beacons.

1. Provide frequency markers, all set on 14.100 MHz
2. Compare receivers or antennas by interchanging during single dash
3. "S" meter calibration check. The beacon power levels are attenuated in 10dB steps.
4. Time check. The first "Q" in the QST transmitted by each beacon should be within close limits of the starting time assigned to a particular beacon.

Regular reports on beacon reception are solicited from all listeners. Please send reports to Al Lotze, W6RQ, 46 Cragmont Ave., San Francisco, CA 94116.

Novice Band DX

Believe it or not there is DX activity in the 15M Novice band, and it is just ripe for the picking. To you Novices who are stuck on 10M SSB, why not try something different — and get your code speed up too so you can upgrade to a higher class license.

The DX Bulletin reports the following Novice band activity for May.

EC6OY	21.122 MHz	1900 UTC
EC8ARX	21.117 MHz	2045 UTC
HL1AHJ	21.126 MHz	1400 UTC
IS0CXF	21.138 MHz	2100 UTC
OA4AKA	21.136 MHz	2115 UTC
PJ2WOL	21.115 MHz	2115 UTC
PZ1AV	21.117 MHz	1515 UTC
SU1EE	21.143 MHz	0100 UTC
YC2DSK	21.125 MHz	1315 UTC
YC2HTO	21.142 MHz	1445 UTC
4Z9NAI	21.111 MHz	2200 UTC
5N0/KH6HSS	21.118 MHz	2115 UTC
8P6AL	21.114 MHz	1515 UTC
9H1JP	21.129 MHz	1515 UTC

Most of the above reports were submitted by a DXer from Florida and some of them were choice goodies even on the non-Novice bands. Good luck.

Conventions

The latest on the 1990 International DX Convention at Visalia is a tentative date — April 6 to 8. Hosted by the Southern California DX Club, contract negotiations have yet to be worked out. I do not know the reason for the sudden shift to an earlier date. Historically, the Visalia gathering is the weekend preceding the Dayton Hamvention.

The famous Dayton Hamvention is another source for DX gatherings with

a Friday evening DX dinner followed by hospitality suites (yes, that is plural) at the Stouffers in downtown Dayton. Once again the Kansas City DX Club will share a suite with the Southeastern DX Club. The dates for the 1990 Hamvention will be April 27 to 29, THREE weeks following Visalia.

I have not received any additional information concerning this year's Northwest DX Convention in Seattle, other than that which was printed in the May issue. Any information received now would be too late for advance registration.

Most Wanted in Japan

The Japanese DX magazine *59* has made a survey like that of *The DX Bulletin*, except it is restricted to Japanese DXers. The top 10 most needed DX countries on mixed mode, based on 453 replies, is as follows:

Rank	DXCC	Country	% Need
1.	3Y	Bouvet Island	88.52
2.	ZA	Albania	86.53
3.	7O	People's Dem Rep Yemen	84.77
4.	XZ	Burma	82.56
5.	4W	North Yemen	75.94
6.	HK0	Malpelo	75.06
7.	YA	Afghanistan	67.10
8.	VP8	South Sandwich Islands	65.34
9.	PY0	St Peter & St Paul Rocks	63.36
10.	ZS8	Marion Island	60.93

The survey also included needed countries by continent. The 10 most needed countries in North America are as follows:

Rank	DXCC	Country	% Need
1.	YV0	Aves Island	56.73
2.	CY9	Sable Island	47.02
3.	CY0	St Paul Island	43.93
4.	KP5	Desecheo Island	43.71
5.	KP1	Navassa Island	34.44
6.	KG4	Guantanamo Bay	28.04
7.	FO0	Clipperton Island	24.50
8.	XF4	Revilla Gigedo	23.40
9.	FP	St Pierra and Miquelon	22.52
10.	C6	Bahama Islands	21.63

So, if you are thinking of a place to go on a short DXpedition close to home, this can be a guide.

Antique QSL department

Barney Moffatt, W5CJZ, sent in copies of some of his old-time QSL cards. The first is for ZD2H of Lagos in


QRA: c o Posts and Telegraphs, LAGOS.

NIGERIA.

To Radio W5CJZ. Ur sigs rcvd at 0615 G.M.T. 24th June 1938

REPORT

ORG Ide. oc

RST 568.

QSB Nil.

QRM Some.

QRN Slite.

AERIAL Poor. Low

Remarks

Pse/Tnx QSL direct or via R.S.G.B. Op. Art. Tomlinson G2QN

ZD2H

TRANSMITTER

C06L6.-PA2!0.

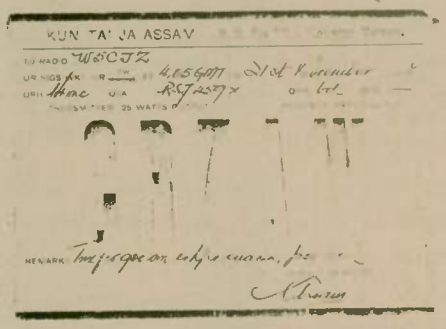
Input 50 watts

RECEIVER

Nigeria. This was the call assigned to Art Tomlinson, G2QN, who evidently worked for the local Posts and Telegraphs Office. Barney worked Art 51 years ago on June 24, 1938. The contact was 20M CW, with Barney receiving a RST of 568. I checked our latest Callbook for G2QN and found no such listing.

Here is another card from the same era. Barney worked CR7AW on Dec. 21, 1938. This call was assigned to Kun Tai Ja Assam, of Lourenco Marques in Mozambique. The card states that Assam was running 25W output and was using an old National FB7 receiver. In those days Mozambique was also known as Portuguese East Africa.

Barney comments that in those days all QSL cards were sent direct. No bureau system was in use.


KUN TA' JA ASSAV

W5CJZ

Al Lotze, W6RQ, writes to us in response to our comment in regard to wartime operation of German stations (D4VRR 1940 QSL card in the May issue).

"As I understand it, yes the Ds were on the air during WW II, and this provides the background from this present-day practice of the DLs saying 55, or 55 and 73, at the end of a QSO.

"Back in those days all QSOs were ended, as were all other conversations, with dit dit dit dit, dit dit dit dit! After the surrender, the diehards just added another dot to each character making it *55*. Now, I don't know if the DL radio operator Amateur of today might be showing neo-Nazi tendencies or if he has another idea of where the expression originated.

DX Prediction

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.

AUGUST 1989

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(21)	26	31	18	26
12	(27)	22	27	(18)	24
14	34	25	23	26	34
16	38	24	22	30	**41**
18	40	19	21	29	**46**
20	39	29	31	27	**48**
22	32	36	44	22	**47**
24	28	40	49	17	**44**
2	25	42	50	21	**36**
4	25	39	48	26	**31**
6	28	37	46	25	**27**
8	24	31	37	21	**24**

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	27	20	32	18	**23**
10	31	17	27	(18)	**26**
12	41	22	24	26	**29**
14	46	28	22	**30**	**37**
16	48	24	21	32	**43**
18	47	(19)	(20)	30	**47**
20	39	31	39	27	**49**
22	32	34	47	21	**50**
24	28	33	50	18	**41**
2	25	30	48	17	**34**
4	25	28	46	25	**29**
6	31	23	38	21	**25**

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	27	19	32	17	**24**
9	29	17	27	22	**25**
11	39	23	25	28	**28**
13	45	24	(23)	32	**37**
15	48	20	(21)	33	**42**
17	47	(17)	(20)	31	**46**
19	43	(22)	(31)	29	**48**
21	35	28	44	24	**48**
23	30	31	49	20	**45**
1	26	30	48	18	**37**
3	21	28	46	20	**31**
5	30	23	38	20	**27**

— See page 9

"Some years back, one or the other handbooks showed 55 along with 73 and 88. At that time it meant, 'may all go well with you.' Like my mother always ended telephone conversations with 'Machst Gut.'"

My curiosity got the best of me, so I had to check some of my many DL QSL cards for the 55 and I found none. I even checked my DL cards I had from the 1950s and found none. Perhaps some of our German readers would like to comment on this, expecially wartime Amateur Radio operation. With everyone else off the air, what did the German DXer do? The old saying goes: DX Is! Then it was DX Ain't!

According to the Kansas City DX Club, a selected reading for this subject is covered in *Spark Gap Transmitters and Early Wireless Gear,* by Ann Teaks.

QSL routes

A41KC	—KA1XN
C4GSA/SA	—5B4SA
CN8FC	—WA4QMQ *(See Note 1)*
CN8VE	—VE6AHT
CN8YL	—VE6AHT
CQ8UW	—WA3HUP
CR5CQK	—CT1CQK
D68TW	—K3ZO
EC9JB	—EA9IB
EK0AA	—UA3MEP
FP/K1RH	—K1RH
FR5FO	—F6AYA
FS5DX	—WB7RFA
FS5R	—W7EJ
FS5T	—AI7B
FS/N8JPH	—JA8RUZ
HG4P	—HA4ZZ
HS0E	—HS1BV
HX6JUN	—F5AM
IA8A	—IK8DOI
IJ8CS	—IK8BYM
IY0ONU	—I5KKW
J28CW	—FC1EPO
J49/DK6AS	—DJ8MT
JA1UPA/9M2	—JA1UT
JA1UT/9M2	—JA1UT
JX7DFA	—LA2KD
KC6MJ	—JF1WQC
KC6TY	—JG1RVN
KG4FB	—N0FBC
KZ5Z/DU1	—NA5U
LE1JP	—LA4DCA
LW1EZE	—LU6EF
LX150L	—LX1WH
OA9DX	—OA4ZV
OD5VT	—HB9CRV
OH2AP/ OH0M	—OH2AP
OH0BDA	—OH2BDA
OR5EEC	—Buro
P29HS	—JH5KZC *(See Note 2)*
P29SR	—WB6IOQ
P40P	—N1CIX
P40YL	—HB9CUY
RT0U/W6KG	—Yasme
S01DX	—EA3AOC
S79MC	—AK3F
S79YA	—W6YA
SI8MI	—OH2AP
SU1EK	—W2QUV
T20AA	—N4FJL
T20EE	—N6NDH
T20DA	—N6NDH
T33JS	—VK9NS
T5CT	—N4CT
TI9TEB	—TI2NEB
TL8DN	—N2AU
TL8NS	—IN3EYY
TP40CE	—F6FSQ (CW)
TP40CE	—F6FQK (SSB)
TT8CW	—F2CW
TV6GLE	—F6IPG
VK9LA	—DJ5CQ
VO4XX	—VE1MP
VP2MU	—WC0W
VP5VRS	—JR3RVO
VQ9ZZ	—W1HZZ *(See Note 3)*
XX9TUF	—CT4UE
YJ0AKS	—JA1FUI
YJ0AMI	—JL1URC
YJ0ATH	—JH8FAJ
YJ0AYS	—JA1IFP
YJ0AYT	—JG1UZD
ZK1DD	—G3MCN
ZK1XH	—JR1FYS
ZK2YY	—JH4IFF
3D2YY	—JH4IFF
3X1SG	—ON7GV
4F3BAA	—JG2PUW
4J1FS	—OH5NZ
4N7S	—YU7AKU
5B4WW	—5B4TI
5W1HC	—JH4IFF
5W1HP	—JR1FYS
5W1IB	—JH1AJT
8P6CZ	—VE2YG
8P6KZ	—VE2YG
8S0ITU	—SK0CC
9J2BO	—W6ORD
9M2AQ	—JA3ADW
9M2BZ	—JA3ADW
9M2CS	—JA3ADW
9M2SS	—JA3ADW
9M2YB	—JA3ADW
9N89ITU	—JH8GAB

BT1TUS	—P.O. Box 2654, Beijing, People's Republic of CHINA
BY5RCS	—P.O. Box 709, Fuzhou, People's Republic of CHINA
FO5KW	—P.O. Box 290, Uturoa, Radiatea, FRENCH POLYNESIA
FR5EL	—P.O. Box 87, F-97832 Le Tampon CEDEX, via FRANCE
FY4FC	—P.O. Box 6005, Cayenne, French Guiana 97306 via FRANCE
S79J	—P.O. Box 234, Victoria, Mahe, SEYCHELLES
TI9FAG	—P.O. Box 1, 1300 San Jose, COSTA RICA
TI9LCB	—P.O. Box 3843, 1000 San Jose, COSTA RICA
TI9TEB	—P.O. Box 2612, 1000 San Jose, COSTA RICA
TZ6AS	—P.O. Box 1093, Bamuko, MALI
3A/IK5DVV	—P.O. Box 511, Florence, ITALY

Notes:

1. Some sources state that this station has not been active for some years.
2. Please QSL to this manager via his bureau.
3. This route applies for the current operation of VQ9ZZ only.

Many thanks to the following contributors: NV1L, N4EVS, W5CJZ, W6RQ, WY7I, W9LNQ, KZ5Z/DU1, UA0FF, Kansas City DX Club (AB0X), Salt City DX Association (KB2G), Redwood Empire DX Association (KB2G), Southwest Ohio DX Association (N9AG), *The DX Magazine* (VP2ML), *Five Nine, Long Skip* (VE3IPR), *DX News-Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *Inside DX* (N2AU), *QRZ DX* (W5KNE) and *The DX Bulletin* (VP2ML).

Summer is here! We hope your club did well in Field Day and hope you all worked N6WR, a group of frustrated DXers trying to beat the odds. Unfortunately, this year I was on vacation and spending my 27th wedding anniversary in Seattle. June was also the 35th anniversary of my Amateur Radio career. 73 es gl DX, John N6JM. □

The 1989 Worldradio DXathon

ELIGIBILITY — All licensed Amateur Radio operators, worldwide.

DATES — Start: 0000 1 January, 1989. End: 2359 31 December, 1989.

Exceptions: No contacts made during the time frame of any DX Contest will be valid. This is to be a prestigious award program, made so by its difficulty.

BANDS — 80, 40, 20, 15, 10 meter bands, plus satellite/moonbounce frequencies.

MODES — Phone, CW, Digital (includes RTTY, AMTOR, packet), Visual (SSTV), and Satellite (includes moonbounce).

Five Bands/Five Modes equals DXathon.

CATEGORIES — There is only one category — Single Operator.

OBJECTIVE — Contact as many NATIONS on as many modes as possible. A NATION is defined as an entity with enough sovereignty to issue its own postage stamps.

VALID CONTACTS — A NATION may be worked but once, on each mode, regardless of the frequency band. This is not a five-band per mode contest.

SCORING — Final score will be the total number of NATIONS contacted on the various modes. Contact with your own NATION does not count. The highest possible score would be about 900.

SUBMISSIONS — Entries must be received by 1 February, 1990. No QSL cards need be submitted or received by the entrants. Send signed log extracts to:

WORLDRADIO
2120 - 28th Street
Sacramento, CA 95818 USA

Award winning logs will be published in **Worldradio**. Decisions of the DXathon committee will be final. The committee has the right to disqualify entries 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 DXathon Committee.

AWARDS

World Champion — The World Champion will receive a trophy significant enough to honor the effort.

Gold, Silver and Bronze Medals will be awarded for the highest scores on each continent.

Certificates will be awarded for:

A.—The highest score in each NATION.

B.—The highest score in each USA call area.

C.—The top single-band score in A. and B. above.

D.—Technician/Novice scores as warranted.

E.—High scoring 4 mode, 3 mode, 2 mode participants.

Nations with the highest participation (weighted vs. Radio Amateur population) will be honored.

In case of ties, duplicate awards will be made.

A certificate of participation will be awarded each "radio athlete."

It would be appreciated if monthly scores were sent in for publication.

RULE CHANGES — Rules may be modified over the years to reflect feedback from the participants. Please send copies of this page to your DX friends.

1989 Worldradio DXathon

Running a packet bulletin board is a time consuming project, but it's a lot of fun. Although I have had a multi-ported HF and VHF board in the past, I now keep my packet activities down to one VHF 2M regional BBS operating on 145.01 MHz.

Hank Oredson, WØRLI, the prolific author of the BBS software I run, keeps all RLI SYSOPS busy loading updated versions of his program into their BBS computers. I once put two updated versions onto the hard disk in one week! It's work, but I enjoy it.

My board, like most WØRLI operated units, runs 24 hours a day year round. My best guess is that over 10,000 messages have gone through the computer since I started it about five years ago. I have to estimate the traffic numbers, because the system has crashed a number of times and each time it happened, I started over from message number 1. Right now my message count is over 5,000, measured from the last crash.

As an aside, do you notice how time seems to pass faster and faster as you grow older? I've thought about it many times, and I think I have now figured out why that happens. As you get older, each year becomes a smaller percentage of your total life, so each year has to pass faster (don't think about that statement too long!).

To get back to the bulletin board business at hand, one of my old ham friends, Bob Lawrence, W7VFR, is a long time RTTY and a short time packet operator. Last year I visited him at his home in Pasco, WA, and since then he and I have been exchanging packetgrams almost every day. We really have given the packet traffic system a workout.

It's phenomenal how well the system has worked for us. Outside of a short time period when a mountain top digipeater was out of service, the speed and reliability of the packet network has been excellent. A recent message from Bob arrived in just over three hours. The path for that message was from Pasco to Yakima to Enemclaw in the state of Washington on VHF, then it shifted to HF for the trips to Indiana and Selkirk, Manitoba. At VE4BBS it was moved back to VHF for the final two hops to Devils Lake and Fargo, ND. The message covered all that distance in three hours plus a few minutes. Not bad, I would say.

Of course that was exceptionally fast; most messages take the better part of a day to make the trip. Nevertheless I am pleased with the way it works.

Some of the users of my BBS have been arranging schedules for contacts on HF SSB and CW by exchanging packet messages with hams in Australia. On the average the transit time for each United States to VKland and return has been about two days — one day each way. So, all in all, I can recommend the packet system for traffic handling with only a few reservations.

What's wrong with the system as it stands today? Well, the biggest problem is the casual user. In order to get the most out of the system you must have basic knowledge of the hierarchical addressing system and put it into use. I've had a couple of "loose canons" get on my BBS and try addressing messages in ways that don't work. The messages will then sit in my computer until I change each address to fit the system requirements. Then it moves out with dispatch.

Let's review some of the steps in addressing a packet message in the BBS system. First, you can either address it to the National Traffic System (NTS) or to a specific station at a bulletin board somewhere in the world. For this column we will only examine the latter.

W9ZRX supplies the BBS system with quarterly updates of active BBS call signs. They are listed by state and city. Most BBS SYSOPS keep these in a downloadable file in their computers. Although the commands may vary from board to board, these lists can be accessed by the user.

I suggest you print out the HELP file in your local board before you attempt to access any ZRX files. You will probably find instructions under the W command. In my BBS the state lists are available by typing DB CA when you see the prompt. This will download

Bob Miller, KB9SU, of Wolcottville, IN, owns a pet skunk that uses the "sniff and peck" system when working RTTY.

the California list. If you wish any other state or province, substitute the two letter postal abbreviation for the CA.

The Zip Codes are also listed in another file — mine are accessed by DZ plus the two letter state abbreviation.

Choose the call sign of the BBS closest to your traffic destination and make a note of it. Next, when you get the command prompt, type SP (S for send, P for private message), the call sign of the station to which you wish to send the message plus a @ sign and the BBS call sign. Add to that line, without spaces, the state abbreviation separated from the BBS call by a period (used as a delimiter). At this point a message heading to me would read: SP WØLHS @ WØLHS.ND. This much address will work, but there is more.

Next, the country designation and the continental designation must be added if the message is to travel outside the North American limits. My complete address for traffic sent from Australia would be: WØLHS @ WØLHS.ND.USA.NA, spaced as shown. The state, the country and the continental abbreviations are now included. A private message to Bill Bowman near Winnipeg would be sent as follows: VE4UB @ VE4BBS.MB.CAN.NA.

As you see, the country listing is three letters long while the state, province and continental codes consist of only two letters. I think it's a good idea for people using the system to put their own complete address after the signature at the end of every message. It will

(please turn to page 40)

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. Randy Smith, N4LZK, (205) 832-4598. Meets 3rd Monday/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 Friday/monthly, 7:30 p.m.

ARIZONA

Arizona Amateur Radio Club. Meets: 2nd Thursday/monthly, 7:30 p.m., 1510 E. Flower St., Phoenix, AZ. Club info on W7WGW/R 147.88/147.28 Rptr.

Old Pueblo Radio Club. Meets: 2nd Wednesday/monthly, 7:30 p.m. Location: Franklin Bldg., University of Arizona. N.E. corner of 5th St. & Park.

Tucson Repeater Assoc. P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:30 p.m., Pima Co. Communicaitons Bldg., 2545 E. Ajo. Net Thurs. 7:30 p.m. 146.28/88 (146.22/82, 147.68/08, 147.70/10-PKT).

Western Arizona Radio Club. Meets: 2nd & 4th Thur./monthly, 7:30 p.m. at Fort Mohave Mesa Fire Dept., ½ mi. East of Hwy 95 on Joy Ln., Mohave Valley, AZ. Net Tues. 7 p.m. 147.12 or call (602) 758-5171.

CALIFORNIA

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

Associated Radio Amateurs of Long Beach, W6RO. P.O. Box 7493, Long Beach, CA 90807. Meets: 1st Friday/monthly, 7:30 p.m. Signal Hill Recreation Hall, 1708 E. Hill St., Signal Hill, CA.

Butte Amateur Radio Club. Meets: 3rd Thursday/monthly, 8 p.m., Chico Community Hosp. Conf. Center on Rio Lindo off Cohasset Rd. Net: 28.330 Wednesdays, 8:30 p.m. For info: 893-5208, KE6EP or KB6COH.

California Club. Meets: 1st Mon./monthly, 8:30 a.m., State Transportation Bldg., 1120 N Street, Rm. 4123, Sacramento, CA. Info, Jim West, (916) 445-1757.

Citrus Belt Amateur Radio Club. P.O. Box 3788, San Bernardino, CA 92413-3788. Meets: 1st Fri./monthly, 7:30 p.m. at 777 E. Rialto Ave., San Bernardino.

Clairemont Repeater Assn. P.O. Box 7675, Huntington Beach, CA 92615. Meets for breakfast 3rd Sat., 8 a.m. odd months. W5YI Broadcast Sundays 2000. Net last Tuesday 2000. WB6HUU/R 145.220- 1A PL.

Contra Costa Communications Club WD6EZC/R. P.O. Box 661, San Pablo, CA 94806. Meets 2nd Sunday 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., Salvation Army, 4600 Appian Way, El Sobrante. Nets: Slow CW, Wed., 8 p.m. & SSB Net, Wed., 9 p.m., 21.395. Info, Bob Fields, KC6AOH, 415/237-3761.

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. Tues., 8 p.m. 147.495 simplex. Info, Gracie Hastings, N6FSL (714) 990-9203

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: South Valley Jr High School, 385 I.O.O.F. Ave., Gilroy. 2nd Thurs/monthly. 7:30 p.m. Talk-in 145.47/144.87.

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

Hilltop Amateur Mastertie System (HAMS). Informal mtgs. weekly/Mon. 5 p.m. at Shakey's Pizza, 12924 Washington Blvd., Mar Vista, CA. Meets 3rd Mon./monthly at Bicycle Shop Cafe, 12217 W. Wilshire Blvd., W. LA. 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 WA6UYW Rptrs. 146.085/146.685 224.22/Down 1.6 WB6ODZ Rptr.-224.58 Down 1.6 Low-Level.

Livermore Amateur Radio Club (LARK). First Presbyterian Church, 5th & L St. Bill Richards, WD6J, (415) 829-5229. Net Mondays 1900 on 147.12+. Meets 3rd Saturdays/monthly, 9:30 a.m.

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). Sunday AM Club at Red Cross, San Rafael.

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 Thurs., 7:30 p.m. 147.06+. Info, Vicki, (415) 458-4527.

North Hills Radio Club. P.O. Box 41635, Sacramento, CA 95841. 3rd Tuesday/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. (619-275-1495) So. Clairemont Recreation Center, 3605 Clairemont Dr., San Diego, CA. 1st Tuesday/monthly, 7:30 p.m. Club net each Monday, 7:00 p.m. 28.485 MHz.

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at Mercury Savings, Tustin, CA, 1095 Irvine Blvd. 2 Meter Net Wednesdays at 9 p.m. 146.550 simplex.

Radio Amateur Mobile Society. P.O. Box 214091, Sacramento, CA 95821-0091. Meets 2nd Tues./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 Tuesday/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., bsmnt., County Adm. Bldg., 4080 Lemon St., Riverside. Nets: Mon., 7:15 p.m., 222.860/224.460 and 7:30 p.m., 146.28/88; Tues.—YL Net, 7:30 p.m. 224.460. Bkfst., 3rd Sat., By You Bob's Rest., Riverside.

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.

San Fernando Area Radio Club, W6SD P.O. Box 3151, Van Nuys, CA 91401. Meets: 3rd Fri./monthly, 7 p.m., Red Cross Van Nuys, 14717 Van Nuys Blvd., Van Nuys, CA 91401.

San Gabriel Valley ARC. Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. Meets: 1st Tuesday/monthly, 7:30 p.m., except Dec. W6QFK, Repeater 147.165/765.

San Mateo Radio Club. Beresford Park Recreation Center, 28th Ave. and Alameda de las Pulgas, San Mateo, CA 94403. 3rd Friday/monthly, 7:30 p.m.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW. P.O. Box 6, San Jose, CA 95103. (408) 249-6909. Meets: 2nd Mondays/monthly, 7:30 p.m. Net other Mondays, 7:30 p.m. W6UU 146.385+/442-425+.

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 Fridays.

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 Friday/monthly at Auburn Fire Station, 226 Sacramento St., Auburn, CA. Nets 7:30 p.m. Tues. 28.443 MHz, Thurs. 145.43 MHz link with 223.86 MHz.

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

Solano County Amateur Radio Society. P.O. Box 457, Fairfield, CA 94533. Meets: 3rd Wed. 7 p.m., Vanden High School. 441.150+5 (Remote 145.69 simplex) PL 77Hz, (707) 448-1461.

Southern California DX Club. P.O. Box 56292, Sherman Oaks, CA 91413. Meets 2nd Thurs./monthly, 7:30 p.m., at Dept. of Water & Power, 111 No. Hope St., downtown Los Angeles. Weekly DX roundtable, Thurs., 7:30 p.m., 145.480- PL 100hz. DX Packet system 145.680. Info: Gary WB6PSY (818) 710-1705.

Southern California Six Meter Club. P.O. Box 448, Cypress, CA 90630. USB Net Tues., 8 p.m., 50.150 and 8:30 p.m., 28.400. FM Rpt. Net Wed., 7 p.m., 52.18/98 and Thurs., 8 p.m., 52.28/88. FM Smplx call freq. 50.300.

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.

Stockton-Delta Amateur Radio Club. Meets: 2nd Thurs./monthly 7:30 p.m., Red Cross Bldg., 747 N. Pershing, Stockton, CA (Hwy 5, Pershing off-rmp). Net 28.450 SSB 8 p.m. Wed. Visitors welcome. Club Rptr. W6SF receives 147.165 MHz.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wednesday/monthly, at the CD Hall in Weaverville, 7:30 p.m. WD6FHX Rptr. 146.13/73.

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Monday/monthly, 7:30 p.m. Pomona First Federal S&L, (basement), 399 N. Garey, Pomona, CA.

United Radio Amateur Club K6AA. L.A. Maritime Museum, Berth 84. Foot of 6th St., San Pedro, CA 90731. Meets: 3rd Friday/monthly except Dec., 8:00 p.m. Talk-in 145.655 Simplex.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets: Victor School Board Room, 6th & "A". 2nd Tuesday/monthly, 7:30 p.m. WA6EFW Rptr. 146.34/146.94.

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

Western Amateur Radio Assoc. Cerritos Park East, 166th St. and Carmenita Ave., Cerritos, CA. Meets: 1st Tuesday/monthly, 7 p.m. Rptr., N6ME 145.40/224.18 MHz.

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

Yolo Amateur Radio Society. Meets: 1st Thursday/monthly, 7:30 p.m. 1207 Sycamore Lane, Davis, CA 95616.

CONNECTICUT

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

FLORIDA

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

Platinum Coast Amateur Radio Society, Inc. (PCARS). P.O. Box 1004, Melbourne, FL 32902. Meets: American Red Cross Bldg., 1150 S. Hickory St., 2nd Monday/monthly, 7:30 p.m. Talk-in on 146.850 rptr.

Sarasota Amateur Radio Ass'n, Inc. Meets: 3rd Tues./monthly, 8 p.m. on the 6th floor (board rm.) of the County Admin. Bldg., corner of 301 & Ringling Blvd. Club Rptr. W4IE, freq. 146.91/31, open to all. Phone patch *Up #Down. Welcome.

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tuesday/monthly, 7 p.m., Melbourne Library, 2275 S. Babcock St., Melbourne, FL.

West Palm Beach Amateur Radio Club, Inc. P.O. Box 6834, Southboro Station, W. Palm Beach, FL 33405. Meets: 2nd Tues./monthly, 7:30 p.m., Palm Beach Emergency Op. Cntr., 3723 Belevedere Rd., W. Palm Beach. Info: H. Felton, 655-4632 or H. Logan, 848-0513.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tuesday/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 Sundays, 8 p.m., 147.225 MHz. KD9FA Rptr./Chicago.

Bolingbrook Amateur Radio Society. Meets: 3rd Mon./monthly, 7:30 p.m., Annerino Rec. Cntr., Recreation Dr., Bolingbrook, IL. Info net Thursdays, 8 p.m., WA9DIP/R 224.54/222.94 and WD9AKO/R 147.33/147.93.

Chicago Suburban Radio Assoc. (CSRA). P.O. Box 88, Lyons, IL 60534. 447-HAMS. Meets: 2nd Wed./monthly, 8 p.m., Clyde Bldg., 7222 W. Cermak, N. Riverside, IL. Net Mondays at 8 p.m., 147.225+ and 29.68-.

Dupage Amateur Radio Club W9DUP. Mid-America Savings & Loan, 55th & Holmes (55th St. near RT 83), Clarendon Hill, IL. 4th Monday/monthly, 7:30 p.m. Club rptr. 145.250 — 600 kHz.

Elgin Amateur Radio Society. P.O. Box 1351, Elgin, IL 60120. Meets in EOC Rm. of Elgin Municipal Bldg. 2nd Friday/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 Tuesday/monthly, 7:30 p.m.

North Shore Radio Club. Meets: 2nd Monday/monthly. Net 8 p.m. Tues. Karger Center, 1850 Green Bay, Highland Pk, IL. WB9FRM Rptr. 147.345 + 600 (PL 1B). Info: NSRC, P.O. Box 1066, Highland Pk., IL 60035.

Northwest ARC/W9LM. Meets: 2nd and 4th Tuesday/monthly, 7:00 p.m., Oehler Funeral Home downstairs community room, Lee & Perry Street, Des Plaines, Illinois.

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

Six Meter Club of Chicago K9ONA. Bank of Lyons, Lower Level, 8601 West Ogden Ave., Lyons, IL. 2nd Friday/monthly, 7:30 p.m. Club Rptrs: 146.37/.97, 448.30/444.30.

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

KENTUCKY

Kentucky Colonel Amateur Radio Club, Inc. Meets: 3rd Thurs./monthly, 7:30 p.m., mtg. rm., Greenwood Mall, Scottsville Rd., Bowling Green, KY. ARES net ea. Thurs., 7 p.m. KA4CLL/R146.850.

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)

Mt. Tom Amateur Rptr. Ass'n., Inc. P.O. Box 3494, Springfield, MA 01101-3494. Meets: 3rd Thurs. (Sept.-May), 8 p.m. Holyoke Com. College, Holyoke. 2M, 220, 440 & packet. Info net Wed., 7:30 p.m. 146.94/R. Emer. net Sun., 8:45 a.m.

MICHIGAN

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.

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 Monday/monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

South Eastern Michigan A.R.C. Meets: 1st Friday/monthly, 7:30 p.m. Grosse Pointe North High School, Bldg. C, Cafeteria Commons. For info contact: AK8I (313) 372-1252. W8FWC Rptr. 146.740/146.140.

MISSOURI

Kansas City Heart of America Radio Club. Meets: 3rd Tues./monthly. 7:30 p.m. at Red Cross Bldg., 211 West Armour Blvd., Kansas City, MO.

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

NEVADA

Frontier Amateur Radio Society (FARS). Meets: 3rd Monday/monthly, 7 p.m., Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy. Net Mondays 7:30 p.m., 145.39 rptr. on Black Mountain. Club info, Jim Frye, NW7O, 456-5396.

Las Vegas Radio Amateur Club (LVRAC). Meets: 2nd Tuesday/monthly at 7 p.m., Nevada Power Building, Wengert Rm., 6226 W. Sahara Ave. (Near Jones). Net Tuesdays 8:00 p.m. on 146.94 MHz. Info: Call Jeff at 363-9013.

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 782-8266. Meets: 2nd Tuesdays/monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.270+.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 742-0130/755-2600. 2nd Sunday/monthly, 7:00 p.m. Dover Dist. Court. Talk-in 147.57.

NEW JERSEY

Bayonne Emergency Mgt. ARC (BEMARC). 16th St. & Ave. A Firehouse, Bayonne, NJ 07002. Meets: 2nd Tues./monthly, 7:30 p.m. Rptrs: 53.09/145.430/224.280/445.575 MHz.

Delaware Valley Radio Assoc. (DVRA). Our Lady of Good Counsel Church. 137 W. Upper Ferry Rd., West Trenton, NJ 08628. Meets: 2nd Wednesday/monthly, 8:00 p.m.

Gloucester County Amateur Radio Club (GCARC). Woodbury V.F.W. 1st Wednesday/monthly, 8:00 p.m., Woodbury, NJ. Talk-in 147.18/78. For info call K2JF (609) 589-2318.

South Jersey Radio Assoc. (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remmington 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. Bill McCarren, K2LV, (914) 738-0768. Meets: 1st Monday/monthly, 8 p.m.

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

Hall of Science Amateur Radio Club. P.O. Box 131, Jamacia, NY 11415. HOSARC, 2nd Tuesday/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 – .

Orleans Amateur Radio Club (WA2DQL). Meets: Office of Disaster Prepardness (CD), West County House Rd., Albion, NY 14411, 4th Wednesday/monthly, 7:30 p.m., 147.527-WA2DQL.

PROS, Pioneer Radio Operators Society. Meets: 1st Wed/monthly (except July/Aug.), 7 p.m., Masonic Temple, Rt. 78, Java Village, NY. Other Wednesdays, 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. Nonprofit org. uses Amateur Radio to enhance education of young people, nationwide. Join us — "Classroom Net", 7.238 MHz, 7 a.m. E.S.T. PSE QSL!

Suffolk County Radio Club. 3rd Tues./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 Wednesday/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 p.m. local time. "The Alligators" — all mouth, no ears.

Raleigh Amateur Radio Society, Inc. P.O. Box 17124, Raleigh, NC 27619. Club net nightly, 8 p.m., W4DW, 04/64. Meets: 1st Wednesdays/monthly, 7:30 p.m., YMCA. 18th Annual Hamfest, April 9, 1990.

OHIO

Amateur Radio Fellowship (ARF). Keith Melvin, KA8TKE, Sec. P.O. Box 2486, Streetsboro, OH 44241. Meets: 1st Sat./monthly, Kent Wally Waffle. KA8YKT rptr. 147.675/.075.

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

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

RADIO CLUB *continued*

PENNSYLVANIA

Butler County Amateur Radio Club. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tues./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 Tuesday/monthly at 7:30 p.m. at Shenango Valley Medical Center, Farrell, PA. Net, Thursdays 8:45 p.m. on 147.75/15 W3LIF/R.

Warminster Amateur Radio Club. Meets: 1st Wednesday/monthly 8 p.m., St. John's Lutheran Church, York Rd., Hatboro, PA. Nets: WA3DFU/R info. Net Wed. 8:30, 147.09/147.69.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tuesdays, Salvation Army Community Bldg., Hampton, VA. Operates 148/13 146.13 /73 Rptr., VEC Information (804) 898-3774.

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

WEST VIRGINIA

Jackson County Amateur Radio Club. D. Geneal Bailey, NK8P, Sec.-Treas. 113 Winters Dr., Ripley, WV 25271. First National Bank of Ripley. Meets: 1st Thur./monthly, 7:30 p.m. Net Mon. 9 p.m. on 146.67/.07 WD8JNU/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tues./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thurs. 9 p.m. on 146.76/.16 W8VA/R. Info N8IKP 523-5264.

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 Tues., 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 Wednesdays.

Digital Bus

(continued from page 37)

make it easier for the receiving station to address the answer and, hopefully, it will help eliminate "loose canons" from bawling up the system with strange addresses.

Now, for the last thing in the address — the MID/BID number. Some SYSOPS advise adding the Message Identifier/Bulletin Identifier number to each private message. The BID is automatically added to bulletins. To add it to a private message simply type a $ at the end of the address, e.g.: W0LHS@W0LHS.ND.USA.NA$ (no period at end).

The W0RLI software will add a number which looks like this: 5010_W0LHS to the message. The purpose of this MID number is to keep messages from ping-ponging back and forth between any two stations. Ping-ponging results in multiple copies of a message stacking up in the system. Hank's software keeps a MID/BID file that is referred to prior to accepting the transmission of each message (or bulletin). If the number has been previously received, the message is rejected. It's the duplicate message eliminator of the RLI system, and it works.

Now that you have been shown the hierarchical system, why not give it a try. Send me a message via your local 2M BBS and I'll answer you if it gets here. Chances are it will arrive in a few days without much difficulty. But please use the full address and the MID $. The system works — try it out.

I have another thing I would like to suggest to all users of the packet system. Space out your messages; don't be afraid to put line feeds, carriage returns and empty lines in to help make them easier to read. I get messages crammed together like an old time telegram. Put some air in the text to help the addressee read his mail. It costs nothing and it enhances the message look.

Another suggestion for packet users: don't let the computer word wrap your messages. Keep the line length short by actually hitting the carriage return at the end of each line. It will prevent split words from arriving at your message destination.

If your computer will handle it, please use both lower and upper case for your traffic. I like to add a couple blank lines at the beginning and end of each message, it also helps to make messages easy to read. Packet messages don't have to look like an old time Western Union telegram with cable jargon and the letter X or the word "STOP" for periods. We got a modern system — use it that way.

Help wanted

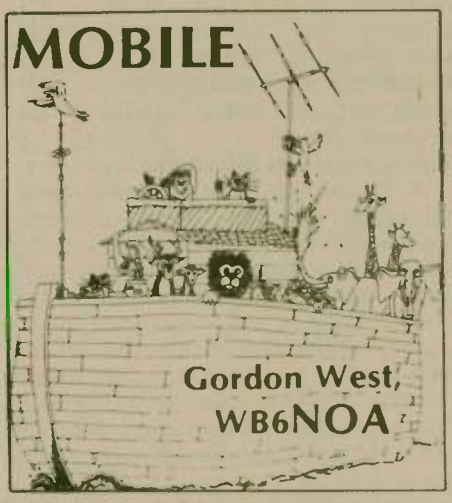
Does anyone have any information on RTTY for the blind? I am interested in obtaining sources of equipment for such an operation.

Eavesdroppings

"I WILL BE QRV TOMORROW IF THE CRICK DONT RISE...RETIRED HERE AND ENJOYING COMPUTING, LIGHT PLANE FLYING, FISHING, ASTRONOMY, BREAD BAKING AND SANDWICH MAKING...NEVER SAY ANYTHING BAD ABOUT A RTTY DXER IN A HOG PILE — HE MAY TURN OUT LATER TO BE HEAD A DXPEDITION...HOW ABOUT THE GUY WHO USED HIS COMPUTER TO DIAL THE PHONE AND THE COMPUTER GLITCHED AND DIALED 911 — HE HAD AMBULANCES, FIRE ENGINES, POLICE CARS AND A BUNCH OF MAD PEOPLE AT HIS DOOR...MY BEAM IS STUCK FACING WEST, WE'LL FIX IT ONE OF THESE YEARS.

Thanks to W0HAH, KB9SU, KD9DU and W7VFR for their help. I would also like to thank the Goose River, ND, Amateur Club for honoring me with "The Ham Who Has Contributed the Least to Amateur Radio" Award. I'll do my best to deserve it! Write me: Bill Snyder, W0LHS, 1514 S. 12th St., Fargo, ND 58103. 73 and DIT DIT. □

There was a young ham named Lamar
Who was obsessed with SWR.
He spent all his time pruning
And tweaking and tuning,
While his log lay unused in the drawer.
—Gary Meyers, K9CZB; Argonne ARC, IL □



Five hundred miles on VHF?

You can imagine the surprise last summer when WB2MGP in Staten Island worked through a Florida repeater while mobile. In Chicago repeaters in Texas were heard for three days, LOUDER than the local repeaters!

And two summers ago, in California, mobile stations driving along Pacific Coast Highway worked KH6HME mobile on the mountain slopes of Hawaii!

No, this isn't sporadic E. While sporadic E 2M contacts are indeed exciting, they are short lived — rarely lasting more than a few minutes. What's the phenomena that gives us three days of exceptional long-range base and mobile VHF and UHF contacts over hundreds of miles?

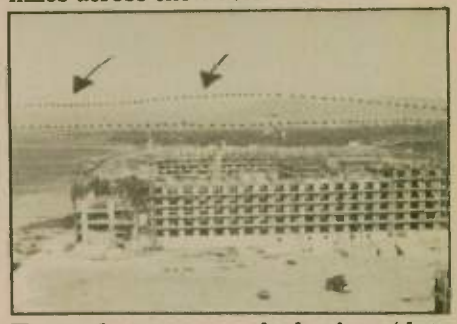
If you answered "tropospheric ducting," you are correct. "Tropo" is a common weather phenomena occurring in the spring and summer months, and it may lead to some exciting long-range contacts on 2M, 220, 450 and even 1270 MHz mobile or fixed.

A tropospheric duct is the reverse of a mirage. A mirage occurs on a hot, windless day, usually over hot asphalt, sand or long patches of cement. Superheated hot air floats just above the ground, causing the blue sky to be reflected up to someone standing or driving down the road. We are actually looking down at the road and seeing the blue sky reflected back.

In a tropospheric duct things get reversed for the same effect. Instead of looking down and seeing the blue sky, our radio waves travel up and are reflected back along the tropospheric duct until they are received hundreds, and sometimes thousands, of miles away. Radio signals between 2M to 1270 MHz are best reflected by upper elevation tropospheric ducts.

The ducts usually form at about the 1,000 ft. level, and are characterized by trapped smoggy air that appears to cut off sharply at the edge of the duct.

Our line-of-sight signals get trapped within this duct, and like a wave guide, travel on and on until they reach a distant repeater hundreds of miles away. The longest tropospheric duct known is the every-August duct that forms between California and Hawaii. The duct is triggered by warm, moist air from a spawning hurricane in Mexico forcing its way northward and overriding cool, dry air at the surface of the water, as well as cool, dry air above it. This thin layer of warm, moist air creates a temperature inversion, humidity inversion and barometric pressure inversion strong enough to create a refractive index large enough to channel VHF and UHF radio signals 2,500 miles across the water.



Tropo duct seen on the horizon (dotted lines).

The same conditions could occur along the East Coast as moist air moves in over a high pressure system. In the mid-section of the United States, cool Pacific air overrides warm Gulf air, triggering long-range tropospheric ducting conditions.

So one way to anticipate a "tropo" is to watch your daily weatherman and weather pictures on TV. Look for a stable, high-pressure mass that may soon get squeezed by an approaching weather front. Also watch the unused local TV channels for distant TV reception. If you are on an outside antenna, lower channel TV signals coming in hundreds of miles away signal hot conditions on the 2M, 220 and 450 bands. When you begin to see TV signals coming in from hundreds of miles away on channels 7 through 13, expect conditions to improve all the way up to the 1270 MHz band.

Working distant repeaters on "tropo" from your mobile or mobile marine station is easy. Try those repeater frequencies not local to your area. You don't need loads of power — usually 25W into a mobile whip will do just fine. When the tropo duct is in, higher amounts of power are not necessary. In fact I worked Hawaii on FM using just 5W of power!

If there are hills in your area, try driving up and down the hill to find the best spot for your signals to enter the

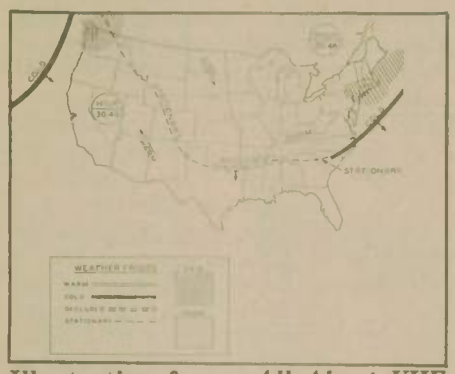


Illustration from *All About VHF Amateur Radio* by William Orr, W6SAI, available from Radio Publications Inc., 925 Sherwood Dr., Box 247, Lake Bluff, IL 60044; 312/234-6600.

tropo duct. This is usually just below the inversion layer. Where the smog and smoke is the thickest, this is the best spot. Get above the duct, and chances are your signals won't propagate beyond local range. Get into the duct, let your eyes water from the smoke, and get ready for some long-range VHF and UHF DX.

The best tropo time is right now, July and August, so start watching the TV, and see how far you can talk on your mobile VHF or UHF rig. The ducts usually last for days, so take your time and have some fun. □

Public Service

(continued from page 23)

(IL) Journal of a storm that had occurred the previous day.

The members of the Lamoine Emergency ARC, as they are during most other local weather emergencies, were ready to help in any way they could. The club has access to the Western Illinois University radar and the radar picture is retransmitted via A-5 from the club station, WB9TEA. Weather reports are given to WB9TEA and sent on to the Peoria, IL weather service. Several members of the club have even attended some storm spotter classes.

Amateurs from west central Illinois, northeast Missouri and southeast Iowa report to the club station during these times of crisis.

In the *Journal* article several incidents in which Amateurs played an integral part in reporting in the weather activity were noted. About a dozen Amateurs were involved in this particular storm system — *Information submitted by Ed Morrison, K9HLT.* □

Alabama Amateurs assist tornado victims

Members of the West Alabama ARS and the Tuscaloosa ARC didn't get much sleep the night of November 19, 1988 — that's when a line of severe thunderstorms spawned a tornado that slammed into a Tuscaloosa suburb.

Eight people were injured in the storm's attack, which came shortly before 1 a.m. on the 20th.

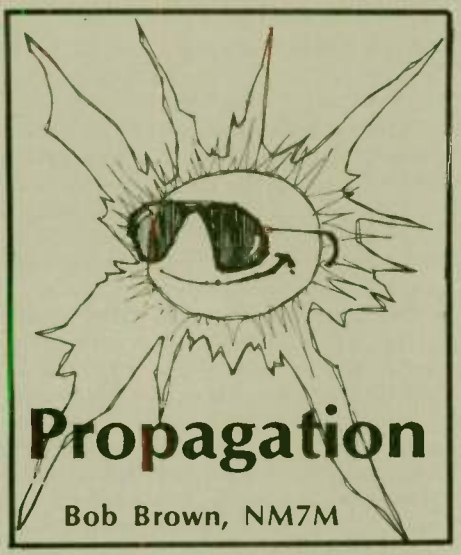
A Tuscaloosa amateur radio operator's home was among more than a dozen houses either destroyed or heavily damaged. Fellow hams worked until 3:30 a.m. helping clean up the damage caused when a large tree pierced the roof of David Parker's home. David, WA4GPX, is no stranger to severe weather — this was the second time his house has been hit by violent weather.

Thirteen WAARS members responded in 30 minutes after the Red Cross asked for help — Amateurs assisted National Guard Troops in the search for victims. They remained on duty for 16 hours straight, serving as the primary communications link between the various agencies at the scene.

WAARS members also operated phone patches for storm victims who lost telephone service. The 147.300 MHz and 146.820 repeaters were used extensively during the weekend.

The tornado's attack was a test of sorts for WAARS members. The exercise marks the first emergency for the group since it was founded in 1980. Disaster officials have a firm opinion about the Amateurs' efforts. WAARS members say Buck Medley, director of the local Red Cross, told them that he will "never go out again without (the Amateurs)"!

TARC members, meanwhile, were busy prior to the tornado's arrival by providing storm spotting services. The weekend of the 20th was one of four times in November that required activation of the West Alabama Emergency Net. — *ARRL Alabama Section News* □



Propagation

Bob Brown, NM7M

Everything considered it's fair to say that Amateur Radio operators don't approach their hobby as communications engineers. Thus, they're not known to deal with fixed paths or setting power levels and antenna gains to give signals that will override noise on a routine basis throughout a solar cycle. Instead, it might be more appropriate to say that Amateurs are like skilled technicians who get along with the HF gear in hand, making contacts over a wide range of paths and under all sorts of conditions, such as QRM, QRN and even the ravages of the Woodpecker.

But like any endeavor, in our hobby we find practitioners with varying degrees of skill or intensity, all the way from the nervous Novices to the cool contesters and DXers. Be that as it may, they all have one thing in common — the ionosphere.

Having said that, it would be a mistake to think that our fellow hobbyists approach the ionosphere in the same way. Indeed, when it comes to matters of propagation, degrees of understanding vary immensely and advantages are gained or lost accordingly. Thus, in a short time, a skilled Dxer can sit down with a receiver and know whether the bands are quiet or disturbed, whether the skip is short or long and if the DX paths are appropriate for the time of day; i.e. he can decide whether the day has any promise for DXing or not. All of that comes from experience, the DXer's background serving to provide the answers after only a bit of listening.

On the other hand our Novice would be hard pressed to come up with as good a diagnosis of band conditions in the same period. As a result a good deal of time could be spent in trying to make contacts when conditions might be marginal, at best. However, in this era of science and communication, the basis of the DXer's skills can be understood. So let's give it a try.

Leaving aside questions about disturbances, which will be dealt with at a later time, our DXer is really making judgments about two quantities, hop length and critical frequencies on a path. Both are related to basic features of the ionosphere — the height and number density of electrons in the F-layer.

Of course the DXer's approach to propagation is on the applied side, considering RF waves at oblique incidence on the ionosphere; a radio physicist would take a narrower approach, probing the ionosphere at a given location by sending RF pulses vertically upward and determining if they were returned as well as the time-delay involved. Thus, the radio scientist would use a sweep-frequency ionosonde, sending pulses upward and noting the highest frequency which is returned by the layer. This is called the critical frequency of the layer and is related to the peak electron density, while the time-delay of the echo pulse gives a measure of the height of that portion of the layer.

The actual height-distribution of electrons in the ionosphere is rather complicated, the electron density rising above 100 per cubic centimeter around the 100 km level and peaking at about 500,000 per cubic centimeter in the 300-400 km range.

Of course the electron height-profile changes with several factors; for example the density in the lower ionosphere

(the D, E and F1 regions) rises and falls by a large factor as the sun rises and sets in the course of a day. In addition there are seasonal and solar cycle changes in the electron profile. As a result the critical frequencies show corresponding changes when the ionosphere is probed from below.

There is also variability in the height of the ionospheric layers, principally the F2 layer, which is used so much for DX communication. Of particular interest is the rise in the height of the electron density peak in the F-layer with increasing solar activity; beyond that the electron density and critical frequencies increase as well as a sunspot cycle progression toward solar maximum.

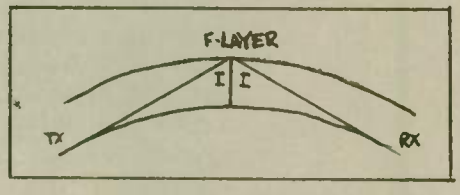
The DXers who have moved to higher bands, say 21 and 28 MHz, with the advent of Cycle 22 are benefiting from those very changes. They are essentially involved in "oblique sounding" of the ionosphere and the critical frequencies for small radiation angles from the horizon increase in proportion with those for vertical incidence.

It's always good to have a feeling for the magnitudes involved in any matter, so let me throw out some lower limits for the critical frequencies of the principal layers involved in communications work — 3 MHz, 4 MHz and about 5 MHz for the E-, F1- and F2-regions. Those numbers apply at solar minimum and at mid-latitudes. If you look into any sort of ionospheric literature, you'll see them listed as foE, foF1 and foF2, respectively. As for the changes in those frequencies with solar activity, recent experience during Cycle 19 indicates that the values of foE, foF1 and foF2 increase almost linearly by about 1, 2 and 6 MHz, respectively, as the "smoothed" sunspot number goes from 0 to 200 or the solar flux goes from 75 to 250.

In returning signals back toward the earth, the ionosphere behaves much like a mirror. In point of fact, however, the process involves a bending or refraction, as in optics, when the ray path of the radio waves is bent back toward earth in the region of high electron density. Thus, the path followed by waves which undergo refraction goes through a peak at a lower height than it would if the signal return were treated as a reflection.

The idea of a reflection process is of value, allowing one to work out the geometry of ray paths without introducing great complications. Thus, the term "virtual height" is used for the distance above the earth at which the radio wave appears to be reflected by the ionosphere. For use of that quantity in any calculations, however, the radio physicist must use ionosonde data to relate the true height of return by refraction to the virtual height that would be the case for a mirror-like reflection.

Our DXer, in carrying out his "oblique sounding," is really dealing with a curved ionosphere. When the math is worked out, the results are similar to the case of a plane geometry, the critical frequency at oblique incidence being higher than that for vertical incidence by a factor which depends on the secant of the angle I by which the RF approaches the ionosphere, as shown in the figure.



Now if, in addition to telling us how critical frequencies vary with solar activity, our radio physicist could also tell us how the height of the ionosphere changes, we could work out some interesting numbers. For example, for a specific reflection height, we could find the length of a hop for a given angle of radiation from our antenna; in addition it would be possible to find the critical frequency at that radiation angle above the horizon.

Again, to give you some numbers, consider the following example: For circumstances when the F-layer is at a virtual height of 425 km and has a critical frequency foF2 of 4.9 MHz at vertical incidence, RF waves leaving an antenna at 10 degrees above the horizon would encounter the F-layer at a 67 degree angle of incidence. The secant factor for that angle is 2.6, giving a critical frequency of 12.7 MHz and a hop length of 2,500 km.

Now, if our DXer tried to probe that ionosphere at a radiation angle of 10 degrees with RF at a frequency of 14 MHz, his hop length wouldn't be 2,500 km, but more like INFINITY! That's right, 14 MHz is above the critical frequency at that angle and the RF would just pass through the ionosphere and go on forever. On the other hand, dropping to the 7 MHz band, the RF could be returned by the F layer of the ionosphere.

Then, with the matter of reflection appearing to be satisfied, the question becomes "would his signal be heard at a distance of 2,500 km?" The reply to that is both simple and devious: "It all depends!" Let me expand on this example.

Kansas City, MO, is at a distance of about 2,500 from my QTH here in the northwest corner of Washington. In the absence of any strong disturbance, it's not hard to have a QSO with Kansas City via the F layer on the 40M band, but only after the sun has set; when the sun is up, I don't hear the folks in zero land and they don't hear me. Moreover, it's not a matter of the critical frequency of the F-layer being too low; to make a play on words, it's much "deeper" than that.

For a radiation angle of 10 degrees, the D and E layers at 100 km and below are the villains, the critical frequency of the E layer being above 7 MHz, thus cutting off the RF waves before they can ever get to the F layer. That cutoff changes the path from being one with a single F hop to one with two F hops and the two additional traversals of the D region serve to attenuate a signal to the point where it cannot be heard. So the simple example turns out to be rather complicated, with other aspects of the ionosphere showing up in our discussion.

I cannot possibly give you all the details on how the ionosphere behaves over any span of time, be it a day or a solar cycle, but a vast amount of that type of information is known and stored in the data files of the NOAA's computers, including such items as the critical frequencies of the various ionospheric layers for different locations over the earth, times of day, months of the year and sunspot numbers. Thus, with the aid of that database, it would be possible to answer questions as to whether a given path is open once the time, date and sunspot number are given. All one would have to do is locate the critical points along the path and then go to the database for the needed answers. The DXer, however, takes a more direct approach, probing for the answer by listening with a skilled ear.

Actually there is a place for both approaches, the pragmatic one when the DX is rolling in and the more technical approach when DX is expected to be there but at a future time and from a new direction. That brings us to the question of propagation prediction, and we'll get to that before too long. □

A smile is contagious

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

An invasion of 10M

A situation has developed on 10M in the New York City area that we should all be aware of. The 10M Amateur Radio band has been invaded by a group of mobile and fixed stations that operate fleets of cars in an apparent taxi service operation. These stations have "adopted" 10M as their home for this unlicensed operation, in flagrant violation of the FCC Rules.

Fleets of mobiles are operating in the Manhattan and Brooklyn areas and are being dispatched by central dispatchers who announce a location for pickup of passengers and the fare that is to be charged. Much of the conversation is in one of several foreign languages.

This illegal operation has been monitored on various frequencies between 28.000 and 28.100 and specifically on 28.265, 28.275 and 28.525 MHz. Word is that any Amateur who dares to operate on "their" frequency is harassed even to the point of threats.

This information has come to us via one of our 10-10 members, Stew Johnson, KB2GDE, 10-10 #48383, who is mounting a campaign to stop this illegal operation and flagrant violation of Federal Law.

The ARRL and the FCC have been made aware of the situation and we will follow up on this and report any additional information in future columns.

New editor for the *10-10 News*

We have a new editor for the *10-10 International News,* the quarterly magazine of 10-10. He is Frank Hicks, Jr., KF7CDE, 10-10 #46227. Frank comes to us with impressive credentials, having gained much experience as a full time free lance writer for several years, an associate editor for several trade magazines and as the president of his own publishing company. He has edited and published various newsletters and has put together bulletins and newsletters, from gathering the news items to pasting up and getting ready for the printer.

With this vast experience and some help from the membership, Frank should present us with a great quarterly *10-10 News.* Articles and pictures should be sent to Frank at 135 Star View Dr., Park City, UT 84060.

A closed mouth gathers no foot.

10-10 number 57575

The special assigned 10-10 number 57575, issued to the ARRL and station W1AW, was officially presented to Dave Sumner, K1ZZ, 10-10 #4852 and ARRL Executive Vice President. The presentation was made at the recent ARRL Diamond Jubilee National Convention in Arlington, TX, by Norm Lefcourt, W6IRT, 10-10 #14981.

After the presentation W1AW/5 began giving their 10-10 number to those they contacted on 10M. The first to receive #57575 was Ralph Samples, W5FFB, 10-10 #2947. The second station to work W1AW/5 and receive 10-10 #57575 was 10-10's President, W6IRT.

Watch for W1AW on 10M and ask for their new 10-10 number.

New address for Bars and States

Bar Manager (100-900 Bars) Wayne Childress, KJ6HP, has moved. All correspondence relative to Bars 100 through 900 should be sent to Wayne's new address: 24 Campbell Ave. RR #3, Flagstaff, AZ 86004. This new address is effective by the time you read this.

Another new address is for Susan Brackeen, KA1CAD. Susan is the Worked All States Manager and her new address is: Rt. 6 Box 151, Booneville, MS 38829. Susan can be reached at the above address effective in August.

If you have sent information to either of the two above managers at their old addresses, give extra time for their reply, as there may be a slight delay in getting returns to you.

Summer Phone QSO Party

Harry Syring, WB1PTQ, #23934, has scheduled the Summer Phone QSO Party for the weekend of Aug. 5 and 6. The contest starts at 0000Z on Aug. 5 (which is Friday night in the United States) and ends at 2400Z on Aug. 6 (which is Sunday afternoon). If you are not up on your Zulu (UTC) time, now is the time to learn the difference between it and your local time. All log entries must be in Zulu (or UTC) time.

Also, a dupe sheet is required for all logs being submitted for the contest. If you do not have a dupe sheet and need a sample with instructions, send me a SASE (#10 size) and I will send you one.

10-10 QSO parties are a great way to add 10-10 numbers to your collection. Also a good way to fill in those 10-10 states or countries needed for awards. Even if you are not interested in participating in the contest portion of the QSO Party, get on for a few hours and help those who are trying to make high scores. Details of the contest rules are listed in the Spring 1989 Issue of the *10-10 International News.*

10M DX Packet

Dan Wolff, DA1DW, 10-10 #36753, has a digipeater (packet) operating in West Germany on 28.103 MHz. It is on frequency 24 hours a day. Dan, who is KA7AGN when stateside, is at the keys normally every Sunday and calls CQ regularly.

Finally

If you have lost your 10-10 number, I can find it for you. Just send me your call, including all previously issued calls, with a SASE and you can get back into 10-10 easily. Remember once a number is issued, it is yours forever. Numbers are never reassigned.

10M is good and getting better, that's where the action is! If you would like to know more about the 10-10 organization, a request to me at 18130 Bromley St., Tarzana, CA 91356-1701, will get you all of the information you need to become a member.

That's it for this month, cu next month es 73. □

Worldwide 6M DX drops off

As we go into the Summer Es season here in the Northern Hemisphere, the F2 activity we were experiencing has, as expected, dropped dramatically, although Solar Flux levels remain fairly high. Solar information courtesy of WA5IYX.

All times UTC. May 1, Flux = 178: 1639, G4UPS heard ZS3VHF/B. 1830, LU7DZ QSOs G3JVL and G4JCC.

May 2, Flux = 181: 0800-1400, JAs into VKs. BY and UA TV also in.

May 3, Flux = 186: 1726, G4UPS heard ZS3VHF/B.

May 4, Flux = 196: 0243, W5OZI, Junction, TX, worked TI2KD!

May 5, Flux = 191: 0051-0104, a station signing ZS6NUF was worked by W5OZI. Pat figures someone was having fun with him. 1503, heard ZS3E. 1520, heard CT0WW/B. 1900-2100, PY2AMI/B and FY7/B into N4EJW. 2220, N4EJW worked VK3AMI. 2231, W5OZI worked KG4SM. 2356, N4EJW worked VK5RO.

May 6, Flux = 194: The Es opening started earlier in the day continues into the evening until 0445. W4, 5, 6, 7, 8, 0s work each other and into V31PC, YS1ECB, 8R1AH, CO2KK and LU8YYO. 8R1AH got 93 Ws during this opening. 0016, W7CI worked 3D2. 0207, W5OZI works CO2KK. 1140, G4UPS heard 9H1SIX/B. 2100, G4UPS heard 9H1BT work Gs. 2347, VK4DDG has European TV in there.

May 7, Flux = 200: 0345, W5OZI was working W6s from his Junction QTH, but they were just barely in here.

May 8, Flux = 208: 0700, VK3OT had one JA in.

May 10, Flux = 207: 1100, SV1DE into GJ4ICD.

May 11, Flux = 201: 1612, G4UPS heard ZS3E/B. 1630, heard ZS6WB, ZS6LW and ZS6BMS. 1944, 5B4CY heard.

May 12, Flux = 195: KP4s report FO5s in several times this past week. No times reported. Es still going on around here. KG6DX reports VKs the past few days.

May 13, Flux = 194: 1615, G4UPS heard ZS3E keyer. 1853, heard ZB2VHF/B. 2345, got KG6DX. YB0ARA also worked. So they have been getting some propagation there.

May 14, Flux = 190: 1231, G4UPS heard ZB2VHF/B and French stations. 1910, heard ZS3E keyer.

May 15, Flux = 192: 0725, G4UPS heard ZB2VHF/B. 0955, SM6PU. 1846, Heard ZS3E keyer and ZS3-VHF/B. 2210-2245, Spanish FM into VK2. VK3OT has ZL TV audio.

May 16, Flux = 186: 1627-1648, G4UPS heard 9H1BT work Gs. 1747, heard 9H4W work Gs. 1847, QSOs 9H25CG (9H1CG). 2355, NI6E/KH6 reports that FK8EB was hearing W5s.

May 17, Flux = 181: 0300, NI6E/KH6 reports that he and KH6FOO both worked YC0UVO. 0845, 3D2-Rotuma Island and FK8s worked by NI6E/KH6.

May 18, Flux = 183: 1005, G4UPS heard ZB2VHF/B. 1723, QSOs ZS3E. 1740, Heard CR2LN (CT1LN) work Gs. 1806, Heard LU8DIO, LU9AEA and LU8AHW.

May 19, Flux = 184: 0000 and 0300-0400, WA6BYA and others get VKs, ZK1WL, FK8 and I think also Yama, 3D2Y, Rotuma Island. I believe that Yama is scheduled to go to ZK2YY next, and possibly on to American Samoa after that. 2300-2400, NI6E/KH6 and KH6IAA work into No. and So. Carolina! KH6s have had several recent West Coast openings. NI6E/KH6 says they have been getting 5 to 6 hours per night of TE recently. He has had 60 straight days of F2 activity from his QTH!

May 20, Flux = 198: 0040, W4s in VA work CO2KK and KG4SM on Es, amongst the Es cross country QRM in the DX window. I don't know how many people missed a new country by not paying attention to what was happening in the DX window. 1343, Heard CT0WW/B. 1949, QSOs SV5TS. 2126, LUs, CX1DDO and 9Y4VU for about an hour. At 0003 he got KG4SM.

Note: At this point I lost contact with many on 28.885 due to lack of propagation at the time I arrived home from work. I have not been able to make additional contacts since, due to work commitments and lack of propagation. The remainder of this report is courtesy of G4UPS.

May 22, Flux = 199: 1705, G4UPS heard ZB2VHF/B. 1924, Heard T77C working Gs. 5B4AZ also works Gs.

May 23, Flux = 206: 1705, Heard 9H1FL.

May 25, Flux = 198: 1607, G4UPS heard ZS3E keyer. 1632, Heard ZB2VHF/B. 2105, Heard CT1DTQ.

May 26, Flux = 184: 0820-0833, G4UPS QSOs FC1MKY, F5GZ and FC1JG. 1048, Heard CT0WW/B. 1728, QSOs CT1DTQ. 1825, Heard ZB2-VHF/B.

May 27, Flux = 171: 0853, Heard SV1EO. 1543, Worked T77C. 1756, Heard SV1EN.

May 28, Flux = 169: 1140, Heard ZB2VHF/B. 1814, Heard ZS3DM. 1845, QSOs 9H1BT.

May 30, Flux = 179: 1443, G4UPS QSOs 9H25CG. 1455, Heard ZB2-VHF/B. 1524, QSOs T70A. 1527, Heard ZS3VHF/ZS3E. 1640, QSOs FC1JG. 1836, QSOs FC1HQM. 1907, Heard 9H1CG.

The smoothed flux for April was 188.9.

The DX window and repeat contacts

I cannot understand why an operator would sit on the International DX Calling Frequency (50.110) and hold long-winded QSOs with local or cross-country operators on Sporadic Es, when underneath them is some poor DX station hollering his lungs out trying to make himself heard to alert others that the band is open to him. Note that 50.110 is named the "Call-

If you are involved in any emergency communications incident, send story and photos to *Worldradio*, 2120-28th St., Sacramento, CA 95818.

ing" frequency, which means you Call on it, establish a contact and MOVE OFF OF IT! I have never heard it referred to as the QSO frequency. Why would you intentionally or unintentionally want to QRM a DX station? That station or DXpedition may have gone to great lengths and expense to get on 6M so you could work him.

I believe, for the most part, it is ignorance. Please explain to those operators in each of your areas that only DX work outside the 48 states is to take place between 50.1 and 50.125, by international agreement between the leaderships of many of the worlds 6M organizations. Local and cross-country Es work should be done above 50.125. In fact, it looks like 50.125 has now become our National Calling Frequency in many parts of this country.

If you are not looking for DX, why call in the DX part of the band? If you are just looking for locals or cross-country Es contacts, call on 50.125 and then move off it UP the band when contact is made. Agree to meet your friends on 50.125, not 50.110.

If you are working non-DX activity in the DX part of the band, please don't get angry if you are asked to move out of that part of the band. It is you who is in the wrong, not the DX or the DXer.

Speaking of the DXer, please do not make unnecessary repeat contacts with the DX just to say "Hi" and chit chat with him. You could very well prevent another operator from making that rare contact. If the DX station is not getting any contacts, it is okay to let him know he is still being heard. It is okay to pass important traffic to him if he is getting no takers, but if he is making contacts, don't barge in just to get another contact and tell him what your weather is like! Leave him alone to work as many as he can before the propagation fades.

Tidbits from Ted!

Ted Collins, G4UPS, provides the following information: There are over 1,300 G stations QRV on Six! There are over 2,040 stations active in Europe, including the cross banders. Some 1,800 are on directly on Six!

Wait until you hear F2 from Europe this Fall! As the saying goes, "You ain't heard nothin' yet!" CX1CCC beacon is QRV on 50.020, grid GF15, 5W to a GP antenna. The SV1SIX beacon is on 50.040, first heard on May 15 by ZS3E. 9L1SB, Sierra Leone, is QRV on Six, Ted says.

Watch out for Pirates — several Italian stations, with NO permits, have been on, as has SV5TS and an IR5ITU. GB3BUX beacon is on 50.000, 30W ERP to a turnstile. Signs GB3BUX IO93BF. QSL information for PE1MVJ/MM and I8/PE1MVJ/P is via PA3EUI, Peter vd Woude, Sparrendal 610, 3142LT Maassluis, Holland. SAE and IRCs please.

Who's on six!

W7KNT recently returned from Antigua, where he left V29OA geared up with a SWAN 250 donated by himself and a 5-element yagi from W7HAH. V29OA will be on during weekends and contests. QSL via W7KNT. The grid is FK97CD.

It has been relayed to me that Paraguay is on with the help of ZP6XDW, who has apparently loaned his equipment to ZP5ZR. ZP6XPW has reportedly said that he has little time to be active and ZP5ZR does. ZP6XDW has since expressed a desire to get back on and is looking for another Yaesu FT-620B. If you can help, write him at: Doug Wooley, ZP6XDW, P.O. Box 73, Caacupe, Paraguay.

ZS6MI, Marion Island, is now on 6M! He will be on 28.885 on Fridays from 1330 to 1400 to maintain a schedule. I would imagine that he will be on 50.110 on 6M. Please pass word to me if you hear or work him.

SV1DH says SV1EN, SV1OE, SV1AB and SV1UN are all on 6M now. The SV1SIX beacon is on 50.040. 5B4OG is said to be active on Six now. The QSL info for 3D2AG is: 3D2AG, P.O. Box 14633, Suva, Fiji Islands. Thanks to VK4BRG who read it off his 3D2AG QSL!

If you worked ZF2NV/ZF8 QSL to Harry Schools, KA3B, 1606 S. Newkirk St., Philadelphia, PA 19145. SASE/IRCs please.

Harry is leaving the gear (about 100 to 200W) and a 5-element yagi with Ron Sefton, ZF8AA, for his and other visiting hams use, from Little Caymen Island.

WA4VCC and KB4CSE were to go to FS-Saint Martin for the June contest. N4JQQ was to be C6-Bahamas for the contest. HR1GSK to be active this summer. QSL info is under WB5-YWU/HR, page 1426 of the Callbook. If you worked 9M2 during June or you work 9V1SEA Nov. 17 to 19, QSL to JA1UT.

I now have an answering machine on my 512/674-5781 number. You can leave me DX reports, questions and information at any time, except between 0400 and 1100 UTC, when I will be sleeping. See you on The Magic Band all of a sudden! □

Contest correction

In the *Contest* section of our June issue, we published information regarding the Smirk Party contest. We erroneously stated that all contacts between the contiguous 48 states should take place *below* 50.125. The contacts were actually supposed to be made *above* 50.125.

We apologize for any inconvenience or problems this may have caused. □

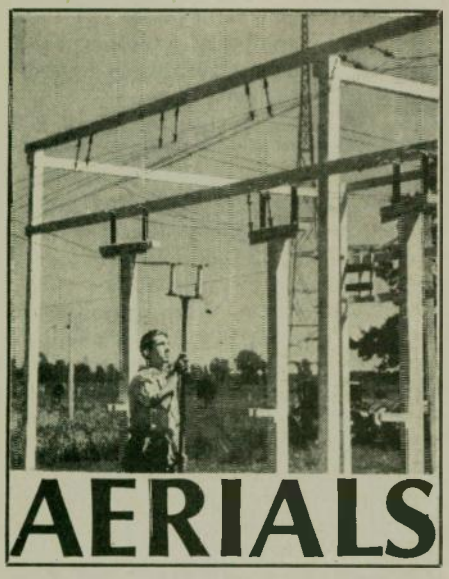
A glow worm with tendencies coarse
Used to tell shady stories 'til hoarse.
But he kept up his vice
By the clever device
Of learning to blink them in Morse.
—CHARRO, Brownsville, TX □

SMIRK/Worldradio subscription combo

The Six Meter International Radio Klub is proud to announce that members whose dues are current (check your address label) are now eligible for a combined SMIRK membership and subscription to Worldradio magazine. Here is the deal!

Send SMIRK $15 to cover both your SMIRK dues and a one-year Worldradio subscription — only single year subscriptions, please. Current Worldradio subscribers renew through SMIRK. (We are working on an automatic renewal procedure through Worldradio's computer service.) Be sure to include your name, callsign, SMIRK number, and current address. If you currently subscribe to Worldradio, please include your Worldradio subscriber number also.

Put the $3 savings in your piggy bank for that new rig!



AERIALS

KURT N. STERBA

OK, OK, I've got it figured out. They are writing that stuff and putting it into print just to see if they can get old Kurt's goat. That's the only explanation I can think of. They sit there and chortle saying, "Hah, this will really rattle his cage!"

I have to believe that such is the case, because if it isn't, it means there is an appalling lack of knowledge regarding the very basics. And I mean BASICS.

Before I launch into my message, I'll address those nice folks who write to this magazine and complain about me. They say I'm always saying everybody else is wrong. Well, the fact is, many, in a vast amount of cases, are horribly wrong. Would you rather be a victim of their foul misinformation?

To the issue at hand. I read a recent article regarding a vertical that didn't work very well, so the user was going to drive a 20 ft. copper rod into the ground.

Now, old Kurt can do one of two things — just keep his trap shut and possibly you will follow in the footsteps of the aforementioned misguided soul and waste your money and your time (would you prefer that?), or I can expose this action for the very nonsense it is and *save* you the time and the money. The choice is yours.

First: Reality. A vertical antenna (quarterwave configuration) is nothing more than a dipole. Half the dipole stands up and the other half of the dipole is lying on the ground (radials) or is (supposedly) made up of the earth itself.

Next step. A dipole has minimum voltage at the center (where it is fed) and maximum current. At each end (where you put the insulators) the current is minimum and the voltage is maximum.

How it works: At an appropriate moment frozen in time, ½ of the antenna is positive voltage and the opposite half is negative voltage. Between those far ends, across the antenna, a field is created. This is the magnetic field called radiation. A radio wave is electromagnetic radiation.

Kurt's High Chair antenna (see June issue)

As you would imagine, the shorter you make an antenna (for a given frequency), the less field is created. It is this field, going out, that moves across the receiving antenna and thus induces a current in the receiving wires. That current flow appearing across the resistance of the antenna terminals of the receiver becomes the voltage (measured in microvolts) that is amplified later and eventually gets to the loudspeaker.

OK so far? Next step. The earth is what engineers call "lossy." You may call it "slurp." Earth eats up RF at a massive rate. RF does not travel through the earth very far or very well.

So look at it this way. . .If you had a nice dipole up in the air and someone told you to dig a large hole and put half the dipole down into the ground and cover it up, you'd think he was crazy,

wouldn't you?

That's the situation presented by the 20 ft. pipe in the ground. On one cycle do you really expect the RF field to exist from the tip of your vertical and then go through 20 ft. of earth and get to the other end? On the other half of the cycle do you really expect that field to exist from the end of a pipe and come all the way up through the earth and leap to the tip of the vertical? We are talking losses of at the very least 3dB.

Do you now see how totally ridiculous all this talk about pipes in the ground really is?

Another article in the same publication talked about using a particular metal structure as an antenna. It mentioned running the center conductor of the coax to the metal and from the shield side a wire ran to a ground rod.

The only effect being obtained was by the wire itself going to the ground rod. Whatever the length was, that was the active element in all this. The ground rod and the earth, zip.

A far better approach would have been to run the wire from the shield out to a quarter-wavelength for the operating band. This would be what the old-timers called a counterpoise.

I also noticed an advertisement for a dipole that would give "amazing performance." If anyone can explain how one dipole's performance over another dipole can be "amazing," kindly write in and inform me. What that hyperbole really accomplishes is for anyone who really knows anything to be immediately "turned off." The manufacturer just lost a sale!

Also noted was a one quarterwave vertical for the 80M band that is 26 ft. long. I suppose only a real crabapple would say that a one quarterwave vertical for 3.5 MHz is 66.8 ft.

Kurt's next antenna (just kidding!)

What they really mean is they (with their traps) are presenting to the feedline the same impedance that a quarterwave vertical would. They do NOT have a 26 ft. antenna giving you the same elevation pattern of radiation that a quarterwave would, nor the gain, since gain is a function of pattern.

Also presented was a halfwave vertical for 20M that is 18 ft. tall. Spoilsport Kurt points out that a halfwave on 14 MHz is 33.4 ft.

There is no way at all, even with the chanting of the entire marketing department as they dance around that antenna, will it have the radiation pattern of a true halfwave antenna for that frequency.

All right, you may be saying (if you are one of those from whom we've received letters on the subject) "you've picked on everybody else, how 'bout Maxcom?"

So here comes the story on that. The manufacturer's claim is that the device presents a match on all Amateur band frequencies. Detractors say most of the power is lost in the device.

Both are right. The unit indeed presents low SWR to the transmitter. About 70 percent of the power is absorbed. The loss therefore is about 5dB.

For approximately a one (1) "S" unit sacrifice, an operator can indeed have one antenna (no tuner) and operate on any frequency, from 1.8 to 54 MHz.

The choice, therefore, is that of the station operator if the tradeoff is an acceptable one. While we've received many letters from detractors (none of whom have owned the unit), we've never had a negative letter from anyone using the unit.

The testing was done, at my request and Worldradio's expense, by a professional engineer using the finest test gear.

It would be appropriate if the Maxcom advertising did say that there is a loss involved in obtaining their claimed (and substantiated) results.

In next month's column I'll have an explanation on dBs, power levels and "S" units.

(KNS goes by his alias so he may stand in front of booths at Dayton, smile when he hears antenna humbug and not have the exhibitor be the wiser.) □

Join the crowd(ing)

The Southern California "DX Packet Cluster" has been forced to move frequency once again. The Packet Cluster is a part of an area wide DX spotting network designed to alert DXers to on air DX activity and propagation anomalies.

For some of the area's 2M users, the Packet Clusters were a sore spot. Some Amateurs contended that there was no room for any new activity like this in the already over utilized band.

After several months of fighting for survival, the Packet Cluster has found what appears to be an acceptable channel on 145.68 MHz and hopes to be able to retain that channel as a permanent operating base.

Currently the Packet Cluster has nodes in Sherman Oaks, Fullerton, San Diego and Long Beach, with several more planned.

A 2M radio, TNC and personal computer or terminal are all that is needed for area Amateurs to avail themselves of the Packet Cluster DX spotting service. — *Westlink Report* □

Worldradio = Information!

This is one of those columns that I truly enjoy writing. Sometimes I break from the "true QRP" format and delve into another area of interest in Amateur Radio. Digital communications is one such area that has a tremendous impact for not only the QRPer, but all radio Amateurs worldwide.

Although many of us hear about "The Good Old Days" of Amateur Radio, being part of today's ham radio hobby is the most exciting thing any active radio Amateur could ask for. No other time in the history of our hobby has there been so much cutting edge technology available to the average ham.

Today, for a cash outlay of as little as $250, anyone can purchase a multi-mode data controller which allows the user to transmit and receive: CW, Baudot and ASC II RTTY, AMTOR and HF/VHF Packet and receive WEAFAX and SSTV signals using a personal computer as a terminal. These multi-mode "smart-modems" are the result of several quantum leaps in digital technology over the last several years.

Absolutely nothing has revolutionized communications and information transfer systems like the computer. Microprocessor technology employed in the new generation of multi-mode data controllers performs all the necessary lookup and translation for the various modes. They feed the processed ASC II information from the radio to the PC (and vice versa).

At this point I suppose you're wondering what all this has to do with QRP. The image that QRP presents to the rest of the ham radio world is one of intense interest in building cute little CW transmitters, direct conversion (DC) receivers and working a lot of CW. While there is nothing wrong with this, there is absolutely no reason that an active QRPer cannot use some technology and enter the 21st century. Granted CW is a digital mode, but what is wrong with QRP RTTY, AMTOR and HF Packet?

Doing the research for this column has been enlightening, to say the least. I have read several good books on Amateur Radio digital techniques. One book stands out above the rest, and it is available (of all places) at your local Radio Shack store. *Digital Communications with Amateur Radio* is the title and it's written by K9EI. My copy is the AEA Special Edition, which was sent to me by Mike Forsyth, N7KQE, of AEA.

This book is tremendous and has everything you ever wanted to know about Amateur digital techniques. The main thrust is on packet, but all forms of digital communications is covered. There is an excellent section on digital communications techniques which explains the differences between analog and digital, synchronous and asynchronous, DTE and DCT, etc., in very clear and non-confusing language. Amateur digital communications (CW, Baudot/ASC II RTTY, AMTOR) are discussed in detail as well.

The remainder of the book is about HF and VHF Packet Radio and how to enjoy these new modes. If you are a newcomer to the ranks of Amateur Radio, or just new to the concept of digital communications, this book is MUST reading. It is available at all Radio Shack locations and via AEA, P.O. Box C-2160, Lynwood, WA 98036.

Initially this multi-part QRP Column started out as a tutorial on digital basics to be followed up by some personal experiences. However, during the interval between starting the research and drafting the first column, several things happened. First, it was decided that reviewing digital basics was a waste of time due to the proliferation of books available to the interested radio Amateur. Second, we had managed to obtain not one, not two, but THREE of the top-of-the-line Multi-Mode Data Controllers (MMDCs) from MFJ, Kantronics and AEA for product review.

Now here was a chance of a lifetime. Since we are always trying to expand horizons in this column, it was deemed a great idea to compare all three units side-by-side, listing our personal likes and dislikes about the MMDCs. This, it is hoped, will give the potential buyer a non-biased look at the various features available on each unit, leading to an intelligent purchase based upon desired applications vs. price.

First, a word about computers (PCs) and communications programs. Almost any home computer can be pressed into use as a terminal for the MMDCs discussed herein. The Commodore 64 is probably one of the most prolific in the hamshack. Tons of software exist for this workhorse. About the only serious drawback is the lack of RS-232 port for direct hookup to the MMDC. The TTL port is often used and several manufacturers do make RS-232 adapters that attach to the user port and provide true DCEL/DTE interfacing levels.

One PC that is often overlooked is the Tandy CoCo II (64K version). Not only is the CoCo a great little computer for terminal purposes, it can be quite easily converted to operate on 12VDC for emergency use. Our CoCo II sits next to the radio bench and is on 24 hours a day, 7 days a week and has yet to fail due to internal causes. With the 12VDC mod, memory is maintained even if the AC power is interrupted. This is a nice feature for those Amateurs (myself included) who do not possess a disk drive and must load our programs via cassette.

Radio Shack is now clearing out their 64K CoCo IIs at an unbelievable price of only $25. Hustle on down to your local store and ask for stock number 26-1327B.

We have tried several of the current crop of communications terminal pro-

North America is slowly sinking into the ocean. This is because of the accumulated weight of the back issues of Worldradio and *National Geographic Magazine.* —*Arrowhead RAC, Duluth, MN*

grams available for the CoCo, Commodore 64 and the IBM PC with various degrees of success and frustration. AEA offers complete software packages, including cables, for the Commodore and the IBM. Their software is for use with the PK-232 (obviously). It was found that the AEA terminal programs were a little clumsy to use and took some getting used to before a comfort level was established.

The MFJ Packet Terminal Program (PTP) that is furnished as a starter kit for those who purchase their model 1278B MMDC seems to have some unique options. As with anything else, time must be spent with the instruction manual to ensure that the user gets the maximum out of the program.

Finally, the CoCoPact (Version 5.0 for use with the cassette load port) program available from Monty W. Haley, Rt. 1 Box 150-A, Evening Shade, AR 72532, is my all time favorite. This is one of those Cinderella programs that has everything you need but is so simple to use it is amazing. CoCoPact features split screen for TX/RX, a huge buffer and all sorts of neat stuff that today's digital Amateur needs. Version 5.0 is on cassette tape, and while this may seem a bit antiquated, in the real-world of emergency/disaster communications, I would much rather rely on a robust cassette tape storage system than a fragile 5.25 inch floppy disk drive. The cost of CoCoPact: $16.95 at last look.

In trying to present the information on the MJF-1278B, AEA PK-232 and the Kantronics KAM Multi-Mode Data Controllers in a sensible manner, we decided to do a mini-product review of each unit. This would be followed, in the final installment, with a matrix comparing the features of each MMDC.

Not all MMDCs are created equal!

In doing the testing over almost four months, we found that there are some very interesting things which came to light. Several highly publicized features of one unit worked marginally, at best, leading to the obvious conclusion that if these features were dropped, the overall cost could be lowered and a much more competitive price would result.

There is no doubt that some digital Amateurs who, upon reading this series, will attempt to take me to task for condemning their pet data controller or worse, not mentioning some unique trait. Let me preface this unbiased comparison by stating that the statements contained in this series were formulated after extensive testing of all three units over the aforementioned extended period of time.

The units were production models sent from all three manufacturers, the radio used was a Ten-Tec Argonaut 509 for HF work and a Kenwood TR-2200A 2M FM radio for VHF work. Terminals used consisted of a Tandy CoCo II (64K), Commodore 64-C and an IBM PC/XT. Every attempt was made to compare "apples to apples" during the tests, thereby keeping things in perspective. It is all too easy to become overwhelmed by bells and whistles and ignore the plain vanilla features that can make or break a piece of equipment.

That's it for now. Next month we will present a mini-review of the AEA PK-232 and the MFJ 1278B MMDCs. October's column will be a review of the Kantronics KAM, matrix of features for all three MMDCs and some real world observations and personal opinions based upon actual on-the-band use of these three top contenders. 73s es Gud DX. □

It was a test, really!

On page 3 of our July issue, right above the "Table of Contents," we printed a coded message which read, "e v i r a a s v d s," which is "subscribe" upside down.

The first reader to bring this to our attention was Hobart J. Paine, K7CC. I expect his letter will be followed by a couple (?!) more from other observant readers.

I wish I could say this was a test we pulled to see how many of you are awake when you are reading **Worldradio**, but I cannot lie. It was my own gaffe, proving that I am not awake when I am putting together this magazine.

To intuit this inadvertent inversion, turn your magazine upside down. □

California

The TRI-COUNTY ARA is sponsoring Hamfest '89 from 8 a.m. to 1:30 p.m. Saturday, Aug. 19, at the Palomares Park Recreation Hall in Pomona.

Admission: $3+ donation to enter; $1 ticket.

A limited number of 2½ x 8 ft. tables are available. They must be reserved in advance with a donation of $3 per table for members or $5 for non-members. The Hall will be open at 7 a.m. for table setup only. No personal tables are allowed outside or inside the Hall.

Two of the prizes that will be offered are: 1st prize — a color TV with remote; 2nd prize — a 2M transceiver ($100 if non-ham). A VCR will be awarded before the doors open. Many other prizes will be awarded throughout the day. Winners of the above prizes need not be present to win, but for the other prizes attendance is necessary.

VE exams will be offered for a $4 donation. Check-in is at 8 a.m. and the code portion of the tests will be offered at 9 a.m. and the theory portion at 10 a.m.

For information on exams, tables or advanced registration, contact Joe Lyddon, WB6UFX, at 6879 Sard St., Alta Loma, CA 91701; 714/980-4563. □

Florida

The 1989 Greater Jacksonville Amateur Radio & Computer Show is Aug. 5 and 6 at the Prime Osborn Convention Center in Jacksonville.

Setup for exhibitors and swap area sellers will be Friday, Aug. 4, from 1 to 6 p.m. and Saturday, Aug. 5 from 7 to 9 a.m. Doors open to the general public at 9 a.m. Saturday and close at 5 p.m. Sunday hours are 9 a.m. to 3 p.m.

The convention center features easy setup and tear-down and wide aisles. A huge indoor swap area and an exhibitors section are completely air conditioned. A full slate of forums and programs is scheduled for both days. Special events include a boat-anchor auction on Sunday and the awarding of hourly prizes. Main prizes will be awarded on Sunday.

FCC exams will be administered Saturday at 1 p.m. at the site. No prior signup is required to take an exam.

Registration is $5 at the door or in advance. Swap area tables are $15 for the entire weekend ($12 for Saturday only, $6 for Sunday only). Registrations and tables may be ordered via Greater Jacksonville Hamfest Association, P.O. Box 10623, Jacksonville, FL 32207. Please include SASE.

Special booth prices are available for exhibitors. Contact Billy Williams, N4UF, at P.O. Box 9673, Jacksonville, FL 32208 for exhibitor information. Phone 904/765-3230 or 904/766-2410. □

Illinois

The 21st annual Danville Area Hamfest will be held on Aug. 27 at the UAW #579 Civic Center in Danville.

There will be a steak cookout at 6:30 p.m. at the hamfest site. VE exams will also be offered. Bring a photo ID and, if upgrading, bring your original license and a copy of it to send with the 610.

Admission is $2 per person, or 3 tickets for $5. There is a $4.75 fee for the VE exams.

Talk-in on 146.82.

Overnighters are OK, but no hook-ups are available.

For further information contact John Cunningham, WA9WJG, 1703 E. English, Danville, IL 61832; 217/443-0100.

•

The CHICAGO FM CLUB will sponsor Radio Expo '89 on Sept. 23 and 24 at the Lake County Illinois Fairgrounds in Grayslake.

Manufacturers and distributors of radio and computer technologies will display their products. VE exams will be given by DeVry, covering Novice through Extra. Indoor flea market tables and electricity are available. Overnight security is provided. Prize drawings will be held every hour during the two day event. Camping and parking are available.

Admission is $4 in advance, $5 at the door.

Talk-in on 146.16/76.

For more information contact Mike Brost, WA9FTS, P.O. Box 1532, Evanston, IL 60204. □

Indiana

The STEUBEN COUNTY RADIO AMATEURS present the 29th Annual FM Picnic and Hamfest at Crooked Lake in Angola on Sunday, Aug. 6. Admission is $3.

There will be prizes, picnic-style BBQ chicken, inside tables for exhibitors and vendors and overnight camping (fee is charged by County Park.)

Communications on 146.52 and 147.81/.21.

•

On Aug. 13 the PORTER COUNTY ARC will present the annual Northwest Indiana Hamfest and Computer Fair at the Porter County Fairgrounds and Expo Center just east of Valparaiso. Gates open to the public at 7 a.m.

Features: Walk-in VE testing (register 8 to 10 a.m.), large flea market, many commercial vendors, talk-in on 146.775/175 or 146.52 and plenty of food.

Admission is $4 at the gate, $3.50 in advance. Kids under 12 enter free.

For advance tickets and further information contact Hamfest Committee, PCARC, P.O. Box 1782, Valparaiso, IN 46384. □

Iowa

The CEDAR VALLEY ARC Inc. is sponsoring their "Summerfest 89" in Cedar Rapids at the air conditioned Teamsters Hall from 8 a.m. to 5 p.m. on Aug. 5 and from 8 a.m. to 3 p.m. on Aug. 6.

There will be Amateur Radio seminars, FCC exams (Aug. 6), a large variety of commercial vendors, a large flea market and free outside tailgating. One hotel and several motels are available within ¾ miles of the event. Saturday shoppers will be only 15 minutes from the Lindale Mall, 10 minutes from Downtown and 10 minutes from Westdale Mall.

Talk-in will be on 16/76 and 52.

Eight ft. tables are $8. Commercial price is $15 for the first table, $10 each thereafter. For information phone 319/365-8849.

Adult admission is $4. Children 12 and under enter free.

For advance registration write to Summerfest 89, Cliff Goldsberry, 2926 Shaffer Dr. SW, Cedar Rapids, IA 52404; 319/365-8849. □

Michigan

The 13th Annual Five-County Swap-n-Shop and Michigan State ARRL Convention will be held at the Saginaw Civic Center on Sunday, Aug. 27, but the fun begins Saturday, Aug. 26, at the Florentine Inn. Located across the street from the Civic Center, the Florentine is the place where Amateurs will rendezvous for a 6 p.m. social hour complete with eyeball QSOs. At 8:45 p.m., Bob Reid, W8PSD - J87BK, will talk about his experiences during the St. Vincent Volcano that took place on Good Friday of 1979. The ever popular Wouff Hong initiations will take place at 10 p.m.

Doors will open at 8 a.m., and there will be plenty of guest speakers on hand at the Civic Center, including Billy Lunt, KR1R, ARRL contest coordinator. He'll talk about, you guessed it, contesting.

Also on hand will be Kimball Williams, N8FNC, the assistant technical coordinator for the Michigan section of the ARRL. An electro-magnetic specialist, Kimball will talk about RFI and TVI, their causes and cures.

Along with the guest speakers there will also be plenty of net meetings and a major prize drawing at 2 p.m.

Tickets are $3 and tables are $15 at the door. Advance tickets are $1 and tables are $10. Advance tickets and tables may be ordered with a

SASE to Five-County Swap Committee, 1214 McKinley St., Bay City, MI 48708. All advance sales will close Aug. 14th.

Talk-in on 147.240.

For more information write P.O. Box 1783, Saginaw, MI 48605. □

Minnesota

The ST. CLOUD ARC Hamfest will be held at Whitney Senior Center in St. Cloud on Sunday, Aug. 13.

An initial ticket donation of $3 is required. Each extra ticket is $2.

Featured will be a lunch counter, prizes and talk-in on 34/94 primary and 615/015 secondary.

For more information contact SCARC, P.O. Box 141, St. Cloud, MN 56302. □

Missouri

The ST. CHARLES ARC will sponsor Hamfest '89 on Aug. 27 at Blanchette Park in St. Charles from 6:30 a.m. to 2:30 p.m.

There will be forums, family activities and license exams (10 a.m.).

Admission and parking are free. Handicapped parking will be available. A $2 per space donation is requested for the tailgate flea market.

The club will run a food concession for early morning coffee and lunch. Dealers are welcome in the air conditioned hall.

Talk-in will be on 146.07/67 and 444.65/449.65 repeaters and 146.52 simplex.

For further details contact Mike Nolan, KA0UXQ, 16 Gateswood Dr., St. Peters, MO 63376. □

New Jersey

The RAMAPO MOUNTAIN ARC is sponsoring its 13th annual Hamfest & Computer Flea Market on Saturday, Aug. 19, at the American Legion Hall and Grounds in Oakland.

Indoor and tailgate vendors may arrive at 6 a.m. Buyers may come from 8 a.m. to 1 p.m. The kitchen opens at 8 a.m.

VE exams will be offered. Registration begins at 8 a.m. and the tests begin at 9:30. There will be many door prizes and gifts.

Talk-in on WA2SNA/R; 146.49 receive/147.49 transmit; 146.52/55 simplex.

Detailed directions are on file at WA2SNA-1 PBBS. For further information contact Marc. WA2S, at WA2SNA (packet) or 201/652-1318 or 201/652-8493. □

New York

The SARATOGA COUNTY RACES ASSOCIATION INC. will present Hamfest '89 on Sept. 9 from 9 a.m. to 5 p.m. at the Saratoga County Fairgrounds in Ballston Spa.

Admission is $3 per person, which includes outside selling space. Inside space is limited. $3 per 8 ft. table each! If it rains all will move to inside buildings without tables!

Featured will be a 2M foxhunt, forums and a presentation by the Hudson Division director.

Talk-in on 147.00 (−600) and 147.24 (+600).

To register for inside tables or if you have questions, contact David Atwell, N2FEP, 911 E. High St., Lot 11, Ballston Spa, NY 12020. SASE required! □

Ohio

The UNION COUNTY ARC is sponsoring its 14th annual Marysville Hamfest, to be held on Sunday, Aug. 27, at the fairground in Marysville.

Gates will open at 6 a.m.

Free overnight camping is available. Entertainment will be provided by the "Ham Band" on Saturday night.

Admission is $3 in advance, $4 at the gate. Indoor and outdoor flea market space is available.

For further information write the Union County ARC, 13613 U.S. 36, Marysville, OH 43040; 513/644-0468. □

•

The WARREN ARA, W8VTD, is sponsoring a hamfest Sunday, Aug. 20, from 6 a.m. to 4 p.m. at the Trumbull Branch Campus of Kent State University in Warren.

Admission is $2.50 in advance, $3 at the door. Children under 12 enter free. Flea market costs are $2 per 10 ft. space.

Features will include an air conditioned indoor exhibit area, a five acre flea market on campus grounds, meeting rooms, alternate activities, food and refreshments and free parking. License exams are tentatively scheduled.

Talk-in on 146.37/97.

For information contact the Warren ARA Hamfest, P.O. Box 809, Warren, OH 44482. □

Pennsylvania

The MID-ATLANTIC ARC hamfest will take place Sunday, Aug. 13, at the Bucks County Route 611 Drive-In Theatre in Warrington.

Tailgate setup is at 7 a.m., buyers admitted at 8 a.m.

Admission is $3, tailgate spaces are $2 each.

Talk-in on 147.06/R and 146.52/S.

For further information call Al Maslin, W3DZI, at 215/446-4936; or write MARC, P.O. Box 352, Villanova, PA 19085. □

Texas

The PANHANDLE ARC is sponsoring the 15th Annual Golden Spread Hamfest on Aug. 12 and 13. This bigger and better than ever event will be held in the 26,700 square ft. air conditioned Amarillo Civic Center Exhibit Hall in association with the Amarillo Chamber of Commerce. Hours will be from 9 to 4 both days. Bring the whole family as ladies and kid's programs will be available.

Primary talk-in on the 146.67 MHz W5WX repeater and on 3933 kHz (call W5WX).

Pre-registration is $6; registration at the door is $7. Extra chances are $2; tables are $5.

For information and registration contact Golden Spread Hamfest, P.O. Box 1524, Amarillo, TX 79105-1524. □

Washington

The RADIO CLUB OF TACOMA is sponsoring the 1989 Hamfair and Northwestern Division Convention the weekend of Aug. 19 and 20. The hours Saturday are from 9 a.m. until 5 p.m. and Sunday from 9 a.m. until 1 p.m. The festivities will take place at Pacific Lutheran University in Olson Auditorium in Tacoma.

Commercial exhibit booths are $50 each. Each draped 10 x 10 ft. booth includes an 8 ft. draped display table and electricity. Multiple booths may be combined. Personnel will be available on site Friday to accept deliveries, so display/products may be shipped in advance of arrival. The Radio Club of Tacoma will provide continuous security for equipment and attendees.

Overnight accommodations are available nearby.

For more information contact Scott Bogue, KE7LE, Commercial Exhibits Chairman, 3306-A 65th Ave. Court NW, Gig Harbor, WA 98335; 206/265-6937 or Ed Campbell, WX7C, Commercial Exhibits Assistant, 4527-B Dogwood SW, Tacoma, WA 98439; 206/588-7290.

New Mexico QSO Party

Sponsor: The Albuquerque DX Association.

Eligibility: Licensed Amateurs worldwide.

Object: For New Mexico stations to work as many stations worldwide as possible and for stations outside New Mexico to work as many New Mexico stations as possible.

Contest Period: 1800Z Aug. 12 to 1800Z Aug. 13.

Entry Categories: Participants may enter in one of three categories. New Mexico portable/mobile stations are those operating away from locations that have fixed structures used for Amateur Radio communication. New Mexico fixed stations are those operating from an established Amateur Radio station. Non-New Mexico stations are those operating from outside New Mexico.

Bands: All Amateur bands except 30, 18 and 12M. Suggested frequencies are 1810, 3555, 7055, 14055, 21055 and 28055 kHz on CW; 1880, 3945, 7280, 14280, 21380 and 28480 on phone.

Modes: Phone and CW/digital. CW contacts in the CW subbands only except 160M.

Exchange: New Mexico stations send RST and county. Stations outside New Mexico send RST and state/province/country.

Scoring: a. QSO points: count 2 pts. per phone QSO and 3 pts. per CW/digital QSO. b. New Mexico station multiplier: the sum of US states, Canadian provinces and DXCC countries (KH6 and KL7 are states) worked PER BAND. c. Non-New Mexico station multiplier: the sum of New Mexico counties worked PER BAND. d. Final Score Calculation. 1. New Mexico portable/mobile stations: Score = QSO points x multiplier x number of counties operated from 2. Other stations: Score = QSO points x multiplier.

Miscellaneous: a. Stations outside New Mexico work only New Mexico stations. b. Work stations once per band/mode. No repeater, cross band or cross mode contacts. c. New Mexico portable/mobile stations may be worked once per band/mode from each different county. d. New Mexico county line contacts count as one QSO and two counties.

Reporting: a. An entry consists of a summary sheet and contest logs. Stations making 200 or more contacts must include dupe sheets. b. Entries must be postmarked no later than Sept. 30 and sent to Richard Stump, KD5VV, P.O. Box 11201, Albuquerque, NM 87192. Include a SASE for a copy of the results.

Awards: a. Certificates will be awarded to the highest scoring portable/mobile and fixed stations in each New Mexico county and the highest scoring station in each state, province and DXCC country. b. A plaque will be awarded to the highest scoring portable/mobile station in New Mexico, the highest scoring single transmitter fixed station in New Mexico and the highest scoring station outside New Mexico. □

Product Review

Pac-Comm Micro-2

RICH ARLAND, K7YHA

Once firmly established on packet radio, I decided to try some portable packet operation using my Pac-Comm TNC-220. While the 220 worked fine in a portable environment, the extremely high current draw (about 550mA) was not easy to live with when using a small 4.5 amp hour Gel-Cell battery. Obviously what was needed was a low current consumption TNC with identical command syntax structure that would lend itself to operation from a battery source for extended periods of time.

A look through the various magazines turned up only one TNC that came close to meeting my demands, the Pac-Comm Micro-2. A call to Gwyn Reedy at Pac-Comm Radio Systems in Tampa, FL, and I was the proud owner of a Micro-2 TNC.

This particular Micro-2 was an "easy kit." All the small parts were put on the board. Only the IC sockets, bypass capacitors, power switch, I/O and power connectors needed to be tacked onto the board, and the initial testing done to complete the kit.

Gwyn said this was not a regular kit offered by Pac-Comm, but an attempt to offer a limited number of easy to assemble semi-kits for Dayton. I got the last of the batch of "easy-kits" and had it running in short order. Parts quality was the usual high caliber associated with the Pac-Comm kits.

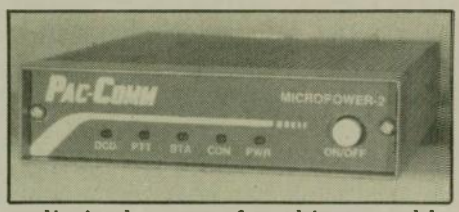
The manual accompanying the Micro-2 TNC is VERY comprehensive. A thorough discussion of the TNC and its operation dominates the booklet. There are also chapters about packet radio protocol, commands, messages, computer and radio interfacing, hardware specifications and troubleshooting. One troubleshooting command that is unique to this TNC is HEALLED ON, which causes the STA and CON LEDS on the front panel to act as

indicators as to how the CPU is working. If the two LEDs blink in a random fashion, the CPU is processing commands normally. HEALLED OFF brings the two LEDs back to their normal functions.

The little (5 X 7 X 1.5 inch) TNC is the perfect addition to my portable packet station. It draws about 40mA from my 4.5 amp/hr Gel-Cell. It's rugged, featuring single board construction, aluminum cabinet with metal end pieces and plastic end piece overlays. There are five LEDs on the front panel (these account for a good portion of the 40mA current draw) for power, DCD (data carrier detect) CON (connect) PTT (push to talk) and STA which let you monitor the status of the TNC.

You can interface your favorite computer with this little TNC, as it will accept both RS-232 and TTL serial signals. Modem bias and radio drive levels are easily adjusted via a hole in the back panel. This is a vast improvement in the method used on the TNC-200 and 220 models, where the entire board has to be removed from the case to adjust these levels. While the Micro-2 is a bit on the noisy side (RFI wise, that is) newer models have a RF choke in the power line to cut down on the amount of RFI radiated.

I have interfaced my Micro-2 with my Alinco ALX-2T micro-HT and my Tandy Model 102 lap top computer (I have included the necessary wiring configuration for the ALX-2T mic/earphone jack). The Gel-Cell and the Sovonics 2W Battery Topper furnish



unlimited power for this portable packet station.

The Micro-2 has worked flawlessly since I've had it. The entire station fits inside a mid-size briefcase padded with foam. Due to the hazards of dragging this station around in the bush, I opted for the hard sided briefcase and foam padding rather than the soft-case that Tandy sells for their Model 100/102 computers. If I had used the soft-case, I would have also had to reduce the size of the Gel-Cell and that was an unacceptable tradeoff.

Bottom line on the Pac-Comm Micro-2 TNC: Sensational value for the money. At $159.95, assembled, you simply can't beat it. It is fully TAPR-2 compatable, featuring 32 K of RAM, 32 K of ROM, a 4.9 MHz CPU, front panel status LEDs, only 40mA of current drain and very rugged construction. This is a very high quality unit that will give years of dependable performance.

If you are looking for an inexpensive TNC to include in that portable packet station you've been dreaming about, wait no longer. Contact Gwyn Reedy at Pac-Comm Radio Systems, 3652 West Cypress St., Tampa, FL 33607 and get his latest catalog and price list. Don't forget to tell him you saw it here in **Worldradio.** □

John's junkbox

JOHN FRANK, WB9TQG

Here's a nifty use for old coaxial cable that I learned from a sheet metal worker in 1976. As I am sure most hams know, coaxial cable deteriorates with age. But when it gets old and you start to lose a measurable amount of signal, don't throw it all away, save part of it to use as ground strap.

To make ground strap from the braided jacket of old coax cable, begin by removing the outer jacket from a piece approximately the length of the ground strap you need. Next, slide the center conductor and dielectric out of the braided shield. Take the resulting cylinder and carefully flatten it.

Now get your solder gun and saturate both ends of your homebrew ground strap with solder. After it cools drill a hole through it so you can bolt it to whatever you want to ground. —*Sooland ARA, Sioux City, IA* □

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

Discovery catalog

The Radio Works' 1989 discount catalog is dedicated to wire antenna and mobile enthusiasts. It is a sourcebook of wire antenna systems, components and accessories.

Inside the covers of this fun-to-read catalog are 56 pages of antenna wire, insulators, coaxial connectors, coaxial cable, surge protectors, coax switches, Dacron(r) and MilSpec support line and a wide selection of mobile antennas and mounts. There are base VHF/UHF collinears, rubber ducks, transmatches and books. CW keys and keyers from Nye, Ameco, Bencher and MFJ are a special feature.

If you need pre-built antennas B&W, Spi-Ro, Van Gorden and Alpha-Delta lines are stocked. The highlights of the catalog are the Radio Works' two new versions of the Carolina Windom(c), and a high performance, 3/2 wavelength loop called the BigSig Loop(c). Also, making their debuts are the In-TreeVert(c) (In-tree-vertical) and the 16 ft. "fit-in-anywhere" MicroDipole(c). All Radio Works' antennas are available for the new WARC bands.

The completely new SWL section features the Radio Works' new SWL antennas. Included are the BBC Windom(c), SuperLoop(c), HCJB Loop(c), the Universal(c) antenna and the Classic G5RV(c). Popular SWL products and active antennas to preselectors from other manufacturers are included.

The Radio Works' comprehensive balun line is given special attention. Select from 10 different models, ranging from the laboratory quality B4-2KX Current-type(c) balun to the RemoteBalun(c), made specifically to solve the problem of conveniently getting open-wire or ladder-line into the radio room.

The cover price of the Radio Works' 1989 catalog is $2, but to all Worldradio readers, it is FREE. Contact the Radio Works, Box 6159, Portsmouth, VA 23703; 804/484-0140. □

Crisis Communications: A Handbook For Emergency And Survival Radio Monitoring

by Mark W. Johnson, N7DYS

A tornado touches down across town. A hurricane rakes the coast. An earthquake devastates a central American capitol. Terrorists attack a nuclear arms shipment.

1,001 potential disasters threaten us everyday. *Crisis Communications: A Handbook For Emergency And Survival Radio Monitoring* is a new book designed to help the reader prepare for trouble before it happens. The book covers everything from choosing the necessary radio equipment to antenna considerations, getting set up, organizing and planning monitoring — plus tables, diagrams and appendix.

The book includes frequency listings for a wide range of agencies and groups with potential involvement in emergency communications, including the US Army and National Guard, the Corps of Engineers, US Air Force, NORAD, SAC, TAC, Civil Air Patrol, US Navy, Coast Guard, Federal Emergency Management Agency, Nuclear Regulatory Commission and numerous others.

Mark W. Johnson has been involved with communications monitoring for over 15 years and works with emergency communications on a daily basis through his job as an Advanced Emergency Medical Technician. He has written extensively on communications subjects in such publications as *Monitoring Times, Popular Communications, American Survival Guide* and the newsletter of the Radio Communications Monitoring Association, among others.

This book is available from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147.

Tuning upgrader

International Radio and Computers Inc. introduces a new product — the TS-430 Tuning Upgrader, which provides a whole new dimension of operating versatility to the TS-430!

Stock TS-430s are capable of only two manually-selected tuning speeds: 10 kHz per revolution (of the tuning knob) and 100 kHz per revolution (when the "Step" button is depressed). The Tuning Upgrader adds a new, slower, fine-tuning speed: 2.5 kHz per revolution when you turn the tuning knob slowly.

When you turn the main tuning knob faster than 8/10 turn per second (approximately), the Tuning Upgrader will automatically change the tuning rate to 10 kHz per revolution, allowing you to make moderate frequency excursions quickly. When you turn the tuning knob faster than 3 turns per second (as is the case when you give the tuning knob a firm, quick spin), the Tuning Upgrader will automatically place the radio in the 100 kHz per revolution mode and light up the "Step" LED on the front panel (just as when pressing the "Step" button), thus allowing you to QSY from one end of a band to the other in seconds!

By providing these three automatically-selected tuning speeds (never before possible),

the Tuning Upgrader will make your TS-430 a joy to operate, and it's easy to install too! Only three simple, above-board solder connections (no boards to lift) and two plug-in connections are needed. The clear instructions will show you how.

The Tuning Upgrader also operates when the "Step" button is depressed. In this mode (useful for FM and AM operation), the Tuning Upgrader will automatically select between 25 kHz per revolution and 100 kHz per revolution, with the switchover point occurring at approximately 8/10 turn per second.

This product is available exclusively from International Radio and Computers Inc., 751 S. Macedo Blvd., Port St. Lucie, FL 34983, 407/879-6868. □

Carolina Windom/2

The Carolina Windom/2(c) is a half-size 40 to 10M version of the Carolina Windom(c). It covers seven HF bands, including all of the WARC bands. Field tests and user reports confirm a significant performance improvement over dipoles, verticals and other conventional antennas. Performance equals the full-size Carolina Windom on all of the bands covered.

While the Carolina Windom/2(c) is not a Windom in the classic sense, its off-center feed system suggests the name. The secret of the Carolina Windom/2's outstanding performance is its 10 ft. vertical radiator section. It works in combination with the horizontal radiator to produce a complex combination of horizontal and vertical radiation patterns. Simultaneously, the horizontal radiator acts as a counterpoise for the vertical radiator.

Radiation takes place high in the air and efficiency is high since ground losses are completely avoided in this ground-independent design. The horizontal radiator is 66 ft. long.

The Carolina Windom/2 is conveniently fed with 50 Ohm coaxial cable. A transmatch is required on all bands. Each antenna comes assembled and is complete with a special dedicated matching unit, vertical radiator section, high power transmission "Line Isolator(c)," #14 stranded antenna wire and glass-filled insulators. The Carolina Windom package comes with CoaxSeal(r) and an illustrated manual.

For more information or a copy of the Radio Works' 56 page "Discovery" catalog, call or write the Radio Works at P.O. Box 6159, Portsmouth, VA 23703; 804/484-0140. The catalog contains a wide selection of high performance wire antennas, antenna parts and accessories, mobile antennas, coax, antenna wire, special support rope and connectors. □

Antenna parts catalog

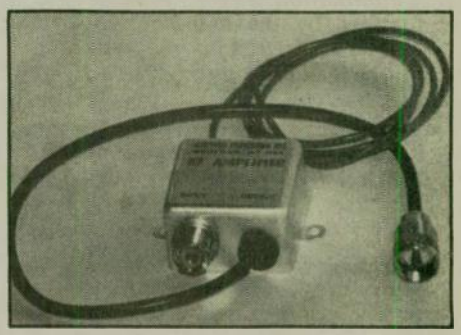
A catalog of antenna parts is being offered by RF Davis, a division of Davis Associates.

The catalog includes dipole/quad wire, ground radial wire, coax, open wire feed line, coax relays and aluminum tubing.

Also included is the #14 "Flex-Weave," which, due to its construction and number of strands (168), will carry a great deal of weight without stretching. It also will not rust out our kink like copper clad/weld or armored clad. It is so flexible that it can be tied in knots.

The catalog also includes a short section concerning vertical phased array theory with sources of information and a supplier for phased array switching.

For more information write RF Davis, P.O. Box 230, Carlisle, MA 01741; 617/369-1738. □



Improved marine range

Electron Processing announced an important addition to their expanding line of receive preamplifiers. The RFTR-M Signal Intensifier is specifically configured to improve the coverage of VHF Marine radio transceivers by amplifying the received signals to improve reception.

The RFTR-M simply installs in the antenna lead of any VHF Marine transceiver and connects to the unit's 12-volt power supply. Received signals are increased a minimum of 13dB.

By means of an internal relay, the preamp is automatically bypassed when transmitting. Insertion loss and VSWR are negligible and the unit draws only 80mA at 10-15-volts DC.

Housed in a weather resistant 2 x 2 x 1.5 inch plated metal box, the RFTR-M is designed for rugged service and exposure to the harsh environments normally encountered in marine service.

To order or for additional information, contact the Sales Department, Electron Processing Inc. at 516/764-9798; or write P.O. Box 708, Medford, NY 11763. □

THE QSL BOOK!

Continuing a 68 year tradition, we bring you three new Callbooks for 1989, 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 495,000 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 1989 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1989, 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 1989 Callbooks will be published December 1, 1988. Order early to avoid disappointment (last year's Callbooks sold out). 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, 1988
Supplement - June 1, 1989

	Including shipment to U.S.A. points	Illinois residents, incl. tax & shipping	Including shipment to foreign countries
☐ Single 1989 North American Callbook	$29.00	$30.70	$35.00
☐ Single 1989 International Callbook	32.00	33.90	38.00
☐ Single 1989 Callbook Supplement	13.00	13.65	14.00
☐ SPECIAL OFFER: Order both 1989 Callbooks at the same time for shipment to one address.	58.00	61.60	68.00

Name _____ Amount enclosed _____

Address _____

_____

radio amateur callbook
Dept W
925 Sherwood Dr., Box 247,
Lake Bluff, IL 60044, USA

Tel: (312) 234-6600

VISA MasterCard

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Greetings! **Worldradio** *will now carry the access charts for AMSAT-OSCAR-13 on a monthly basis. Thanks to everyone who wrote in to say they appreciated the information. The charts for AMSAT-OSCAR-13 apply to everyone within the populated areas of North America. Since the altitude of AMSAT-OSCAR-13 is so high, you need only to use the chart for your region of the continent to know when the satellite is within range of your location. When room permits, I will try to include additional "hints and kinks," in addition to any late breaking announcements regarding OSCAR.*

I'd like to give credit where it is due. The charts you will see each month are developed from a program that was written by John Mezak (K2RDX). John used a program called PLAN-10 (written by James R. Miller, G3RUH). In August ('88) AO-13 Command Station Graham Ratcliff, VK5AGR, was in San Francisco and brought up the subject of an access chart. John took Graham's suggestion seriously, modified Plan-10, and the result is the chart you see.

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.

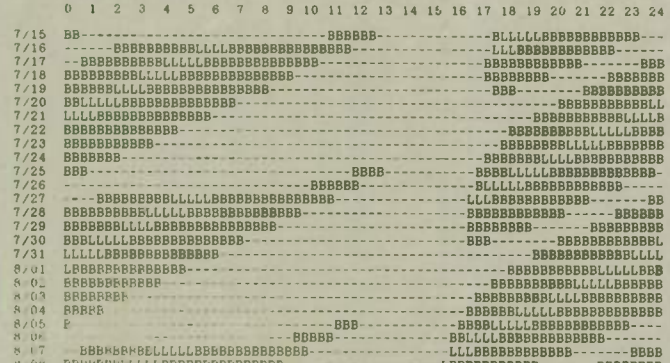
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

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).

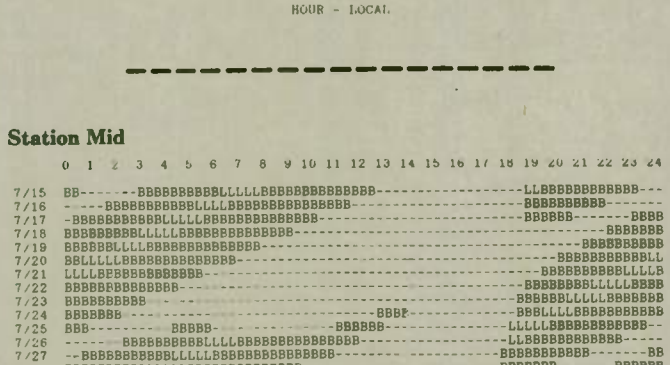
Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

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. □

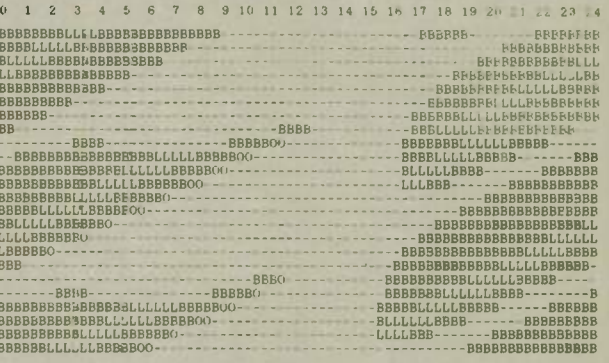
Station East



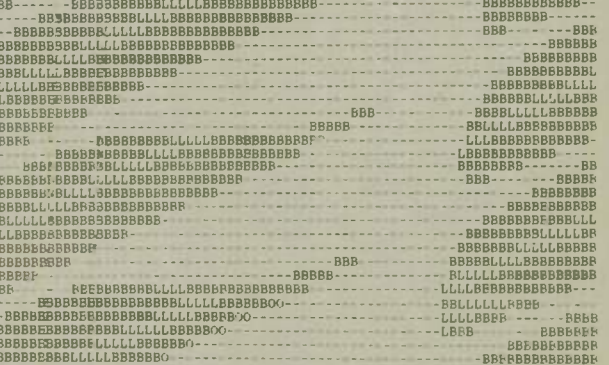
Station Mid



Station Mid



Station West



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
Arizona			
August 5	Tucson	K7OPX (602) 886-7217	w/i OK
August 19	Phoenix	Lee Pemberton (602) 431-0846	
California			
August 5	Burbank	W6JEP (805) 948-8493	w/i OK
	Concord	WW6H (408) 255-9000	w/i only
August 12	Camarillo	N6SR (805) 484-4461	p/r pref; ltd w/i
	Los Altos Hills	KG6XF (408) 255-9000	w/i
	San Pedro	N6DYZ (213) 325-2965	p/r; ltd w/i
August 13	Chico	W6YKU (916) 342-1180	p/r pref; w/i
August 16	Eureka	KB6FIW (707) 442-9245	p/r pref by 8/13
August 17	Fountain Valley	N6154 (714) 775-6095	p/r
August 19	Irvine	KD6DA (213) 691-1514	p/r pref; ltd w/i
August 20	Sunnyvale	W6NLG (408) 255-9000	w/i
August 26	Eagle Rock	KB6RXE (818) 791-1779; or AA6HE (213) 256-2904	w/i
August 31	Long Beach	KA6HOQ (714) 897-6331; or NF6X (213) 434-8278	w/i
Sept. 2	Riverside	(714) 780-2680	p/r by 8/26/89
Colorado			
August 12	Denver	W0IJR (303) 366-9689	p/r pref
August 14	Boulder	N0BWS (303) 530-1872	
August 19	Westminster	N0HNR (303) 451-1231; (303) 278-4280	p/r or w/i
Sept. 9	Pueblo	(719) 948-2291	p/r 30 days prior; w/i
Connecticut			
August 12	Stamford	W1LUN (203) 625-3680	p/r; ltd w/i
August 19	Gales Ferry	KY1F (203) 536-0187	w/i OK
Florida			
August 1	New Port Richey	AA4FG (813) 849-1224	w/i
August 12	Crestview	W4DTV (904) 678-7181	w/i
August 19	Melbourne	AA4NP (407) 768-1954; WB9IVR (407) 724-6183	w/i
	W. Palm Beach	W4SS (407) 967-1477; KG4U (407) 582-7617	w/i
Georgia			
August 12	Augusta	N4MWR (404) 863-9143	w/i
August 26	Dalton	N4BZJ (404) 673-2214; or N4OTC (404) 278-7077	no w/i; p/r 1 day prior
August 27	Atlanta	KC4MJ (404) 449-3340	w/i
Idaho			
August 12	Boise	W7JMH (208) 343-9153	
Illinois			
August 4	Springfield	Bill Bermel (217) 529-7730	
August 12	Oak Forest	KA9HDN (312) 247-0650	w/i
	Quincy	Ron Rose (217) 224-9238	
Indiana			
August 5	Ft. Wayne	Mark Bell (219) 493-8316	
	Indianapolis	KA9H (317) 241-1272	p/r
	New Castle	Peggy Coulter (317) 288-0481	
	South Bend	NI9Y (219) 255-4455	w/i OK
August 6	Terre Haute	K9EBK (812) 466-2122	p/r 30 days prior
August 19	Columbus	Richard Shelton (317) 763-6090	
	Franklin	NV9K (317) 736-6320	w/i only
	New Albany	Fred Klink 8/19/89	
August 20	Lafayette	K9DFK (317) 249-2020; or NX9Q (317) 482-1866	
Kentucky			
August 5	Middlesboro	WA4OBL (606) 337-8165; or KZ4A (615) 869-4453	w/i
Maryland			
August 5	College Park	NF3I (301) 963-4008	
August 26	Laurel	(301) 725-1212	ltd w/i
Massachusetts			
August 18	Holyoke	William C. Sample (413) 567-6061	w/i
August 19	Melrose	NC1V (617) 665-6061	w/i
August 23	Cambridge	Nick Altenbernd (617) 437-0320	2-day p/r
August 26	Wellesley	ND1Z (508) 533-6822	p/r
Michigan			
August 5	Saginaw	KO8M (517) 793-9636	w/i OK
Minnesota			
August 5	Duluth	KA0SYN (218) 879-4010	w/i
August 12	Bloomington	Emery Mehl (612) 529-6638	
Nevada			
August 5	Henderson	NK7N (702) 565-0242	w/i only
New Jersey			
August 7	Sayreville	K2FD (201) 442-9215	w/i
August 9	Fort Monmouth	K2USA (201) 532-5354	w/i
August 12	Cranford	N2XJ (201) 635-7686	w/i OK
New York			
August 27	New Babylon	KA2RGI (516) 957-5726	w/i OK
Pennsylvania			
August 5	Erie	W3CG (814) 665-9124	w/i OK
South Carolina			
August 19	Columbia	N4WR (803) 345-3373	w/i
Tennessee			
August 12	Roane County	AA4KS (615) 354-4281; or KA4AAD (615) 882-9070	w/i
August 14	Blount County	W4PCA (615) 982-5839	w/i
August 19	Knoxville	N4BAQ (615) 688-7771; or N4DF (615) 525-5923	p/r required 1 day prior
August 26	Loudon County	KE4SK (615) 458-6115	w/i
Texas			
August 5	Lubbock	KG5BL (806) 794-8317	p/r; w/i
August 6	Princeton	NW5W (214) 736-2397	w/i
August 12	Midland	KT5G (915) 694-9450	
	San Antonio	NS5I (512) 681-0702	w/i
Vermont			
August 11	Burlington	WB2JSJ (802) 879-6589	w/i only
Virginia			
August 6	Berryville	NC4B (703) 869-5241	p/r pref
August 19	Hampton Roads	N4BDH (804) 487-8611	
Washington			
August 23	Redmond	WR7V (206) 881-1088	w/i

Share your knowledge with your fellow amateur and Worldradio reader

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.

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, January through December, 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 FRAN NORRICK, WB9WPS, 4306 N. 23rd St., Waco TX 76708-1107

QSL SAMPLES — 25¢. SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239.

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92025.

POST CARD QSL KIT — Converts post cards, photos to QSLs! Stamp brings circular. K-K LABELS, P.O. Box 412, Troy, NY 12181-0412.

RTTY JOURNAL—Now in our 36th year. Read about RTTY, AMTOR, packet, MSO's, RTTY contesting, RTTY DX and much more. Year's subscription to RTTY Journal, $10.00—foreign slightly higher. Order from: RTTY JOURNAL, 9085 La Casita Ave., Fountain Valley, CA 92708.

CHASSIS & CABINET KITS, SASE, K3IWK, 5120 Harmony Grove Rd. Dover, PA 17315.

SUBSCRIBE TO THE *DXers Magazine*. Gus Browning, W4BPD, editor. Only $15.00 per year. *The DXers Magazine*, Drawer DX, Cordova, SC 29039.

QSLs. QUALITY AND FAST SERVICE FOR 30 YEARS. Include call for free decal. Samples 50¢. RAY, K7HLR, Box 331, Clearfield, UT 84015.

QSLs & RUBBER STAMPS — TOP QUALITY! States, world maps, USA, key, shuttle, globe QSLs. Report form rubber stamps. More! Samples $1.00 (refundable with order). EBBERT GRAPHICS D-1, Box 70, Westerville, OH 43081.

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.

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.

RADIO DESK CONSOLE CABINET. Build your own. Drawings, photographs, list of materials, $7.95 ppd. BILL MORRIS, WA5RSC, P.O. Box 3, Temple, TX 76503-0003.

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.

AMATEUR RADIO REPAIR — experienced licensed, reasonable. ROBERT HALL ELECTRONICS, W6BSH, P.O. Box 280363, San Francisco, CA 94128-0363. 408/729-8200.

TRANSMITTING TUBES WANTED FOR MUSEUM — Help preserve old amateur and commercial tubes for future and old time hams to see and admire. YE OLDE TRANSMITTING TUBE MUSEUM, K6DIA, P.O. Box 97, Crescent City, CA 95531.

VHF UHF SHF: Large SASE, WEST COAST VHFer, P.O. Box 685, Holbrook, AZ 86025.

STAMP COLLECTORS! Send SASE for worldwide Ham Radio stamp price list and album. WB4FDT, HAMSTAMPS, 411 South Sparta, Ruston, LA 71270.

COAX SEAL — 5 rolls $11.95 + $3.20 S&H (add tax in Arizona). Radio/computer dust covers; specify equipment. Visa/MC (add 3%). GAUTHIERS' COVERS PLUS, P.O. Box 495, Prescott, AZ 86302.

CW MENTAL-BLOCK BUSTER explodes mental blocks! Results guaranteed. $19.95 ppd U.S. Postcard for details. PASS PUBLISHING, Box 570, Stony Brook, NY 11790.

CB TO TEN MADE EASY! Conversion instructions for your rig — $15.00, or we convert — $50.00, plus crystal. For info, SASE and model number to KI6OA, 1734 Oldtree Ct, San Jose, CA 95131.

THE SPEC-COM JOURNAL is now published bi-monthly, 6 times per year. Covers fast and slow-scan TV, facsimile, RTTY, ASCII, AMTOR, Packet radio, satellites, TVRO and lasers. Articles on IBM, C64, Apple, Atari and TRS80 color computers. Software catalog available (SASE). Back/sample issues, $3.50 ppd. Large video library available. Contact: MEMBERSHIP SERVICES, P.O. Box H, Lowden, IA 52255. Annual subscriptions: USA $20, Canada/Mexico $25, foreign surface $30. MC/VISA. IA residents add 5%.

Be first to know precisely when and where to work all the choice DX. Bi-weekly LI DX BULLETIN has: Hot DX news — time and frequency of each goodie — QSL info — propagation forecast — and more . . . Send business size SASE for free sample or $16.00 for 1-year domestic subscription to:

LONG ISLAND DX BULLETIN
PO Box 173, Huntington, NY 11743

"REAL RADIOS GLOW IN THE DARK"® . . .Bumper Sticker, $1.00 each with #10 SASE. We service American-made Amateur Radio equipment circa 1940's, 50's, 60's, and 70's. Collins and Drake our specialty. Call for a quote on your service needs. CLASSIC RADIO, P.O. Box 3486, Eureka, CA 95502. 24-hr. tele: 707/444-3911. K6VHP.

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.

THE *DX MAGAZINE* is your monthly ticket to the DX game: DXpedition reports, QSL managers, propagation, equipment reviews, more. Only $15/year. Box 50-W, Fulton, CA 95439. (707) 523-1001.

RUSPRINT QSLs. Working to help you look good and log that hard earned contact. Several card themes. (Cartoon, Patriotic, Mike & Key, Contest, Others). Prices? Some low as 2.5 cents each! Quantities? Start at 100. Plastic card holders. Display 20 cards. 3 - $3.95. 4 & up $1.20 each. More information? Business SASE with 45¢ postage. RUSPRINT, Rt. 1, Box 363WR, Spring Hill, KS 66083.

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.

THE NATIONAL HAM SHOPPER "NHS" - monthly buy, sell, trade publication. Why keep that old rig around? You could turn it into cash$ or another rig you always wanted. Ads are quickly advertised and answered for fast results. As a new subscriber you can place one free ad (with a 60-word limit). Ad Rate: Noncommercial .25/word; Commercial .60/word. Subscription: $10.00/year, $20.00/2 years. Send to: NHS, P.O. Box 10738, Elmwood, CT 06110.

G5RV ANTENNA KIT only $29.95 + S.H. Plus much more! Catalog available, .45¢ postage appreciated. Kilo-Tec, P.O. Box 1001, Oak View, CA 93022 or call 805/646-9645 to Order!

FLOOD YOUR MAILBOX! You get 100's of radio & electronic & computer catalogs. Send $10 with your name & address to: ELECTRONIC LIST SERVICE, P.O. Box 1683, Brookline, MA 02146.

14-KARAT GOLD CALLSIGN JEWELRY. Lapel pins, necklaces, more. Information: KB2MB, H&M JEWELRY, 26 Edgecomb, Binghamton, NY 13905-4017.

ICOM, KENWOOD & YAESU OWNERS: 8-Pole & 10-Pole Crystal Filters & monthly informative individual Newsletters! Our 10th year! Ask yourself these questions: Are you continually being interfered with during QSO? You can't seem to pull out a weak signal in the QRM? Yes, to either, purchase our SSB or CW filters! Send .45 SASE for free catalog. INTERNATIONAL RADIO & COMPUTERS, INC., 751 SW Macedo Blvd., Port St. Lucie, FL 34983. 1-407/879-6868.

More MART

HAMS FOR ACCORDIANS newsletter. Sample/sub. info. W6JIP, 4475 Landis, San Diego, CA 92105.

BEAM HEADINGS — YOUR QTH. Unfolded NLQ printout. $9.95. W8JBU, Box 397W, Hinckley, OH 44233.

STAINLESS STEEL TURNBUCKLES, U-bolts, eye bolts, screws, bolts. Small quantities, free catalog. ELWICK, Dept. 745, 230 Woods Lane, Somerdale, NJ 08083.

10 METER EXTENDED double Zepp antennas. High performance. 3dB gain over a dipole. No tuner needed! $75.00 postpaid. SASE for information JACK SCHINDLER, N8FNR, 413 Vester, Ferndale, MI 48220-1955. 313/541-1740.

QSL CARDS — Look good with top quality printing. Choose standard designs or fully customized cards. Better cards mean more returns to you. Free brochure, samples. Stamps appreciated. CHESTER QSL's, 310 Commercial, Dept. D, Emporia, KS 66801.

"PACIFICON '89": Save the weekend of October 6-8 for attending the ARRL PACIFIC DIVISION CONVENTION at the LE BARON HOTEL in SAN JOSE, CA. Expanded exhibit area, increased session seating, spouse activities, youth forum, fox hunt, and MORE. For details write: PACIFICON, 481 Fenley Ave., San Jose, CA 95117 or see our AD in close-to-date issues of **Worldradio.**

LASER COMPONENTS! Surplus tubes, power supplies, optics. Build a working LASER for under $75.00. Free plans with order. $1.00 (refundable) brings list. FUNDSERV, 1546B Peaceful Lane, Clearwater, FL 34616.

NICAD BATTERY PACS. 500mA - 2000mA for Kenwood, ICOM, Yaesu. Gordon West theory tapes. FLORIDA NICAD SPECIALTIES, 1-800/666-4223, 813/629-0890.

SUPERFAST MORSE CODE SUPEREASY. Subliminal cassette. $10. Learn Morse Code in 1 hour. Amazing new supereasy technique. $10. Both $17. Money back guarantee. Free catalog: SASE. BAHR, 2535-F8 Citrus, Palmbay, FL 32905.

WANTED: OLD AMPEX control unit used in cabinet with 6 pair of push buttons on top for AM & FM, phono, reel tape player. Connections underneath for wire connections & power outlets. About 15"x7"x4" in size. KEN McELMURRY, KB6TQE, 98 N. Forest Rd., Sonora, CA 95370 209/532-1666.

ROSS' $$$$ USED AUGUST SPECIALS: Kenwood TS-530S — $619.90, R-300 — $189.90, T-599D & R-599D — $509.90; ICOM IC-211 — $389.90, IC-271H — $689.90, IC-245SSB — $249.90, IC-255A — $179.90, RM-2 AS IS — $29.90; KAYPRO 10 10, MEG. — $999.90, KAYPRO-2 — $499.90; Collins KWM-380 3 filters NB.SP. — $1995.90, ETO 76A — $1299.90, 374A — $1795.90; Robot 400 — $319.90. Looking for something not listed?? Call or write, we have over 235 used items in stock. 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, P.O. Box 234, Preston, ID 83263. 208/852-0830. FAX #208/852-0833.

KENWOOD TS-530S transceiver CW filter. Good contition, $450. W6PJO, 707/485-7722.

HF MOBILE antennas, installations, tuners. 100+ page book "40 Years of HF Mobileering." 2nd edition, 3rd printing, $11.00 postpaid U.S. DON JOHNSON, W6AAQ, Box 595, Esparto, CA 95627.

CAPS, T-SHIRTS, with your name & call. Discount $2.00 with this ad. Caps - $7.95, red, blue, gold. T-Shirts, s, m, l, xl, white, yellow, lt. blue, aqua, $9.95 + $2.50 S&H. Check/MO to: PERSONAL IMPRESSIONS, P.O. Box 591, Hollister, MO 65672.

MANUALS for most hamgear made 1935/1970, plus Kenwood. No quotes. Our current catalog "J", at $1.00, required to order. Over 2,000 models HI-MANUALS, Box W-802, Council Bluffs, IA 51502.

ESTATE SALE: Beautiful hilltop cedar home, 8 acres timberland near Hot Springs National Park, AR. Five steel towers installed. Two 100 ft. with 10M & 20M beams. 1000 ft. open wire W8JK. Excellent DX location. Near lake & beaches. More info call or write Marvin Poe, Century 21, 4915 Central Avenue, Hot Springs, AR 71913, Bus. 501/525-3256, Res. 501/767-3766. $85,000 with owner financing.

HAM SOFTWARE IBM/compatibles 10 disks ham radio software, $26.95. Packet, formulas, antenna calculations, Morse Code, more. 10 disks $26.95 MC/VISA/Discover. de/N5ABV, EAPCO, Box 14, Keller, TX 76248-0014. 817/498-4242.

HAM LAB PROJECT. Want several pieces HP G-382A variable attenuator. Will consider any repairable condition. K6GOX, P.O. Box 10, O'Neals, CA 93645, (209) 868-3548 collect.

WANTED: METER FOR SWAN 350. 0-800 on bottom. R. MOLLENTINE, WAØKKC, 7139 Hardy, Overland Park, KS 66204.

ELECTRIC RADIO MAGAZINE: For those who appreciate vintage Amateur Radio gear and the golden years. Stories/articles on AM operation, collecting, homebrewing, repair and restoration. Large classified section. Write or call for free copy: E.R., Box 139, Durango, CO 81302. 303/247-4935.

HELP!! NEED MANUAL/MANUALS that came with the Dentron GLA1000B amplifier or copies of them. Will pay for manuals and shipping. LEROY THOMPSON, KE7LD, Rt. 2, Box 784-23, Safford, AZ 85546.

WANTED: Kenwood TS-130SE. JIM PITTARELLI, WA2Y, 153-17 78th Street, Howard Beach, NY 11414.

CALL SIGN BELT BUCKLES — Solid 100% USA brass. Send call and total remittance of $11.99 to H. Hornsby, N6MRG, Attn: WRBB, Rt. 1 Box 211, Lake Isabella, CA 93240. Write for price on any special buckle engraving, I can do it!

Make Your Own 3D QSL's
with a Nishika 3D camera. Take 3-dimensional photographs using standard 35 mm film. Use 3D photo of your station as a unique QSL card. Send $1 (refundable with order) for sample photo & brochure to
Kenneth J. Heine, W7VZS
3313 El Camino Real
Las Vegas, NV 89121.
Distributors needed.

KENWOOD OWNERS: Increase the bandspread of your TS-940, TS-930, TS-440 or TS-430! Our Tuning Upgrader adds a new, slower 2.5 kHz/Revolution (¼ speed) fine-tuning rate & automatically selects higher-speed tuning rates when you tune faster, for quick QSY. Easy to install! $34.95; TS-940 Owners: Bank Controllers I & II allow front panel memory bank control, (using voice button) eliminating need to go to top to slide open hatch each time to change memory bank. #II also permits voice frequency announcement. #I = $24.95, #II = $49.95, $5.00 S/H USA, $13.00 elsewhere. INTERNATIONAL RADIO & COMPUTERS, INC., 751 SW Macedo Blvd., Port St. Lucie, FL 34983. Send .45 SASE for catalog. 1-407/879-6868.

POLICE/FIREFIGHTER HAMS — Please send your call, name, address, rank, department name for inclusion in special roster, available late 1989. CAPT. BOB BLAKESLEE, N2IHQ, 1½ Macomber Ave., Binghamton, NY 13901.

FOR SALE — all only two months old and in mint condition: ICOM 3200A (with service manual), Kantronics KPC-4 (with latest firmware), Astron 20A, Comet 2M/440 antenna, 40' coax, and other goodies. $660 (firm) — will send COD. RICHARD, WF7A, in Callbook.

HEAVY DUTY APEX SCREWDRIVING BITS. Phillips, Torx, Slotted, Square Tip, Triwing, much more! 1", 2", 3½", 6" lengths in stock. Made in USA. Precision machined, heat treated tool steel. Free nationwide delivery. Inquire today. DON SHOCKEY COMPANY, Box 24042-C, Dayton, OH 45424-0042. 513/236-2983.

WANTED: HAM EQUIPMENT AND OTHER PROPERTY. The Radio Club of Junior High School 22 NYC, Inc. is a nonprofit organization, granted 501(C)(3) status by the IRS, incorporated with the goal of using the theme of Ham 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. Labor Day and the new term are almost here. Do it, don't wait till the end of the year, make your decision to donate that equipment now. We depend on you. Please write us at: P.O. Box 1052, New York, NY 10002. 'Round-the-clock hotline: 516/674-4072. Thank you!

ROSS' $$$$ NEW AUGUST SPECIALS: Kenwood TS-140S — $784.90, TW-4100A — $459.99, TM-2530A — $405.90, TM-3530A — $344.90, TM-401B — $334.90; HAL PCI-2000 — $429.90, CT-2100 — $499.90; Drake 7000E — $369.90; Robot 800H — $299.90, 800 — $299.90, 1200C — $1235.90; ICOM IC-38AW/TTM — $338.99, IC-45A — $289.90, IC-32AT — $539.90, IC-725 — $809.90; Yaesu FT-711RH — $369.90, FT-411 — $336.90, FT-109RH — $276.99, FT-209RH — $276.99, FT-73RTT — $289.90, FT-33RTT — $299.90; CUSHCRAFT 124WB — $41.50, 230WB — $234.90, A4S — $353.90. All L.T.O. (limited time offer). Looking for something not listed? Call or write. Over 8780 ham-related items in stock for immediate shipment. 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, (P.O. Box 234) Preston, ID 83263. 208/852-0830 FAX 208/852-0833.

SELL: USED PAIR of Cetron 572B tubes. $50 for pair plus UPS. CHRIS, KA9FCZ, 618/395-1117.

FREE 80-PAGE ELECTRONICS PARTS CATALOG. Send $1.00 to cover postage and receive a $2.00 off coupon for your first order. HOSFELT ELECTRONICS, INC. 2700 Sunset Blvd. Steubenville, OH 43952.

R-390A RECEIVER PARTS: Info SASE. CPRC-26 military Manpack Radio, 6 meter FM, with antenna, crystal, handset: $22.50, $42.50/pair, radio — only $9.50. Military-spec TS-352 Voltohm/Multimeter, leads, info: $12.50. $4.50/piece shipping, $9 maximum. BAY-TRONICS, Box 591, Sandusky OH 44870.

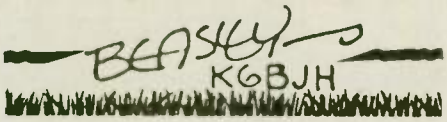
WRITTEN EXAMS SUPEREASY. Memory aids from psychologist/engineer cut study time 50%. Novice, Tech, Gen: $7 each. Advanced, Extra: $12 each. Money back guarantee. BAHR, 2535-F8 Citrus, Palmbay, FL 32905.

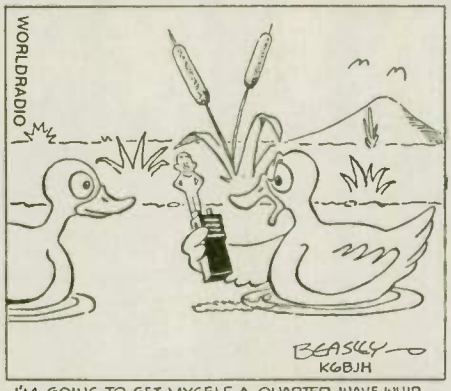
CLASSIFIED ADS FOR JOBS WANTED OR POSITIONS OFFERED will be run free of charge in Worldradio's MART.

TELECOMMUNICATIONS EXPERT. 11 yrs. experience in communications system engineering. Fluent in French and German. US Government's highest radio license. Computer/satellite/data transmission my specialties. CHARLES E. MARTIN, AB4Y, 1605 Singletree Way, Bowling Green, KY 42103-1425.

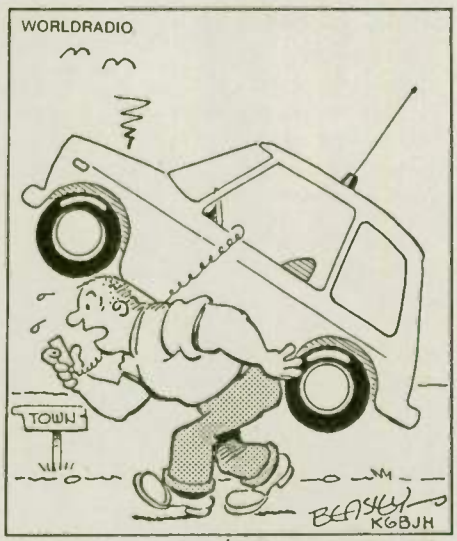
What are your thoughts, opinions about Amateur Radio?

Write a letter and let us know and we'll place it in *"Off the Air."* That's your forum for expression.

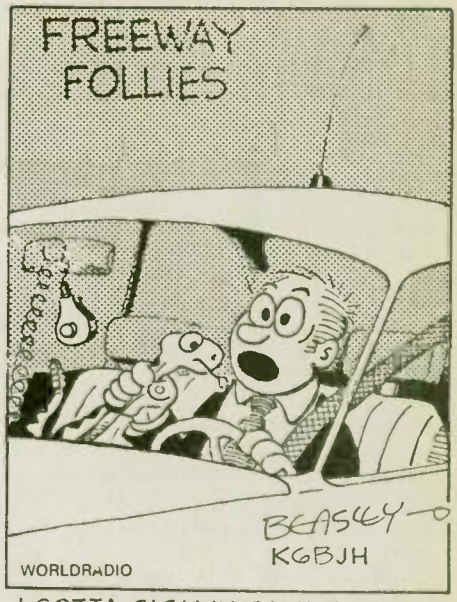




I'M GOING TO GET MYSELF A QUARTER-WAVE WHIP--- THESE RUBBER PEOPLE ANTENNAS LEAVE ME COLD!



ACTUALLY, I DON'T KNOW WHETHER I'M MOBILE OR PORTABLE



I GOTTA SIGN WITH YOU NOW, JOE -- I THINK I JUST HEARD A SNAKE IN THE CAR!

IT'S A COMBINATION 10 METER HAND-HELD AND A CHAINSAW--- WHEN THE BAND FOLDS, THAT BABY WON'T SIT ON THE SHELF!

ADVERTISER'S INDEX

Ace Communications — 54
Alinco — 24, 25
Amateur Radio & Computer Equip. & Accessories — 31
Anne Wright, N6BOP — 42
Antennas West — 14, 16, 27, 29, 31, 40, 44, 45, 47, 53
Antennas, Rudy Plak — 3
Antique Radio Classified — 55
AXM Inc. — 52
Azimuth — 57
Barry Kutner, W2UP — 4
Bel-Tek — 42, 53
Brian Beezley, K6STI — 23
Butternut Electronics — 43
C.A.T.S. — 34
Callbook — 58
Command Technologies, Inc. — 12
Cotec — 52
Courage Center — 46
Creative Control Products — 47
Delta Loop Antennas — 18
Diamond Systems, Inc. — 54
Embroidery Warehouse — 23
Engineering Systems — 41
EPO Software — 18
Fallert's Engraving — 19
Gene Hansen Co. — 48
GGTE Morse Code — 28
Glen Martin Engineering — 30
Ham Radio Outlet — 32, 33
Handi-Tek — 28
Henry Radio — 2, 11
ICOM — 64
IIX Equipment, Ltd. — 52
IMRA — 26
Jun's Electronics — 15
Ken Heine, W7VZS — 62
Kilo-Tec — 55
Lakeview Co. — 50
Lanz Company — 27
Long Island DX Bulletin — 61
M. Bohnhoff — 46
Maxcom — 48
MFJ — 13
Mike Forman — 63
Mission Communications — 6
N6KW QSL Cards — 35
P.C. Electronics — 21
Palomar Engineers — 7, 17, 51, 53, 55
Personal Data Base — 8
QCWA — 20
Radio Engineers — 28, 51
Radio Place — 7
Radio Works — 45
rf concepts — 14
RLD Research — 29
Sign-On — 10
Sparrow Hawk Communications — 37
Spider Antennas — 41, 49
Summitek — 6
Synthetic Textiles, Inc. — 42
TimeKit — 40
Todd Skogen — 22
Universal Radio — 57
Van Gorden Engineering — 6
Visit Your Local Radio Club — 38, 39
Visit Your Local Radio Store — 56
W5YI — 44
W5YI-VEC — 19
W9INN Antennas — 19, 34
Wrightapes — 37
Yaesu — 5

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

ONLY ICOM COULD BUILD THIS MANY FEATURES INTO SUCH A TINY RADIO

ICOM'S AMAZING NEW MINI FM HANDHELDS

ICOM's new "S Series" mini handhelds deliver top performance on the 144, 220 and 440MHz bands with super easy operation and a kaleidoscope of features. Built to fit your needs today, tomorrow, anywhere and anytime.

Wide Frequency Coverage. Plenty of overlap for scanning, monitoring, CAP and MARS use. IC-2SA/IC-2SAT: 138-174MHz Rx, 140-150MHz Tx. IC-3SAT: 220-225MHz Rx/Tx. IC-4SAT: 440-450MHz Sx/Tx.

Flexible Size And Power. The IC-2SA packs 2.5 watts with supplied BP-82. The IC-2SAT, 3SAT and 4SAT's internal battery packs 2 watts of output on high power. All models deliver five watts when powered via optional BP-85 battery pack or via top-mounted 13.8 volt socket. A small rig with a big punch! **48 Memories.** Store your present frequencies and expand your future interests. Offset frequencies are independently programmed in memory channels 0-9. Memories 10-47 use offset frequency contents of the VFO. Also includes soft-sector memory masking. Use only the number of memories you need! **Band and Memory Scanning** with programmable limits, memory skip function, plus selectable pause times while scanning. Additional features include: **Automatic Power Shut-off.** Built-in programmable timer automatically switches off transceiver when you forget. **Optional DTMF Paging Function.** Silently monitors any selected frequency for your preprogrammed 3-digit DTMF-keyed calls, then beeps and displays calling station's code. All ICOM's **"S Series"** handhelds are supported by an extensive line of optional battery packs, chargers, cases, speaker/mics and other accessories. See the exciting new ICOM mini-series handhelds at your authorized ICOM dealer today!

ICOM America, Inc., 2380-116th Ave. N.E., Bellevue, WA 98004
Customer Service Hotline (206) 454-7619
3150 Premier Drive, Suite 126, Irving, TX 75063
1777 Phoenix Parkway, Suite 201, Atlanta, GA 30349
ICOM CANADA, A Division of ICOM America, Inc.,
3071 - #5 Road, Unit 9, Richmond, B.C. V6X 2T4 Canada

Four Power Selections

10 Memory DTMF Autodial

DC Socket For Charging and Mobiling

24 Hour Clock With Timer

99 Memories

Optional Battery Packs Very Small

ICOM

First in Communications