Worldradio

Year 22, Issue 3 September 1992 • $1.25

FEATURES

COLUMNS

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Lost in the Caribbean

JIM REID, KH6/W6KPI

John Hamby, WB4UZW, was on vacation on the Hawaiian Island of Kauai, visiting my QTH and Lawailoa bed and breakfast retreat for hams. Bill Tise, KB4UZN, was also there and had been working some interesting DX earlier. But now it was Sunday afternoon, and John was ragchewing with his friends back in North Carolina and Virginia. At about 4:40 p.m. HST (0240Z) June 8, 1992, John thought he heard a weak "breaker" on the frequency, 14.245 MHz. A station signing "WYZ2403" was heard claiming he had an emergency situation on board a ship off the coast of Cuba in the Caribbean sea.

We decided this was a hoax or a prank of some sort and went back to visiting with the guys on the informal ragchew net. However, a few minutes later, at 0312Z, WYZ2403's signal increased in strength as received on Kauai. He identified himself as Eddie Jacobson, skipper of the commercial vessel *Sea Harvest* out of Ft. Meyer, Florida, bound for the Cayman Islands.

He said his ship had been struck by lightning a few hours earlier; he had lost all navigation equipment including, in particular, his most valuable GPS system with which he had approached quite near to Cuban waters before the lightning struck. His immediate concern was that he not enter Cuban waters. He had been sending distress calls for some time; he was now getting desperate and had come up into the Amateur Radio band seeking help.

John asked that the frequency be cleared for emergency traffic and had one of his North Carolina friends call the Coast Guard. This was done, and in a very few minutes the Coast Guard communications station in Miami, *NMA-Miami*, was soon also calling to the *Sea Harvest* vessel on 14.245. However, the *Sea Harvest* could not hear the Coast Guard station.

For the next few hours, this station, KH6/W6KPI on Kauai, acted as the radio relay link between the US Coast Guard in Miami and Eddie Jacobson and his vessel, the *Sea Harvest*. The three operators here at KH6/W6KPI took turns spelling one another performing the frequent relays needed. Eddie reported that it was pitch dark and clouded, with frequent squalls and lightning strikes continuing in the area of his vessel. The Coast Guard asked him to fire flares, if possible.

Eddie reported that a dark, unidentified vessel was approaching him. He seemed to feel threatened. The Coast Guard asked him to send a blink-light SOS signal, to which there was no immediate response. Eventually the dark

(please turn to page 19)

John Hamby, WB4UZW; Jim Reid, KH6/W6KPI; and Bill Tise, KB4UZN. The quad here is "parked" at 23 feet.

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Field Day, Field Day

It's a great day in June! Throughout the land the hardy challenge the elements and Murphy's Law.

Over three thousand groups made up of intrepids and stalwarts sling their signals into the skies.

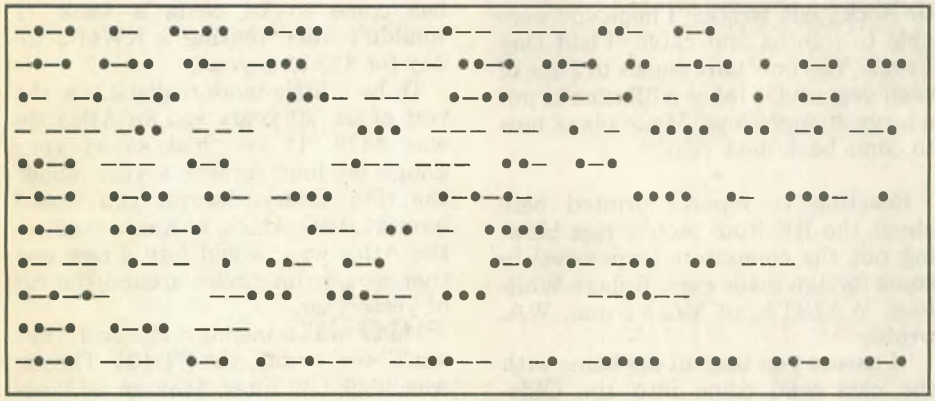
It's all part of the ARRL's annual exercise to operate radio equipment without the usual utility furnishing the electricity. In most cases makeshift antennas are quickly hoisted.

Worldradio always goes on Field Day. Our DX editor, John Minke, N6JM, editor and publisher Armond Noble, N6WR, and leading intellect Norm Brooks, K6FO, gathered up 547 QSOs. Not bad for three guys who get senior citizen discounts at the restaurants.

World-famous Norm Brooks, K6FO, keys 100W battery-powered Field Day station.

A G5RV antenna from Antennas West, up 50 feet, squirted the "One Alpha, Sacramento Valley" to every section in the USA but six.

We are compelled to mention that CW Norm (two points each contact) got a higher score than the two phone boys combined. A painful admission, indeed. □



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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.

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PUBLISHER'S MICROPHONE

We now recognize a group of people who are certainly intellectually qualified to be president of the USA. However, and brilliantly so, they realize that they would rather spend their time on the air than meet with dignitaries of foreign lands who extend their hands to ask for American tax dollars. The latest *Worldradio* Super-Boosters (lifetime subscribers) are:

Judith C. Harris, N1BLR, Medfield, MA
Ira Deutsch, WA1FNS, Boston, MA
Jim Burtoft, KC3HW, Washington, PA
Ron Cox, N0KHO, Clinton, IA
Bill Bingham (new call), Northbrook, IL
Donald C. Zeman, KD9MF, Prairie View, IL
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Fred Hansen, W6SMD, Rancho Palos Verdes, CA
Robert Linstaedt, W5PGK, Paradise, CA
Cliff Shinn, KC6JOM, Wildomar, CA
Ray Ryan, KD6JDI, Fountain Valley, CA
Thomas A. Curran, W7UAB, Los Altos, CA
Art McLaughlin, W6THD, Berkeley, CA
Bob Szentimrey, KC6QCG, Richmond, CA
Mel Nunes, KD6KWF, Novato, CA
Bob Walters, Jr., KA7SDW, Eugene, OR

Apologies to William Stopka, who was identified here as W9IA; he is really W9IH.

How very interesting! At the same time that voices in the woods are saying the era of Amateur Radio furnishing emergency communications is over, The Ministry of Posts and Telecommunications in Japan, on April 10, 1992, had a special ceremony commending JA amateurs for their role during a recent volcano eruption. And yes, there are a lot of cellular phones in that country.

•

We really liked this one from the Fullerton (CA) Radio Club bulletin, *Smoke Signals*: "The FRC Field Day is always a weekend to remember. You can get dirty, eat junk food, stay up late, play with radio gear, sleep outdoors and wear grubby clothes. Great, huh!"

Fred Hunt, KB5NNR, in Caren (Little Rock), AR, wrote: "I hope you were able to join us and catch 'Field Day Fever.' The only cure comes in June of each year and it takes a lifetime to get a large enough dose. Make plans now to come back next year!"

•

Reacting to reports printed here about the RF from mobile rigs blowing out the computers (expensive) in some foreign-made cars, Robert Whitford, WA7STA, of Mt. Vernon, WA, wrote:

"I assure you that all the hams with the cars who come into the Oldsmobile/Cadillac dealership where I work have had no problems because of their radios. I've had no problems with my 2M rig in my new '92 Saturn. Also, the engine control computer for any GM car (except Saturn) is only $110."

•

Let's look at the grumbling about the cost of today's rigs. Suppose that back in 1962 you had bought a Collins KWM-2 transceiver for $1,150. Yes, back then a thousand dollars for a rig was not inconsequential; a teacher made about $5,000 a year. Today, that KWM-2 is still on the air and the cost has come to 74 cents a week. (I wouldn't mind renting a KWM-2 today for $38.33 a year.)

To be a little more realistic, for the rest of us: 20 years ago an Atlas rig was $479. If you had saved your dough (at four percent a year, about the rate money decays) you would have $1,049—which, as nice a radio as the Atlas was, would buy a new one that would run circles around the rig of yesteryear.

Many will remember the real "hot stuff" for its day, the FT-101. The rig was $649; CW filter, $45; fan, $19; external VFO, $99; digital display, $169.95. Today, you can get a rig with CW filter, fan, dual VFO, digital display (and a whole lot more) for $669.

Let's look at yesterday's prices and their equivalents today, assuming four percent a year increase in price, etc.: Rig, $649/$1,421; CW filter, $45/$98; fan, $19/$41; external VFO, $99/$216; digital display, $169.95/$372.

So let's say that 20 years ago you thought rigs were too expensive. Not trusting banks, you put your money in the mattress. Pulling out your $649 you could just about buy what cost $982 20 years back! You are getting what should be costing $2,148!

Another way to look at it is, since we are all credit card buying these days ... A new rig, power supply and manufactured antenna can be yours for about $1,000. That's about one dollar a day for three years. One dollar a day! That's skipping the cost of the cup of coffee, tax and tip at the hash house. —*Armond, N6WR*

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- Optional Digital Voice Recorder (DVS-2)
- Front Panel RX Antenna Selection
- **Accessories:**

FT-990DC	Available without power supply
XF-10.9M	2nd IF SSB Narrow 2.0 kHz Filter
XF-445K	2nd IF CW Narrow 250 Hz Filter
TCXO-2	High Stability TCXO
SP-6	External Desk-top Speaker
MD-1C8	Desk Microphone
DVS-2	Digital Voice Recorder Unit
YH-77ST	Lightweight Headphones
LL-5	Phone Patch Unit for SP-6 Speaker

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Outside, the very functional HF front panel is simple and uncluttered with a large amber display. Easy to use, easy to see. Pure and simple QSO enjoyment – with muscle when you need it! Yaesu makes "high-tech" effortless. Now it works for you, not against you. Have your dealer show you the FT-990 today and see what we mean.

New

FT-990DC now available.

YAESU

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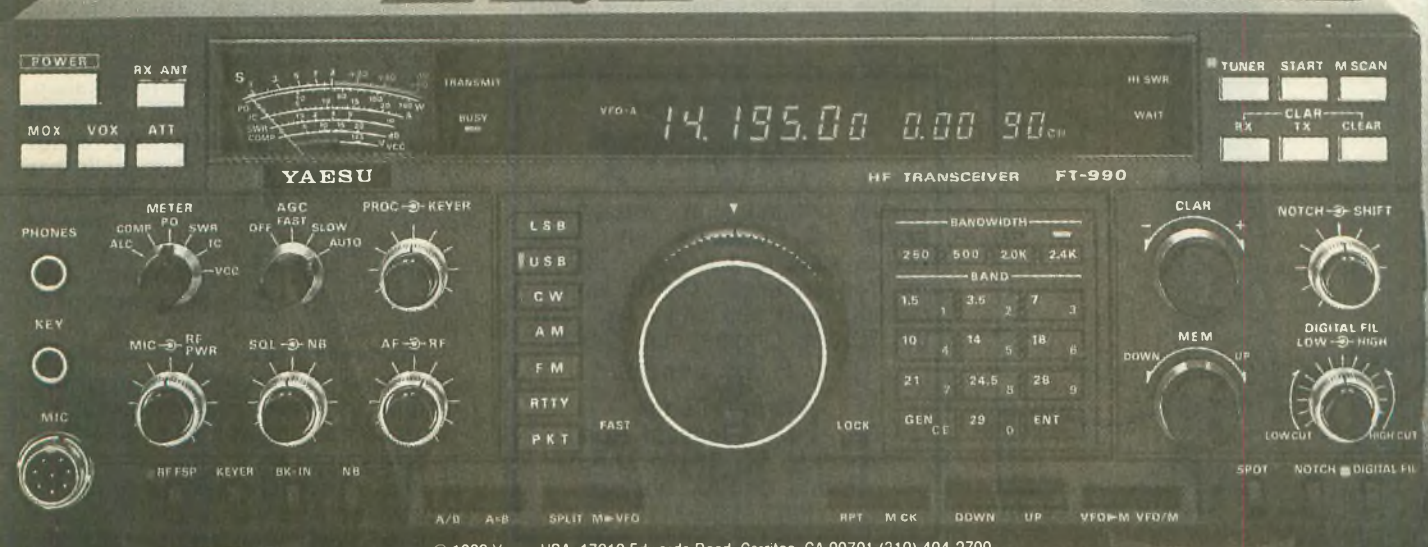


Field Day for the gals

MAUREEN McCLAIN, N5FFB

"Thank you, sir, you are our final contact for Field Day. This is KA5DWR." With those words Judi Jaksa, NØIDR, wrapped up Field Day 1992 for the YL Roses of Texas Amateur Radio Club . . . not just any old Field Day, but the first annual all-YL Field Day for our club. It was the end of an exciting 24 hours, yes, but it was also the end of a year of planning.

Efforts for our all-YL Field Day began last year. Mary Lou Brown, NM7N (an honorary YL Roses of Texas member), was probably the first nudge. She brought slides of one of her all-YL DXpeditions to HamCom last June, and many of us envied her experiences. But how many of us can go on a DXpedition? Certainly an all-YL trip is even more difficult, and none of us felt capable of participating. Why, we would only be liabilities, we agreed. So how does one gain enough experience to be an asset in such a situation?

The next nudge was Field Day 1991. Some YLs do fine at the standard male-dominated Field Day operation. Often these are capable and/or outgoing women who don't mind stepping in and asking questions of the guys. But many YLs are newly licensed (or even unlicensed), hesitant about their new knowledge, and shy of tackling a situation where they feel they might make fools of themselves. And so often if a YL asks a question (especially of her own OM) the result is that the OM just takes the problem in hand and "shows" her, usually so quickly that she hasn't any idea what he told her. It's not anyone's fault, that's just the way it is! Field Day 1991 ended with most of the YLs who participated feeling like they didn't learn anything.

Well, why couldn't we gain some experience by doing an all-YL Field Day? What if there were a genuine emergency, and all the OMs were in the Metroplex area at work? Would we YLs know what to do? NO!

Our Field Day operation grew rapidly from there. But it *was* a controlled growth! Our monthly club meetings are luncheons at local restaurants; we could plan our operation at these meetings, but it didn't take us long to decide that we didn't know enough to set up a station without some prior experience. And we couldn't gain experience at restaurants.

Enter the workshops. We wanted the experience of running our own Field Day station without OM participation, but we weren't too proud to ask them to teach us what we needed to know. Connie Dunn, KB5LES, volunteered her husband, Si, K5JRN, for these. He was very patient with us, teaching us (at a *basic* level) how to hook up a radio, build and tune an antenna, etc.

Places were discussed and abandoned. The final decision took into account that many of the women did not feel comfortable with a public setup for an all-night operation, and many of their husbands were equally uncomfortable with the idea. Also, a few of the women would have to bring young children along, and they needed a contained situation. At last we decided to have a Class E station—a home station operating emergency power. Martha Cowan, N5QFN, offered her home, with its large covered back porch.

In the meantime, word of our project was spreading. Bea Palmer, WB5QCY, is the secretary-receptionist-and-whatever-else-needs-doing for her husband, Fred's, radio repair shop. She invited every YL who came into the shop, and told all the OMs about it. YLs and OMs alike thought it was great. Judi, NØIDR, spread the word at other club meetings and brought several Metroplex YLs with her to the final meetings. We appeared to have struck a chord that women responded to.

June arrived at last! Were we ready? Yes! Lists were drawn up of needed equipment, everything was accounted for, food was planned, and we decided to hold a practice session. Amazingly, it went smoothly. The one thing the practice showed us was that in June's heat we needed some fans and some

Connie Dunn, KB5LES, calls "CQ Field Day."

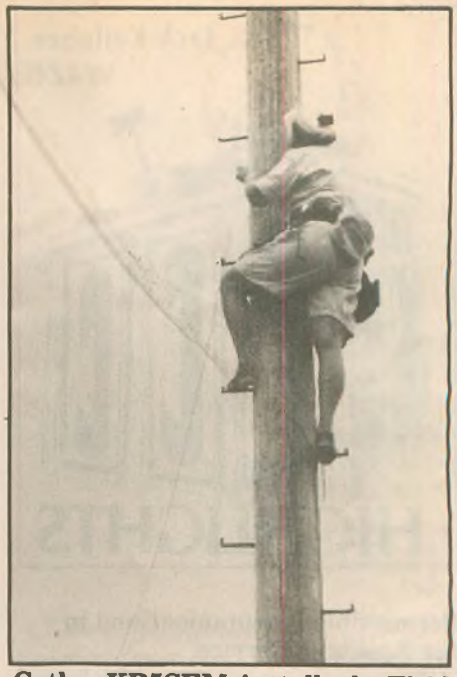
Cathy Opaskey, KB5SEM, way up on the tower.

bug spray. At the last minute, Karen Pittman, N5VAW, came up with matching pink T-shirts with an outline of Texas and a yellow rose. What a morale boost! We're ready for you, Field Day!

What if we held a Field Day and no one came? Not a problem. Eleven YLs were there at opening time. Judi, NØIDR, brought a vertical antenna and the radio, and we had two backups. Bea, WB5QCY, showed up with 10 gel-cel rechargeable batteries. Connie, KB5LES, brought a dipole. Cathy Opaskey, KB5SEM, and Karen, N5VAW, did the climbing to put up the dipole. We were on the air! We had three or more women "manning" the station at all times—one to operate, one to log, and one to check the dupe sheets. We operated continually until four in the morning. Seven women (and three youngsters) stayed overnight, sleeping in shifts. About 2 a.m. those operating thought perhaps there was a problem with the setup and began to check it out. The radio, the batteries, the microphone, everything checked out. Everything but the bands was good, and the annual north Texas Field Day thunderstorm was on its way. It hit between 4 and 4:30 a.m., but a quick disconnect and dash into the house protected the equipment.

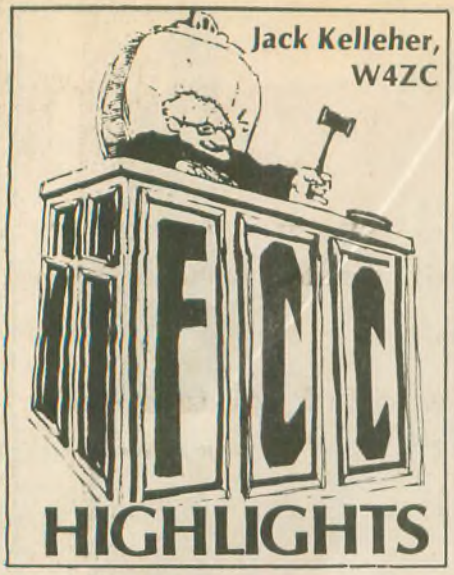
Bea, WB5QCY, showed up bright and early Sunday morning, rolled everyone out of bed, and we were on the air again. Back to work! Not that it was all work, no way! Field Day is a great time to visit, and not just among ourselves. OMs from the local area dropped in at all times of day and night (some of them at midnight!) to assure themselves that we were really set up and operational. If they intended to offer advice, they decided not to when they looked our station over. They praised us, visited awhile and left. Saturday brought Ev Biddle, N5NUL, from north of us. Word had spread in that direction too, and she decided to come see if ours was a group she could feel comfortable with. It was. She couldn't stay the night (her goats needed to be milked), but she left with promises to make our monthly meetings.

We talked, we laughed, we ate, we operated, and we learned a lot. When Field Day was over, we found that we had made 371 contacts, for a score of 742! Did we have problems? Did we make mistakes? Could we have done better? Absolutely! But it was a great start. And next year, with what we learned this year, maybe we can set up a Class A station. □



Cathy, KB5SEM, installs the Field Day dipole.

The YL Roses of Texas ARC: Maureen McClain, N5FFB; Pat Chadwick, N5TWX; Martha Cowan, N5QFN; Bea Palmer WB5QCY; Cathy Opaskey, KB5SEM; Cindy Brazzel, N5MUJ; Judi Jaksa, NØIDR; Dorothy Jones, KA5DWR: Connie Dunn, KB5LES; (Erin Dunn); (Cheryl Palmer); and Carol Riehs, N5UPQ.



Permissible communications in the Amateur Service

We recently reported on ARRL proposals to amend Part 97.113 of the FCC Rules for the Amateur Service. The Commission acted on these proposals on June 18, and the Notice of Proposed Rulemaking was issued on July 2 (PR docket 92-136). The deadline for comments is October 1, 1992, and for reply comments, December 1, 1992.

The Commission's news release on this matter is quoted in the following paragraphs, rather than summarized; this is an important milestone in regulation of the Amateur Service, the intent of which should be precisely reported.

"The FCC has proposed amending its rules for the Amateur Service by lessening restrictions on the scope of the permissible communications that amateur stations may transmit. Specifically, the proposal includes greater flexibility to transmit communications for public service projects and personal matters.

"The Commission noted that many individuals in the amateur community appear to strongly support relaxing one or more of the existing restrictions on the scope of Amateur Service communications. The restrictions were designed to protect the non-commercial character of the Amateur Service and ensure its basis and purpose, i.e. as a reservoir of volunteer communicators, technicians and electronics experts dedicated to advancing the radio art, to provide public service communications particularly in times of emergencies, and to enhance international goodwill, could be carried out. While eliminating some of the existing restrictions would provide the flexibility to expand public service activities and satisfy the personal communications interests, the potential for commercial exploitation and abuse of the Amateur Service's allocated frequencies could increase.

"Specifically, the Commission proposed the revision suggested by the American Radio Relay League. This revision would allow amateur stations to transmit occasionally certain types of communications that are now prohibited. The intent of the suggested revision is to allow amateur operators who so desire greater flexibility to increase their public service communications activities, for example, in support of parades, races, and other such public gatherings. The general prohibition against amateur stations transmitting messages for hire or for material compension, direct or indirect, however, would remain in the rules.

"These proposals are not intended to alter in any way the nature and purpose of the Amateur Service. The proposed changes, however, would increase the amateur community's responsibilities for self-regulation and cooperation in the use of their allocated frequencies."

Form 610 revised

The FCC forms distribution center has received a large shipment of revised 610 forms, application for Amateur Radio station/operator license. It carries an issue date of March 1992 although just received at the forms warehouse last week.

This is the first revision in more than two years and carries an expiration date of February 28, 1995. It is six pages long due to four pages of instructions. Here are some of the changes:

• The new form now includes the physician's certification of disability and patient's release needed for handicapped based 13 and 20 wpm telegraphy exemptions. It is no longer necessary to submit another form with the application to obtain a handi-

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 July 1, 1992.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.17(f) of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17325-7245.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0JI	KF0ZO	N0THY	KB0KNK
1	AA1CY	KD1JN	N1MZT	KB1AGR
2	AA2KC	KF2JJ	N2RSQ	KB2PCW
3	AA3BA	KE3DS	N3MXA	KB3AFP
4	AC4SG	KQ4BD		KD4QJJ
5	AB5GP	KJ5BY		KB5TQW
6	AB6MG	KM6XE		KD6LIX
7	AA7QD	KI7EL	N7ZNV	KB7PGB
8	AA8HX	KF8WB	N8UTT	KB8OEC
9	AA9EK	KF9KI	N9QEQ	KB9IAP
North Mariana Is.	AH0O	AH0AJ	KH0AT	WH0AAT
Guam	NH2A	AH2CP	KH2GE	WH2ANA
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6LZ	WH6HB	WH6CPS
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AE	KH8AI	WH8ABA
Wake Wilkes Peale	AH9B	AH9AD	KH9AE	WH9AAI
Alaska		AL7OJ	WL7FC	WL7CGA
Virgin Is.	NP2U	KP2CA	NP2FT	WP2AHS
Puerto Rico		KP4TZ		WP4LGR

Benjamin Franklin wrote in 1758. "A word to the wise is enough, and many words won't fill a bushel."

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capped telegraphy exemption. VEs are instructed to write in the letter "H" in the administering VEs report in item C under Element 1C.

• Applicants are now required to initial all requests for a call sign change (section 1, line 2E).

• Section 1, line 6 (date of birth) now has hyphens (rather than slant bars) to eliminate the possibility that slant bars might be mistaken for the figure "1." Instructions now require that two figures be placed in each of the month, day and year spaces (i.e. for May 1, 1947 write 05-01-47, not 5-1-47). (*W5YI Report*, June 1)

Amateurs concerned about RF lightbulbs

A new RF-powered lightbulb design announced recently is not yet in production nor are engineering samples available. Although the manufacturer, Intersource Technologies Inc. of Sunnyvale, California, says the bulbs are expected to meet FCC Part 15 rules regarding incidental interference, many radio amateurs have expressed concern about the bulbs.

A spokesman for General Electric Company's lighting division, quoted in the *Washington Post*, said GE felt the idea was not marketable at this time, citing concerns about interference to radio receiving devices, among others.

Tom Moore, a spokesman for Intersource, said the company has received a number of calls from amateurs, mostly neighbors in Silicon Valley, many of them offering to "beta test" the bulbs when they become available.

Moore said he expects that the bulbs will have to be FCC type accepted. When asked about the possibility of a nearby transmitter lighting up one of the bulbs, he said it was Intersource's belief that it would take a transmitter many times the power of an Amateur Radio rig to be able to do so.

The bulbs as currently envisioned would operate at 13.56 MHz, within the industrial, scientific and medical band (the ISM band is 13.56 MHz ± 7 kHz). Twenty-five watts of RF power would produce the same amount of light as that from an ordinary 100W incandescent bulb. The bulbs would use a crystal oscillator, power amplifier and a coil-type antenna to "couple high frequency electrical energy into a mercury vapor plasma."

The ARRL technical department will conduct tests on sample bulbs as soon as they are available. (*ARRL Letter*, June 11)

VECs' annual conference

Volunteer examiner coordinators representing more than 98 percent of all Amateur Radio operator license examinations conducted in the Amateur Service met on June 11 and 12 in Gettysburg, Pennsylvania, at their annual conference. Twelve out of the 18 VECs were present at the meeting, along with several FCC officials.

In his opening remarks, Personal Radio Branch Chief John B. Johnston congratulated the VEC system for efficiently coordinating 41,000 exam sessions, examining 477,000 applicants and administering 777,000 test elements in its nine years of operation since 1984. "That is a record for which you should be very proud." (*W5YI Report*, June 15)

FCC opens door to "smart house" development

The FCC is changing its Part 15 rules to encourage development of so called "smart house" systems for consumers. These systems, designed to provide automation and communications within a dwelling through RF signals carried by house wiring or television antenna wiring, are of interest to amateurs because of their potential for RFI.

At an open meeting of the FCC on June 18 the issue of RFI was not ad-

dressed, although the ARRL had made its concerns known in comments to the FCC. The Commission's Office of Engineering and Technology (OET) did not refer to RF susceptibility in their presentation to the commissioners, nor did the commissioners themselves make any reference to it.

One OET Staff engineer later said, in essence, that RF susceptability was outside the scope of the Notice of Proposed Rulemaking, and even though one commenter (the ARRL) raised the issue, it was not incumbent upon the Commission to address it. Furthermore, he said that the Commission had chosen not to address the issue for regulatory purposes, as it was not a significant problem.

The specific changes to Part 15 rules are not yet available. The Commission's initial release on the subject (ET docket 91-269) does say the changes will "encourage such manufacturers (of smart home systems) to design their systems to avoid interference to AM broadcasting by placing restrictions on the amount of radio frequency energy that can be conducted onto the AC power lines within the AM broadcast band." (*ARRL Letter,* June 24)

HR73 and S1372

Regarding this proposed legislation FCC Chairman Sikes had written to Representative Cooper that "This legislation, if enacted, will significantly restrict the Commission's ability to fulfill one of its primary functions—managing the radio spectrum." Also, "The effectiveness of the Commission's spectrum management program is dependent on the ability to alter dynamically the table of frequency allocations . . . To constrain, if not freeze, the Commission's ability to manage the spectrum for one service, inevitably, will constrain our ability to deal effectively with all services."

The FCC's activity is part of a national spectrum management program involving the FCC for non-government allocations, and the National Telecommunications and Information Administration for government allocations. In this connection we saw this item in the *ARRL Letter* for June 24:

"The National Telecommunications and Information Administration has opened a broad-based inquiry into the future requirements for use of the radio frequency spectrum in the United States, as well as technology trends that would affect use of the radio spectrum.

"The inquiry seeks comments by October 1, 1992. NTIA intends to issue a report on national spectrum requirements and technologies and to use the information and analysis as the basis for more effective long-range planning for national spectrum management.

"The full text of the Notice of Inquiry occupied 13 pages of the June 12 Federal Register. Two paragraphs on Amateur Radio posed the following questions for the Amateur Service:

- What factors could either increase or reduce the spectrum requirements of the service?
- Is the current spectrum available to amateurs adequate?
- What new techniques may increase the ability of the Amateur Service to share with other radio services in certain frequency bands?" □

Are hams obsolete?

WAYNE THALLS, KB6KN

I'm sure you too have heard the observation that with the proliferation of cellular telephones, particularly portable units, hams will not be needed during future disasters. Don't you believe it!

The telephone network is subject to disruption, and cellular phones are part of that system. They can't work without the wired network. In a large disaster the telephone companies place surviving resources under controlled access. Not everyone with a cellular, or other telephone, is able to place or receive calls.

The 1989 Loma Prieta Earthquake was centered in Santa Cruz County, California. Devastation was widespread throughout the area, and resources were overloaded to the breaking point. Amateur Radio played a key role, beginning within minutes of the trembler. Twenty-four hours later portable telephone sets had been brought in by generous cellular service companies. Here is what happened.

After a few hours, many units became unusable when their batteries ran down—provisions were not made for recharging or replacing batteries. Many sites were still without power and chargers couldn't be used, even if available. (Unfortunately, the same thing happened to many hams.)

Stricken remote rural areas didn't have access to the cellular network. Disaster sites are not determined by a market viability study.

Organizational discipline suffered when those with access to a telephone *could* talk to anyone. Confusion, conflicts, and mistakes resulted, because decisions were not being coordinated through the responsible operational managers. In any disaster it is vital that all efforts be controlled through defined channels.

In Santa Cruz County the RACES/ARES organization is an integral part of the County Office of Emergency Services and the American Red Cross. These agencies are legally mandated with disaster relief responsibility. Communications, an essential resource to these groups, is not an independent activity.

There is a role for cellular phones, as they are a potentially useful adjunct to other systems. They should, however, be viewed as *telephones*, not two-way radios. Amateur Radio is still a vital resource for disaster relief. So keep your batteries charged—you will be needed next time, too! □

WWII ship operation

R.M. SAINI, KC6IXM

The next-to-last operational WW II Liberty ship, SS *Jerimiah O'Brien*, sailed out the Golden Gate on a day cruise on May 17 with 400 passengers. The FCC and the Coast Guard refused to certify the old Radio Marine Corporation of America multi-featured radio, so Amateur Radio station K6YYL, Bob Gisslow, assumed responsibility for radio communications.

The SS *Lane Victory* (station W6MWO) is scheduled to make a similar operating voyage in August.

Al Newbold, W6PW, did most of the operating, with an assist from Bob Saini, KC6IXM.

Radio operators on ships in WWII will remember the RMCA units, which were supplied with every ship built from 1938 to 1946, and provided low frequency transmit and receive (500 Hz), high frequency to 25 Hz and the auto alarm which was adjusted to listen for distress signals and ring a bell in case the solo operator was asleep.

Twenty and 40M antennas for 14.310 and 7.230 MHz strung from the stack to the after mast provided signals throughout the United States, and many QSOs were established to amateurs in the midwest, who were incredulous that they were having a phone conversation with a ship underway.

Actually, there were more captains than radio operators as well as a rear admiral from the California Maritime Academy and several midshipmen. An elegant picnic lunch was offered as well as brunch and beverages.

A new radar system was installed by Dick Secondari, K6TR, to comply with Coast Guard requirements. Except when directly under one of the bridges the radios and radar performed perfectly. Local television stations recorded the classic vessel's progress.

The WWII Victory ship, the SS *Lane Victory*, also a museum ship and national historic landmark, came out of drydock May 12, and is scheduled to make a similar trip in August. The *Lane* is powered by a steam turbine and is somewhat faster than the *O'Brien*. Both of these ships allow visitors into spaces usually restricted—you can touch—and are eager to accommodate visitors, unlike most cruise ships.

The operators of the *Lane* are so impressed with its condition and performance they are seriously considering taking the vessel to the 50th anniversary of the D Day landings in France on June 6, 1994. Both ships participated in the landings preparatory to the invasion of France in World War II. □

Digital upgrade "proposal"

JOE SCHWOEBEL, WA3CAQ

Before we can operate the first known digital mode (CW) on HF beyond Novice privileges, we need to demonstrate our skills and pass the appropriate upgrade test. Yet, with the sophisticated digital techniques we currently use—for example, node operations, high speed packet or TCP/IP—no demonstration of skill is required. This seems to be quite a paradox.

As a result, many Technician Class operators with little or no demonstrated skills in either advanced radio communications or digital techniques operate nodes within a network that perform poorly, or at best, marginally within the existing amateur regulations. Nowhere is this more apparent than in major metropolitan areas.

There appears to be a need for digital operators who wish to assume a "high profile" position within our networks to demonstrate additional skills before they are allowed to operate nodes, high speed packet, TCP/IP, etc.

As a result of these concerns, I am preparing an FCC proposal to amend our amateur regulations to add a "digital endorsement" which, in lieu of an Extra Class license, would be required to operate higher-level digital devices or services within networks. Conceivably, such an endorsement could also allow unattended HF operation of packet stations, or allow HF operations beyond the existing 300 baud limit.

If you have any suggestions as to what this proposal should include, I'd like to hear your comments. I'd also like to know of your comments, pro or con, to assist in my effort. We need to do something to assure the future of adequate digital services for Amateur Radio!

Contact WA3CAQ@K7BUC.AZ USA.NA—*Westlink Report*, 4/23/92 □

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Also available for 220 MHz, MFJ-1752, $19.95.

MFJ Pocket Roll-Up™

2 Meter Halfwave J antenna

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$14.95

Roll up this half-wave 2 Meter J-antenna and stick it in your pocket! This new MFJ Pocket Roll-Up™ is the perfect gain antenna for traveling.

Get home station performance on the go. Just hang your Pocket Roll-Up in the clear, plug the handy BNC connector into your handheld and enjoy some great QSOs.

It's omni-directional and has significant gain over a 1/4 wave. It doesn't need a cumbersome ground plane so it's convenient for indoors and works great with handhelds.

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MFJ-1740
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The MFJ-1740 is the most inexpensive way to put out a potent FM signal on 2 Meters. It'll bring up repeaters as well or better than *any* 1/4 wave ground plane — even if it cost twice as much.

The *improved* MFJ-1740 1/4 wave ground plane minimizes feedline radiation for more useful radiated power, reduced TVI and noise pickup by the coax shield.

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Plus, *you get additional gain* for FM and Packet because your mast doubles as a reflector. There's plenty of antenna gain to work stations off the sides and back — your signal is just stronger in the direction the MFJ-1764 faces.

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It's fully assembled — simply attach radiators — no tuning required. Mounts vertically for FM and Packet or horizontally for SSB. Easy-to-install with single U-bolt (supplied) on any 1 to 1 1/2 inch mast or tower leg. Weighs 1 1/2 pounds, two 47 inch radiators, 23 inch boom. Made in U.S.A. One year Unconditional Guarantee.

Double your Gain with direct feed!

You can double the gain of one MFJ-1764 5/8 Wave Super Gain™ 2-Meter Antenna by mounting two MFJ-1764s one above the other on the same mast and *directly feeding* both. Order MFJ-1766, $89.95, includes 2 MFJ-1764 Super Gain™ 2-Meter Antennas and a *Direct Feed* Power Splitter/Cable Harness.

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Portable 3 element Yagi for 2 M

MFJ-1763
$39.95

You can set up or take down MFJ's new *portable* 3 element 2 Meter Yagi in seconds! Elements simply screw into the boom.

You can take it with you wherever you go and have the "oomph" and directivity of a beam.

It's easy to store and sturdy enough to use as your home station antenna.

You can mount it vertically for FM or horizontally for SSB. You can easily *center* mount it on a mast or *end* mount it on a tower leg with a single U-bolt (included). It's great for packet and PacketCluster™.

Its compact 2 3/4 foot boom gives you a calculated gain within 1 dB of a four element Yagi with a boom nearly twice as long.

Extra thick elements maintain high gain and directivity over virtually the whole 2 Meter band. A ferrite choke balun gives you excellent feedline decoupling. Coax coupling is further reduced by mounting the SO-239 connector behind the reflector.

Elements and boom are made from strong lightweight aluminum and protected by MFJ's Permanent Molecular Bonding Technology™.

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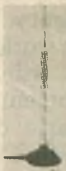

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The MFJ-1724B is a 1/4 wave on 2 Meters and a gain antenna on 440 MHz — it's perfect for dual band radios.

Low SWR across both bands lets your rig safely deliver full power into your antenna.

The stainless steel radiator will withstand the toughest mobile service. It's only 19 inches tall so you can park in your garage without knocking over your antenna.

The MFJ-1724B handles 300 watts PEP, has 15 feet of coax and has an extra powerful magnet to hold it steady — even at highway speeds.

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A. The Long Ranger™ 2 Meter Halfwave. MFJ-1714, $16.95. For really long range this MFJ endfed halfwave is hard to beat. It outperforms a 5/8 wave on a handheld because the 5/8 wave needs a ground plane. The MFJ halfwave doesn't. It's shorter, lighter, has more gain and places less stress on your antenna connector than a 5/8 wave antenna. When collapsed, it performs like a rubber duck. 40" extended, 10 1/2" collapsed.

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C. The Pocket Linear™ 3/8 Wave, 2 Meters. MFJ-1710, $9.95. Carry this pen size antenna in your pocket like a ballpoint pen. When you're using your rubber duck, on the fringe and noisy, put on The Pocket Linear™, extend it to 24 1/2" and carry on your QSO. Has pocket clip. 5 1/4" *collapsed.*

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DXer extraordinaire

BOB DALLESKE, W6AMW

In the DX world, Irv Astmann, W6OMR, is rapidly nearing a level of achievement that only a handful of people have attained in the post-World War II era. When he receives his QSL card from the Penguin Island DXpedition group, Irv will join DX legends such as Don Wallace, W6AM, in being "number one" on the ARRL DXCC honor roll, mixed phone and CW category. This will represent 342 countries worked and confirmed.

In tribute to this singular accomplishment, Irv was honored with a DXer's dinner meeting in Mount Shasta, California, on March 28. Many of Irv's DX colleagues from near and far, along with their spouses and friends, were in attendance.

Irv was born December 1, 1913, in Newburyport, Massachusetts. He was one of two children, the other being a sister who currently resides in Mexico City. His father's work took the family to many different areas on the East Coast, finally ending up in New York City where Irv graduated from high school. Shortly thereafter he joined the US Navy, and was first licensed as W6OMR in 1936 while training and serving as an electronics technician in San Diego. He was issued a secondary call, W6KQF, for use in mobile operation, but opted for keeping the familiar "Old Man River" when an FCC rule change required surrendering one or the other of the calls.

His first DX contact was in 1936, when he worked Siberian station UX3FI on 40M CW. In Irv's words, "I took the (DX) bait—hook, line and sinker—and life has never been the same since!" He earned mixed-category DXCC in 1962, and then again for phone in 1965. Two decades later he was placed on the honor roll for the mixed and phone categories.

Anyone who visits Irv's shack can't help but be impressed with his station equipment and layout. For many of us, the shack (by itself and separate from the main house) represents an ideal operating environment we can only dream of. State-of-the-art exciters and kilowatt amplifiers feeding full-sized monobanders on a 70 ft. tower have been the order of the day for HF DX work. Lots of workbench space and test equipment reflect Irv's technical background in electronics. Other station equipment, indicative of his diverse Amateur Radio interests, includes SSTV, an OSCAR satellite transceiver, and packet radio. The wallpaper is strictly DX certificates (WAZ, DXCC, etc.) and exotic DX QSL cards.

CW is Irv's forte. One of his jobs in the Navy was to copy and post the ship's news, which came in CW form. Irv has the master telegrapher's unique ability to decipher Morse code not in single characters, but in recognizable words, and in many cases as whole sentences and even paragraphs! At one of the national ARRL conventions in Portland a few years ago, Irv won the amateur CW copying contest at 31 wpm—with a stick! (a pencil, that is—no mills [typewriters] allowed). At the same convention, international DXer Lloyd Colvin, W6KG, won the commercial category CW contest, at over 50 wpm, using a mill—with Irv as judge! (No one else present could copy that fast.)

Within the DX community, Irv was active in the Northern California DX Club for 20 years, and has been a control operator on prestigious DX nets such as the W7PHO Family Hour and the P29JS (Jim Smith) DX net. He's housed many a visiting DXer from abroad and has aided in arranging visits to the US by such DX dignitaries as Father Moran, 9N1MM. Irv himself has traveled extensively "down under" and has held the call signs VK2ENJ and ZL0AAG.

Beyond his DX activities, Irv has served as a club officer in the Mount Shasta ARC and the Siskiyou County Repeater Association. Over the years he has actively recruited many new members into the local ham community, most recently as volunteer examiner and head teacher of Amateur Radio classes at College of the Siskiyous in Weed, California.

Irv Astmann, W6OMR

Irv moved to Mount Shasta, California, in 1944, where he and his wife, Eugenia (who passed away in 1985), raised a family of two daughters and a son (the latter being K6DUX, the only one of Irv's offspring to become a ham). Irv worked several years as an electronics technician first for the Civil Aeronautics Administration (now FAA), then for the US Forest Service

for a short time; and as a clerk for the US Postal Service in Mt. Shasta for several years. He was also a service representative for both Motorola Co. and General Electric Co. for the northern California area.

Outside of Amateur Radio, Irv has been very active in civic and county affairs, having served on the Mt. Shasta city council for 16 years and as mayor for two terms. He has been a member of several fraternal and civic organizations and many public service commissions. He continues to be particularly active in those organizations relating to fish and game, and has served on the Siskiyou County Fish and Game Commission for the past 15 years. An avid hunter and fisherman, he can often be heard checking in on 2M from his favorite outdoor recreation QTH, Medicine Lake.

A dinner was held in honor of Irv, W6OMR. Seated with Irv are Geri Essig, AA6IC; Dennis, WB6MBF, and Beth Freeman.

And so here's to Irv Astmann—"Old Man River"—truly a ham's ham. Still going strong at age 78, we fully expect he will be joining the "'Ultimate Century Club" in about 22 years!

RAIN Journal for the blind

The *RAIN Journal* is a new concept in ham radio magazines; produced with the blind ham in mind, by a blind ham, this bimonthly 90-minute cassette publication consists of stimulating interviews and commentaries not found elsewhere. You'll hear the actual voices of those interviewed, not simply someone reading them. You'll also hear columns written and read by amateurs such as Sammy Garrett, AA0CR, *Westlink Report*'s "Youthlink" columnist and 1991 Young Ham of the Year; Mark Thompson, WB9QZB, whose "Bites from QZB" takes a thoughtful look at contemporary Amateur Radio issues; and *220 Notes* newsletter editor Art Reis, K9XI, with his "220 Report" of special interest to 220 enthusiasts.

Most of the commentaries are selected from packet radio and are read by various Chicago area hams. The *RAIN Journal* does not follow any bent, and RAIN receives no funding from manufacturers or supplies of amateur gear.

Alanson P. "Hap" Holly, KC9RP, RAIN director and producer, is a blind amateur who was first licensed as WN6UJH in 1965 in Escondido, California, at age 14. In the mid-70s he moved to Elsah, Illinois. Hap didn't get his feet wet on 2M until 1978. In 1984 he realized there was a real need in the greater Chicago area for an on-the-air Amateur Radio information service. He produced the BEAR (Broadcast Employees Amateur Repeater) Information Service, BIS, from 1984 to '89. Hap was on the board of directors of the IARN (International Amateur Radio Network) from 1986 to '91, and in 1987 he established RAIN, the Radio Amateur Information Network.

A year later, Holly interfaced a VersaBraille II computer to an AEA PK88 TNC for packet radio. He has found packet to be a great resource for RAIN programming. Hap produced *Chicago-Link* from Sept. 1989 to Feb. 1991. Today he continues to be a reporter for the *Amateur Radio Newsline;* exhibitor and forum moderator at the Dayton Hamvention annually; editor of the "RAIN FOCUS" column in *Radio Scan* magazine; and active member in the Illinois Army MARS.

Editorials and interviews for the *Rain Journal* from the amateur com-

munity are encouraged. To receive a demonstration cassette of this magazine, send an SASE with two ounces of postage attached or a free-matter mailer, along with $2 to RAIN, P.O. Box 2565, Des Plaines, IL 60017-2565. To hear an example of RAIN programming, call the RAIN Dialup Service at 807/299-INFO. For additional information contact Hap Holly, KC9RP, via the RAIN voice mailbox at 708/518-6551, or via packet: KC9RP @ WB9YAE.IL. (It should be noted here that Hap Holly receives no compensation as RAIN's director and producer.)

Lifesaver of the year

John B. Young, WDØFPY, was named the 1992 Lifesaver of the Year by the American Red Cross, St. Louis Bi-State Chapter in Missouri, during ceremonies held April 14.

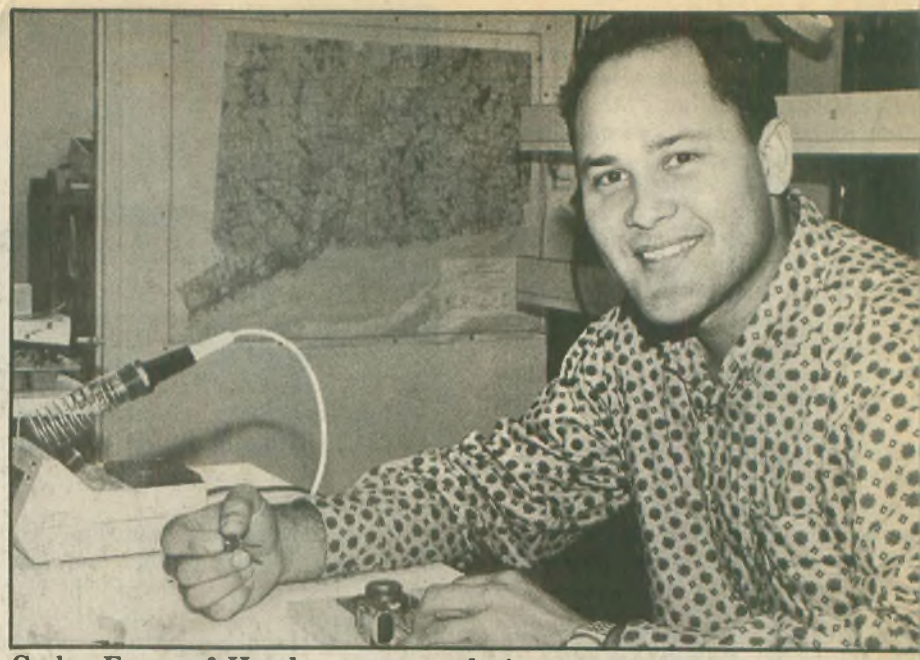
Young came to the aid of an unconscious stranger who had collapsed in the Gateway Electronics Store on Friday, April 26. He administered CPR to the customer, Robert Meyer, until paramedics arrived on the scene. The paramedics determined that Meyer had suffered a cardiac arrest. They commended Young for his quick response and proper lifesaving actions.

When asked what he thought when he saw Meyer collapsed on the store floor Young replied, "I didn't think about anything . . . I just did what I had to do."

Ironically, John hadn't planned to be working in Gateway Electronics that day. He had hoped to attend the Dayton Hamvention that weekend but, because of a personnel shortage, he had cancelled his plans and gone to work.

John, 41, has been a ham for 17 years. He is a member of the St. Louis Amateur Radio Club.

The lifesaving award is sponsored by the Red Cross, KMOV-TV, Schnucks Groceries and the *Suburban Journals*. The St. Louis Bi-State Chapter of the American Red Cross initiated the program in 1985 to annually recognize unselfish heroes in the St. Louis community. —*Information submitted by Dennis McCarthy, AAØA.* □



Carlos Funes of Honduras pauses during construction of a Morse code practice oscillator at the ARRL. Funes was one of five telecommunications officers from less developed countries who took part in a course on international radio regulations and administration.

Telecommunication executives study Amateur Radio administration

Telecommunication executives from Botswana, Honduras, Tanzania, Ghana and Romania were in Newington, Connecticut, in May to study international radio regulation and administration at ARRL headquarters.

The course was sponsored by the United States Telecommunications Training Institute (USTTI), a nonprofit organization of US corporations and government formed to provide training in telecommunications and management. Offered annually since 1985, the course focuses on international telecommunications agreements and how they affect Amateur Radio, as well as an analysis of how nations with limited Amateur Radio service can develop more effective domestic radio regulations.

"Our rapidly changing geopolitical environment, coupled with emerging technologies like packet radio satellites, spread spectrum and repeaters make this course even more necessary than it was when we first became involved," said David Sumner executive vice president of ARRL. "Today, Amateur Radio is a growing force that is helping to tie the world together. We'd like to think the USTTI program is playing a key role."

Chief instructor for the course was Richard Baldwin, president of the International Amateur Radio Union. Students included Michael John B. Olivier, director of communications, Botswana Red Cross Society, Botswana; Carlos Funes, district chief, Hondutel and Inetel, Honduras; Adam Omari Kimbisa, secretary general, Tanzania Red Cross Society, Tanzania; John Kwabna Tandoh, chief officer Communications Research and Development, Ghana; and Antoche Cristian Alexandru, chief of Bucharest Department of GTR, Romania. □

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Clean Air Trek

Over 25 members of the Warminster Amateur Radio Club, Delmont Amateur Radio Club, Penn Wireless Radio Association and the Amateur Radio Emergency Service (ARES) provided communications support for a two-day, 120-mile fundraiser that kicked off Clean Air Week for the American Lung Association. The Pennsylvania course took cyclists through Chester, Montgomery, Bucks, Hunterdon (New Jersey) and Philadelphia counties.

Lisa Phillips, N7RXR, a Rosemont resident, is development director for the American Lung Association of Philadelphia and Montgomery County. Ms. Phillips, along with Karen Lash (director of development and communications, American Lung Association, Delaware and Chester counties) and Roger Conduit (program director, American Lung Association, Bucks County) organized the local Clean Air Challenge Bike Trek in which 86 cyclists raised funds for the organization. This is the second year that American Lung Association chapters have staged the one to three-day national event (the number of days and course length are determined locally), although this was the first time it was run in the Philadelphia area. Over $1.1 million has been raised this year from treks staged in 38 locations. "The support that we received from Amateur Radio operators was a key element in helping the trek run smoothly. We appreciate your willingness to be part of that important communication network," remarked Phillips in acknowledging the role of the Amateur Radio volunteers.

Al Folsom, KY3T, and Milt MacClasky, KC3VL, coordinated the efforts of the amateurs who worked closely with American Lung Association staff. "This event was a little more challenging than the usual public service events we do. Almost all our operators were mobile, which presented both logistical and technical challenges for us," noted Folsom. Folsom, who resides in Warrington, is president of the Warminster Amateur Radio Club and Bucks County coordinator for the ARES.

The Penn Wireless Radio Association, which has over 100 members, provides support for public service activities in central and lower Bucks County.

The Delmont Amateur Radio Club, whose membership is made up of mostly retirees, has been involved in community service activities for over 25 years. The club recently mourned the death of George Simmons, W8FZR, who acted as club liaison for this event. Simmons participated on the first day of the bike trek, and died later that evening of an apparent heart attack.

The Warminster ARC has over 200 members who are involved in all aspects of Amateur Radio. Members make a special effort to participate in community oriented projects by providing communications support for such events. □

Bill Gorodetzer, K3MFI, reports in to net control that the first group of cyclists has arrived at the midpoint rest station on day two of the bike trek.

Tom Michaud, WA3TQJ, was responsible for providing communications for the mechanic van that supported 86 cyclists who participated in the two-day event.

Caribbean

(continued from page 1)

vessel began to approach the *Sea Harvest*, then stopped, then began to slowly circle her. Eddie radioed that the dark and rusty looking vessel was now just off his bow and was "beginning to back down on us." Then it stopped some 50 feet from the *Sea Harvest*. Eddie reported that the decks of the ship were lined with many men. Eddie's crew tried hailing, but no one on the other ship seemed to speak English.

The Coast Guard in Miami was now beginning to be able to hear Eddie, and Eddie could occasionally hear the Coast Guard. The Coast Guard requested that someone from the other ship board the *Sea Harvest* and the Coast Guard would put a Spanish speaking communicator on the air. However, no one from the other ship would respond. The Coast Guard provided to Eddie some Spanish words to use: "Cayman Island, which way?" and "Which direction is South?"

Somebody on board the other still unidentified ship understood enough to give a heading to the south; this direction would keep the *Sea Harvest* from entering Cuban water, at least as Eddie surmised.

With this meager bit of help, the other vessel departed, going east according to Eddie. The Coast Guard Miami and the *Sea Harvest* were in apparent solid communications by this time, with the Coast Guard directing Eddie to sail due south at 8 knots.

The three of us here on Kauai felt Eddie was out of harm's way, and that he had solid communications with the Coast Guard Miami. Also by now, many mainland amateur stations were on frequency monitoring and had reported 9+ copy from both the *Sea Harvest* and Miami. We elected to leave the frequency as the signals here on Kauai, near the mid-Pacific, were weakening. We all wished Eddie and his crew well and went QRT at 0635Z.

Subsequently, K6LHF, Norm McNamara, of El Monte, California, continued to monitor the frequency, along with many other mainland stations. Norm stayed on 14.245 MHz for several more hours. He heard the Coast Guard aid the *Sea Harvest* through some reef waters, and then dispatch the Coast Guard cutter, *Courageous*, out to sea from Kingston, Jamaica, some 400 miles from the position of the *Sea Harvest*. K6LHF then found himself needing to act as a relay link between the captain of the *Courageous* and the *Sea Harvest*, as they could not hear one another for a time. Eventually the radios of the *Courageous* and the *Sea Harvest* left the amateur bands and QSYed to a maritime frequency, 5.245 MHz, where they had solid ship-to-ship copy.

The rig here on Kauai is a Kenwood TS-950SD driving an Alpha 87A amplifier, followed by an MFJ Versa Tuner V and a Cubex four-element, five-band cubical quad at about 45 feet.

For me, this experience certainly ranks as the most thrilling, exciting, and satisfying of my 41½ years as a licensed radio amateur. □

John Hamby, WB4UZW, points out the distance between the distress signal receiving station in Kauai and the waters off Cuba.

PUBLIC SERVICE

What's a real ham?

BRAD WILLIAMS, N6CVF

When no-code was proposed I was one of those quite opposed. Then, when it passed, I accepted the fact that Amateur Radio was about to go to pot.

On January 19, at about 1300 MST, all this changed. The tie-rod on my vehicle broke 14 miles out in the desert on a gravel road. My 2M could only hit one repeater some 70 miles away. About the time I was ready to hit the panic button, having received no response to my calls, I received a call from N7VFW, Betty Henning, of Peoria, Arizona.

Betty turned out to be a newly licensed no-code Tech who proceeded to call the auto club to which I belong. When it appeared that the central dispatch in Phoenix was not getting the job done, Betty called the towing service in Quartzite directly.

Betty stayed with the task of obtaining help. The auto club would only pay for service on state or county maintained roads, but we were on a BLM road. Another club, Good Samaritan, was contacted and help was obtained. At about 1900 we were "rescued," and Betty was with us via 2M the whole time. It should be noted that this YL had been licensed less than 40 days. She was a little nervous early on but settled down like a pro.

I learned a lot about Betty during those six hours in the desert. This gal is no spring chicken. In fact, she's confined to a wheelchair but wants to take a whitewater rafting trip down the Feather River, and she's found an outfit that will take her.

In retrospect, how many of us would have undertaken to respond in such a situation during the first 40 days we were licensed? It would appear that no-code can, and does, produce licensees who are Amateur Radio operators in every sense of the word. Miss Betty Henning, N7VFW, is such a person. I have urged her to learn her code in order that we may keep in touch through HF. And I have ordered a subscription to *Worldradio* for her.

I feel that recognition of Betty's efforts may help other no-coders realize that they, too, can be true Amateur Radio operators by being of service to others. □

Wolf Creek fire communications

BOB PECK, KA7DEF

A 100-acre forest fire ravaged a ridge northwest of Wolf Creek, Oregon, destroying the telephone microwave tower and repeater on June 5. This caused an outage of all telephone traffic into and out of Wolf Creek, including the 911 system.

I am the emergency coordinator and word reached me about 4 p.m. that ARES communications help was requested. Steve Grajeda, WB6YQP, immediately proceeded to Wolf Creek, completely equipped, and Bob Cann, KG7HZ, also responded to the fully equipped ARES station in the County Emergency Operating Center. A direct communications relay link-up between the Wolf Creek Fire Department headquarters and the 911 dispatch was established by 5 p.m.

During the next day and a half the following amateurs volunteered their time at the Wolf Creek site: WB6YQP, Steve, who left his rig and antenna installed for the remainder of the emergency; N6YEM, Mike Straley, who stayed overnight; WJ7Q, Bud Holmes; K7YQM, Gene White; N7PSM and N7XTQ, Merlin and Ethel Pendray; and finally N7EZY, Carl Krupp, who stayed overnight to be immediately available should the temporary telephone fix fail. N7SUL, Glenn McCutchen, aided by relaying several messages from his home in Wolf Creek.

Those amateurs who manned the ARES station in the EOC were: KG7HZ, Bob Cann, station supervisor; KF7HW and KF7HY, Leila and Steve Horne; KB7EKF, Warren Olney, who stayed overnight; K6LU, Ben Skinner; WN7X, Lucy Bennett. KG7HZ secured and closed the station at 11 p.m. Saturday, June 6.

A review shows that 14 amateur volunteers traveled some 232 miles to provide a total of 61 hours of service and handled approximately 30 formal or informal messages. □

— SOS tip —

VERN GALLINGER, W6JAT

It seems that most mobile amateurs won't stop for anything anymore, though they do call in accidents and distress situations all the time. It's most likely that an amateur will not stop at the scene but will pick up the microphone and give the location and description of the accident and then keep on going.

Yet with this approach no one at the accident scene knows that the accident has been reported, and they probably have someone on the way to a telephone which, if the accident is in a remote area, could be 50 or 100 miles away.

Consider this SOS tip: STOP, OBSERVE, and STAY and send for help. A mobile amateur on the scene of an accident combining efforts with another amateur at his or her base station to relay traffic to the Highway Patrol or other agency in charge can make the difference between life and death.

Radio signals travel a whole lot faster than cars, and the more good mobile Amateur Radio operators involved, the better the chance that the accident victim(s) will survive. □

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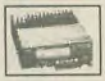

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Hurricane communications

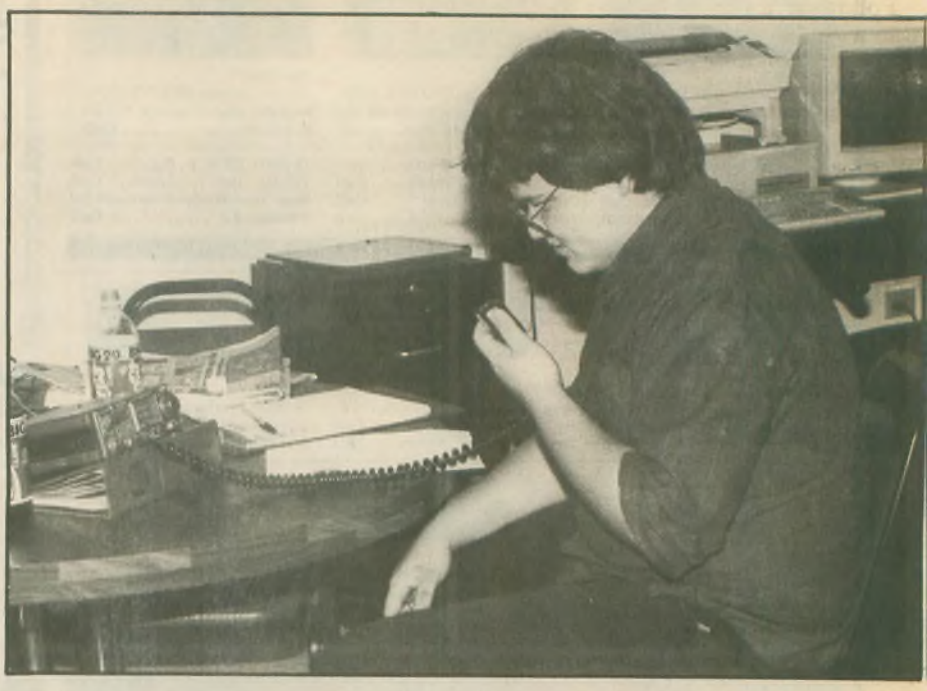
Miguel Wasielewski, KB5FTU, is 16 years old and will be a senior at San Benito High School in August. He was recently elected president of his senior class, and he plans to attend Texas Southmost College in Brownsville.

He has been active in emergency communications since he received his license, and in 1989 was presented with a commendation for his performance while stationed for the club at the school district office during Hurricane Gilbert.

Miguel holds a Technician Class licence (with code) and is sergeant at arms for the San Benito Amateur Radio Club.

Recently Miguel also participated with city and school officials in a hurricane preparedness drill conducted by the San Benito Office of Emergency Management. The drill, Poly 92, lasted three hours and primarily simulated conditions and effects of a hurricane 425 miles southeast of Brownsville.

The drill also simulated other emergencies including cutoff of water supplies and a bomb planted in a public building. Assuming power was not available in these situations, club members relied on batteries to carry out constant communication between San Benito and Austin, etc.



Miguel Wasielewski, KB5FTU, received commendation for his performance during Hurricane Gilbert.

Satisfying requirements of the Federal Emergency Management Exercises and Division of Emergency Management in Austin, this drill brought local officials together to find weaknesses in the system and make improvements.- *Information from the* San Benito News *and the SBARC .*

Emergency preparedness questionnaire

If a major event wipes out power and telephone service, what is your *instant* communications capability? How will you find out what is being done, what calling frequencies are being used, what the "plan" is? Will your equipment be rendered useless by its location (for instance, in a basement during a flood)?

Have you (1) a battery backup and (2) operational emergency power, such as a generator, available for you home station? No? Then do you have *some* kind of battery operated emergency capability for communications? Have you precut and tuned dipole antennas with coax and connectors for HF, coiled and ready for use? Can you quickly erect temporary 2M antennas anywhere?

All amateurs: Are you fully operational for SSB on the state emergency frequency, with a resonant antenna?

Novices and Technicians: Can you link up to the local 2M repeater? Are your extra batteries kept charged? Can you use your car battery?

Technicians and Generals and up: Do you have full capability for local area VHF/UHF repeaters, with emergency/battery power, and with adequate power and antennas for simplex operation?

Generals and up: Do you have full capability on 2M and on the HF net frequencies likely to be used in emergencies?

Engineers: If you're a good technician or engineer and will be needed to keep emergency equipment on the air, do you have a compact set of tools and mini-size test equipment that doesn't need 120V AC, and can you quickly grab it and take it with you in a car, truck, boat, airplane, helicopter or any other means of transportation? Don't forget an HT or other rig!

Everybody: Do you know what an emergency is? The FCC says: "any Amateur Radio communication directly relating to the immediate safety or life of individuals or the immediate protection of property."

Concerning health and welfare traffic, remember that everyone in a disaster area has a concerned relative somewhere trying to get through. While important, health and welfare traffic is *not* the same as a message about routing needed medical supplies, or providing food or evacuating the injured, ill or endangered, or relaying a massage from the president to the governor; these are *priority* or *emergency* messages.

And finally, what's legal in an emergency? Within reason, quite a lot. See "Emergency Communications: Is is Legal?" by WA6AOD in the October 1988 issue of *QST*, p. 54, or consult the FCC Rule Book. *-Arctic Amateur Radio Club*

Confessions of a know-it-all

DENNIS LANGONE, KB0IPC

Following up on a 25-year fascination with Amateur Radio, I finally obtained my Novice and then Technician Class license last March. Armed with a 25W Uniden 10M transceiver, I dutifully assembled a basic dipole on top of my roof. After an initial week of virtually dead silence confounding frantic attempts to use my new license and test the dipole (in strict accordance with Murphy's Law), I started hearing voices from all over the world and I even spoke with a few.

But the desire to upgrade soon hit. I reasoned that all those faintly intelligible stations, especially the many who couldn't hear me, would become crystal clear once I "changed something." The logical first notion was an amplifier, and what better way to save some money than to pick up an illegal CB linear and hook it up? A radio technician informed me that it would have to be modified; he said he could do it if I could get the amplifier. But when I went to the place where I'd heard the truckers got their linears and explained what I wanted to do, they looked at me like I was an investigator. Needless to say, no one knew what I was talking about.

Back to the drawing board. A different rig was out of the budget, so that left . . . antennas! I bought a couple antenna books, including the *ARRL Antenna Handbook*. The first project was called a Bobtail Array. In short, it didn't work well. I knew the Yagis sounded like the best performers but they also sounded formidable to buy or build. Finally I settled on the Swiss Cubical Quad. After two weeks of PVC and wire construction the antenna was ready to mount.

I tried mounting it to the outside of the chimney, but with the top-heavy weight and the proximity to a 20 ft. drop off the roof edge, it proved too scary. Some ventilation pipes (stand pipes) looked mighty tempting. I could just stick 20 feet of 1½ in. diameter pipe down those protruding tubes and everything would be nice and stable, including my body.

My pessimistic father-in-law warned me that things might stop up in the house. I sipped coffee, pointing out that the stand pipe diameter was four inches. And everything worked fine —the antenna, the radio and the plumbing . . . for about two months. Then one weekend, when I happened to be out of town, the excrement hit the ventilators. My wife and her parents spent several hours cleaning toilet paper out of a drain plug which a very irate Rotor Rooter man had finally managed to unscrew from its resting place of 20 years. Evidently Mr. Roto Rooter had some really foul things to say about me.

Okay, so I was warned. But no one told me the stand pipe narrowed down to only two inches near the toilets. Of course I removed the offending pole. I briefly considered sticking it down the chimney but quickly decided not to try that. The antenna is currently mounted in a more conventional way. I'm not saying exactly how, as I'm still smarting from the toilet fiasco, but I think the worst thing that can happen is that it might blow down.

When I first toyed with the ventilator pipe idea, my wife naively suggested that I talk to another ham about what I was doing. "Why don't you ask to see if someone else has used a stand pipe?" she innocently asked. I did not appreciate her interference.

Well, maybe she wasn't so naive after all. In the future you may hear some "dumb" questions from me or someone like me. Please be patient and bear with us. Keep in mind what potential disasters and calamities you might prevent. □

Dummy load

JAMES E. SACKEY, N9ESM

Everyone wants to avoid looking foolish. People new to a hobby or group are even more worried about not being "in the know" and thus being easily spotted as a newcomer. New hams should relax—even a ham of 10 years experience can do some things like a dummy.

I recently discovered a new meaning for the term "dummy load." No, it is not a reference to the weight of a ventriloquist's partner, nor is it a stupid person drinking too much. In this case, it has only a little to do with the radio operator's practice of using a nonradiating resistor for tuning up a radio before transmitting. Pour yourself a cup of coffee. Draw up an easy chair and I will explain my discovery.

After I moved into a new apartment, I started to set up my ham station in a corner of my combination living room/library/computer work station/bedroom. Okay. It's a studio apartment in the back of a one-car garage. The landlord is the greatest a ham could have.

I asked if he would object if I installed a small antenna. His answer: "Go right ahead. There is some PVC pipe and conduit along the side of the garage, use what you want."

So I proceeded to install an inverted L longwire antenna. The back lot isn't too big, only 30 feet from the back of my apartment to the property line. So the "longwire" antenna really isn't very long. Longwire antennas require an antenna tuner. Not a problem—I have a Ten-Tec model 4229 antenna tuner (see my article in *73* in late 1984) with connections on the back of the tuner to use with ladder line, a longwire antenna plus two coaxial cable connectors for coax-fed sky wires or to connect a dummy load.

With duty and a short deployment (I am active duty Navy), I mostly listened when I was home. A change of duty stations gave me less time away from the radio and more time for fun. Trouble rears its ugly face, or Murphy's law has not yet been repealed; the longwire was fine for listening, but not for transmitting. The standing wave ratio was pegged on the tuner's SWR meter. That is to say, I had more reflected power (standing wave) than I had forward (useable signal) power.

Digging in the storage locker, I found the Heathkit "Cantenna" dummy load. I had assembled it in 1982, shortly after I was licensed. I also found a short length of RG-8 coax to connect the rig to the tuner.

The use of a dummy load, for me, was vital. I know enough not to tune up on the air. After much trial and error, and most of the errors were my fault, I worked the SWR down to a respectable 1.5:1. This, I thought, was a vast improvement from pegging the needle in reverse!

Several weeks passed. I mostly listen on 10M, as that is the only HF band on which I have voice privileges, at present. The other evening, I was tuning the band and hearing only a very few stations. This is normal for the summer months on 10M. But when I went to check the time with WWV, nothing. Scanned 80M, nothing.

Checked the other bands. The same thing, nothing. Hmm, something wasn't right.

A quick investigation showed the problem. It had been a long time since I broke out and connected the dummy load. I forgot that I had left the antenna selector switch on the antenna tuner at the number three position where I had connected the dummy load. Changing the selector switch to my short longwire antenna brought signals booming into my shack.

You might expect that a long-time ham with 10 years experience would be smart enough or practiced enough to avoid such a simple mistake. Nope. Even an "in the know" ham can make such an error. So even newcomers to Amateur Radio can be reassured that we all can sometimes do something which makes us look foolish in our own eyes.

I could only look in the mirror and say to myself, "Jim, you are the dummy load." □

MFJ helps link Soviet states together

MFJ Enterprises, Inc. proudly announces the donation of MFJ-1278 Multimode Data Controllers to the Russian Amateur Emergency Service.

The MFJ-1278s will be used to set up an Amateur Emergency Network based in the R3A station inside the Russian Parliament Building to link the different Soviet states together. The units were shipped to Rick Palm of the ARRL, who co-ordinated the shipment of equipment. The MFJ-1278 Multimode Data Controllers will transmit and receive packet, FAX and other digital modes.

For more information about the MFJ-1278 Multimode Data Controller, please call 601/323-5869 or simply write to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762.

Something missing

Did you feel like something was missing from the August issue's new Computers and BASIC Stuff column? Well, you were right. The accompanying program was inadvertently left out. You'll find the correct program below, and for those who need a copy of the August column to re-read with its program, we'll be happy to send one from our offices at 2120 28th St., Sacramento, CA 95818. Our apologies.

```
10 P=3.141592654:PRINT:
 INPUT "FORM DIA ",F:
 INPUT "COIL LGTH ", H:
 INPUT "# TURNS ",N:
 INPUT "AWG SIZE ",G
20 D=.324826/SQR(1.26075
 ^G): R=H/N: IF D>R THEN
 PRINT " REDO": GOTO 10
30 A=P*(F+2*D): L=SQR
 (A^2+B^2)*N+1: C=INT
 (L/12): I=INT(L-C*12)
40 PRINT " USE";C;"FT";
 I;"IN": PRINT: GOTO 10
```

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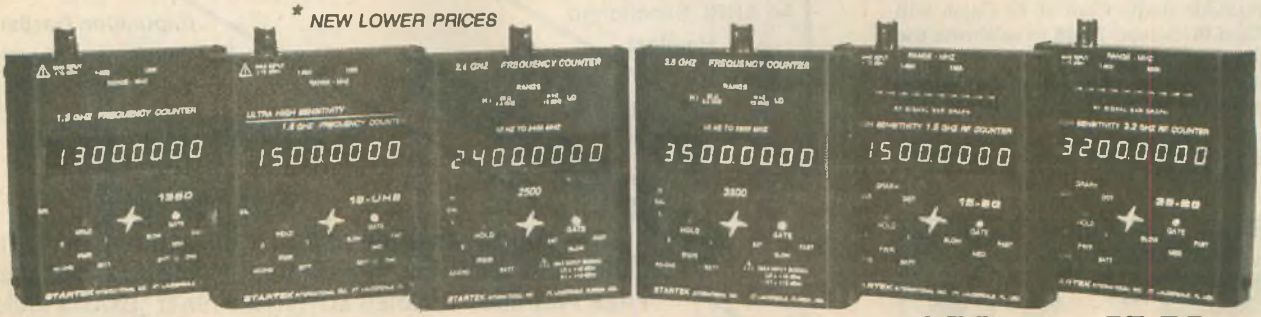

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Special Events...

Schaumberg Septemberfest

The Schaumburg ARC will operate WB9TXO on Sept. 6 from the Schaumburg Annual Septemberfest.

Operation will be on 7.292, 14.292, 21.292, and 28.392 from 1500 to 2100 UTC.

For special QSL certificate, send QSL to SARC, P.O. Box 68251, Schaumburg, IL 60168-0251.

Bogue Creek Festival

The Grenada Lake ARC will operate N5UHW and others on Sept. 12 from Duck Hill at the 10th Annual Bogue Creek Festival.

Operation will be on 3.875, 7.250, 14.250, 21.350 and/or 28.350 from 0000Z to 2400Z.

For QSL, send QSL and SASE to Bogue Creek Festival, special event station N5UHW, P.O. Box 292, Duck Hill, MS 38925-0292. Indicate worked operator's name on QSL and lower left of envelope.

City of Agoura Hills

Special Event station KM6II will be operated on Sept. 12 from Agoura Hills in celebration of the 10th anniversary of the city's incorporation.

Operation will be in the lower portion of the General phone bands from 1600Z-2400Z.

For 8½X11 certificate, send QSL and SASE to KM6II, Jeff Reinhardt, c/o Agoura Hills City Hall, 30101 Agoura Court, Suite 102, Agoura Hills, CA 91301.

Tulelake Fair

The Keno ARC will operate KG7VM Sept. 12-13 from the Tulelake Fair in Tulelake.

Operation will be from 1600-0000Z on 10M-80M as follows: SSB on the lower 20 kHz of the General and Novice portion, CW on the lower 20 kHz of the Novice, and RTTY on the applicable part of the General subbands.

For certificate, send QSL and business-size SASE to Keno ARC, P.O. Box 653, Keno, OR 97627.

Friendship Festival

The Amateur Radio Club of El Cajon will operate WA6BGS Sept. 19-20 to celebrate the annual Friendship Festival.

Operation will be in the middle of the General bands for 40, 20, 15, 10M and the Novice 10M subband.

For QSL, send SASE to ARCEC, P.O. Box 50, El Cajon, CA 92020.

Festival in Concordia

The Kansas-Nebraska ARC will operate W0WXY on Sept. 19 from Concordia in conjunction with the club's 51st anniversary and the city's annual fall festival.

Operation will be in the lower 25 kHz of the General 80M, 40M and 20M voice subbands.

Columbia River

The Clark County ARC will operate W7AIA Sept. 19-20 from Vancouver to commemorate the exploration of the Columbia River basin.

Operation will be in the lower portion of the General Class phone bands, 40M and 20M and in the 10M Novice/Tech band from 1600 to 2300 UTC Saturday and 1700 to 2200 UTC Sunday.

For certificate, send SASE to CCARC, P.O. Box 1424, Vancouver, WA 98668.

Pea Patch Island

The Quad County IRC will operate KD3XN Sept. 25-27 from Fort Delaware on Pea Patch Island.

Operation will be in the General and Novice portions of 10, 12, 15, 17, 20 and 40M.

For color aerial view QSL, send QSL and SASE to operator worked. Possible IOTA.

USS Silversides

The Muskegon Area ARC will operate W8ZHO From 1400Z Sept. 26 to 1700Z Sept. 27 on board the World War II submarine USS *Silversides*, docked in Muskegon, Michigan.

Operation will be on 3.855, 7.255, 14.255, 21.320, 28.460 and W8ZHO repeater 146.34/94.

For certificate, send QSL and 9 X 12 SASE to William Bowman KF8QT, 1661 Kings Ct., N. Muskegon, MI 49445.

Bear Bryant

The West Alabama ARS will operate a special event station Sept. 26 from the campus of the University of Alabama in honor of coach Paul "Bear" Bryant.

Operation will be on HF, 2M, 70cm and packet. HF operation will be in the bottom 25 kHz of the general phone 40 to 10M band. Packet will be via TCL5 digipeater on 145.670 MHz. Connect to WD4DAT-1 for the special event station. VHF/UHF will be on all of the area 2M and 440 MHz repeaters in Tuscaloosa.

For 8½X11 certificate, send QSL and SASE to WAARS special event, P.O. Box 1741, Tuscaloosa, AL 35403-1741.

Logger's Day

The Montrose ARC will operate N0JAB on Sept. 26 at the Western Colorado Uncompahgre Valley Logger's Day.

Operation will be on 28.325, 21.344, 14.300 and 7.125 from 1600 to 2100 UTC.

For QSL, send QSL and SASE to Montrose ARC, 15866 6200 Rd., Montrose, CO 81401.

Andy Devine Days

The Hualapai ARC will operate WA7LAZ from Kingman to celebrate Andy Devine Days.

Operation will be as follows: 1500Z-1700Z, 28.325 MHz; 1700Z-1900Z, 21.325 MHz; 1900Z-2100Z, 14.325 MHz; 2100Z-2300Z, 28.325 MHz; 2300Z-0100Z, 21.325 MHz; 0100Z-0300Z, 14.325 MHz; 0300Z-0500Z, 28.325 MHz.

For certificate, send QSL with contact number and 9 X 12 envelope with two units of postage to WA7LAZ, P.O. box 4364, Kingman, AZ 86401, or send $1 with QSL and we will furnish envelope and postage.

International Space Hall of Fame

The Alamogordo ARC will operate WA5IPS on October 3 to honor new inductees into the International Space Hall of Fame.

Operation will be in the 10M Novice band (around 28.480/490 MHz) from 1500 to 1600 UTC and on the 15M and 20M General phone bands from 1600 to 2300 UTC.

Send QSL requests to International Space Hall of Fame, Route 2001, P.O. Box 533, Alamogordo, NM 88311-0533. No SASE required. SWL requests also will be acknowledged.

Carnegie Science Center

The Breezeshooters ARC will operate W3XX Oct. 3-4 from the USS *Requin* SS481, a WW II submarine to celebrate the first anniversary of the Carnegie Science Center.

Operation will be on phone frequencies 28.450, 21.350, 14.250, 7.250, 146.52; and CW 28.150, 21.050, 14.050 and 7.050 from 1400Z to 2100Z each day.

For QSL and certificate, send 8½X11 SASE to Ron Berry WB3LHD, 326 Sunset Dr., Bethel Park, PA 15102.

James Madison Days

The Hopkins County ARA will operate a special event station Sept. 27 during the James Madison Days in Madisonville.

Operation will be in the 40M and 20M General subbands and in the Novice 10M SSB subband from 1700Z-2400Z.

For certificate, send SASE to KM4FO, Dwight Orten, 4785 Nebo Rd., Madisonville, KY 42431.

Winesburg Fall Fair

The Clyde ARS will operate NF8E from 1600Z to 0000Z on Sept. 19 and from 1800Z to 2200Z Sept. 20. from the Winesburg Fall Fair.

Operation will be on CW 7.125 and 21.150, and phone 7.250, 14.300 and 21.400.

For QSL, send large SASE to NF8E, 302 Hamer St., Clyde, OH 43410-1212.

Edwin Howard Armstrong

The Will County ARL of Illinois will operate W9OFR/SE Sept. 6-13 to commemorate the 80th anniversary of the invention of the regenerative receiver by Edwin Howard Armstrong.

Operation will be on 28.400, 14.255, 7.200 and 3.900 on SSB; 14.055, 7.060 and 3.690 on CW. The regenerative receiver will be on 7.138.

For QSL, contact Frank W. Rasmusson, KA9VPH, 1717 Inner Circle Dr., Crest Hill, IL 60435.

Prince of Mines

The North Carolina Chepter of the Triple States RAC will operate a special event station on Sept. 26 from the Prince of Mines in Gold Hill, North Carolina, the largest gold mine east of the Mississippi.

Operation will be on 28.350, 7.260 and 14.250 from 1300 to 2200.

For QSL, send SASE and QSL to Walt Bastow, N4KVF, 3045 Highrock Rd., Gold Hill, NC 28071.

Corona races

The Corona Norco ARC will operate N6MWH from 1500Z Sept. 12 to 0300Z Sept. 13 to commemmorate the 79th anniversary of the first automobile race in Corona.

Operation will be near 14.250 and 28.450 MHz.

For commemmorative QSL, send SASE to CNARC/ Barney Oldfield, P.O. Box 1783, Corona, CA 91718.

Wyoming County Red Cross

The Endless Mountains ARC will operate NX3Y from Sept. 2 to Sept. 7 from the Wyoming County Fairgrounds near Tunkhannock, Pennsylvania, to commemmorate the 75th anniversary of the Wyoming County Chapter of the American Red Cross and the annual Wyoming County Fair.

Operation will be in the General Class phone bands (80M to 10M) approximately 10 kHz from the lower band edge from 1600Z to 0000Z.

A certificate will be issued for each contact. Send a business-size SASE to Walt Jones, KB3QW, 600 Constitution Ave., Duryea, PA 18642.

Columbus

The Bahamas ARS, C6ARS, will operate C6A500 throughout the month of October to commemmorate the 500th anniversary of the discovery of the New World by Christopher Columbus.

Operation will be continuous during 0001Z to 2359Z Oct. 12, otherwise intermittent coverage will be kept through October. Frequencies as follows: 3.590, 3.740, 7.030, 7.090,, 7.290, 14.070, 14.135, 14.290, 18.150, 21.140, 21.204, 21.390, 24.950, 28.190, 28.350, 28.990, 146.640D(-600).

For QSL, send SAE and three IRCs to BARS, Box SS-6004, Nassau, Bahamas, or Bahamas Bureau. For Award, send copy of log and three IRCs.

Silent Keys

Z.P. "ZIP" MELCON, K6BMW

Z.P. "Zip" Melcon, K6BMW, a San Rafael, California, resident for many years, died at his home in Durham, Friday, June 5, 1992, at age 71.

He graduated from Stanford University with a degree in electrical engineering and served in the United States Navy during World War II. His 40-year professional career was with Pacific Gas and Electric Co. until his retirement in 1981.

Zip's retirement years were involved with his interests in Amateur Radio. Many amateurs have had his assistance in troubleshooting and antenna installations. He was active on many nets and was a reliable control station of the Western Public Service net for several years. As a director of the Amateur Communications Society, Inc., he helped with installation of the present hub system of communications now being used on 2M. Providing reliable phone patch traffic for personnel at Palma Station, Antarctica, was one of his specialties.

He is survived by his wife, Marcie, and five sons, their wives and many grandchildren. There are several Amateur Radio calls in the family.

Zip was one of several area hams who have "received their final calls" recently. Nels Leckikner, N6AQY, passed away on June 14; Jim Tucker, WB6KEM, died in Florida; and Warren Sitchel, W6EJY, who had been living in San Francisco the last few years, also passed on. Warren was one of the early supporters of VHF repeater enthusiasts in the San Rafael area, then called the Very High Frequency Expeditionary Society.—*Information submitted by Leonard A. Spencer, WA6CBQ.* □

Product Review

Tejas Backpacker I

RICHARD ARLAND, K7YHA

Texas is famous for two things: the Alamo and H. Ross Perot. Add a third: Tejas (pronounced Tay-hoss) RF Technologies. Bill Hickox, K5BDZ, is the president, CEO and chief design engineer of Tejas, and he has designed and marketed a very nice QRP transceiver. Enter the Tejas Backpacker I, TRFT-500, a single-band HF CW transceiver based on the extremely successful Roy Lewallen, W7EL, design presented in *QST's* August, 1980 issue.

I know what you are thinking—just what the QRP world needs, another cutesie little low power rig with mediocre performance at an outlandish cost. Untrue, my friend . . . stay tuned.

Bill Hickox is a man with a mission. This mission is to provide the QRP world with a well-designed, easily reproducible, cost effective product line of low power transceivers and accessories. His methodology is simple: Take a well engineered, previously published design, refine the circuitry and market the result. Bill states it well: "Why reinvent the wheel every time you need to make a cart?" Why, indeed?

In the grand scheme of things there are only so many NE-602 based receiver designs and VXO/VFO transmitter designs that can be published before it all becomes rather ho-hum. Bill started with an outstanding design by W7EL, refined the circuitry a bit (after all it has been 12 years since the article hit print) and added his own distinctive ideas. This evolutionary process has resulted in one of the finest little single-band CW QRP transceivers that I have ever had the pleasure to use, the Tejas Backpacker-I.

Everything about this little single-bander smacks of quality. The rugged enclosure is custom-made for the rig and features crisp black silk-screened lettering which stands out well against the anodized aluminum of the case. The front panel is extremely uncluttered, featuring a main tuning knob at dead center. To the left is the on/off/volume control, CW filter control and the earphone jack. On the right side of the front panel is the spot switch, the receiver incremental tuning (RIT) control and the key jack. The back panel features an antenna jack, 12VDC input jack and the Tejas logo.

The Backpacker-I is composed of a very stable VFO circuit, coupled to separate receiver and transmitter

boards via shielded cabling. The receiver uses no RF preamplification prior to the mixer. This greatly reduces the problems associated with high gain RF front ends and direct conversion receivers, namely AM breakthrough, intermodulation distortion and degraded receiver performance. The mixer is a Mini-Circuits SBL-1 double balanced mixer that provides an extremely clean audio signal at the output. The VFO output is mixed with a crystal controlled HFO to provide the necessary input to the SBL-1 mixer. The antenna is connected to the other input port of the SBL-1 via a fixed tuned circuit. Audio (AF) output is then taken from the output of the mixer and fed into a two-stage op amp (TL-072). The first stage is a fix-tuned AF filter (750 Hz). The second stage is used to increase the gain of the audio signal. From there the AF signal is fed into a second TL-072 op amp which functions as a two-stage CW audio filter with switchable selectivity. From the output of the CW filter, the AF signal is routed to an LM-386 audio amp which provides plenty of gain for earphones or a small speaker, in a quiet room.

The transmitter circuit is straightforward with the output of the VFO being fed into a buffer stage which is keyed and followed by a driver and final RF amplifier stages. The final stage uses a 2SC799 which is a very rugged RF transistor that will handle 6W easily. The collector to base junction has a 36V zener diode across it which will offer some protection to the final transistor, should the antenna load become shorted or open. The transmitter features a traditional low-pass filter using toridal inductor.

My review rig was the 40M version that had been factory assembled prior to Dayton. In addition, I received a 20M version in kit form from Tejas RF Technologies about a month after Dayton. This rig was assembled and used on several family camping trips.

The Backpacker-I kit features quality parts and a good manual. Parts overlays have been enlarged from the original manual to provide easier parts placement. This is *not* a beginner's kit! The kit is designed to meet the requirements of the QRP ARCI's contest criteria for a homebuilt rig; therefore, the "Heath-style" instructions are missing. Even though the board density is not great, you must take your time and be careful when placing parts on the boards. It is easy to miscalculate and plug a part in the wrong hole if you are not careful. *Take your time and work carefully.*

The kit went together relatively easily and worked from initial power-up. Bill offers assistance to anyone who buys one of his kits and has trouble making it work. The buyer has only to return the offending unit and Bill will troubleshoot it and get it working at minimal cost.

The Backpacker-I is a joy to use. The receiver is extremely sensitive and does not have problems with AM breakthrough. This is a real treat, especially on 40M at night! The transmitter puts out a clean 2W signal that sounds very nice, due to steps taken to

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properly shape the keyed waveform. The full break-in operation (QSK) was a delight. No popping or pumping was noted on either radio when keying along at 20 to 25 wpm. Frequency spread using the stock components and silk-screened dial is 200 kHz with very good linearity. The main tuning features a 6:1 vernier drive and a large 2 in. diameter knob which makes easy tuning even on crowded bands. Bill offers modifications to alter the tuning range and ships an uncalibrated dial skirt (with each kit) so you can lay out your own customized tuning range, if desired.

In direct comparison with the A&A Engineering 40M rig that I reviewed last year and the MFJ 9020 20M rig (tested at Dayton), the Backpacker-I performs quite well. Remembering that the first two radios feature superhet receivers with crystal filtering, the Tejas rig definitely holds its own. The emphasis as of late seems to be moving toward using a superhet receiver design in QRP transceivers because of their "single-signal" performance. Superhet designs are a two-edged sword. On one hand, selectivity can be enhanced using crystal filtering in the IF strip, something that the DC receiver cannot do. Unfortunately, this also has the drawback of dropping one sideband in favor of the other, not necessarily the best thing to do under certain circumstances.

While it is true that DC receivers "hear" both sidebands, if you use the proper zero-beating technique, this is actually a plus, because it give the operator a choice of both sidebands. If the upper sideband is cluttered with QRM and the lower sideband is interference free, it is a simple matter to use the RIT control (on both review radios the RIT range was about 1.5 kHz either side of detent) to select the lower sideband once the incoming signal is centered by zero-beating. There is no transmitter offset using this technique. You simply center the RIT using the detented control, tune in the desired signal by zero-beating it in the receiver passband, and then tune to one sideband or the other using the RIT control. The other operator will never know that you are not using transmitter offset, because your signal is zeroed on his. Adding a second crystal filter to a superhet design just to select both sidebands is an expensive proposition, well beyond the expense justified in a simple homebrew QRP transceiver.

Bottom line on the Tejas RF Technologies Backpacker-I CW transceiver kit: a good value for the money, relatively easy to build, excellent performer, size and power requirements are just right for portable work (key down current drain is 273 mA and RX current drain is about 61 mA), a joy to use, and can be easily converted to other bands (80 through 10M) using parts supplied by the manufacturer. On the down side, there is no AGC and no crystal filtering (two things that a superhet design can provide). The price for the kit version is $139.95 plus shipping. Bill is now offering completely assembled kits for whichever band you desire at a cost of $189.95 plus shipping.

As a side note, I spent several hours with Bill Hickox at Dayton this year and came away impressed with his resolve to provide a quality product at a competitive price. Bill is dedicated to the idea that homebrewing should be a part of the QRP hobby. He encourages those who buy his products to experiment with the circuitry and send him feedback on modifications. Once you get a Backpacker-I, you'll notice that the case has plenty of room for additions like a CMOS keyer, battery pack, antenna tuner, etc. In short, Bill wants you to play with your new rig and have some fun.

For further information regarding the entire Tejas RF Technologies product line, write Bill Hickox, K5BDZ, at 17 South Briar Hollow, Suite 101, Houston, TX 77207. □

RFI filter plus

Brilliant, absolutely! In an era when the average instruction book reads as if it were translated from ancient Sanskrit (or into it) one company has leaped head and shoulders above the others.

It is disturbing after spending a week's salary on a product to get assembly directions which look as if they were cranked out on a 1930s mimeograph machine with a worn-out stencil.

So, let us praise a company known as K-Com. With their $14.95 (plus $1.50 shipping and handing) telephone RFI filter they send a four-page technical bulletin that is not only engineeringly interesting but cleanly and clearly written.

It is a brilliant piece of work and well printed also. This should be adopted as the text for telephone interference in the various handbooks for amateurs.

As opposed to some writers ("Let's see how pompous I can sound by stringing out 30- and 40-word sentences") K-Com proves that you don't have to write Simple Simon prose or "down to people" to be understood.

It shows a great deal of respect for the customer to give such a fine document outlining the problem of telephone RFI and then how to solve it. One can spend five times as much money with some other company and get a poorly printed, typo-filled, bare explanation. Get the technical bulletin and you can be the sage of the radio club when it comes to TI.

K-Com manufactures four different filters, depending on the severity of the situation and the different solutions and placements necessary to block the RF. They can be reached at P.O. Box 82, Randolph, OH 44265; 216/325-2110; FAX 216/325-2525. □

I'M JUST TRYING TO GET A VALUE PERSPECTIVE HERE--- I'D SAY EACH SLEEVE IS WORTH AN ICOM IC229H, THE MAIN BODY IS EQUAL TO A TEN-TEC PARAGON, AND THE COLLAR------

AWARDS

Anguilla certificates

Special event certificates issued by the Anguilla Amateur Radio Society in commemoration of the island's 25th year of separation from the Caribbean islands of St. Kitts and Nevis have been mailed out to those amateurs who applied for them.

Several Anguilla stations were operational during the period of the special event, from August '91 through May '92, including VP25EE, VP25EHF, VP25EBN, VP25EL, VP25EI and several stations with reciprocal licenses who appended VP25E to their calls. Contact with only one of these stations qualifies an operator for the certificate.

Anyone who worked a VP25E station, normally VP2E, can still receive a certificate by sending $5 (no SASE required) and a log extract to John Rouse, KA3DBN/VP2EBN, 2730 Bartlett Ln., Bowie, MD 20715. There is no deadline for applying for the award but once the present supply of certificates is exhausted they will not be reprinted.

All funds from the certificates will go toward the refurbishment of the Boy Scout/Girl Guide Amateur Radio station on the island, VP2EQ; it is hoped to have the station operational before the end of 1992. Any further inquiries about the award or membership in the AARS should be addressed to KA3DBN at his *Callbook* address.

ARRL Atlantic Division

The ARRL Atlantic Division awards were presented at the Atlantic Division Convention and Rochester Hamfest, May 16, in New York. The 1992 Atlantic Division Amateur of the Year is Bob Josuweit, WA3PZO, of Philadelphia, Pennsylvania.

Bob has represented the Atlantic Division as a member of the League's public service advisory committee since 1979 and served nine years as section emergency coordinator for eastern Pennsylvania. He played key roles in amateur communications during the 1977 Johnstown flood, Hurricane Agnes and the Three Mile Island nuclear plant accident. Most recently, Bob helped plan for possible amateur communications under the National Disaster Medical System during Operation Desert Storm.

In addition to ARRL activities, Bob has been an officer of the Mid-Atlantic Amateur Radio Club. A member of the Olympic Torch Relay Team for the 1980 Winter Olympics in Lake Placid, he was selected by the team to lead the parade at the 10th anniversary of the Olympics in recognition of the contribution made by Amateur Radio to the event.

The Grand Ole Ham award, which may be conferred upon Atlantic Division OMs and YLs who have been licensed at

least 30 years or are at least 50 years of age, was given to Clarence Snyder, W3PYF, of Easton, Pennsylvania.

First licensed in 1947, Clarence has been active in emergency communications in Northampton County through RACES and ARES. He served as ARRL section communications manager in 1955 to '56. He also served as president of the Delaware-Lehigh ARC, and he now serves as editor of the club newsletter, *W3OK Corral*. A popular packet mailbox operates from his home.

Many amateurs in his home area credit Clarence as their elmer. He is a radio merit badge counselor for the Boy Scouts and has promoted Amateur Radio to groups of Scouts since the 1940s. As a professional industrial photographer and member of prominent civic organizations, he has been a key figure in local publicity for Amateur Radio.

The Technical Achievement award has been presented to two amateurs known for their activity on the microwave bands. Owing to the outstanding accomplishments of David Hallidy, KD5RO, and David Mascaro, WA3JUF, the awards selection committee vote was a tie, and both men were honored equally.

David Hallidy, KD5RO, of Pittsford, New York, is past president and contest chairman of the Rochester VHF Group. He has also served as an official of the North Texas Microwave Society and Central States VHF Society. He holds a number of records on the VHF/UHF/microwave bands and has taken part in many ground-breaking experimental operations. In addition, he has contributed articles and reviews to many publications. For the past four years, he has been working to make EME communications more easily accomplished by the average amateur, through the use of moderate power and optimization of small antennas. Besides being an experimenter and contester, David has taught Novice license courses and elmered many of his graduates through their upgrade exams.

David Mascaro, WA3JUF, of Ottsville, Pennsylvania, is an active member of the Mount Airy VHF Radio Club, better known as "The Pack Rats." His inventiveness with solid-state microwave technology has spurred activity on 903 and 2304 MHz in the Philadelphia area. His technical articles have appeared in *QST*, *QEX*, and *Ham Radio* in addition to the club newsletter, *Cheese Bits*. He is particularly known as a gifted designer of preamps and amplifiers. Besides his promotion of microwave operation through publications and presentations at VHF conferences, David is also the author of a computer logging program for the VHF/UHF contester. His reputation rests not only on his technical accomplishments, but also on his readiness to become involved in helping other amateurs become more proficient operators and solve their technical problems.

Kentucky Bicentennial Award

This year, 1992, is the bicentennial year for the commonwealth of Kentucky. To celebrate this special occasion, the Western Kentucky DX Association offers the Bicentennial Award to stations contacting Kentucky amateurs during 1992.

Any amateur band or mode may be used. US stations need QSOs with 10 different Kentucky stations during this

year, while DX stations need QSOs with only five different Kentucky stations. The award is also available to SWLs. Several special event stations will also be celebrating the bicentennial during the rest of the year.

To apply for the award send GCR list and $1 or two IRCs to Western Kentucky DX Association, P.O. Box 73, Alvaton, KY 42122.

Ameritron *doubles* average SSB power . . .

NEW AL-80B kilowatt output desktop linear can double your average SSB power output with high-level RF processing . . . runs cooler because its Eimac 3-500Z tube completely turns off between words . . .

Ameritron's legendary AL-80A kilowatt amplifier has been completely redesigned and extensively improved.

The all NEW AL-80B kilowatt output desktop linear can double your average SSB power output with high-level RF processing using Ameritron's exclusive Dynamic ALC™.

You get cooler operation because the AL-80B's exclusive Instantaneous RF Bias™ completely turns off the Eimac 3-500Z tube between words. It saves hundreds of watts wasted as heat.

NEW! $1195 Ameritron AL-80B Suggested Retail

You get a full kilowatt PEP *output* from a whisper quiet desktop linear. It's a compact 8½"Hx14"Dx15¼"W and plugs into your nearest 120 VAC outlet. Covers all bands 160-15 Meters, including WARC and MARS (user modified for 10/12 Meters with license).

You get 1000 watts *output* on SSB, 850 watts *output* on CW, 500 watts *output* on RTTY, an extra heavy duty power supply, genuine Eimac 3-500Z tube, nearly 70% efficiency, tuned input, Pi/Pi-L output, inrush current protection, multi-voltage transformer, dual Cross-Needle meters, QSK compatibility, Two-Year Warranty, Made in USA, plus much more for only $1195.

Dynamic ALC™ doubles average SSB power

The AL-80B's exclusive *Dynamic ALC™* gives you high-level low-distortion RF processing. When activated, it can more than double your *average* SSB power and produce up to 6 dB improvement in intelligibilty. It maximizes your talk power without distortion and splatter.

A convenient front panel control lets you adjust your output power level.

Instantaneous RF Bias™ eliminates heat

The AL-80B's exclusive *Instantaneous RF Bias™* completely turns off the Eimac 3-500Z tube (except filaments) between words and dots and dashes. It eliminates hundreds of watts wasted as heat to give you cooler operation and longer component life.

Gutsy Heavy-Duty Power Supply

The guts of the AL-80B is its heavy ***heavy*** duty power supply. A 26 pound transformer using a high silicone steel core, computer grade capacitors, heavy duty bleeders and ten 3 amp, 1000 V power rectifiers give you a stiff 2700 volts fully loaded. Many amplifiers using *two* 3-500Zs use such small power supplies they don't deliver much more power output than the AL-80B.

Genuine Eimac® 3-500Z Tube

The AL-80B uses a *genuine* Eimac® 3-500Z tube warranted by Eimac® -- not cheaper, less reliable 3-500Zs used by some competitors.

70% efficiency

The AL-80B is built on a rugged steel chassis. It has a separate RF compartment that's fully shielded to keep RF from leaking out. This keeps RFI and TVI to a minimum.

Superb RF design and layout, Hi-Q tank circuit and commercially rated RF power components give you nearly 70% plate efficiency over the entire operating range. Your power goes into your antenna instead of heating up your amplifier.

A whisper quiet internal fan draws in cool air over power supply components and pressurizes the 3-500Z tube compartment to remove heat for longest life.

Tuned Input lets your rig deliver full output

A 50 ohm broadband Pi-Network *tuned input* is used. Even the fussiest solid state transmitter will deliver full power to your AL-80B.

Low loss slug tuned coils -- tunable from the rear panel -- let you optimize performance.

Pi/Pi-L Output Network

A carefully designed Pi/Pi-L output network using the optimum Q for each band gives you exceptionally smooth tuning, extremely wide matching range, full band coverage and peak performance at all power levels.

Ball bearing venier reduction drives with logging scales on both the plate and load controls make tuning precise and easy. It also lets you rapidly retune to your favorite frequency.

Step-Start Inrush Protection™

When you first turn on your amplifier, a massive inrush current flows.

Your house lights flicker as you hear a loud "thump" from your amplifier. This terrible inrush current stresses all your power supply components to their limits. Your cold tube filament suffers abusive thermal shock.

Eventually, this massive inrush current will damage your amplifier.

The AL-80B special *Step-Start Inrush Protection™* stops damaging inrush current.

By starting your AL-80B through a 10 ohm current limiting resistor, then shorting the resistor with a relay, the AL-80B gives you a start up sequence that's *easy on your tube and power supply components.*

Multi-Voltage Power Transformer

Excessive line voltage stresses components and causes them to wear out. Low line voltage causes a "soft-tube" effect — low output and signal distortion.

Ameritron's exclusive *Multi-Voltage Power Transformer* lets you optimize for different line voltage. Select from 14 different *primary* voltages from 90-140 VAC and 205-250 VAC.

The *high voltage secondary* can be wired to reduce plate voltage for efficient operation below 400 watts for use outside the USA.

Dual Illuminated Cross-Needle Meters

Ameritron's dual illuminated cross-needle meters give you *four separate meters* to monitor your operating conditions – you can tell right away if something is wrong.

Grid current, plate current and forward PEP output power are *continously* monitored to tell you of improper loading and abnormal conditions.

The fourth meter can be switched to monitor your 3-500Z tube DC plate voltage, reflected PEP power and the SWR of your antenna, ALC voltage to your rig and the grid current that starts ALC action -- you get a clear operating picture of your AL-80B.

QSK Compatible

The fast *custom* T/R (transmit/receive) relay in the AL-80B switches nearly as fast as some vacuum relay QSK T/R switches.

For *lightning fast* QSK operation use the optional external Ameritron *electronic PIN diode* QSK-5 T/R switch or the internal QSK-5PC. Please contact Ameritron for details.

Plus more . . .

An Operate/Standby switch lets you run barefoot, but you can instantly switch to full power if you need it.

Has transmit LED; 12 VDC, 200 mA accessory jack; 12 VDC keying relay for solid state and tube rigs; tough, nearly indestructible Lexan-over-aluminum front panel.

Shipped with transformer installed and wired for 120 VAC. Draws 12 amps at 120 VAC.

Two Year Warranty: Twice the protection of our nearest competitor

No other kilowatt amplifier comes with a 2 year warranty. In the unlikely event that there are defects in materials or workmanship Ameritron will fix it free for 2 years -- others may give you a *prorated* warranty.

The Eimac® 3-500Z tube is covered by Eimac® 's warranty.

Made in USA

The AL-80B is made the USA. You're keeping your money here in the USA and helping fellow Americans. Why settle for a copycat toy when you can have the real machine?

Call your dealer for your best price

Enjoy the world's most powerful and coolest single 3-500Z tube amplifier. Call your favorite dealer for your best price and order your AL-80B today.

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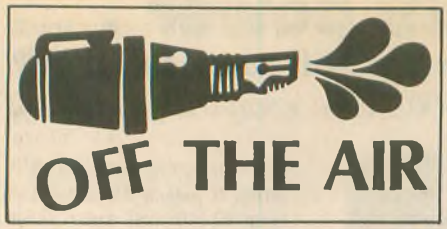


Authority on the bands

Your article in the FCC Highlights column, July issue, regarding the FCC crackdown on illegal operators above the CB band got me all fired up. Why would licensed amateurs operate on an illegal band putting their licenses in jeopardy? Could it be that it's pretty peaceful operating in that area?

I always have my general coverage receiver on when I'm puttering and have listened to pseudo amateurs between 27.405 and 28 MHz and found them, generally, to be proper operators without proper calls, unlike the fellow in the 80M net who lambasted a breaker unmercifully. Why? Because the breaker had the unmitigated gall to have a weak signal (5×6).

I'll skip over most of the guff I hear on the other amateur bands and get right to 20M, 14.313 MHz and thereabouts. I would like for someone to explain to me why I had to get a General Class license before I could operate 20M with these boneheads. The cat callers, interfering signals, crybabies and profanity users near this frequency are an international embarrassment to Amateur Radio and US citizens in general. What do you suppose a new German operator, for example, would think of our American hams upon hearing this chaos?

The AM portion of the CB band with animal noises etc., will always be a "free for all," though at least limited to 5W input—unlike the 20M amateur with his amplifier and beam antenna splattering a few KCs above and below his beloved 14.313 MHz.

If the FCC can't babysit the amateur bands, then we have to do it ourselves. What's missing to accomplish this is not technology, but authority.

NEIL A. CLINE, KB8KVX
Royal Oak, MI □

"Freebanders"

It has been long overdue and I am glad to see that the FCC is finally going after the "freebanders" illegally operating between 27.405 and 28 MHz. Unfortunately they don't stop at 28 MHz. When propagation is good on 10M, you can often hear CB-type stations operating on the lower portion of the 10M amateur band. A lot of these stations are outside the US, but there are quite a few stateside CBers using our frequencies. The truckers seem to like 28.085, in particular. I wonder if the FCC is going to help us out on the amateur bands and go after these illegal stations also?

I was disturbed to read that some of these freeband operators being caught were amateurs. Why would someone go to the effort to obtain an amateur license and then operate illegally on 27 MHz?

Even more disturbing is the amount of illegal operation on the amateur bands *by amateurs*. On several occasions I have heard US stations operating SSB below 28.3. A Canadian (VE) station was overheard advising two US stations that they were operating out of the US phone band, only to be told that it was none of his business; there was less QRM on that frequency and, "we are not interfering with anyone so why should anyone care?" One of the stations used his call sign but the other station "was his CB buddy who was going to get his license so they were checking out his radio."

Another instance of two stations operating in the phone band: one commented that his new license was the no-code Technician Class. The other station was an Extra. A third station challenged the Technician licensee for operating on 10M which was in violation of his class of license. After some discussion, the Extra Class amateur suggested that he and the Tech licensee should QSY back down to 27.995 where they had originally begun their conversation.

I suspect that many of the new amateurs joining our ranks are bringing their "I-didn't-pay-any-attention-to-rules-on-CB-so-why-should-I-here?" attitude with them. Perhaps the actions the FCC is now taking will help change those attitudes toward rules and regulations.

BILL HARRIS, K5MIL
Roanoke, Texas □

"Q" signals on phone

This is in regard to the Amateur Hi (June issue) submitted by Nathan Gordon, KB9HEG. Nathan's final remark was, "I have never made that mistake again!" Nathan never made a mistake in the first place. His initial reaction to "QSL?" was correct. It was the "lid" operator he was working.

There seems to be a new era of phone operators today. Everything they say is ended with "QSL." These "Q" signals were created for CW operators and soon became terminology for our confirmation cards. However, this particular "Q" signal, "QSL," has been twisted into a babble of senseless meaning.

To go with it a bit further, CW ops didn't really use it either. The signal "R" was all that was necessary, and phone ops used the phonetic term "Roger."

Me thinks a lot of the horrible examples of phone operations on the bands today were born on 10M. Brand new amateurs learn from others. Unfortunately, they should have been learning on CW, as in the old days.

JOHN MINKE, N6JM
Carmichael, CA □

Middle-aged hams

As I read the journals and the amateur magazines, and as I listen to all of the discussion about our hobby, I can't help but think that we are missing the boat when it comes to the recruiting of new members.

As an educator and vocational school administrator, I come into contact with high school students every day. I also get to visit with elementary school students, as I have three daughters in grades six, four and Kindergarten. I am 38 years old and qualify as a middle-aged ham.

I was 35 years old before I even thought about Amateur Radio. In the past three years, I have held ham club offices and have worked with our local Civil Defense and weather watch program. And I think herein lies a real dilemma for those of us who are actively recruiting new hams.

We have a full-blown HF station set up at the vocational center where I am the director and business manager. This station is part of our electronics program, and each student who takes electronics has the opportunity to experience Amateur Radio first-hand. Some take an interest and some yawn and move on to other interests.

But there is one thing that each and every student asks as they are exposed to Amateur Radio. The immortal question is, "How much does all of this equipment cost?" We explain that you can get started for a few hundred dollars, or that you can use the equipment here at the school for nothing, but with cars, dates and time spent working, they just can't or won't get their ticket. Some do, but I speak of the majority, not the minority.

Here is an area of recruitment that I feel we as a group overlook. Why don't we actively "go after" the 30 to 50-year-olds in our communities. This group has several things going for it in terms of amateur involvement.

For one, this age group generally has the financial means to get involved with a hobby that may require an investment of a few hundred dollars to get going.

This age group also has more leisure time to devote to such a hobby, without taking time away from the "big three" (cars, dates and work).

Because of additional time on hand, these amateurs are more apt for community involvement. When we recruit new members, we don't just want new operators; we need hams who will spend time with the hobby as a whole. Community service, club service, etc., are areas in which we need more help than ever.

Older amateurs are also more mature. I speak in generalities, as we all know of middle aged individuals who are about as mature as my six-year-old. But for the most part, the more mature the operator, the more responsible the operator.

Much press and effort has been given to recruiting new amateurs. The retired hams and the youthful hams have been the focus of most of the recruitment efforts, and that's great. But let's also spend some time with the middle-aged of our society. I think that they make the best hams.

JOHN EMMETT, N0MHZ
Aberdeen, SD □

The gain game

Can't begin to tell you the joy felt from reading Lil Paddle. I have always wondered what ever became of truth in advertising. I am constantly on a soap box about the "gain game" being played in the antenna business.

DICK AUSTIN
AUSTIN ANTENNA
Gonic, NH □

Thomas H. Fielder, W4EPL STATION APPEARANCE

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

Winners will also receive a top quality, Laserjet-printed copy of the DXCC and WAS BeamHeadings list (a $15.95 value) compliments of Jack Hurray, W8JBU.

This month's featured station is a classic old knobs-only setup.

In 53 years of more or less active Amateur Radio operating I have never owned a commercial transmitter. In the early years the biggest factor was lack of money, and in the latter years it was the joy of building. If I had it to do over again today I believe I would have to call on the Japanese for help!

The present station was completed in 1965 and has been running ever since with very little change. I am most active on the 40M band, but I also operate on 80, 15 and sometimes 10M, all SSB. On rare occasions I have an uncontrollable itch to pound brass. This always results in a most pleasant experience since it assures me that I can still handle a CW QSO, speed permitting.

From the upper left, my station consists of an audio oscillator, frequency standard and crystal net frequencies; modified oscilloscope to observe my signal; and 35W exciter unit. This low-power transmitter operates on all the older bands, CW, SSB and AM.

The lower shelf houses my receiver with power supply, modified BC 348 and separate converters for 10, 15 and 20M. The BC 348 was equipped with a Collins mechanical filter, product detector and selectable sideband. This modification was published in the March 1966 issue of *QST*. On the far right is the linear amplifier consisting of a pair of 4X250Bs running about one kilowatt. The control panel includes a phone patch, CW tone monitor, SWR meter and push-to-talk switch. Antennas are dipoles on all bands.

No bells or whistles, but I enjoy turning knobs. You can find me most any day around 7.290 at 12 noon on the South Carolina Lunch Bunch Net. □

Amateur "Hi"

Fred Charavay, W8IHJ—"I have junk"—reviews 2M phonetics.

About fifteen years ago while living near Traverse City in Michigan, the XYL and I attended the hamfest in the upper peninsula of Michigan at Newberry.

Answering a ham on 2M, he asked for verification of my call. I replied, "W8IHJ—I have junk." The reply came back, "This is W8NBJ—nothing but junk." After a few transmissions, another voice came in. "This is W8JP—junk pile." This appeared ironic to me as well as a lot of junk.

We agreed that "2M" phonetics for "J" is a tough one, and we met at the *right* place, a hamfest! □

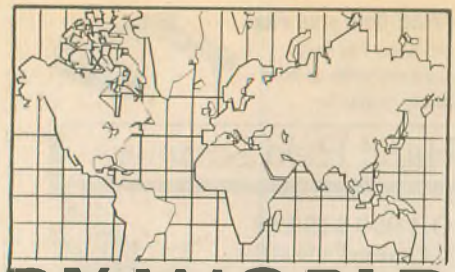
VE7 code practice

There is a source of on-the-air code practice which I have found to be most helpful. Perhaps other hams would like to know about it.

It is on 22 hours a day, every day, on 14.0533 MHz. The signal originates in VE7-land and is from KY0G/VE7. In the Chicago area I find him to be RST 599.

On Mondays and Fridays he sends 20 minutes of each of the following speeds and then repeats the cycle: 5, 7, 10, 13 and 15 wpm; on Wednesdays and Sundays: 15, 18, 20, 25 and 30 wpm; on Tuesdays, Thursdays and Saturdays: 15 wpm all day.

He also sends code practice on 21.054 MHz from 1730 to 1930 UTC during daylight saving time, and between 1830 and 2030 UTC during the rest of the year. I have heard him say that he will review copy mailed to him and provide feedback to those who request it. 73, Sandy Franzblau, KA9BBV. □



DX WORLD

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

DXers around the world are all familiar with Romeo Stephanenko, 3W3RR, who put rare YA and XZ back on the air. Here is his XYL, Alyona, UT5JDA. Alyona tends to the homefront when Romeo is challenging new frontiers. The photo was taken during her visit to the United States in May 1992 while a guest of John and Amy Parrott, W4FRU and KN4NZ. ***(Photo courtesy of W4FRU)***

Activities Calendar

Aug. 28-30	New Orleans DX Convention
Sept. 5-6	JARL All Asian DX Contest (SSB)
Sept. 12	W9DXCC Convention, Glen Ellen, IL
Sept. 12-13	DARC European DX Contest (SSB)
Oct. 10-11	DXPO 92 Washington, DC
Oct. 17-18	DARC Worked All Germany Contest
Oct. 28-29	*CQ* Worldwide DX Contest (SSB)
Nov. 14-15	DARC European DX Contest (RTTY)

W100N

The following DXer was awarded ***Worldradio***'s Worked 100 Nations Award:

432) Dale Huntington, N6RYO (all 10M SSB); July 13, 1992

Taiwan (BV)

Until just a few years ago your only chance to work Taiwan was via Tim, BV2A/BV2B. Things are different now, as the reported call indicate.

The most active call reported on 20M has been BV4CT. Look for this one on CW between 14.023 and 14.031 MHz from 1330 to 1700 UTC. Other CW activity on this band includes the following:

BV2BI	14.025 MHz	1245 UTC
BV2DM	14.023 MHz	0945 UTC
BV2FA	14.005 MHz	1730 UTC
BV2TA	14.020 MHz	1115 UTC
BV3AR	14.003 MHz	1245 UTC
BV4HB	14.015 MHz	1545 UTC
BV5RC	14.016 MHz	1300 UTC

Alright, so you hate CW! Then look for these on SSB:

BV2BK	14.204 MHz	1715 UTC
BV2CR	14.305 MHz	1300 UTC
BV2FA	14.226 MHz	1615 UTC

Another call reported often has been BV2FA, and much of his activity has been on 17M. Look for this one between 18.071 and 18.080 MHz from 1500 UTC.

Continuing with SSB activity several calls were reported on 15M and included:

BV2BT	21.215 MHz	1600 UTC
BV2DS	21.225 MHz	1845 UTC
BV3BW	21.305 MHz	1800 UTC
BV4CW	21.270 MHz	1500 UTC
BV5OC	21.238 MHz	1700 UTC
BV6AW	21.255 MHz	1900 UTC

We don't want to give the impression that we favor SSB, so here are some 15M CW reports:

BV2CR	21.053 MHz	1045 UTC
BV2DJ	21.009 MHz	2300 UTC
BV2FA	21.030 MHz	1815 UTC
BV2GE	21.009 MHz	1500 UTC
BV2TA	21.025 MHz	1430 UTC
BV7DP	21.017 MHz	1030 UTC

Oh yes, Tim is still around. He shows on CW and has been worked near 14.015 MHz at 1300 UTC and 21.023 MHz at 1530 UTC.

As you can see, Taiwan no longer is one of those most needed countries for your DXCC. And speaking of needed countries, subscribers of *The DX Bulletin* should remember to complete surveys on the form mailed last month.

Andorra (C3)

During the month of June we found reports for at least five calls signing from Andorra. The most active was C31HK who was reported between 18.123 and 18.132 MHz at 0800, 0930 and 1730 UTC. He was also on 12M SSB near 24.955 MHz at 1630 UTC on a Sunday.

On 20M SSB both C31OU and C31RA were reported near 14.180 MHz at about 0300 UTC. C31LJ was also on the band, but on CW between 14.006 and 14.028 MHz around 2300 on June 22. He moved around so we assume he was answering CQs.

On 30M C31LL was worked one Thursday at 2130 UTC on 10.103 MHz. More vacationing Europeans may possibly be on from this one.

North Korea (P5)

The expected IARU training session with on-the-air activity from North Korea has been postponed, reports Charles

Hutchinson, K8CH, of ARRL headquarters. This is due to the fact that several open issues still require clarification. The representatives of this project have just returned from North Korea but the expected break-through did not happen. Organizers hope to announce more details at a later date.

Cameroon (TJ)

We found activity of only two calls reported from this one. Busy working the Europeans on 40M was TJ1GG, who was reported between 7.001 and 7.010 MHz after 1945 UTC and also on SSB near 7.080 MHz at 1900 UTC.

Also working the Europeans was TJ1MR who was found on 14.113 MHz around 0600 UTC.

Namibia (V51)

The Long Island DX Bulletin reports that V51BG is often found near 28.365 MHz after 1400 UTC. Look for the pileup. However, we found no other reports for this one, except for a single report on 21.180 MHz at 0700 UTC where he was working the Europeans.

We found two other calls reported for the month of June which included V51BI on 14.247 MHz at 0815 UTC working into Wisconsin on June 21, and V51E on 14.191 MHz at 1400 UTC working Colorado on June 6.

Heard Island (VK0)

Jim Smith, VK9NS, is still looking into a DXpedition to Heard Island and is looking for financial assistance in undertaking this very expensive affair.

And Cliff Watson, KR4M, comes with

this DX challenge for all DXers to match his personal contribution of $40 towards this proposed Heard Island DXpedition. Cliff states that this could be the last chance as sunspot cycle 22 declines. Cliff says to be sure to mark your contribution "Heard Island Fund Only." Send to Jim Smith, HIDXF, P.O. Box 90, Norfolk Island 2899, Australia.

Albania (ZA)

The ARRL announced that the Albanian Amateur Radio Association (AARA) is the newest member society of the IARU. AARA secretary, Jovan, ZA1TAH, and IARU liaison, Geni, ZA1TAB, will attend the Friedrichshafen Hamconvention the weekend of June 26 through 28. A followup training team was scheduled the first two weeks of July and consisted of several Finnish operators whose calls included OH2BH, OH2BSI, OH6EI, OH1MKT and KC6KOU (son of OH2BH).

During the IARU HF Championship 1992 the team operated the HQ station of the AARA, signing ZA1A. And, of course, Martti, OH2BH, was at the helm saying hello to old friends.

Those two-by-three calls assigned to Albanian nationals, (i.e. ZA1TAH), have been replaced with two-by-one calls with the deletion of the first two letters in the suffix. Calls such as ZA1TAH end up as ZA1H, except for ZA1TAA, which becomes ZA1Z.

Mauritania (5T)

Holding up this one has been 5T5CJ with most of his activity with Europeans. All of the activity reported has been on the new bands. Try looking for this one between 10.100 and 10.113 MHz around 0700 UTC, 18.085 to 18.146 MHz around 0900 or 1630 UTC, and 24.900 MHz at 1500 UTC.

Rwanda (9X5)

9X5KM had been active from Rwanada until about the end of June according to *The Long Island DX Bulletin*. We found no reports for him in June. However, three other calls were reported, mostly 15M activity. Check for these:

9X5HG	21.020 MHz	0100 UTC
9X5JA	21.253 MHz	2045 UTC
9X5NH	21.267 MHz	0130 UTC

The above three calls were Canadian reports.

Iota

We recently received a QSL for a 40M contact with 3X0HNU. As we needed this one for our 40M DXCC, I naturally sent off a card. To our surprise the card also confirmed Los Islands (AF-051). This station had been very active during the early part of 1992. If you need AF-051 check back through your logs for this one.

Tom Cooper, N4VRR, reports that he will be active from Topsail Island (NA-112) August 15 through 21. He was also there the last week in July.

Tony Spino, WF1N, will lead an IOTA DXpedition to Appledore Island and plans to be active September 11 to 14. The island is part of the Isles of Shoals (NA-148). Other members of the team will include Rich, NT1I, Lou, KA1DIG and Sam, K1SCN. Two calls will be used, WF1N and NT1I with operation on SSB near the usual IOTA frequencies. All QSL cards shall be routed via WF1N.

Here are some more islands or groups that have been active during June and early July. Times are in UTC.

AF-018	Pantelleria Island	IH9/ON6VP
	14.325 MHz	1615
EU-020	Gotland Island	SM0DTK/1
	14.259 MHz	0500
EU-050	San Domino Island	DJ8QP/IL7
	14.260 MHz	0600
EU-051	Ustica Island	IE9/I0IA
	14.280 MHz	1900
EU-055	Langoy Island	LA/HB9CJX
	14.260 MHz	1915
EU-062	Donna Island	LA0EW/P
	14.262 MHz	1700
EU-072	Northern Sporades	SV2WT/SV8
	14.262 MHz	1645
EU-087	Ulvon Island	SK3IK/3
	14.256 MHz	2100
EU-097	Uusimaa District	OG2AAF
	14.260 MHz	1345
EU-103	Great Saltee Island	EJ0SI
	14.258 MHz	0545
EU-128	Isle of Fehmarn	DL8AAM/P
	14.259 MHz	0630
EU-129	Usedom Island	DL0HRO/P
	14.258 MHz	2100
EU-132	Woliln Island	SO3KE/1
	21.260 MHz	0930
NA-014	Campobello Island	VE1ST
	14.262 MHz	0445
NA-052	Marco Island	N1DL
	14.161 MHz	0300
NA-058	Jekyll Island	N4VHA/1J5
	14.260 MHz	1500
NA-061	Kaien Island	VE7EDZ
	14.259 MHz	0630
NA-139	Assateague Island	N3FLU
	14.261 MHz	0030
NA-144	Santa Cruz Island	KK6ZC
	7.260 MHz	1900
OC-006	Tasmania	VK7AK
	21.285 MHz	0200

John Hugentober, N8FU, sends us advance notice of an IOTA DXpedition to Okracoke Island (NA-067). They will be signing wilth K8SCH/0CK, October 19 through 25, which will include *CQ's* Worldwide DX Contest. Check the usual IOTA frequencies (14.260, 21.260 and 28.460 MHz), plus 14.195, 21.295 and 28.450 MHz. CW types try 25 kHz up from the band edges. This operation is sponsored by the OH-KY-IN Amateur Radio Society (K8SCH). All QSL requests will be handled via N8FU.

As a matter of interest Okracoke Island is one of those Outer Banks islands in the Cape Hatteras National Seashore, not far from the famous Kitty Hawk.

DXAC matters

The DX Advisory Committee recently voted on three issues. Their first decision concerned making Ceuta and Melilla separate DXCC countries by virtue of DXCC rule section II, point 3(a), separation by another DXCC country. The vote was 16 to 0 against. The committee agreed that Ceuta and Melilla is not a point 1 DXCC country, therefore, point 3(a) does not apply.

The second question was whether Spratly Islands should be deleted from the DXCC countries list by virtue of DXCC rule section III, (a), annexation. The vote was 15 to 0 against, as the committee felt there is not enough evidence to support this action.

The third vote was on the deletion of Southern Sudan from the DXCC countries list by virtue of DXCC rule section III, (b), unification. To keep in the flow of things the committee again voted against, 14 to one. It was the opinion of the committee that there was not sufficient sign of change to justify this action.

Oblasts

Anatoly Tushinsky, RB5UE, reports that he will be active from Zhitomir oblast (oblast 062) through September 10, 1992, signing RB8X/RB5UE. Anatoly requests that QSL requests be sent to him direct. Please include $1 or equivalent to help with postal expenses. His address is listed in the QSL routes.

We wonder about the status of the W100 (Worked 100 Oblasts). With the breakup of the Soviet Union, this award is really no longer structured as it was. The Baltic states are not part of the new CIS, although they only represented three oblasts.

CXCW Award

The CXCW Award is sponsored by

Grupo Uruguayo de Telegrafía, a CW interest bunch from Uruguay. To qualify for this award you must work at least five DXers from Uruguay on CW, with three of those contacts being members of the group.

To apply for this award include a certified list of confirmed contacts (signed by your local radio club officer) and photocopies of the QSL cards and submit with a fee of $5 (or six IRCs) to Alberico Lopez (CX4GL), 75001 Palmitas, Dp. Soriano, Uruguay. We recommend that any Amateur Radio reference be omitted from the envelope.

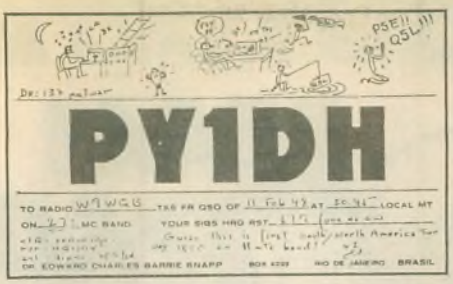
The list of members include the following: CX1DX, CX1JM, CX2DF, CX2DK, CX2ET, CX3AN, CX3AW, CX3BBX, CX3BH, CX3DD, CX3EU, CX3GR, CX3GZ, CX3MA, CX3SR, CX4AW, CX4CO, CX4CQ, CX4DAL, CX4GL, CX4LO, CX4NF, CX4SB, CX4SS, CX4VA, CX5AAI, CX5AO, CX5BBI, CX5BW, CX5CO, CX5RV, CX6BM, CX6BV, CX6CV, CX6CW, CX7BBB, CX7BBU, CX7BY, CX7CC, CX8BBH, CX8DR, CX9AU and CX9CJ. All contacts must be since August 1989. Note some of these members are not known for acknowledging QSL cards, such as CX1JM, whom I have worked more than once but have never received a QSL card.

Antique QSL department

Jan Perkins, N6AW, submitted this card from the collection of the late Don Wallace, W6AM. It is a photocopy, so we hope it will reproduce satisfactorily.

Don worked VU7AF back in March 1949. Jan believes the first post-war operation from Nepal was this station.

The second card doesn't appear to be



that unusual until you check what band was used. This card was submitted by Bob Wordel, W9WQB, who says it reminds him of his age.

Bob worked PY1DH back on February 11, 1948, on 27 MHz. Yes, the 11M band was once one of the amateur bands. Bob recalls that this band had become available for amateur use the beginning of that year. The mode used during the contact was ICW, which produced a very broad signal, excellent for getting through the QRM.

According to the remark on the PY1DH QSL card it confirmed the first South America-North America two-way contact on that band.

QSL cards

We asked Ken Scheper, WA8JOC, the QSL manager for Dave Heil, A22MN and his other calls, for his input on QSL cards regarding the design and handling procedures. Dave's operation as J52US generated over 75,000 contacts requiring the processing of just under 45,000 non-computerized QSL cards and the processing of over 25,000 computerized QSL cards for approximately 55,000 contacts of his 9L1US operation. Here are some of Ken's comments regarding his QSL chores:

1) QSO info! Depending on how the QSL card is laid out, the pertinent information should be centered around one area. It should *not* be spread all over both sides of the card as some homebrew and novelty cards do. The call only on one side, with the QSO information on the other is fine, but with only half the information on one or the other side- "What a real PAIN!" We won't even begin to get into the infamous "circle the number" or the ones that look like the front of a radio.

2) Dates! "Thanks for your QSO of 9/2/91....Is this one that I'll look for on September 2, 1991, or February 9,1991?" One should show the month in Roman numeral format, when possible, if sending a report to a rare DX station.

3) Legibility! When submitting a card to a manager, assume that your handwriting cannot be interpreted. Printing is essential. It could be the difference between "Not in log" and "C U L!" Put down only the informaiton which was given to the station.

4) Lastly, putting multiple contacts on a single QSL card should be kept to a minimum. As many as eight contacts have shown up on one QSL card! The 9L1US QSL card can handle four contacts per card, but this was done to keep printing costs down. Many times the QSOs are put on in such a fashion that total confusion is given to the already confused QSL. "Please see other side" is a typical statement. One or two QSOs per QSL card is not the problem-aberrations of four, five, six or more per card is!

We would add here to those types that use QSL cards printed on both sides-that is cards with your call on one side and the QSO data on the other-to include your call on both sides. Thus, the hapless QSL manager will not have to be flipping the cards over to see the call. Contrary to what many will tell you, those expensive multi-color QSL cards printed on both sides are not going to increase the QSL returns. A simple card with everything printed on one side will suffice. Look at your own QSL card collection and see which ones are the easiest to decipher and use those as a basis of your next QSL card design.

As for the dates on the card, we at N6JM always write in the month, such as APR for April. Our cards are set up for the day-month-year format that is standard in the rest of the world. Would you believe we have received cards from those experienced in QSL card processing who have dated the cards such as 9/2/91? And believe it or not they meant Sept. 2, 1991, completely out of synch with the rest of the DX community.

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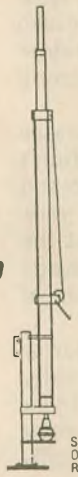

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As for legibility, that shouldn't be a problem for you. I bet you're waiting longer in line (whether on a list or a pileup) to work the guy than it would take to neatly fill out the card.

We have erred here on the multiple-QSOs per card. However, it was usually in answering those QSL requests from Japanese stations that I have worked over and over again on the same band/mode and have received QSL requests each time. Let's give QSL managers a break and make it one QSO per QSL!

Many thanks Ken for your input. It is appreciated.

QSL information

Joseph Cira, KB6AXK, writes concerning the pirates and "known hams who work the DX bands and frequencies for profit by not returning a QSL card, also known as profiteers." He also included a long list of calls he considers to be pirates. These are rather strong words, Joseph.

Your labeling these DXers as pirates or profiteers just because you didn't receive a QSL card is unfair. Do you know if the DX station received your card? I'm sure you are aware that the mail passes through many hands enroute to the DX station and some of those fingers can be "sticky."

No dates were given for the majority of the calls listed so we can't really make a judgement. However, did you send your QSL card via the bureau system? If direct, did you include sufficient funds for a direct return?

Of course, Slim is out there and we all have worked him. Fortunately, most of DX contacts are for real.

Then there is another matter. Several DXers recently worked RU6B/RZ4HXX, UU6U/P and 4L6HMC and sent off cards to the designated QSL manager, OH7AB. However, this OH7AB was not the manager and returned the cards in bulk to selected DXers for distribution to the originators. Earl Gosnell, N7NZ, was one of these victims and received his card via this route. As Earl had included a "green stamp" he should have received his card directly from OH7AB. Evidently, it was a "windfall" for OH7AB and he pocketed the money. Worst of all this OH7AB placed the responsibility of returning the cards on someone else. No, we are not insinuating that OH7AB should have to be burdened with the financial end of this mistake. However, to keep the "green stamps" and SASEs and ship the cards in bulk is another story.

The new IRC (International Reply Coupon) is supposed to be redeemed for the equivalent of one return airmail stamp. Other DXers choose to send green stamps. With rising costs today and the decrease in value of the US dollar, this is often not enough to cover the return of your QSL via airmail, such as the case now in Germany, (about $1.25). It is not entirely unreasonable to be expected to send two green stamps.

QSL routes

A35JM	—JA3JM	JU830C	—JT1KAA
AH0K	—JF2PZH	KH6JEB/KH7	—KH6JEB
AM1EK	—EA1EK	LU3CQ/D	—LU3AJW
AM25GILB	—EA3GIL	LW2DFM	—LU2DLP
AM3CWK	—EA3CCN	LY1TR	—LY1BD
AM7HAL	—KU6E	OD5/SP1MHV	—SP1MHV
AM92KB	—EA7KW	OD5/SP7LSE	—SP7EJS
AM92MB	—EA7MB	OG0C	—OH2BBF
BT4GXU	—JA9GVU	OH0MMM	—OH1VR
BT90SEU	—BY4WNG	OH0/DL5FF	—DL5FF
BV4FH	—KA6PSQ	OY/FD1NZO	—FD1NZO
C31LJ	—VE3SUN	P29JA	—JG7AMD
C53GB	—F1MXH	P29NB	—K3BYV
C6ABF	—K4ZF	P40WF	—WA0IWF
C9RAJ	—LA4VL	P43AS	—W3BTX
CE250TA	—CE4TA	P4/N4BWS	—WB4CKO
CE8ABF	—LU8DPM	PJ2HB	—WA2NHA
CJ2NW	—VE2DWH	PJ2/OH6DO	—OH1VL
CM3LE	—N4THW	R3K	—RA3DUT
CN2NA	—NX1L	R3R	—RA3RQT
CO2FS	—I0WDX	RE92C	—UW4CF
CO2MA	—JH1GIC	RN1N	—NA3O
CR6RTT	—IV3GTY	RN8A	—Y23VF
CS6P	—CT1DVV	RO4OA	—SP9HWN
CT1EEN/P	—CT1CUM	R3R	—RA3RQT
CU30C	—CU3AN	RR3R	—RA3RQT
CY0SAB	—VE1CBK (See Note 3)	RX3ARM	—RA3RQT
		RZ3R	—RA3RQT
D68/K3RA	—K3RA	RZ9MYA	—W0BIU
DU1B	—JH2JCO	S79DEQ	—GM3UWO
ED3B	—EA3GBW	S79HP	—JA1OEM
EG7SPI	—EA4KK	S92QM	—ON4QM
EH92A	—EA3CUU	SO3KE/1	—DL3BUM (See Note 2)
EH92B	—EA3OO		
EH92C	—EA3RCL	SP0PEA	—SP1PEA
EH92E	—EA2BOT	SV5/PA2SWL	—PA2SWL
EH92G	—EA3CCN	SV9/W0CG	—KQ8M
EH92M	—EA3CRZ	T20AA	—N4FJL
EH92N	—EA5AT	TK/PA3DWD	—PA3DWD
EH92R	—EA3LL	TL8CK	—F6EWM
EH92T	—EA3MT	TL8NG	—WA1ECA
EH92Z	—EA2BO	TM1EMB	—F5DE
EJ5CTR	—EI6GS	TM5CHA	—F6BFH
EJ0SI	—EI6FR	TM5FP	—FD1MRE
EM3W	—WB2RAJ	TM5RDL	—FF6KQW
ES0Z	—ES0NW	TM5TNB	—F6BFH
EU9WO	—UC2WO	TM6JUN	—FF1PFW
EX1FA	—OE3SGU	TM9R	—F9RM
F6BLQ\D2	—F6ELE	TM0CNT	—FE1LNV
F6IRF/4U	—FD1GTR	TN1AT	—F6FNU
FD1PJQ/ET	—FD1OYK	TR8GL	—F6IFI
FG5FC	—F6DZU	TT8SA	—F6FNU
FG0P	—F6BFH	TU2QW	—F6EXQ
FJ5BL	—F6AJA	TU2VZ	—I0WDX
FK8GJ	—F6CXJ	TU4BI	—IK3HAT
FM5CD	—F5VU	TX4B	—F6AOJ
FO5BI/P	—F6HSI	U5WF	—DJ0XC
FR5ZU	—JA8FCG	UA73WZ	—RW9WJ
FS4PL/PJ7	—FG4BG	UA0UBG/UA0V	—UA9AB
FT4YD	—FD1NZO	UC1AWZ	—DL1OY
FY5EW	—F6BFH	UK1PGO	—RA3RQT
GB2MK	—ON5GK	UR0UCH	—UB5UCH
GB0AAF	—GI7CML	UX3M	—RZ3DXL
GH3DVC	—GJ3DVC	UY8U	—RB5UU
GJ0RLU	—ON5FP	V29BI	—DJ5KX
HB4FWK	—HB9UAK	V29PI	—DJ5KX
HB0/DA1WA	—KN6G	V29SW	—DL1HH
HG3JJ	—HA3GA	V47GW	—JL3UIX
HG6Y	—HA6OI	V63BJ	—JG3RPL
HI9UD	—HI3UD	V63JI	—JA0OVG
HL9TG	—WA7NT	V63JP	—KH6UH
HR5/F2JD	—F6AJA	V63MS	—JK1GXU
HS0ZAA	—KM1R	V63SM	—JQ3EEL
HZ1M	—OE6EEG	V63XB	—JJ3RYO
IL7/DJ8QP	—DJ8QP	V85HG	—JH7PKU
IM0/IS0YUJ	—IS0YUJ	VA8A	—KQ8M
IZ2ARI	—IK2ECN	VE1ST	—VE1ANJ
IZ6ARI	—IK6MIK	VK9CB	—VK6LA
J28FO	—F6FNU	VP2MBO	—W9PTO
J28YC	—FD1ONC	VP8CKX	—G0NHM
J43A	—SV3AQR (See Note 1)	VQ9AC	—WN8O
		VR2GL	—K2QBV
J43TEI	—SV3AQR (See Note 1)	WJ3U/6Y5	—KJ6BK
		WR1Z/KH9	—VK9NS
J88AQ	—W2MIG	XJ3S	—VE3VM

XJ7V	—VE7NOR	5H3JD	—DK9MA
XQ6ID	—W0YDB	5H3RA	—JA3PAU
XU7VK	—HA0HW	5H0ROA	—A47RS
XU8CW	—FD1GTR	5N8THK	—WA3HUP
XX9AW	—KU9C	5R8GW	—F6FNU
YB30SE	—W7TSQ	5X5WR	—DJ2RT
YS1DRF	—W2PD	5Z4TT	—SP5BUD
YT2ER	—YU2LLL	6T2YD/SA	—F6AJA
ZA/G3MHV	—G3MHV	6W1AE	—FD1PKE
ZD8SM	—G3ZQL	7J7AAW	—N5OIU
ZD8Z	—VE3SO	7Q7BR	—JK3GAD
ZF1DC	—ZF1RC	7Q7XX	—JH3RRA
ZF1UK	—G3PHR	7Q7DC	—K3WUW
ZF2JI	—KG6AR	8Q7CW	—JA2NQG
ZF2SK	—K3RYA	8Q7EM	—JA1OEM
ZF2SM/ZF8	—KQ2I	8Q7PW	—JH1PWA
ZX4VG	—PY4KL	9A1CCB	—YU2CCB
ZZ2ECO	—PP2CW	9A2AJ	—YU2AJ
1Z9B	—AA6BB	9A2MP	—YU2MP
3X1AU	—ON6BV	9A2PM	—KA9WON
4F2IR	—DU3DO	9A3TR	—YU2HDE
4J1FS	—OH2BU	9H3PZ	—DL8RDL
4J4GAT	—DL1JJ	9H3QE	—PA3EGD
4K5ZI	—DF8BK	9J2EG	—DL3FAK
4M5JOB	—YV5ARV	9J2MK	—JK1UWY
4M5OGB	—YV5ARV	9M6SBC	—9M6HF
4N5PK	—YU5XVD	9M8FH	—N5FTR
4S7DGG	—G0MRF	9X5JA	—W0ZUZ
4S7/DK9DR	—DF7ZH	9X5KM	—F1MXO

BV2IJ	—P.O. Box368, Panchiao, Taipei 220, TAIWAN
BV3AR	—Tsena Ming-Hsiu, P.O. Box 70, Chung Li City, TAIWAN
BV5BG	—Taya, P.O. Box 215, Changhua 50028, TAIWAN
BY3AB	—Wang, P.O. Box 7, Tianjin, PEOPLE'S REPUBLIC of CHINA
BZ4RCW	—Tang, P.O. Box 1827, Nanjing, PEOPLE'S REPUBLIC of CHINA
D44AC	—Pulu Monteiro, P.O. Box 398, CAPE VERDE, via Portugal
EL2PP	—Monica, P.O. Box 2274, Monrovia, LIBERIA
ES4RY/A	—P.O. Box 117, Sillamaee, ESTONIA
HJ3SDY	—P.O. Box 47917, Bogota, COLOMBIA
J69BB	—P.O. Box 1809, Castries, ST LUCIA
KP45OO	—P.O. Box 1917, San Juan, PR 00919
RB8X/RB5UE	—Anatoly Tushinsky, P.O. Box 178, Belaja Cerkov 8, 256400 UKRAINE
UA0X/UW0LIF	—P.O. Box 1, Slavianka 692732, RUSSIA
UA0ZCY	—P.O. Box 208, Petropavlovsk-Kamchatskiy 683012, RUSSIA
UX3Q	—P.O. Box 5, Voronezh 394036, RUSSIA
YC7VZN	—Suk, P.O. Box 8, Tarakan Island 77101, INDONESIA
ZA1TAC	—Engjellush Alikaj, Lagja 26, Rruga Brigada 8 S. Pallati Agimi, Shkalla 2/36, Tirana, ALBANIA
ZA1TAG	—Ylber Berzhita, Lagja 5, Rruga Mujo Ulqinaku No 32/1, Tirana, ALBANIA
ZK1WL	—Warwick, P.O. Box 855, Rarotonga, COOK ISLANDS
ZK1XP	—Peter Standish, Box 106, Raratonga, COOK ISLANDS
ZW7AB	—Ronaldo Bastos Reis, P.O. Box 1201, 59071-970 Natal, RN, BRAZIL
ZX2ECO	—CWGO, P.O. Box 676, 74001 Goiania, GO, BRAZIL

Notes:

1. This manager requests QSL cards be sent direct. Do not QSL via the bureau. The address for SV3AQR is P.O. Box 30, Amalias 27200, GREECE.

2. This is the new call for Y32KE.

3. Applies for the period April 26-28 only. The May CW operation was Slim.

Many thanks to the following contributers: CX4GL, HI3LFE, RB5UE, UA3RCS, Z21JE, WF1N, W4FRU, KR4M, N4VRR, N6AW, KB6AXK, W6TUR, N7NZ, N8FU, WA8JOC, KA8RAM, W9WQB, Western Washington DX Club (K7WA), American Radio Relay League, *Long Skip* (VE3IPR), *MegaHertz Magazine*, *The W6GO/K6HHD List*, *DX News Sheet* (G4DYO), *The Long Island DX Bulletin* (W2IYX), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

Did you work us during Field Day? It was just the three of us, Armond, N6WR, Norm, K6FO, and myself signing Armond's call. And, the unbelieveable happened-there was a station in western Montana taking a list! The guy actually had takers. 73 de John, N6JM □

DX Prediction — September 1992

Maximum Useable Frequency from West Coast, Central U.S. and East Coast *(courtesy of Engineering Systems Incorporated, Box 939, Vienna, VA 22183).*

The numbers listed in each section are the average Maximum Useable 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.

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(14)*	*17	*24	*(12)*	*21
12	*(20)*	*15	*21	*(17)*	*(17)*
14	*(28)*	*18	*17	23	30
16	31	16	20	24	*36
18	33	15	*(16)*	22	*40
20	31	24	30	*(17)*	*40
22	26	*31	37	*(13)*	*42
24	23	*34	41	*(12)*	*35
2	*20	*31	41	11	*29
4	*19	26	37	*16	*24
6	*(17)*	*22	*34	14	*21
8	*(15)*	19	*28	13	*19

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	18	*(13)*	*23	12	*19
10	*(23)*	12	*20	*(11)*	*20
12	34	*17	*18	21	24
14	39	18	22	25	*33
16	39	*(16)*	20	24	*38
18	*38	*(15)*	*(16)*	22	*40
20	*31	25	31	*(16)*	*40
22	26	27	38	*(13)*	*42
24	*23	24	40	*(12)*	*35
2	*20	*(20)*	36	11	*29
4	*20	16	33	*14	*24
6	20	*(14)*	27	*13	*21

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	19	*(12)*	*23	12	*20
9	*(21)*	12	*20	16	*20
11	33	*17	*18	*23	23
13	*39	*(14)*	23	*26	*32
15	*39	*(13)*	*(20)*	*25	*37
17	*38	*(12)*	*(19)*	*24	*39
19	*34	*(16)*	*(26)*	20	*40
21	*28	23	35	14	*39
23	*24	24	40	*12	*38
1	*21	*(20)*	35	12	*31
3	*17	15	32	11	*26
5	*21	*(14)*	27	*13	*23

Exams on packet

TERRY DOUDS, WB8CKI

I am a VE exam coordinator in Ohio, and we have worked out a new system of listing exams through packet which has been working out nicely.

All the VEs in Ohio report all testing scheduled throughout the state to K3RC, Bob Johnson, at the W8HHF BBS in Toledo. He has been kind enough to act as a sort of clearing house of information concerning upcoming test sites and dates. Each month he sends out a message (*not* as ALLUS) listing the upcoming tests as they are listed in his database. If any changes are necessary, updates are sent to him via packet and are included in the next list.

It really works well in keeping the amateurs in the Ohio area informed as to when and where upcoming test sites will be in their areas. Most amateur stores in the state keep these listings posted where potential amateurs will be.

Another good source of information on Amateur Radio activities in our area is a publication done in both voice and packet: *Amateur Week*. It is done as a service of the Kettering Medical Center Amateur Radio Association. The voice version is found on their 145.11 repeater in Dayton/Columbus, and the packet version is distributed throughout the state via the BBS network. □

Taking your HT mobile

If you hook it up right, your little 2M, 220, 440, or dualband hand-held will sound just like a big mobile rig. Properly installed, a hand-held operated from your mobile unit could very well meet your total repeater communications requirements. But there are some precautions to take when considering your hand-held for mobile operation, the biggest of which is safety.

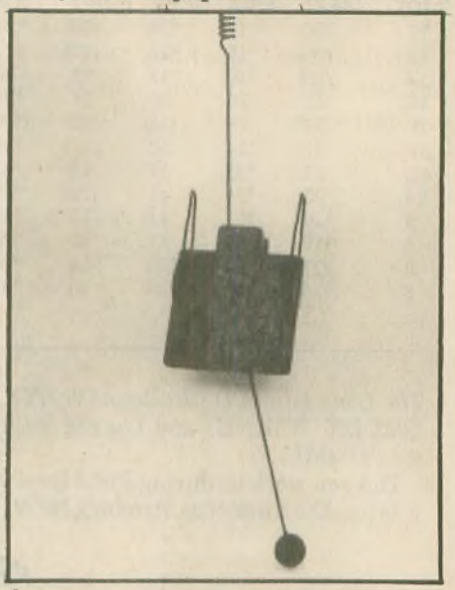
Don't transmit with just the little rubber duck antenna on your HT inside your vehicle, as it puts a lot of RF inside the passenger compartment. It will also lead to a lousy signal. Everyone on the repeater will scream at you to get an outside antenna. And don't even think of leaning out the window and trying to get the rubber duck or whip hanging outside to better your range. There is a better way.

Hook your hand-held up to an appropriate outside antenna. This could be a magmount for temporary installation. Or, there are some neat little window mounts that allow you to quickly go to an outside antenna and increase your range substantially without any holes or scratches in your vehicle. In fact, you can use the same rubber antenna off your HT on the window mount, and it works great.

Lip mount whips eliminate the need to put holes in your roof.

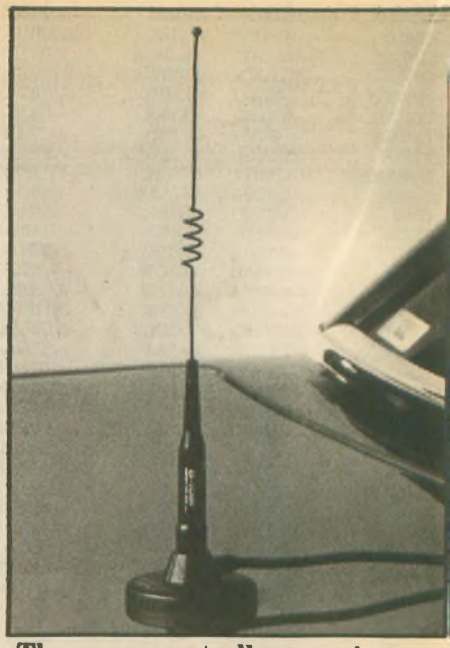
Make sure you never run anything larger than spaghetti-thin RG174 coax to the top of your hand-held radio. If you run RG8X or RG8U, you will probably over-stress the hand-held BNC connector. Doing so breaks off the solder connection point on the inside of the circuit board. The BNC connection must not be strained at all! Once it breaks off the inside of the board, your unit is off the air until you can get it fixed.

A remote speaker/microphone will further reduce the amount of tension on your hand-held BNC connector when hooked up to some coax leading to an outside antenna. The inexpensive MFJ "universal" speaker/microphone seems to work on most everyone's equipment. Check with your local Amateur Radio dealer for the best speaker/microphone for your particular hand-held. The manufacturer recommended speaker/mike will take the guesswork out of whether or not another brand of speaker/mike will work.



On-glass antennas work fine for mobile HT operation.

Most hand-helds may also be powered off the cigarette lighter plug on your vehicle, but *caution:* Only transmit *briefly* on high power! Running your HT off your car's or motorhome's 12V electrical system may be fine on long periods of receiving but not good at all during long periods of transmitting. At 12V, your finals are running at maximum, and your unit will get hot as a firecracker on transmit in just seconds. If it's sitting on the seat, it could actually melt down, or worse yet, cause a fire. Switch to medium power or low power when running your rig off 12V.



The magmount allows an instant, temporary antenna installation.

Some hand-helds will allow a 12V plug into the battery, and the 12V is regulated down to float a 7.5V battery pack. This is a smart way to go. You charge your battery pack from your 12V mobile power, yet your unit only transmits at 7.5V for medium power output. At the end of your trip, you have a fresh battery pack, and your unit was not overheated during long periods of transmitting.

Running your unit off its regular battery pack, while being charged from 12V, also minimizes alternator whine. If you run the unit directly off 12V, chances are that alternator whine is going to creep into your circuitry and accompany your transmitted signal.

Use only the specified DC power cord that manufacturers recommend to charge the battery, yet run your unit at the same time off 12V. If you make up your own DC cord, watch out for polarity—each manufacturer has its own idea on whether or not the tip pin on the 12V jack is positive or negative. You will kill your hand-held instantly if the voltage gets reversed. Stay away from your own homebrew, 12V cords, and go with the power plug offered by the manufacturer through its radio dealers. Many times these more expensive cords have voltage regulation as well as reverse polarity protection.

In downtown cities, your hand-held

SGC

SG-230

SMARTUNER

HF ANTENNA COUPLER
SSB, AM, CW & DATA
FAST - INTELLIGENT - ACCURATE
OPERATES WITH ANY HF TRANSCEIVER

The *Smartuner* high technology *universal* coupler intelligently tunes any length antenna (8 to 80 ft) in the HF band. The unit will operate with any HF transceiver within its' specifications The *Smartuner* switches 64 input and 32 output capacitance combinations plus 256 inductance combinations in a "pi" network resulting in over a half-million different ways to ensure a perfect match for the transceiver. And, *it remembers the frequency and the tuning values* and will re-select these values in less than 10 ms next time you transmit on that frequency.

US$595.00

- MICROPROCESSOR CONTROLLED
- NON-VOLATILE MEMORY
- WATERPROOF
- B.I.T.E. INDICATOR
- 1.8 TO 30 MHZ RANGE
- 10 TO 150 WATTS INPUT POWER
- 10 mS RETUNING TIME
- 8 TO 80 FT. ANTENNA (All Types)
- FOR MARINE, AVIATION, HAM AND PARA-MILITARY APPLICATIONS

The Smartuner is available from:

Henry Radio, CA. 800-877-7979
Amateur Electronic Supply, 800-558-0411
Ham Radio Outlet, 800-854-6046 (West US)
800-444-0047 (East US)
Surplus Sales of Nebraska, NE. 402-346-4750
Eli's Amateur Radio, FL. 800-780-0103
Jun's Electronics, CA. 800-882-1343
Gordon West Co., CA. 714-434-0666

SGC Inc. SGC Building,13737 S.E. 26th St. Bellevue, WA. 98005 USA
P.O.Box 3526, 98009. Telex: 328834.Fax: 206-746-6384 Tel: (206) 746-6310

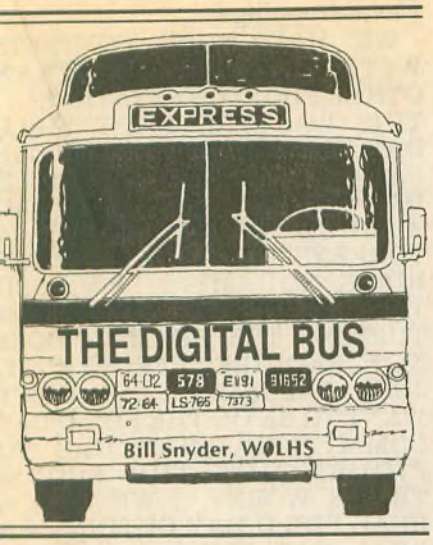
may begin to pick up out-of-band signals. You may hear paging tones, partial police calls and tow truck calls, radio common carrier idle tones, and a host of other signals that really shouldn't be there on the 2M band. They really aren't there on the 2M band—your hand-held doesn't have enough bandpass circuitry to filter them out in downtown areas. Most hand-helds offer extended-frequency receive, and that's the price we pay for demanding a hand-held that will receive, on 2M, from 108 MHz up to 174 MHz.

An exception to this would be the Radio Shack HTX-100 hand-held. It specifically tunes only 144 to 148 MHz, and it has plenty of bandpass filtering to cancel out annoying out-of-band whistles, squeaks, and other forms of intermod. It's about the only hand-held I have tried that can survive "signal alley" in Los Angeles without desensitization or intermodulation reception. It's a superb receiver for the 2M band.

Finally, if you need more power, consider an add-on power amplifier. Three watts in, 30W out is a great way to go. While there are larger HT external amplifiers that could boost your signal up to 160W output, you don't need that much power for most mobile work. Three in, 30 out is just right. The amp fits under your seat and pulls its power from your vehicle's fuse panel. A little 30W amp doesn't require wiring all the way to the battery.

So have fun this fall going mobile with your HT. Remember, don't run the rubber duck antenna on your hand-held inside a vehicle. You will cook yourself, plus you will compromise your repeater range, and there are so many other easy ways to get an outside antenna to work from your little HT. And, once you're on your outside antenna, your HT will sound just like a big mobile rig! □

This innovative window mount uses the HT's own antenna for good range.



In my nearly 60 years of messing with Amateur Radio (yes, messing is the best word), I've seen a lot of inventions and innovations that have astounded me. I was amazed when I finished building my first shortwave receiver featuring two 201-A tubes (one detector and one audio stage of amplification) and it worked! What a thrill!

I was also thrilled when I built my first transistor audio amplifier for a Cine Voice 16mm sound motion picture camera, and it worked. And there have been many, many thrills with digital stuff, too. But a guy sort of gets blahs in this world of electronics. The kids in our ham club run around with hand-held transceivers like we did with lollipops. GPS navigation equipment will tell you where you are in the world within a few meters. Nothing to it. Satellites and electronics do it.

I remember the conversation I had with a topographic map making survey crew one night in New Guinea. It was during WW II and the men were checking their chronometers by using our radios to get the time tick signal from the United States. They were using star sights to fix locations and they needed accurate time for the computations.

I asked the surveyors about the accuracy of the current maps we Allies were using to fight the war. The sergeant in charge of the crew said, "We're still using German maps made in 1918, and Tufi Harbor is indicated 18 miles from where it should be on the map." Today mapmakers could be using a hand-held satellite GPS system and be only about that many meters off. Electronics and digital machinery: great stuff.

The worst part of this digital revolution is that whatever electronic stuff you buy is out-of-date before you get it home! No matter how hard I try to be with it, I'm behind. Maybe it's because I live in North Dakota, away from the mainstream of stuff. (I gave up inhaling smog and worrying about earthquakes in Los Angeles 42 years ago to return to breathing clean air and shoveling snow in Fargo. And, secondarily, I wanted to be a "rare" WAS location for the ham hobby.)

I own a number of computers. The one that runs the BBS is an old 8088 with a V-20 chip in the CPU. My writing machine is a three-year-old 386-25 (out-of-date, of course) with 8 megs of RAM, a 125 meg hard drive (about 7 megs free at this writing), a CD-ROM with *Sound Blaster Pro* card, Koss speakers, and the worst mixed-up mess of software I could afford. Since I added multimedia to my 386 computer, it has been working rather well; however, before it did, it took a lot of dinging with the software to get perking good.

Then came the 3.1 update of *Windows 3.0* (a program I wish had never been invented). About the same time I got tired of using the hand-held scanner to input typing into my word processor and pictures and drawings into my desktop publishing efforts. The hand scanner worked fine, but I didn't like the "stitching" and other delays in reading typed copy. So, I popped for a new Hewlett-Packard IIc desktop scanner plus *OmniPage Professional* OCR program.

While I waited for the scanner to arrive, I put the 3.1 upgrade of *Windows* into the computer. I wondered if all of my multimedia programs would run when I finished the installation. I fired the computer up and tested it. Everything seemed to run properly except the *Ventura Publisher* DOS version. It hung up when SMARTDRV. EXE was in use. Right at that moment I was in the process of publishing a 32-page brochure and I couldn't spend much time looking for the trouble. I left it alone.

Two days later Bill Kurtti, WC0M, our genial ARRL section manager for North Dakota, dropped in for a social visit. I was eager to show Bill the OCR abilities of the new machine, so I demonstrated. It worked fine. Next I thought I would show off the multimedia prowess of the system.

The first demo worked. It was the multimedia dictionary in *Microsoft Bookshelf.* I put the word "cynosure" on the screen (*Cynosure* is the name of a paper I publish). I put the mouse cursor on a little button with a picture of a loud speaker on it, and clicked. The sound of a man's voice pronouncing "cynosure" came out plain and clear. Bill laughed at the surprise—a dictionary that pronounces the words for you.

Then I demonstrated the multimedia show of how a CD drive works. Another surprise for my friend Bill. Next I plugged in the Beethoven CD and the next surprise was on me—the sound didn't work. I could hear it in the earphones plugged into the Sony CD drive, but nothing through the little speakers like before.

So, my next month's computer work is cut out for me. I must learn to use the scanner better, and I will probably spend a batch of hours trying to sort out the problems in the software. Why didn't Beethoven come through the speakers? Was it installation of *Windows 3.1* that did it? Or was it the various scanner and OCR installation programs that changed my autoexec or config files? Or was it me?

When I was running *Windows 3.0* with multimedia extensions SMART-

DRV.SYS was in the config file; now with 3.1 it's an EXE program in the autoexec procedure. *Little* differences, but vexing.

The RYRYR business

From time to time I have railed against the use of superfluous RYRYRY transmissions on the RTTY bands. I even suggested that all RY keys on RTTY stuff be eliminated. After reading the following letter I have decided to shut up and listen, a procedure that is hard for an old coot like me to think about doing. (I have never been able to decide whether I'm a coot, a codger, or a geezer.) So for the first real use of my flatbed scanner and OCR software I scanned the letter into this column. (The program had trouble with the word "pattern." It came out "pattem" because the "r" and "n" were touching each other.)

The letter is from Robert Hinrichs, WM6H, of Cedar Rapids, Iowa, and I find it very informative and interesting. I won't knock RYRYRs again.

"I've read and enjoyed your Digital Bus column for many years. However, I hope you will reconsider your position on the use of the RY . . . RY preamble for amateur RTTY communications.

"While the transmission of this preamble is no doubt superfluous at the communicator's level, it is very useful at another level—at the level of those using DSP techniques to improve the bit error performance in the demodulation of binary FSK (RTTY).

"In the application of adaptive filtering, (a DSP software technique that automatically adjusts the taps on a digital filter algorithm to equalize for HF channel conditions—intersymbol interference, QRM, etc.) "known data" must be used. The data received off the air is passed over and over through a digital filter as the filter's taps are adjusted by the adaptation algorithm until the demodulated data out of the filter/demodulator is correct when compared with the known data pattern. The adaptation process is similar to sliding the controls of a graphic equalizer on your stereo system (but with several hundred slide controls). This iterative process only takes milliseconds but the output of the demodulator must be known for it to work. The only known data in a typical QSO would be the RYRY preamble.

"This technique is still under development and I don't yet have the performance data to demonstrate the processing gain this demodulation method will yield.

"A better pattern than RYRY, a pattern with better correlation properties over noise across different modulation techniques, could be devised. Also, to keep up with rapidly changing conditions on the band, the known data pattern (called a data probe) could be re-inserted at regular intervals so that the filter taps could be continuously adjusted. But amateurs must work with what is available and as a de facto standard the RYRY pattern at the beginning of the QSO was available—until recently.

"In your article you mention that computers no longer need to set the 'range' like in the old teletype printers. I hope you will agree that 'what goes around comes around' and that the use of the RYRY known data preamble/data probe may once again prove a useful practice for improved amateur digital communication."

Eavesdroppings

WE HAD MORE CONTACTS WITH MOSQUITOES THAN OTHER FIELD DAY STATIONS . . THIS WAS THE FIRST FIELD DAY IT DIDN'T RAIN ON OUR PARADE . . . AFTER THE FIELD DAY CONTEST ENDED WE HAD A CLUB PICNIC WITH 12 TURKEYS FOR LUNCH, THAT'S BIRDS, NOT LIDS . . . WE USED THE ARMSTRONG MOTOR FOR TURNING THE BEAM, IT DOES NOT REQUIRE ELECTRICITY JUST CALORIES . . . I DON'T WANT TO BE ON THE FIELD DAY COMMITTEE THAT HAS TO FIGURE OUT THE SCORE THAT'S WORK . . . WE HAD A REAL FIELD DAY OUTING IN A REAL HAY FIELD . . . IT WAS HARD TO GET THE NO-CODE GUYS TO WORK CW . . . I'D LIKE TO FIX MY BEAM BUT MY WIFE HATES TOWER WORK . . . WE BOTH WEAR HARD HATS—I TOLD HER IT WAS SO THE SEA GULLS COULDN'T AIM AT HER HEAD . . . MY MOTHER PLAYED THE STEAM CALLIOPE AT CIRCUS WORLD MUSEUM IN BARABOO, WISCONSIN—AND SHE PLAYED CQ ON IT NOW AND THEN . . . WE COMBINED THE FOURTH AND A FIFTH IN JULY . .DX HAS BEEN POOR SINCE MY BEAM BLEW DOWN TWO YEARS AGO . . . I DIDN'T KNOW THE DIFFERNCE BETWEEN A CORNHUSKER AND AN OYSTER SHUCKER, BUT I DO NOW THANKS TO GØNJN . . . ALL ALONE AT THE KEYBOARD HERE I SIT AND CALL CQ CQ CQ CQ CQ CQ CQ CQ ETC.

Thanks to K9ZZ, KS8L, WØHAH, KB5QAI, AA7AJ, KD3YU, WØML, W6YOO, and a few of the locals for help with this column. Write me: Bill Snyder, WØLHS, 1514 South 12th St., Fargo, ND 58103. My packet address is WØLHS @ WØLHS.ND.USA.NA. 73 and DIT DIT. □

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). P.O. Box 3141, Montgomery, AL 36109. Meets 3rd Mon./monthly, 7 p.m., State Trooper Dist. Office, Coliseum Blvd. & Federal Dr. Nets Sun. 8:30 p.m. 146.84- and Thurs. 8:15 p.m. 147.18+. Info: Fred, K8AJX, (205) 270-0909.

ALASKA

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

ARIZONA

Cochise Amateur Radio Assn. (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.16/76 rptr.

Scottsdale Amateur Club. Meets 1st Wed. /monthly, 7:30 p.m., Scottsdale Sr. Cntr., 7375 E. 2nd St., Scottsdale, AZ. Net Tues., 7 p.m., 147.18 rptr. Info: Barney Fagan, KB7KOE, (602) 861-2817.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08-, 448.550-, & 145.15 Packet).

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Tues./monthly, 8 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835.

Amateur Radio Club of El Cajon. WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.080(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info (619) 697-2700.

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

Conejo Valley Amateur Radio Club (CVARC). P.O. Box 2093, Thousand Oaks, CA 91358-0917. Meets 1st Thur./monthly at King of Glory Lutheran Church, 2500 Borchard Rd. Newbury Park, CA, 7:30 p.m. Info on 147.885/285 and 445.925/0.925 (PL 123) or call N6LQ Ernest (805) 499-5398.

Corona Norco ARC, (CNARC). Meets 1st Mon./monthly, 7:30 p.m., The Pizza Palace, 1197 Magnolia Ave., Corona, CA 91719. Talk-in 146.535 S.

Downey Amateur Radio Club. Meets 1st Thur./monthly, 7:30 p.m., So. Middle Sch., 12500 S. Birchdale, Downey, CA. Wkly nets—Thur., 7:30 p.m. 146.595 (S). For info: P.O. Box 207, Downey, CA 90241-0207.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., Northbrae Community Church, 941 The Alameda, Berkeley, CA. Info: Gordon Firestein, (415) 527-9382.

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. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975 (-600). Info, Bob Hastings, K6PHE (714) 990-9203.

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: First Interstate Bank, 751 First St., Gilroy, CA, 2nd Thur./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 Fri./monthly, 8 p.m. at 1528 Esplanade, Room 110B, Chico.

Hercules Amateur Radio Club. P.O. Box 5043 Hercules, CA 94547. Meets 3rd Sun./monthly, 6 p.m. at Ohlone Community Center, 190 Turquoise Dr., Hercules, CA. Info: Noel, AB6AC, (510) 799-4458.

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

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. For info: Rosalie Powers, KC6RKU, c/o LARK, P.O. Box 3190, Livermore, CA 94551-3190. (510) 447-3815.

Marin Amateur Radio Club (MARC) W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./8 p.m.; MARC Clubhouse Bldg. 549, HAFB, Novato, CA (415) 883-9789 (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael.

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

Moreno Valley Amateur Radio Assoc. P.O. Box 7642 Moreno Valley, CA 92303. Meets 4th Mon./monthly, 7 p.m., City Council Chambers—City Hall, corner of Cottonwood & Frederick Sts. Net Tues. 8 p.m. 146.655- (PL 1A). Info, Larry Marcum, KA6GND, (714) 656-1643.

Mount Diablo Amateur Radio Club. P.O. Box 23222 Pleasant Hill, CA 94523. Meets 3rd Fri/monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Ln., Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+). Info, George KI6YK, (510) 837-9316.

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Elks Lodge, on Cypress at Hackberry in Carmichael, CA. (P.L. 162.2) Net K6IS Thurs., 8:00 p.m. 145.190. 220 Net, Tue. 8:00 p.m. 224.40(-).

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m. at Republic Fed. Savings Bldg.—corner of Seventeenth St. and I-55 Freeway in Tustin. Call in on 146.55 simplex. Contact Ken Koehechy W6HHC at (714) 541-6249.

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

San Fernando Valley ARC. Meets 3rd Fri./monthly, 7:30 p.m., Red Cross, 14717 Sherman Wy., Van Nuys, CA. Net every Thur., 8:00 p.m. KB6C/R 147.735(-).

San Gabriel Valley ARC. P.O. Box 88, Monrovia, CA 91017-0033. Meets 1st Tues./monthly, 7:30 p.m. (except Dec.) at Bowling Green Clubhouse, 405 S. Santa Anita Ave., Arcadia, CA 91006. W6QFK, Rptr. 147.165/765.

Santa Clara County Amateur Radio Assoc. (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets: 2nd Monday/monthly, 7:30 p.m. at United Way, 1922 The Alameda, San Jose. Net all other Mon., 7:30 p.m. W6UU/R 146.385+/442.425+ PL 107.2

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

Santa Cruz County Amateur Radio Club, Inc. Meets last Friday/monthly at Dominican Hosp. Ed. Bldg., Soquel Dr., Santa Cruz, 7:30 p.m. Net K6BJ 146.79 Mondays at 7:30 p.m.

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

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.

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thur., 8 p.m., 51.80/51.30 tx. 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, 224.14 MHz.

Tehama County ARC. Meets 1st Fri./monthly, 7 p.m., Sept.-June, CA Div. Forestry Training Rm., Antelope Blvd., Red Bluff, CA. For info: 144.850/145.450 W6SYY/R.

The Trinity County ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, at the CD Hall in Weaverville, 7:30 p.m. WA6BXN Rptr. 146.13/73.

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

United Radio Amateur Club K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly except Dec., 7:30 p.m. Monitors 145.52 Simplex 10 a.m.-5 p.m.

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn. on Vine St. in Vacaville, CA. Repeater: K6HIH 147.475 (-1 Meg) PL 127.3. Ph: (707) 448-4633.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92393. Meets 2nd Tues./monthly, 7:30 p.m., Yucca Loma Elementary School, Yucca Loma Rd., Apple Valley, CA. Talk-in 146-940/340, info net Sun. 7 p.m. 146.940/340.

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. (except Dec.) W6PIY/R. Net Tue., 8:30 p.m. 147.39+, 223.96-.

COLORADO

Denver Radio Club. Meets 3rd Wed./monthly, 7:30 p.m., Denver Red Cross, 444 Sherman at Speer. Club net: Sundays, 8:30 p.m. 147.33 MHz.

CONNECTICUT

Middlesex Amateur Radio Society, (MARS). 5 North Rd., Cromwell, CT 06416. Meets Tues./weekly 7 p.m., Portland Methodist Church, Main St., Portland, CT. Novice classes, VE sessions monthly. Contact Jack, WA1K, (203) 347-8745. Rptr. 147.090+.

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340. Meets 2nd Tue./monthly, 7:30 p.m. St. Lukes Lutheran Church at Rt. 12. Novice classes. Info, contact Bob, KA1BB, (203) 739-8016.

DELAWARE/PENNSYLVANIA

Penn-Del Amateur Radio Club. P.O. Box 1964, Boothwyn, PA 19061. Sponsor of KA3TWG/Rptr. on 224.220 covering Delaware & Tri-state area. Info/net Thurs/wkly, 20:00 hrs. or call Hal Frantz, (302) 798-7270.

FLORIDA

Gulf Coast ARC, Inc. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN Rptr. 146.67/.07.

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

Platinum Coast Amateur Radio Society, PCARS). Meets 2nd Mon./monthly, 7:30 p.m., Red Cross Bldg., 1150 S. Hickory St., Melbourne, FL 32901.

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

Suncoast Amateur Radio Club. P.O. Box 7373, Hudson, FL 34676. Meets 2nd Mon./monthly, 7:30 p.m., First Lutheran Church, corner of Polk & Delaware, New Port Richey, FL. Sponsor of WC2G/Rptr. on 145.35, serving west Pasco County.

GEORGIA

Dalton Amateur Radio Club, Inc. (DARC). Meets 4th Mon./monthly, 7:30 p.m., Old City Park Sch. Bldg., corner of Waugh St. and Thornton Ave., Dalton, GA. Info, Bill Jourdain, N4XOG, (404) 226-3793.

Metro Atlanta Telephone Pioneer Amateur Radio Club. Meets 1st Tues./monthly alternately between 12 p.m. at 675 W. Peachtree St. and 6:30 p.m. at Morrisons on Jimmy Carter Blvd., Atlanta, GA.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7:00 p.m., HELCO Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.760(-), 146.880(-), 147.020(+) and 147.040(+).

ILLINOIS

Amateur Cross Link Repeater Club. 29.680, 52.825, 147.225, 224.480, 921.225, 1292.10 and ATV on 916.25. Meets 1st Fri./monthly, 7:30 p.m. For info call (312) 594-1628. KD9FA Repeater/Chicago.

DuPage Amateur Radio Club, (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Catholic Church, 110 Cass Ave., Westmont, IL. Sun. net on 145.25 MHz PL 107.2 at 2100 hrs. local time. Rptrs. 145.25 MHz PL 107.2, 224.68 MHz, 442.55 PL 114.8. Info. (708) 985-9256.

Fox River Radio League. Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. Meets 2nd Tue./monthly, 7:30 p.m. VEC Xams 3rd Tue./monthly, 7:30 p.m.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m. Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. *Nets: Sun.* (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S.; Packet Mailbox 145.07. Info: (708) 535-3496.

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. For info: (309) 685-6698. Rptrs: 146.25/85 & 147.675/075.

Schaumburg ARC (SARC). Meets: 3rd Thurs./monthly, 7:30 p.m., Schaumburg Park Dist. Community Rec. Cntr. at Bode & Springinsguth Rds., Schaumburg, IL. Net 145.23, 8 p.m. Thurs. Info (708) 213-0910.

Tri-Town Radio Amateur Club. P.O. Box 302, Hazel Crest, IL 60429. Meets 1st & 3rd Fri. (Sept.-June), Hazel Crest Village Hall, 3000 W. 170th Pl. Net Wed. 146.49, 8 p.m. Info: (708) 335-9572.

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

York Radio Club. Meets: 3rd Fri./monthly, 8 p.m., Elmhurst College (Science Bldg.) Elmhurst, IL. Net Mon., 8 p.m. W9PCS/147.42 simplex. Rptr. 442.875

IOWA

Central Iowa Radio Amateur Society (CIRAS). Marshalltown, IA. Meets 3rd Sun./monthly, 6:30 p.m., Community College, Rm. 612, (except July & Aug.) Sun. Net 8 p.m. local 146.88. For more info: WBØZKG, (515) 484-4837.

LOUISIANA

Baton Rouge Amateur Radio Club. P.O. Box 4004, Baton Rouge, LA 70821. Meets last Tues./monthly, 7 p.m., Catholic H.S. cafeteria, 855 Hearthstone Dr. Rptr. 146.19/79 & 28/88. Net Sun., 8:30 p.m., 146.19/79.

Southwest LA Amateur Rptr. Club, Inc. (SWLARC). Meets 4th Tues./monthly, 7 p.m. in the Parish EOC Rm. W5BII/R 146.073/146.013. Net MWF, 7:30.

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. W8JXU Club Call.

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

MINNESOTA

Minneapolis Radio Club. P.O. Box 583281, Minneapolis, MN 55458-3281. Meets 3rd Fri. (exc. June, July, Aug.), Mpls. Red Cross, 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916. Net 147.03(+), 7 p.m. Mon.

MISSOURI

Gateway To Ham Radio Club, NØDN. Young hams of all ages. Meets 1st & 3rd Sat./monthly, 1-3 p.m., Sacred Heart Sch., 10 Ann Ave., Valley Park, MO 63088 (St. Louis) Net Sun., 8:30 p.m. 146.94 rptr. Beginners classes, VE exams, Club station & mtgs. Info: Rev. Dave Novak—Fax (314) 225-1952.

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

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri., 7:30 p.m. at Omaha Red Cross near 38th and Dewey Streets. Main 2M Net Sunday night 0200Z on 146.94R-.

Pioneer Amateur Radio Club, (PARC). Meets 4th Fri./monthly, 7:30 p.m., Fremont Fire Station, Fremont, NE. ARES net 146.67 19:30 CDT/19:00 CST. Info: Dick Klebe, KBØHEC (402) 721-1326.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m. Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info, Jim Frye, NW70, 456-5396.

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

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover NH 03820. (603) 332-9137/332-7343. Meets 2nd Sun./monthly, 7 p.m., Rochester Court House/City Hall. Talk-in 147.57.

NEW JERSEY

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

Bergen Amateur Radio Assoc. (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, VFW Post #6699, E6 Winslow Pl., Paramus, NJ. Nets 28.350 Mon. 9 p.m., 144.400 9 p.m. Wed.

Delaware Valley Radio Assoc. (DVRA). Meets monthly, alternating 2nd Tues./Wed., 8 p.m., Our Lady of Good Counsel Church, West Upper Ferry Rd. at Wilburtha Rd. in W. Trenton, NJ. W2ZQ/R 146.07/67. DVRA Ham Hotline (609) 882-2240.

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

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

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park at 7:30 p.m. For info call Arnie, WB2YXB, (718) 343-0172.

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

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

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

Suffolk County Radio Club. 3rd Tue./monthly, 7:30 p.m. Bohemia Rec. Ctr., Ruzicka Wy. W2DQ/R 144.610/145.210, 223.080/224.680, 441.625/446.625 rptrs. Info call Jim Heacock (516) 473-7529.

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

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets: Mondays, 28.350 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" — all mouth, no ears.

Stanly County Amateur Radio Club. P.O. Box 188, Stanfield, N.C. 28163. Meets 4th Thur./monthly, 7 p.m. at Stanly Community College, Albemarle, N.C.

OHIO

Amateur Radio Fellowship, (ARF). Peggie Hough, Sec., 3888 Stow Rd., Stow, OH 44224. Meets 1st Sat./monthly, 10 a.m., Country Manor Restaurant, 1225 W. Main St., Kent. KA8YKT rptr., 147.075.

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

Clyde Amateur Radio Society (C.A.R.S.) Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E Rptr. 447.625/442.625. 444.60 (+5 MHz). Net Sun. 9 p.m.

Firelands Area Repeater Assoc. Inc. Meets 4th Tue./monthly, 7 p.m., First Federal Savings of Lorain, Huron, OH. Freq. of Rptr. 146.805/205. Info: Eugene Hutchins, AA8DL, 45 Welton Ave., Norwalk, OH 44857.

Lancaster & Fairfield County A.R.C. Meets 1st Thur./monthly, 7:30 p.m., American Red Cross, 121 W. Mulberry St., Lancaster, OH 43130. Info Net every Mon., 8 p.m. K8QIK/R 147.63/03 Rptr.

North Coast A.R.C. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly, 7:30 p.m. at North Olmsted Middle Sch. cafeteria, 27351 Butternut Ridge Rd., North Olmsted, OH.

Northern Ohio Amateur Radio Society (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: Rptr. K8KRG 146.70, DX Alert Rptr. 145.15. "Ohio's Largest General Interest Club"

Springfield Independent Radio Assoc., (SIRA). Call-in 145.45—224.26. Meets 2nd Tues./monthly, 7:30 p.m., Mercy Hosp. and 4th Tues/monthly, 7:30 p.m., Am. Red Cross. Info: Rodney Myers, KB8WV, (513) 399-1022.

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

Triple States Radio Amateur Club. Meets Wed./weekly on 28.480 at 8:30 p.m.; 7260 at 9 p.m. Rptrs. 146.31/91 and 146.115/715. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

OREGON

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thur./monthly, 7 p.m., Bend Senior Cntr., 1036 NE 5th, Bend, OR. Net Sun. 7:30 p.m. 147.06+ MHz. Info call: (503) 382-1685.

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

Umpqua Valley Amateur Radio Club, Inc. 450 S.E. Leland St., Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info: W5PII/R 146.90/30.

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tue./monthly, 7:30 p.m., Boy Scout Cntr., 850 Morton Ave., Butler, PA. Call-In W3UDX 147.96/36. Net 10:10 p.m. nightly.

Mercer County Amateur Radio Club W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly at 7:30 p.m., Shenango Valley Med. Center, Farrell, PA. Net, Thur. 9 p.m. on 147.75/15 W3LIF, Digi. 145.010.

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Neshaminy-Warwick Presbyterian Church, Warminster, PA. Net on 147.690/147.090 Wed. 8:30 p.m. and 28.450 Sun. 9 p.m.

TENNESSEE

Nashville Amateur Radio Club. Meets 3rd Thurs./monthly at Lock 2 Metro Park, located off Pennington Bend Rd. Grilled hamburgers at 6 p.m., mtg. at 7. Info: Jim Lynn, 1621 Jackson Valley Pl., Hermitage, TN 37076.

TEXAS

Brazos Valley Amateur Radio Club (B-VARC). P.O. Box 1630, Missouri City, TX 77459. Meets 2nd Thur./monthly, 7:30 p.m., Sugar Land Community Cntr., 226 Matlage Wy., 3 blks SW of Imperial Sugar Co. at HWY US-90A & Brooks St. (HWY 58) in Sugar Land, TX. Talk-in 145.47, 442.5 rptrs.

Sun City Amateur Radio Club. Meets 1st and 3rd Fri./monthly, 7:30 p.m., 3709 Wickham Ave., El Paso, TX. K5WPH 147.240, 443.4 with remote operation on 6M and 10M.

VIRGINIA

Southern Peninsula Amateur Radio Klub (SPARK). Meets: 1st and 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Rptrs: 146.13/73 & 449.55/(-5) T. VE Exam Info: (804) 898-8031, WARTZ.

Virginia Beach Amateur Radio Club, Inc. (VBARC). Open Door Chapel, 3177 Virginia Beach Blvd., Va. Beach, VA. Meets First Thur./monthly, 7:30 p.m. Info on WA4KXV rptr, 146.97/37.

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m. United Good Neighbors Cntr., 305 S. 43rd, Renton, WA. Talk-in on 146.82 rptr.

North Seattle Amateur Radio Club, (NSARC). Meets 3rd Tues./monthly (except July, Aug., Dec.) at First Interstate Bank, 2825 N.E. 125th St.

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St., Ravenswood, WV 26164. Meets 1st Thur./monthly, 7:30 p.m., United National Bank of Ripley. Net Mon. 9 p.m. on 146.67/.07 WD8JNU/R.

Tri-state Amateur Radio Assn. Meets: 3rd Tue./monthly, 7 p.m., Green Valley Vol. Fire Dept., Norwood Rd. & 16th Street Rd., Huntington, WV. ARES net Thur. 9 p.m. on 146.76(-) W8VA/R. Info Bud Cyr, KB8KMH (304) 522-1294.

WYOMING

Sheridan Radio Amateur League, 146.82. 926 La Clede, Sheridan, WY 82801. Meets 4th Thur./monthly, 7 p.m., Sheridan College Tech. Cntr.; Saturdays, 8 a.m. at J.B.'s Info: (307) 674-6666, WA7B.

PUERTO RICO

Puerto Rico Amateur Radio Club. P.O. Box 360693, San Juan, Puerto Rico, 00936-0693. Meets every Thurs., 7 p.m., Civil Defence, Rio Piedras (next to AMA & San Francisco Shopping Cntr.). Nets Sun. 9 a.m. on 147.090, 28.450 & 7.250 MHz. Info: Raul Escobar, KP4QL, (809) 765-2745 (daytime).

QUARTER CENTURY WIRELESS ASSOCIATION INC.

Ethel Smith, K4LMB

Have you made your reservations for the QCWA convention in Scottsdale? The date is getting close and early reservations are important. Hotel reservations are at a premium and the convention committee needs a "nose count" for their planning purposes. Get your reservations in now. You don't want to miss this convention. (See page 64 of the summer *Journal* for registration form and page 23 of the spring *Journal* for more information. You can also call W9INP at 602/488-2650.)

Our new general manager, Jim Walsh, W7LVN, has been a busy traveler and new memberships are showing for his efforts. Jim attended the Dayton Hamvention in April, the ARRL Northwest Division Convention, SeaPac (Oregon), in June, and the ARRL National convention in Los Angeles in August. President Harry Dannals, W2HD, has also been making the major conventions and has done a good deal of speaking at meetings ranging from senior citizens to youth groups. He is also active in the VE program. Dannals has been working hard to promote the elmering effort.

Lee De Forest Chapter #123 reported that members of this chapter are very active in giving training classes and examinations. There were 15 students taking their course this spring, with five ranging in age from eight to 12. Carl Larson, WA0DFF (who organized the classes), commented that the greatest award he gets for his teaching effort is "the expression in my students' eyes upon completion of the course." Training and elmering can be a very rewarding experience, and QCWA members are uniquely qualified for the job. We would like to hear from more chapters who are taking an active roll in this effort.

The QCWA luncheon at the Midwest ARRL convention in May brought an attendance of 52, and four new members for chapter 123. Sixty-five-year awards have been presented to Al Braley, W0GET, Lee McKee, W0BX (deceased), and Gerald Schultz, W0FLM. A $50 check was sent to the QCWA Scholarship Fund.

Members of the Northern Lights Chapter rolled out the red carpet for K4LMB in June. In Anchorage, KL7DG and his family, and KL7PG and his wife met for brunch and a visit to KL7DG's home. In Fairbanks, KL7AM and his wife, WL7BNX, along with KL7AG and his wife, KL7AZJ, met for brunch and a day of visiting and sightseeing. That is fabulous country with the most wonderful, friendly people! Make sure Alaska is on your travel list!

Please note that the inside back cover of the *Journal* carries an application blank for membership in QCWA. Make some copies of that application and then put them to good use. Ask every QSO contact if they are eligible for membership. I have been amazed at the number of people who have told me they have had difficulty finding out how to join QCWA. We can do something about that!

WANTED:

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

TRAFFIC

Geri Sweeney, N4GHI

Packet activity

Another board is planning to close in the Washington DC area. It seems attrition is now nibbling at SYSOPS just as it does traffic handlers. I'm on the end of a link with a local AMTOR board and receive traffic for this area at my 2M board (WA3TAI). Traffic seems to come in spurts—several pieces one day, and then nothing for a week. Recently, I sent a message to a friend in South Carolina. It took a week. He sent me a message showing the routing my message took. The path from Northern Virginia to South Carolina was: MD, VA, VA, VA, AL, FL, FL, GA, GA, and SC. While WB4HUO (GA) only kept the message 12 minutes, WA4ONG (VA) kept it 24 hours and 12 minutes.

My friend runs a local 2M PBBS in South Carolina. His comments were that some boards do a great job and some don't do very well. "If we could figure out how to make them all forward in a timely manner, we would really have a great network." Boards are run by humans. They're like any other machine and need continual tweaking. They need SYSOPS who are as interested in what is happening on their boards as in the technology to make a board run.

Attrition

Attrition is happening in all modes. Those of us in the field encourage new traffic handlers whenever we have the opportunity. It may be time for a new approach. Two possibilities come to mind. One is for section managers (or section traffic managers) to send welcome letters to new licensees in their sections. Such letters could include: local packet and net frequencies; a brief on how to check in to a net/PBBS and pass traffic; and a pink card and ARRL radiogram sheet. A handout describing the fun of traffic handling could be included with endorsements such as the following from a letter which Carl, N2XJ, sent me: "Traffic handling is fun and one of the greatest pleasures is delivering messages. It affords our best contact with the public we serve."

The budget for this would be mostly postage. The material (section handouts) could be kept at HQ (pink cards and radiograms are already there) and thus sent even cheaper. The other need is for the ARRL to make a good quality video which could be available for club meetings, hamfests and public gatherings. In my last article I mentioned one possibility. K4IWW, Will, in North Carolina gives a terrific demonstration on a CW traffic net. We need to encourage the field services staff at ARRL headquarters to realize that the more of us there are in the field, the stronger their department will be.

ARRL BBS

Did you know they have one? Some time ago a grass roots resolution was submitted requesting they let folks know who it would best serve and give out some information about it. The resolution also asked them to survey just what kind of computer programs we are using in the field to keep our data, and then let folks (especially new net managers, SMs, STMs, SECs, etc) know which programs do the best job Field Services is taking action and I hope we will hear more about it at the board meets in late July.

Summer/fall

It's strange to be sitting here at my computer in early July writing a column for September. About the only "for sure" by then will be that traffic will start picking up to climax at Christmas. If you have never joined a net, consult the ARRL Net Directory or check the back of *QST* under Section News. See who your STM is and ask him to tell you more about where, when and how you will be needed. It is a fun activity as well as an important community service.

Answering machines

Thanks to N2XJ for sending me an article from the *Wall Street Journal*: "28.2 percent of US households with telephones had unlisted numbers as of last year. The most anonymous of the national 100 biggest metropolitan areas is Los Angeles/Long Beach, with 59.9 percent of households unlisted. Close behind is Las Vegas with 58.3 percent. The least privacy-minded is Syracuse, New York, with only 12.2 percent unlisted."

It seems those with unlisted phone numbers aren't immune from the annoyance of unsolicited calls. The article mentions that survey sampling buys an electronic database of white-pages listings nationwide, a product several firms offer. It analyzes the data to find all the five-digit combinations with which listed phone numbers begin. Then it comes up with those five digits that aren't already listed.

When you copy a message, be absolutely certain you get the phone number correct.

QUIZ

1) How do you indicate you have copied a message at 100 percent accuracy?

a) QSL
b) QSL NR (whatever)

2) The TX station hasn't mentioned whether it has QSK. Do you
a) keep trying to break him
b) give up trying and copy what you can

3) How do you count a QNC in your report to the net manager?
a) QTC 5/5 QNC 1 (where the first number is traffic listed and the second number is traffic passed).
b) QTC 6/6

4) When someone asks for WA (a fill), do you send
a) the requested word only
b) WA and the requested word
c) the word and several more words in case they need it

5) You need to know the station of origination. You ask for
a) sta of orig (nine characters)
b) WA R (three characters)
c) WB check number (three or four characters)

6) You don't use WA R because
a) you don't think people are smart enough to figure it out
b) you have never tried it, gee it's so short!

7) You need a fill and decide on WA
a) you send WA and the word
b) you send WA twice and the word

I'm completely confident that you know the answers and will not insult you by giving them.

Message favorites

The past two months saw fathers and mothers being entreated to enjoy their day. Field Day: "Hello Mom and Dad from our first Field Day x I love you"; "Greetings from Field Day x rained off and on x great time"; "Busters Beach Bums operating Field Day all bands CW QSOs welcome"; Birthdays: "Uncle John is having a blast for his 90th birthday"; "Many thanks and good wishes on your 92nd, hope to hear from you when 100"; Weather: "Hope the heat hasn't wilted you x the fireflies are out"; ARL 67: "No outlet for prosperity"; "Many calls no answer sounds like faulty answering machine"; Happiness: "Thrilled to hear from you"; Confused (These two messages were sent back to the same station. They were evidently replies to the same message to different people): "Roger was suspicious and belligerent. Sam was pleased but was not sure who you are"; Proud (To W4JLS in VA from N1GND in ME): "ARL 60 your move to Las Vegas x It was an honor and a privilege to work with you on various nets x Thank you for all your help and support 73."

And finally, just who are the Country Cousins?? □

Will QRP ever grow up? Will low power communicators ever join the mainstream of Amateur Radio? Hmmm . . . interesting concept. When I have the time, I indulge myself by reading QRP articles in other amateur periodicals. My reading encompasses both stateside magazines and overseas publications. Without a doubt, the main emphasis for the low power communicator is HF CW operation using home constructed equipment, not that there is anything wrong with CW (despite comments to the contrary by the Old Northeastern Doomsayer) or homebrewing equipment. Both are noble pursuits, to be sure. But there is something more to QRP operation than *just* HF CW and homebrew gear.

While there is absolutely no doubt that the majority of low power communicators enjoy and favor HF CW operation, it might not be a bad idea for mainstream QRPers to at least try some of the non-traditional modes to see what can be accomplished. I am absolutely positive that many prospective low power communicators have been turned off by the idea of having to use CW in order to pursue the QRP facet of our hobby. Likewise, HF operations take precedence over V/UHF operations. Many radio amateurs do not have the physical space needed to erect even a simple dipole for 40M. These same hams could easily erect a J-pole antenna for 2M and dipoles for 10 and 15M and enjoy the low earth orbit (LOE) satellites. A 10M receiver and a simple transmitting setup for 15 and 2M would allow the condo bound amateur to enjoy modes A and K operation on the RS-10 and RS-12 satellites.

An unfortunate situation exists in the lack of information available to the QRPer regarding the fantastic world of satellite operation. A recent article on LOE SATCOM operation by Mike Herr, WA6ARA, in the spring and summer '92 issues of the *QRP Quarterly* is geared to spur the low power communicator onto greater heights. But, on the whole, little information is available for the neophyte satellite communicator. In all fairness, AMSAT offers several beginner's-guides-to type booklets and the ARRL has *The Satellite Experimenter's Manual* and the *Satellite Anthology*. The two books from the League contain a tremendous amount of information and are well worth the price, but they are not necessary in order to get on the RS-series LOE birds.

What is clearly needed is a beginner's text concentrating on cost-effective ways to get started in LOE SATCOM using current station equipment or recycled gear from hamfests and flea markets. AMSAT's main focus seems to be to get everyone onto AO-13 as quickly as possible, bypassing the less hardware intensive RS-series of satellites that use mode A (2M uplink and 10M downlink) and mode K (15M uplink and 10M downlink). What's this? A satellite that uses HF bands for both up and downlinking?! Gadzooks! The answer to a QRPer's dream!

The RS satellites are considerd by many to be the "Volksbird" of the amateur satellite community, whereas Phase 3D and AO-13 are truly high-tech, hardware-intensive birds requiring rather sophisticated ground stations—something that may be beyond the reach (both in terms of money and hardware) of many budding SATCOM operators.

SATCOM operations at K7YHA started in earnest after obtaining a used Yaesu FT-276R. Since I am in the middle of a remodeling project (the XYL said I could have the third floor bedroom for a shack), I didn't want to erect a whole set of antennas just to play SATCOM. The Carolina Windom (for the 15M uplink and the 10M downlink) and a 2M J-pole for the 2M uplink were already in place. In addition, I had the Butternut HF-5V Butterfly Beam for both 10 and 15M. Armed with these antennas I felt that I could easily access some of the LOE birds.

Using the *Traksat 2.45* satellite tracking program by Paul Traufler (111 Emerald Dr., Harvest, AL 35749), to plot the usable passes of RS-10 and RS-12, I settled down to the task of trying to access the satellites. First listening for the RS-10 beacon on 10M near the appointed time of the pass, I was able to identify the satellite when it broke the local radio horizon. After a couple of telemetry frames (looking for the status of the 15M receiver which would indicate which mode the bird was in) I was ready to try my first LOE SATCOM QSO. Telemetry indicated that the 15M receiver was on and therefore the bird was in mode K (15M up and 10M down).

I fired up the Ten-Tec Argonaut 509 on 15M smack in the middle of the transponder passband and started tuning the FT-726R on 10M, looking for my downlink signal coming back. Sure enough, there it was! As soon as I heard my return signal, I started calling CQ RS DE K7YHA. This went on for about three or four minutes into the pass and then I noticed something. Not only was I not getting any response to my CQs, I was not hearing any doppler shift on my downlink signal. After tuning around some more, I found that there were several "birdies" appearing in the 10M receiver emanating from my Argo 509! I could hear several QSOs in progress, all with doppler shift, but I could not hear my "real" downlink signal coming back.

On a whim, I tuned up the second VFO on the FT-726 to the 2M uplink of RS-10 and went into SATCOM full duplex mode to try mode A (2M up and 10 down). Sure enough, there was my downlink signal coming back, this time with the proper doppler shift. At last I was into the bird!

After a quick tune around the downlink, I spotted a station calling CQ RS and brought my 2M VFO on frequency and gave the other station a quick call. Back he came and we had a brief QSO swapping signal reports, names

and QTH information. One thing about LOE contacts, they are short and sweet. No time is wasted with long transmissions, due to the rapidly changing radio window. Access is around 17 minutes at the very most, so in order to maximize the number of QSOs per pass, one must be quick!

With my first official RS-10 QSO under my belt, I felt that I was ready for anything. As I gained experience, QSOs on both RS-10 and RS-12 became commonplace at K7YHA. While the FT-726 is a definite plus, I have worked RS-12 on mode K using nothing more sophisticated than an Argonaut 509 for 15M uplink, a Drake 2-B receiver for the 10M downlink and wire antennas. Since mode K is so easy to access, LOE SATCOM QSOs during Field Day are relatively easy. Some pre-planning is required to ensure that the proper times for the passes are obtained. This can be accomplished with one of the many satellite tracking programs available from AMSAT-NA or by using manual tracking procedures outlined in the ARRL's *Satellite Experimenter's Manual*. Other than that, the RS series of LOE satellites are truly the "Volksbirds" of the SATCOM world, open to anyone capable of generating a low power 15M signal and receiving the downlink on 10M. In short, the LOE birds are a QRPer's dream. Responding well to 2-5W RF power output levels on the input to the on-board transponder, the RS-series of satellites offers the low power communicator a unique opportunity to expand his or her Amateur Radio experiences.

SATCOM has its parent organization within the Amateur Radio community. This organization is AMSAT-NA. Dues for AMSAT-NA are $30 per year which seems expensive in view of the size of the bi-monthly newsletter (about 32 pages), *The AMSAT Journal*. However, the dues cover only a small portion of the cost of the newsletter. The majority of the funds are used to underwrite research and development projects like Microsats and Phase 3D. In other words, the dues are high but so are the costs of developing, building and launching new satellites. AMSAT also offers a host of tracking programs for most popular computers including IBM PCs and clones, Apples, Macs, Commodores and Ataris. In addition, they offer booklets covering topics like the PacSats, RS-series and AO-13 (Phase 3C). I highly recommend that you join AMSAT-NA (850 Sligo Avenue, Silver Spring, MD 20910) if you become interested in SATCOM. By supporting AMSAT-NA you are supporting satellite communications on a global scale.

There is a new QRP organization forming in the Pacific Northwest. The NW QRP Club, under the leadership of Bill Todd, N7MFB (Seattle, WA), is currently enrolling members. For a $10 fee you get a club number, a very nice certificate and a subscription to their bi-monthly newsletter. My membership number is #24 (I have finally joined a QRP organization and received a two digit number!), having joined in late May. If you are interested in becoming a member or would like further information about the NW QRP Club, write Bill at the following address: The Northwest QRP Club, 2418 55th Ave. SW, Seattle, WA 98116. Don't forget to be courteous and include a large SASE with at least two units of first class postage.

I have been engaged (for the last several months) in a major remodeling effort to build a new ham shack in the house. This is the first time that I have ever had a dedicated room for the radio hobby. Having operated all over the world in everything from a hall closet to the master bedroom, this is a unique opportunity for me to design things the way I want them. Thanks to Joe Balutski, N3IKP, who is doing the electrical wiring and helping me with the remodeling efforts, this shack will be a real pleasure to operate. Starting next month, I'll detail some of the things that Joe and I have done to make my "ultimate shack" a reality. This should offer some insight to others who are contemplating a similar project.

Low Power Communications - Vol. II, Advanced QRP Techniques is coming along nicely. The list of contributing authors to this project reads like a who's who of low power communicators. The second volume should be at the publisher by the end of October with a release date just prior to Christmas. I still have autographed copies of *Volume I, QRP Basics*, available for $12.50 per copy. Check the *Worldradio* classified ads at the back of this magazine for further details. 72 and 73, Rich, K7YHA. □

RS-10 MODE A		RS-12 MODE K	
UP	DOWN	UP	DOWN
145.860	= 29.360	21.210	= 29.410
145.870	= 29.370	21.220	= 29.420
145.880	= 29.380	21.230	= 29.430
145.890	= 29.390	21.240	= 29.440
145.900	= 29.400	21.250	= 29.450

BEACONS

RS-10 29.357, 29.403
RS-12 29.408, 29.454

ROBOTS

RS-10 UPLINK 145.820, DOWNLINK @ 29.357
RS-12 UPLINK 21.129, DOWNLINK @ 29.454

NOTE — ALL FREQUENCIES IN MHz

Search And Rescue Communications

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You may have read news accounts of a major fire on November 25, 1990, at the fuel farm of Denver's Stapleton International Airport. It burned for about 48 hours, consumed about three *million* gallons of fuel and took 634 firefighters and 47 fire units to control.

The accident report just came in the mail from the National Transportation Safety Board (NTSB report AAR-91/07) and provided some interesting reading. The NTSB listed the probable cause as loose motor bolts that allowed a pump motor to work loose, resulting in a fuel leak.

The NTSB report looked at how the fuel farm was operated and provided some good safety education as well. One item that caught my eye was a checklist maintained by the fuel farm company. The NTSB reported that the daily inspection was marked satisfactory through November 26, the day *after* the fire. The employee that had checked off the items reported that he had not been trained to recognize pump problems and would not have recognized a problem with the pump systems.

Many of us respond to emergencies and use a safety or operations checklist. I wonder how often items are simply checked off because a checkoff is required. Do we (and our fellow SAR responders) understand what the check mark represents?

Take some time to learn what items on your operational plans represent. Not understanding or not being trained is a poor excuse to just check off items on a list. It would be pretty embarrassing to be asked in court why items were initialed or checked off without any understanding of what the items represented.

If you have a checklist, use it and understand it. If you don't use a checklist, get one (equipment lists, procedures, callout people, safety items, etc.). Not using a checklist means you're going to try to remember each item. Forgetting something is just as silly as checking off an item and not knowing what you're doing. Checklists are important, if properly used!

Quality control

An editorial in the *Wall Street Journal* got me thinking about quality control. The article explored quality control getting in the way of quality. Simply put, there is a point when further improvements in quality limit what you're doing.

Among the suggestions for an "over controlled" system, the author said, "Emphasize results, not process." He said it was remarkable how often the focus on process diverts attention from the results—often generating excess staff and bureaucracy.

Among volunteers, it becomes important that we all have an understanding of what is expected in a "whole picture" outlook. Many of us are specialists in some area of emergency responses but still need to be able to see the big picture. Unless we have an understanding of what needs to happen (the results) we get bogged down in our specialty (such as being NCS or sending packets).

Looking at the results could mean we don't need an NCS or a packet station—two people on simplex may be all that's required. Be aware of your surroundings! Don't try to staff for every possibility or make the response so perfect that you lose sight of why you were called to respond.

Mending fences

What happens to a company when its top people get upset and leave to form their own firm? Usually it becomes an effort for both companies to succeed. Along the way a lot of dirty laundry gets aired in public, feelings are hurt, reputations are damaged and a lot of energy is spent in anger.

Over the years I've been familiar with SAR (or communications folk) who have a disagreement with their group's leaders and go off to form their own SAR groups. Sometimes this internal battle gets heated to where other responders (including law enforcement) back away from using either group.

There's nothing worse, in my opinion, than in-house battles. It does nothing for the victim or the public who need the group's skill during an emergency. Most of the in-house battles can be traced to an insignificant issue where one or both parties involved refuse to smile and swallow their pride for the good of the group. Volunteer groups (especially Amateur Radio or CAP) that have high numbers of multi-talented and educated people experience in-house problems more often than other, less-trained groups.

Be aware of this propensity to do battle and prepare yourself, perhaps, to back down so these insignificant issues don't affect your ability to provide a service. You're a valued resource! Don't limit your ability to assist because you're too proud to give in once in a while. We're all going to make mistakes, have squabbles and get our feelings hurt. How we handle it is what determines our value to the group.

When it's broken

"The radio's broken."

How often does the repair shop hear these words and discover the radio works fine. It was the coax, antenna, fuse, wiring, microphone or power system that didn't work.

Rule of thumb when trying to fix something: Check the simple things first! Before you disassemble that

transceiver, look at the "radio system" first. The fuse, the power supply, the power and ground wires and the antenna system should all be checked first. Checking the "system" is a good training night topic. Many new Amateur Radio operators have no idea how to check a system ground or use a multimeter to test coax and power leads.

A shop foreman told me of the operator who brought the radio in to fix the alternator whine. The radio was fine, the ground lead was broken. I was told my signal was poor even though I was in a known coverage area. It turned out that a coax fitting had corroded and the SWR was sky high.

With our radios being pretty high-tech now days, I also find them pretty reliable. Once in a while the microprocessor scrambles its brains, but more often the microphone leads break, the power lead gets loose or the speaker gets disconnected. Seek simple causes first!

The car won't go

Since many of us at one time or another will respond to an emergency in our personal vehicles, it is important we are prepared for problems which occur with our transportation.

Having your vehicle quit running means you cannot respond or that your response will be delayed. As with many radio repairs, look to the simple things first. Routine (and simple) maintenance is important and isn't very complicated. If you're not familiar with changing a fan belt, take some time before the weather gets bad and learn. It's a poor time to learn when you're needed on an emergency response.

A few tips. Keep your fuel tank full. Check the oil often and change it at least twice a year. Inspect the fan and alternator belts. If they're cracked or worn, replace them and keep the old ones for spares. (Always carry spare belts!)

Check your tires. They should not show irregular wear and should have good tread. Keep your car clean, including windows and headlamps. Having stuff rolling around the floor is a great distractor and pretty unprofessional. Carry spares—fuses, wiper blades, hose repair kits, hose clamps, nuts and bolts, duct tape. Carry some extra water, oil and brake fluid. Don't get stranded when your fuel filter clogs up—carry a spare.

Most important is that you check your vehicle now. Don't wait until the next callout. If you notice problems, get them fixed before you have an accident. And remember to wear your safety belt! Until next month, 73. □

County Hunter

Ace Jansen, N3AHA

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Ah! Summer is ending and we're approaching the equinox (Sept. 21). Band conditions should be improving day by day. Now is the time for you to begin your county hunting venture. So purchase a county record book, break out those QSL cards and figure out how many counties you have confirmed. Then listen to the county hunter nets on 14.336 MHz and 14.0565 MHz. Speaking of the 14.0565 MHz county hunter's net, this month's column features the best CW net control I've listened to. Here is . . .

Ed's story

It's a real treat to listen to Ed Sanders, WA6VJP, send code. His code sending is as smooth as a glass-like mountain lake in the morning. He has truly perfected the art of communicating by Morse code.

Ed's interest in Amateur Radio began as a youngster, at age 10. After high school, Ed served his country in the army during the Korean war. Returning to the states from the war, Ed quickly met his future wife, Sal, and settled down in Illinois. Unfortunately, Ed's Amateur Radio license had expired.

Ed began work at the Naval Ordinance Plant in Forest Park, Illinois, inspecting machine-built parts for Navy mines. He went to night school to relearn Morse code and electronic theory and, in 1959, Ed re-entered the Amateur Radio community with his new call sign, K9VGO.

Two years later, in 1961, Ed and Sal decided they had experienced enough Illinois winters and moved to Oxnard, California. Ed started working as a machinist at the Pacific Missile Test Center (PMTC) at Point Mugu, CA. He stayed in this position for 20 years, retiring in 1981.

Ed has always been deeply involved in community service. He was a scoutmaster of a local boy scout troop, eventually becoming an associate advisor of the explorer post. As an amateur, Ed was involved in the Navy Military Affiliate Radio Service (MARS) as NØOSS and helped form the RACES group for the Oxnard area. He was also very active as CW net control for the National Traffic Service (NTS).

Ed has been very involved in helping the handicapped and is manager of a handicap program. He has taught five blind teenagers Morse code and electronic theory. Ed has borrowed equipment from Handi-Hams and helped handicapped people become hams. He's acquired speech units for time, frequency, rotator readouts, and multimeters. He's taught deaf people how to put their fingertips on a speaker's voice coil to send and receive Morse code. He's taught people with limb impairment how to hold a wand in their teeth and successfully tune a frequency dial.

Over the years he has taught over 100 people, helping them become amateur operators. Ed has been the vice president of the Ventura County Amateur Radio Association and is a life-member of the ARRL and the PMTS amateur club, WB6VZS.

He's chased DX on CW, receiving DXCC CW certificate #1065. Ed began county hunting in the late 1970s but became more serious after retirement. Ed so liked county hunting that he dropped everything else —dropped being net control for the NTS and dropped chasing DX. He

The Worked All California Counties award is available from the Northern California Contest Club.

joined the Mobile Amateur Radio Awards Club (MARAC) in 1983 and finished contacting all 3,076 counties in 1985, receiving USA-CA #500. To date, he has finished the MARAC second-time award, the Mobile QSL Bureau third-time award, and the B&B Shop fourth-time award. All CW!

County hunting can be a lot of paperwork, keeping track of counties worked, filling out QSL cards, keeping track of counties confirmed, etc. Ed is pretty fortunate Sal helps with everything. She does all the paper work and, though not an amateur herself, is very enthusiastic about Amateur Radio and county hunting. Ed says she has a phenomenal memory. She also drives Ed to county hunting conventions, allowing Ed to concentrate on running various counties.

MARAC has honored Ed as the best

CW net control of the year for the last four years. He is dependably on the net daily from 1300 to 0100Z. He is so regular that some East Coast county hunters check propagation by listening for Ed's signal. Dedication to being the net control is an understatement, because Ed is net control even when he's operating mobile.

Ed started sending QNC (information) messages regularly. One thing nice about the CW county hunters net is that mobile operators announce the next county they'll be operating from and the approximate time of operation. Ed keeps track of all these announcements and when there are no mobiles running counties, Ed sends a QNC message alerting listeners to what has been run and what is coming up next. This significantly reduces the amount of queries for information and makes the net more efficient.

Ed lives for challenges. He loves to be net control on weekends when there are eight to 11 mobile operators driving around. When the net gets really hectic, Ed is at his best. During weekdays there are usually only four to five mobiles running and the pressure and challenges are not as great.

Oddly enough, after all these years operating an Amateur Radio station, Ed has never used a microphone. He is strictly a CW operator. He concedes the CW county hunters are hopelessly outnumbered by SSB county hunters and was very interested in dedicating one article to CW county hunting. This article and the last one, a story about Gene, W1TEE, do just that. Ed organized the development and financial operations for the large trophy given to Gene for achieving CW transmissions from all 3,076 counties.

Ed is truly a professional CW operator and net control—a role model for aspiring net controls. But, there's just one more "Oh, by the way!" Oh, by the way, Ed is blind.

During the Korean war, Ed served in the 11th airborne group near the 38th parallel. While driving a jeep on a mountain road, a Chinese patrol was throwing hand grenades down from higher ground. Ed caught an airburst and was blinded instantly. All he could see was red, so he thought he was dead. His captain took him down the side of a mountain to safety.

After an operation in a Japanese hospital, Ed was transferred to the VA hospital in Hinds, Illinois. He met Sal during his six months of rehabilitation. Today, he says he has no problems because he was trained to function properly.

Ed uses three standard Braille writers and one Braille pocket writer. He uses one Braille writer for keeping logs; one for keeping track of time spent as net control; one for keeping track of counties worked for each of his four times around; and one for keeping track of all the counties run during the day and what's coming up next—his QNC list.

If you haven't heard truly good CW sending or if you haven't heard an efficiently run CW net, I encourage you to listen for Ed's call on 14.0565 MHz. You won't believe your ears.

CA QSO Party

Don't forget this year's CQP sponsored by the Northern California Contest Club (NCCC). Each year NCCC guarantees all 58 California counties will be activated during the contest. This is a perfect opportunity to complete the Worked All California Counties (WACC) award. Whether you need one CA county or all 58, listen Oct. 3 and 4 for activity in the contest. If you eventually confirm all 58 CA counties, write to K6PU, P.O. Box 934, Los Gatos, CA 95031 for information on the WACC award.

If you would like a county hunter's record book, send $2 to CQ Communications, 76 North Broadway, Hicksville, NY, 11801. Monitor the county hunter's nets on 14.336 MHz and 14.0565 MHz. Until November, happy hunting! □

OLD-TIME RADIO

Evolution of CW technology
Has it become too perfected?

EDWARD ERICKSON, W2CVW

Once upon a time, there were Amateur Radio operators who used separate receivers and transmitters. Teen-age kids would save their coins to pay 50 bucks for an S-38, probably the poorest receiver ever made. Then a couple more bucks for a *Radio Amateurs Handbook* and a license manual. At the same time, the scrounging and collection of parts for a transmitter would begin. Almost everyone started out on CW. The 40M band was once exclusively allocated to CW.

While the S-38 served its purpose magnificently to introduce people to the world of shortwave, it had only two possible virtues when employed as a station receiver: 1) Because it was so poor, you had to learn to be a good CW operator; and 2) it had, because of its instability, a constant up and down drift, and you had to continually retune and hence vary the tone of the CW all over the audio spectrum. You never became fatigued by listening to one tone. Similarly, with most receivers in the past, free-running oscillators and BFO pitch controls allowed an ever changing beat-note or side-tone, so the CW produced was never "monotonous."

Likewise, transmitters built from those scrounged parts by young boys and girls learning how to solder were not necessarily known for their purity of tone. Many turned out to produce a unique signal which made it possible to easily identify the source, and which gave the sounds of activity on the band an entertaining variety of modulations, including subtle tones, chirps, clicks and bells.

Handkeys and bugs provided another source of variety in the sounds of CW activity. Operators had distinctive "fists," some good, some bad. Good bug operators today are a rarity, but when you hear one, perhaps you will appreciate the types of rhythms inherent in this method of producing CW.

Of course, there were improvements in equipment with time as amateurs matured and learned how to build better transmitters, and increased their income to afford better receivers.

There was still a variety of subtle sounds in amateur CW operation. Even commercial-grade designs, although excellent purity-wise, left something hard to explain in their characteristic—witness the old WCC and the old W1AW 80M transmitter. Did that characteristic help you to copy text for your CP sticker when there was QSB?

Further improvements in transmitters and then the marriage of receive/transmit functions came on the scene. Frequency conversion replaced frequency multiplication and eventually frequencies were synthesized, yielding essentially absolute stability. These were great advances and certainly added great ease to CW and other modes of operation.

Properly designed power supplies did away with the interesting subtle tone modulation one could hear on some signals of old. Bandpass filters and fixed BFOs replaced the crystal filter and variable BFO in receiving circuits.

The electronic keyboard came along. Transceivers included audio sidetone to monitor one's own sending, which was not a true reproduction of the sent signal. Then came the modem devices for electronically reading suitable received CW signals and displaying the letters and numbers on LED segments, and later on video terminals.

All these developments were great advances, and one cannot deny that they greatly eased CW operations. Rock-solid stability, perfect CW, pure notes, perfect shaping, and rectangular 250 Hz selectivity had arrived. But now, all the CW signals sounded the same!

Gone was the personality one could put in one's sending. Gone was the ability to retune your own signal for a different tone when you became tired of listening to it. Gone was the desire to dig out and read those weak signals buried under the QRM and QRN. Gone was the variable BFO and crystal filter, which allowed considerable variation of tone and shaping of the received CW signal to please one's ears. Perhaps some of the newer transceivers will offer some variability in this regard, with variable bandpass and other controls.

Why hack away with a handkey or bug when you can use a computer keyboard? Why copy CW in your head when your computer can do it for you? If anyone cares to listen to his own signal, he is generally locked into one sidetone frequency, at least from the standpoint of front panel control, using today's equipment.

The other side of the coin of all these improvements is that they perhaps have made CW monotonous, and perhaps even some of the old-timers find it so.

This is not meant to be a trip down nostalgia lane. The outmoding of CW in the commercial world is relevant to Amateur Radio only in the sense that we are an educational activity, so we must relate to the new forms of communication in the real world if we want to maintain our reputation for producing electronic experts. Whether you want to consider the outlawing of CW in the maritime service, for example, as the result of hard economics or the result of technological evolution is up to you. How it comes out remains to be seen.

Neither is this meant to be a thesis that all operation is now overly machine-like, or that all operation should be conducted the old way. The point is that in the Amateur Radio Service, CW is a mode we can still enjoy. The question is do we want to enjoy it as a manual mode in which we can immerse our dexterities, listening abilities, sense of rhythms and the pleasure that comes from personality and variety, or do we want to swing overwhelmingly to technology and automation, and in a sense, make it somewhat of another "mindless" computer-controlled activity?

What do you think? □

Helping hams help even more by writing about their experiences.

Surely you've noticed that moral issues are discussed in strange places these days; bumper stickers are a case in point. Hitting close to home, we see questions like "Have you hugged your kid today?" or "Where's your kid going tonight?"

My kids are all grown now so I don't have those worries or have to respond to such questions anymore. About the only thing that wanders in the night around here is my RF and I can't even grab hold of that, much less hug it. But I know where it's going, even with some mathematical knowledge, if not precision. However, it wasn't always that way. Let me explain.

When I started in Amateur Radio, my first antenna was just a hunk of wire that went out the window, complete with kinks and bends along the whole 66 feet. It never worked very well and from what I know now, it certainly didn't have anything that one could call a coherent or organized radiation pattern.

That was then and now is now; what a difference! Now I have a three-element triband Yagi with a pattern of a "blunt instrument," a front lobe whose width is about 70 degrees between -3dB power points. But it is a pattern; that's more than I could say for that piece of wire. And the antenna even has 6dB gain over a dipole and a 20dB F/B ratio.

Even though I set up the beam with all the care and precision I could muster, its heading at any given time can vary by ±5 degrees, thanks to wind and the slop in the rotator's aging gear train. Even with that uncertainty, however, I can aim the beam with enough precision to do serious DXing. That's progress!

Historically speaking, I arrived on the radio scene at about the beginning of the second act, after radio had advanced beyond the shortrange stage and long-distance contacts were being made by means of the curved ionosphere. DXCC appeared on the Amateur Radio scene that very year so if you know the history of Amateur Radio, you can put a date to that time. And there was even mention of directional antennas in handbooks: V-beams, rhombics and Yagis.

Given those circumstances, it was natural for navigational methods and radio to get together. But how many of you know anything about celestial navigation? I don't. How many of you know anything about spherical trigonometry? I don't. For all intents and purposes, I'm still a card-carrying member of the Flat Earth Society, well-versed only in plane trigonometry.

I finally got around to looking into a book that gave the foundations of spherical trigonometry. It really was meant as a textbook for a course in astronomy, enabling patient souls who explore the heavens to track stars with great precision. Frankly, I'd never pass that course as it looked too ponderous and demanding for my attention span. But I did grasp the part of the course on spherical trig, essentially the results of applying plane trig to triangles that emerged from some exercises in spherical geometry. No big deal!

Actually I do know how to do spherical trig problems, great-circles and all that. It's just that I learned it in a different setting—in a course on vector analysis that I took when I was a junior in college. So I learned my spherical trig as a by-product, thanks to J. Willard Gibbs.

I can hear you asking now, "Who was J. Willard Gibbs?" Well, he was a professor of physics at Yale University back around the turn of the century and no, I wasn't in his class! I gathe he was something of a recluse—made killing in the stock market back then was the father of statistical mechanic and put together the marvelou scheme we know as vector analysis.

Now you've already heard me men tion that electromagnetic fields ar vector quantities, having both magnitude and direction. Gibbs' con tribution to the world of radio was i producing a formalism that put Max well's Laws in a compact form and i enabling us to make both physical an geometrical calculations using thos quantities. So spherical trig just fel out of his methods as a special case vector analysis as applied on the sur face of a sphere. In Amateur Radio w use the earth as our sphere and direc our RF fields, vectors and all, i whatever directions we desire. Neat!

Now things have come to a "pretty pass"; we even have personalized roa maps to find the way to reach DX. use that archaic phrase as it fits th situation: modern charts which ar based on methods going back to an tiquity. So we've become space-ag navigators, having azimuthal equidis tant maps centered on our own QTHs What would Ptolemy say to that?

So now you have another question "Who was Ptolemy?" Well if you dig into it, you'll find that Ptolemy was a Egyptian astronomer and cartog rapher of the second century AD. He was famous for several things, both right and wrong. On the positive side he is credited as the first person t make a map in the form of a conic pro jection. His charts even had parallel of latitude and lines of longitude, an it was his idea to establish the conven tion that the top of a map is north.

On the negative side, he accepte and used an incorrect value for the size of the earth, some 18,000 miles in cir cumference according to an earlie philosopher, when there was goo physical evidence at the time that i was more like 24,000 miles. A mistakes go, that was a classic one a

it lingered in cartographic work for about 1,400 years.

Let's get to the matter of "road maps" for one's RF and map projections. A few words there could be of help to you in your DXing and even in understanding HF propagation. First we have to mention the various types of map projections—conic, cylindrical, plane, azimuthal, etc. We don't have space to go into all that here, but I can point you in the right direction and cover the things about map projections which are important to us in our hobby.

As for the right direction, just about every DXer's shack has an atlas in it. The one I use is *Goode's World Atlas* published by Rand McNally. I like the maps in the atlas and all the information about the geographic coordinates for cities of the world. And there is a terse section in the beginning, six pages which deal with various map projections.

Those pages might warm the hearts of cartographers but they do little for me. After illustrating the fundamental geometry of Mercator and conic projections, they go on to some projections that I've never seen and even have trouble pronouncing. But it's a start and your atlas would be a good place to look.

If you really want to get the full story, you have to go to *The American Practical Navigator* by Nathaniel Bowditch (1773-1838). The first edition of "Bowditch" was published in 1802 and has served as the navigator's bible ever since. In 1868, the Hydrographic Office of the US Navy bought the copyright and started publishing it through the US Government Printing Office. Any good library would have a copy and if you go to chapter three, you'll learn all there is about map projections, believe me!

Now DXers know all about latitudes and longitudes, at least those in the geographic category. And they know that a great circle is the shortest distance between point A and point B on the surface of our sphere, the earth. Nowadays, DXers even think in terms of the terminator, the great circle on the earth separating sunlit and dark regions. But the interesting thing is that those lines take on different shapes in various projections. So what does a DXer do?

As best I can tell, the DXer goes with the choices which are available. Thus, for radio purposes, map projections have shaken down to two types: the rectangular projection, with equal spacing of the parallels of latitude and lines of longitude, or the azimuthal equidistant projection, with straight lines and a constant distance scale for great circles, with beam headings at the boundary.

I have both types of maps, but I have memorized the essential beam headings from the azimuthal map and only go to it for "touch-up" purposes when rare DX is in the offing. I take much more comfort from the rectangular maps, enjoying the looping sweep of great circles from point A to point B and the advance of the terminator, showing how light and dark regions cross the path of my RF. Since HF radio is largely dominated by the role of D-region absorption, these maps that convey the messages I need for DXing.

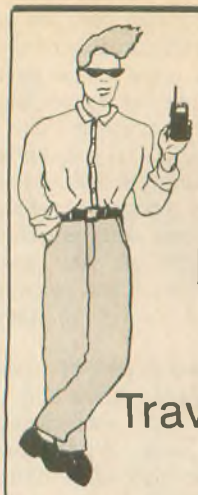
I must confess it's true that the dark and sunlit regions can also be presented in the azimuthal equidistant format; the problem is that the distortions in that projection are very severe. To see what I mean, consider that the point antipodal to the origin of such a map (notice I said *point*) projects into the largest circle in that projection and all the nearby land masses are distorted to the extent they're almost unrecognizable.

Fortunately, the Amateur Radio population in Antarctica is almost zero and the matter is of small consequence to people's pride. However, the spatial distortions in that part are so severe as to make judgements of the distance between a great circle path and the terminator almost impossible.

I've given up on that score and don't even try anymore. But if you know someone with the Amateur Radio version of the *Geoclock* program, take a look for yourself. Then compare that with what you see on the new *Miniprop Plus* program. Then you can decide which you'd prefer to have around the shack.

I consider the two types of maps more as aids than tools; they add to the understanding and satisfaction that goes with DXing. When they become part of your way of thinking about DX, the "tools" aspect is incidental. But if you really want to do things right, get a real globe, put its axis through your QTH and its antipode and take it from there.

Better yet, shop around the flea markets and try to find that fabulous globe sold by the National Geographic Society about 25 to 30 years ago. It had a clear plastic hemisphere that would fit over the globe and almost served as a mechnical computer, showing paths, the gray line, everything you need! For those who are hands-on types, that would be the ultimate device for all aspects of DXing! □



The Youth Forum

Travis A. Wise
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My original intent was to write this month's column about operating bicycle mobile, but since my bike (equipped with a VHF radio and an antenna) was stolen from my garage early this summer, I'll have to delay that column for a while (at least until I get my Rollerblades equipped with a radio!).

Hamfests are happening all over, all the time. With the influx of amateurs, and the increased public awareness about Amateur Radio brought on by the no-code Technician Class license, hamfests are becoming more popular and attendance at the events is encouraging. A necessary part of every successful hamfest is a youth forum. Youth forums are a super way to involve local young hams in the gathering and attract more people of all ages to the event.

There are a variety of approaches for youth forums. The type of forum chosen should reflect the size of the audience. If the overall event is fairly small, and the audience at the youth forum is going to be less than 50 people, a good tactic is to have the young hams act as a panel. One of the goals of a youth forum should be to attract new interest to our hobby. If there are any young people in the audience who aren't hams, a panel-type forum will allow the audience to interact with the members of the panel, giving the young hams a good opportunity to express their ideas and opinions. It will also keep the young audience members more attentive, and the panelists will generally feel more relaxed. (At least that's been my experience.)

In the panel-type forums in which I have participated, it has seemed to me to work out quite well for the young hams both on the panel and in the audience to introduce themselves, and for the panelists to spend a few minutes telling about their interests and involvements in Amateur Radio. Some of the questions that work exceptionally well include: "What are some good reasons for young people to become hams?"; "What do other kids say about you carrying around radios?" (peer pressure); and "Why do you think more kids are not into Amateur Radio?" It can also be interesting to share Amateur Radio experiences (i.e. in all-ham families, deciding who gets to use specific radios and when is always an exciting dinner-time conversation).

The panelists may also want to share what effect Amateur Radio has had on their education and what response they have given when and if anyone has ever tried to tell them tha Amateur Radio is not "cool," or i they have ever tried to hide the fac that they were an Amateur Radi operator (peer pressure can reall come into the scene with many youn hams).

Large hamfests will generally hav large youth forums (always a goo way to judge the success of the event and a panel-type forum may be to lengthy or awkward for such an event If this is the case, the young hams ca each be responsible for certain parts o the program. Normally this is done b having each young amateur give speech detailing his activities and in volvement in Amateur Radio. In th rare event that the forum is complete early, the facilitator may choose t recognize the young hams in the au dience and some of their accomplish ments.

Of course, these are just a few ideas to get a youth forum off the ground. It is important to keep in mind tha these forums are by and for youth, and any adults involved should focus o facilitating, helping to direct or coach ing, but not taking over the potentia of the youth in their leadership roles The audience will acknowledge and respect the panelists who are capable of creatively and adequately running a high-stress activity.

Regardless of the format of the forum, the important thing is tha young hams are presented well and as positive role models. Young hams in the audience will especially enjoy hear ing about celebrity hams, space and the SAREX project, and of course the use of computers in our rapidly ad vancing hobby.

Media coverage is vital. Every bit o media coverage that the hamfest's youth forum can get will result in positive publicity for Amateur Radio and it may interest otherwise speculative young people about our hobby. It will also positively publicize the entire hamfest, and possibly at tract a larger crowd the next time. Be certain to send press releases to the local media. The releases can easily be written on a word processor. Phone book listings of TV and radio stations can be used for a listing of local media Also publicize the forum in local clubs newsletters both before and after the event.

Hamfests are an opportune time for young hams to show their stuff and prove that this hobby is for people o *all* ages. □

YOUNG HAMS: Send in your news, features and ideas . . . let your voices be heard in ***Worldradio!***

CONSTRUCTION

Measuring third order distortion

FRANK JEROME W5AT

In the good old days, it seemed all magazine articles or anything to do with single sideband equipment was called "cheap and easy." Perhaps this is another one of those cheap and easy deals. Fact is, third order distortion is easily measured without putting off buying one of the really high-dollar European sports cars.

After performing the third order measurements, improvements can be made to all transmitter circuits or linears to lower the distortion or intermod. Add a few components such as additional capacitors in the power supplies and screen bypasses. Add RF feedback circuits or set the automatic load control differently. Perhaps getting a better idea of what the reading of the ALC meter means will be all that is accomplished with this test procedure.

Third order distortion measurement requires a two-tone test oscillator, a very selective audio filter and a frequency counter. Other items needed are a single sideband receiver (to allow checking your main transceiver), an oscilloscope, the station phone patch, and a meter that measures audio in decibels.

For a two-tone test oscillator, use the 8038 chip and board kit available from Circuit Specialists in Tempe, Arizona. You'll need two of them, one for each of the two frequencies. Use the frequency counter available from A&A Engineering in Anaheim, California, and the QF-1a selective audio filter from Autek Research in Florida. These were the unique items used in this distortion measuring procedure.

Begin the test procedure with the transmitter to be measured properly tuned up, connected to a dummy load. Follow this step-by-step procedure:

1. Turn on oscillator #1 and set to 750 Hz measured on the frequency counter; observe the 750 Hz with the oscilloscope. The sine wave must be pure and clean. Connect the 750 Hz to the Autek QF-1a selective audio filter, and observe the QF-1a output with the oscilloscope. Adjust the auxiliary notch control to reduce the 750 Hz at the QF-1a to a minimum signal. This minimum signal may be more easily adjusted by listening (by ear) to the QF-1a output or measuring with the decibel meter. This notch setting remains the same for the remainder of this procedure.

2. Set oscillator #1 to 400 Hz. Switch the QF-1a to *peak* and adjust the peaking control for maximum reading of 400 Hz at the QF-1a output. This may be measured with the oscilloscope, the decibel meter, or by ear. This peak setting remains the same for the remainder of this procedure. Note the gain (or loss) through the QF-1a. When 400 Hz at -5dB is applied to the QF-1a input, the output should measure 400 Hz at 0dB. All QF-1a units may not be the same. This gain or loss is added or subtracted from the reading obtained in step six below.

3. Set oscillator #1 back to 750 Hz, measured by the frequency counter. Turn on oscillator #2 and adjust to 1900 Hz, measured by the frequency counter. Combine the two frequencies with a passive combiner and observe with the oscilloscope. The combiner is a 1000-ohm potentiometer (pot) with each end connected to each oscillator and the center or rotor connected to the phone patch. Set the two frequencies (750 Hz and 1900 Hz) for the exact same level by varying the combiner pot. Connect to the phone patch for later transmision of these two tones. The formula for third order distortion is frequency #2 minus two times frequency #1. This becomes 1900 Hz minus 1500 Hz, or 400 Hz.

4. Turn off oscillator #1. Turn on the transmitter and turn up microphone or gain control for 50 percent power with the single 1900 Hz tone. Tune in the monitor receiver accurately, using the frequency counter, to obtain the 1900 Hz received tone. This tuning must be precise or the third order measurement cannot be completed. Repeat this adjustment from time to time to ensure continued precise tun-

ing or adjustment of the receiver. Adjust the monitor receiver audio gain for about a -3dB level on the decibel meter. This setting remains the same for the remainder of this procedure.

5. Turn on oscillator #1. Turn on the transmitter and turn up microphone or gain control for maximum power. This will be about 75 percent of the tune-up power due to the action of the ALC with the two tones. Do not turn the microphone or gain control past the point where the output power no longer increases. Observe the ALC meter reading. Turn the microphone gain up and down to determine the point where output power does not increase with increased gain, and to observe the ALC meter reading of this point. Stop and allow some cooling off time (unless your transmitter is the one the brick can hold keyed).

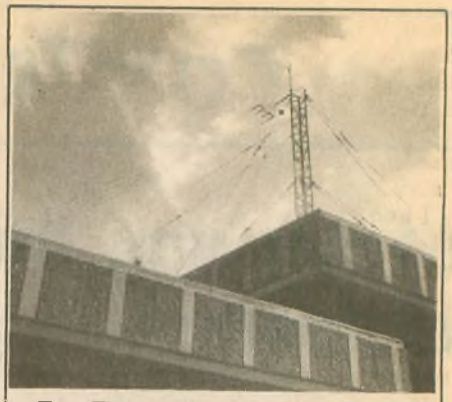
6. Take the third order measurement. Advance the microphone or gain control of the transmitter to the point determined in step five. Measure the 400 Hz output of monitor receiver at the output of the QF-1a selective audio filter with the decibel meter. The reading should be -30dB or better. Add or subtract the calibration amount obtained in step two above. If there is no gain or loss in the QF-1a at 400Hz, then the meter reading is direct. This completes the third order measurement procedure.

Repeat this procedure several times to determine if you can achieve repeatability of the measurement. You become competent at this when you get the same results each time.

You may now begin modifying the various circuits to make this all work better. One of the first things is to put a gain control on the audio power amplifier of the QF-1a selective audio filter. The QF-1a can then be set for unity gain. A -5dB signal at 400 Hz in will give a -5dB signal at 400 Hz at the output.

Turn on the linear and perform the third order distortion test. The two tones and the ALC will hold down the power output to 75 percent or less than the tune-up power. Forcing higher power output increases the third order distortion.

A few repeats of this test determines a set of transmitter and linear meter readings to follow and use in day to day operation. The generally accepted amount or measured third order distortion is -3dB below peak power. The exciter or barefoot reading needs to be about -40dB to achieve -35dB with the linear on. □



AERIALS

KURT N. STERBA

I was working out the dimensions for my 80M corner reflector when I heard the squeal of brakes. It was the mailman. I hobbled out to the mailbox and there was a copy of one of my favorite radio magazines.

It's one I really look forward to because it's the one that prints all those contest results. Being one of the world's great contest operators, I enjoy seeing my call sign in print often.

However, one article, in talking about an antenna for the entire 80/75 CW/SSB band said, "You can choose to ignore the SWR and use an antenna tuner, but then feedline losses begin to take their toll."

Well, dBell may toll for thee, but not for me. The late Jim Fisk, W1HR, editor of the highly technical *Ham Radio* magazine was fond of saying: "A 10:1 SWR on 100 feet of RG8U at 4 MHz increases losses less than 1dB."

He was, of course, quite right. The charts are there in the books for those who choose to read.

I see that *Radio Fungus* is running an advertisement for some little piece of metal that claims 6dB gain. Amazing, isn't it? People with PhDs in mathematics need a three-element Yagi to get 6dB gain and some guy in a garage can get the same with a pretzel.

Well, the silly season is upon us. One of the hammy mags just put out its annual antenna buyer's guide. I have no interest in embarrassing them so I'll not mention them by name (they probably just don't know any better), but they ran an ad that is complete quackery. Would you believe . . . a vertical groundplane with four radials having 5.25dB gain on horizontal and 4.75dB gain on vertical?

How about this claim: "Multiplication factors/horizontal 17 times, vertical 15 times." Would I be the grumpy old Kurt that people accuse me of

being if I asked, "Multiplying what?" Let's see now, a 10-times multiplication of power would be a 10dB gain, so it can't be that. What a puzzlement!

The same company has a four-element antenna, and I do quote, "Power multiplication 65X."

I know that some may be getting a little green around the gills from reading this. Please, don't go away, it gets even better (in a negative sense). The claimed gain (for a half-wave boom-length) is 16.5dB; front-to-back ratio is "48dB true."

Wait, wait, there's more! Verbatim: "Audio gain: 22dB." What in the name of Zeus is "audio gain" when looking at antennas?

And 22dB? Hey, we're getting up into VOA numbers now. (I wonder if the people at that magazine held their noses when they put that ad in the book.)

Just think of all the waste that has gone on all these years. Think about those massive arrays put up by Radio Canada International, Radio Australia, Deutsche Welle, Radio Nederlands and the like. All they really had to do was stack a couple half-wave boom-length antennas from Route 1, Ethelsville, Alabama.

Antenna expert Joseph Carr, K4IPV, wrote in his *Practical Antenna Handbook*, "Unfortunately, antenna gain is an area where unscrupulous salespeople can distribute a little salt water taffy."

Have I been harsh? Well, to joust in fairness, I called the Supremo Commandante of this magazine and he agreed that the antenna company could have a whole page to explain the 5dB of the groundplane and *two* pages to explain 22dB gain (audio) of the four-element. I think that's pretty decent, don't you?

Actually, the buyer's guide is terribly flawed. Pages and pages of data about every antenna made and the graph says "Gain (dB)." I ask, just what kind of dBs are those, bub? Are they dBi or dBd?

Of all the numbers I looked at, it seemed that the DX Engineering claims are the closest to what I believe in the 20M Yagi department.

But now, let's look at an interesting case—a four-element Yagi (for 2M) on a 48 in. boom. This is a boom length of .6 WL, or the same as a 40 ft. boom on 20M for 4L.

This company claims 6.1dB gain. That's WAY less than any other claims. But wait, look at this: they say, "Last year, this was the antenna that scored best for its boom length at the Dayton VHF competition."

Hmmmm, and it is especially built to be taken mountaintopping, temporary mobile, etc. $89 and $5 shipping and handling. Antennas West, 1500 North 150 West, Provo, UT 84604.

How is this guy going to ever sell an antenna when his claims are far, far less than the dB banditos? He obviously needs some slick Madison Avenue help.

"So as to devote all their energies to the antenna project we kept our three engineers away from distractions by sending them to a Tibetan Monastary for a year.

"The Pentagon has scrapped all their log periodics worldwide and replaced them with our megamonster.

"Radio Moscow sold for scrap all those massive towers and arrays and cut their transmitter power output to one-tenth since installing our megamonster."

Let me see now, the Antennas West Yagi beat the megamonster at

Aerials revered

No question about being redundant, I join with knowledgeable antenna authors who keep reporting: "The misinformation—old wives tales—bum dope—heard from special privilege impressive calls, makes the skin tingle, hair stand on end and sometimes even fingernails turn blue." Unfortunately, as so many of the newcomers pick up all these untruths, the snowballing effect passes it along to the unsuspecting with further garbling.

For nearly 60 years I have lived and breathed antennas night and day . . . starting well before many of the *experts* were around to totally confuse me. Oh, how I wish I'd had a book like this those many years ago!

Here is the message I want to get out to the readers: Those who received their antenna education over the air, to get back on track, must have this new book, *Aerials*. I know they will put it in a convenient location right next to their other number one antenna book, *Reflections* by Walt Maxwell, W2DU. —*Don Johnson, W6AAQ*

Aerials is published by Worldradio; write to P.O. Box 189490, Sacramento, CA 95818.

Dayton, and yet his claims are 4dB less? Looks to me like a good reason to buy one.

Next month, unless I run into the Fantasy Antenna Co. dedicated to buffaloing the bourgeois, I'll report on some very interesting results I've found with various wire antennas.

(Our non de plume pundits are in an enclave where only de facto dBs are allowed. Anonymous they must remain.) □

My turn

HAL SILVERMAN, W3HWC

I have been reading articles and books about antennae for more than 30 years. And, since I received my Amateur Radio license, I have been listening to "experts" on the air, tell me their "truths" about antennae. The conclusion I have come to is that most of the "experts" are drips. That is, they don't know what they are talking about.

I like what Kurt Sterba, Bill Orr, Joe Carr, John Kraus and others who base their statements on engineering theory have to say. I would like to settle some myths and pass along some ideas that may help destroy other myths that seem difficult to put asunder.

As you all know, or soon will find out, almost any conductor of a significant portion of a wavelength will radiate. The UHF guys also know that a hole in the coax or waveguide will radiate as well. These radiating elements are a pain to locate, and by radiating, they corrupt the antenna pattern, or cause interference to the receiver. (In the old days they would key the oscillator, then the amplifier so as to remove the oscillator radiation from blasting the receiver.)

VSWR is derived from reflection coefficient. Reflection coefficient is the ratio of reflected voltage (Er) to incident voltage (Ei). E denotes the electric field. For VSWR we have:

$$\frac{E\,max}{E\,min} = \frac{Ei + Er}{Ei - Er} = \frac{Z\,in}{Z\,out}$$

This is a match ratio. The better the match, the better the transfer of power. If the circuit is open, or shorted, the reflection ratio = 1 (100 percent) and the VSWR = infinity; *no power is transferred.* As the reflection coefficient is reduced to zero, the VSWR drops to 1; *all the incident power is transferred.*

When amplifiers were primarily made with tubes, the reflected power that was returned to the final amplifier was dissipated in the form of heat. The tubes got warmer but continued to operate, for a time, at lower output. However, with today's transistor amplifiers, VSWR protection circuits are incorporated to shut down the amplifier prior to experiencing thermal runaway. Most commercially built amplifiers begin reducing power at VSWR ratios of 1.5:1, and shut you down at 2:1.

The antenna is a transducer that radiates a spherical wave. Although the wave intensity will not be the same in all directions, it represents a complex impedance to the transmission line. The impedance consists of: Rr, radiation resistance; Rl, loss due to resistance (ohmic loss); and Xa, antenna reactance.

$$Za = (Rr + Rl) + jXa$$

If an electromagnetic wave is incident on an antenna which is connected to a transmission line, the incident wave will set up current and voltage in the line and power can be delivered to a load impedance at the far end.

If a disturbance at one end of a transmission line that is connected to an antenna is allowed to propagate toward the antenna, the antenna will deliver the energy into space (if the antenna and the line are matched).

It is quite possible to use the same antenna and transmission line for both transmitting and receiving, as you all know.

Antenna gain and directivity are not the same thing. Antenna gain is a ratio of the energy captured by the antenna under test compared to an isotropic antenna located at the same place and receiving the same signal. An isotropic antenna is a theoretical device that radiates equally in all directions and has no volume. That is, it is a point source. However hard you may look for RF, you will never find a true point source. Antenna directivity is the ratio of energy found in a sphere surrounding the antenna compared to the energy located in the main lobe, or beam of the antenna radiation pattern.

Sounds confusing? Well, it's basic. Directivity means the antenna can steer most of the power radiated over a limited arc of the sphere surrounding it. Gain means the ratio of energy captured by the antenna compared to the energy captured by a reference antenna at the same place. The reference antenna must be *referenced* in the gain statement, else the statement has no meaning.

If a point source radiates power (P watts), equally in all directions and the surface of the sphere surrounding the point source has an area of $4\pi R^2$ the power density radiated is:

$$Pd = P/4\pi R^2 \text{ watts/meter}^2$$

Notice that Pd *decreases* by the square of the distance.

If an antenna is placed in this field with an aperture of Ae, then the power extracted from the field is:

$$Pr = Pd \times Ae \text{ (watts)}$$

Remember, the power in the sphere is still the same as before, but in the direction of the main beam of the antenna the power density has increased compared to when the isotropic antenna radiated the same power.

For all antennae, regardless of type and regardless of whether used for transmit or receive, the ratio of effective area to gain is a univeral constant.

$$Ae/g = \text{wavelength}^2/4\pi$$

The effective area of an isotropic radiator of gain g = 1.

$$Ae = \text{wavelength}^2/4\pi$$

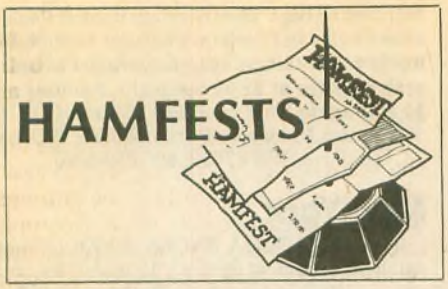
And gain:

$$G = 4\pi Ae/\text{wavelength}^2$$

For example, a dipole has:

$$G = 4 \times 3.14159 \times (\tfrac{1}{2}/\tfrac{1}{2})^2$$
$$= 3.14159/\tfrac{3}{4}$$
$$= 1.571$$
$$= 1.96 \text{ dB}$$

And that's all I have to say at this time. □



California

THE KINGS ARC is holding a swapmeet and T-hunt on Oct. 3 from 8 a.m. to 3 p.m. at the Hanford Fraternal Hall. Features include door prizes, tri-tip barbecue, refreshments, electronic items, computers and ham gear. Admission is free. Vendors $5. Talk-in on 145.11, 147.33 (PL100), 224.82 (PL100) and 441.900 (PL88.5) Contact Scott, KC6HVE at 209/582-3513, or Rick, WB6VFZ, at 209/945-2266 or 583-9377.

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THE SONOMA COUNTY RADIO AMATEURS will be holding their 10th annual Ham Radio flea market Sept. 26 from 8 a.m. to 2 p.m. at the Holy Ghost Hall in Sebastopol. Features include a radio clinic, refreshments, door prizes and auction at 11:30 a.m. Admission and parking are free. Flea market spaces are $10. Vendor set-up time is 7 a.m. Talk-in on 146.13/73. Contact SCRA, Box 116, Santa Rosa, CA 95402.

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THE BOULDER ARC is holding an Amateur Radio electronics and computer swapmeet on Sept. 27 from 8 a.m. at the Boulder County Fairgrounds in Longmont. Features include speakers and seminars, VE testing, door prizes and grand prizes, food, free parking and nearby camp sites. Admission is $3 donation. Tables are $7 each. Vendor set-up time is 7 a.m. Contact Boulder ARC, 1103 South Gay Dr., Longmont, CO 80501.

Connecticut

THE CANDLEWOOD ARA is holding their annual hamfest on Sept. 20 from 8 a.m. to 2 p.m. at the Sandy Hook Fire House in Sandy Hook. Tailgating available for $6. Inside tables $8 on first come, first served basis. Talk-in on 147.12/72 (PL 141.3). Contact John, N2DVX, at 203/438-6782 or Craig, N1ABY at 203/426-1652.

Florida

THE PLATINUM COAST ARS is sponsoring the 27th annual Melbourne Hamfest Sept. 12-13 at the Melbourne Auditorium in Melbourne. Admission is $4 in advance, $5 at the door for both days. Swap tables $10 for one day, $15 both days. Talk-in on 145.25/85. Contact PCARS Hamfest, 511 Eleutheria Lane, Melbourne, FL 32937.

Georgia

THE DALTON ARC will hold the Dalton Trade/Swap Day on Sept. 12 at Praters Mill. Features include food and drinks and space for RVs and campers. Free admission. Talk-in on 145.230-; 443.000+ (PL203.5) Contact KB4MJW at 706/226-2583.

Illinois

THE PEORIA AREA ARC will hold their 33rd annual hamfest, Superfest '92, on Sept. 19-20 from 6 a.m. at Exposition Gardens in Peoria. Features include forums, door prizes, free parking, handicapped access, ladies activities, food, overnight camping accommodations and VE exams. Admission is $5. Talk-in on 146.16/76. Contact Peoria Area ARC, P.O. Box 3508, Peoria, IL 61612-3508 or phone club answering machine at 309/685-6698.

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THE NORTHERN ILLINOIS DX ASSOCIATION is sponsoring the 40th Annual W9DXCC Convention on Sept. 12 at the Glen Ellyn Holiday Inn. Programs include the 1992 South Sandwich DXpedition, the 1992 Clipperton Island DXpedition, Mysteries of Propagation, and Gordon West, WB6NOA, as the banquet speaker. Field checking of QSL cards for various awards will be available. Admission is $32.50 in advance, $35.50 at the door, $22.50 banquet only. Talk-in on 147.36(+600). Contact Paula M. Uscian, WF9K, 4965 Castaway Lane, Barrington, IL 60010.

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THE SHAWNEE ARA is holding a hamfest on Sept. 13 from 7 a.m. at the Southeastern Illinois College in Harrisburg. Features include prizes, free coffee and donuts in the morning, and VE exams at 9 a.m. with registration at 8 a.m. Admission is $3. Talk-in on 146.88 and 146.52. Contact SARA, P.O. box 603, West Frankford, IL 62896.

Iowa

THE IOWA-ILLINOIS ARC will host the Burlington Hamfest '92 on Sept. 6 from 7:30 a.m. to 3 p.m. at the Iowa National Guard Armory in Burlington. Features include forums, lunch and VE exams. Admission is $4, children under 12 free with adult. Tailgaters additional $3 per space, inside vendors additional $6 per table. Vendor set-up time 6 a.m. Talk-in on 146.790 (146.190 input) W0LAC/R, and 146.520 simplex. Contact Chuck Gysi, N2DUP, Burlington Hamfest '92, P.O. box 974, Burlington, IA 52601-0974, or call 319/752-3000.

Indiana

THE FORT WAYNE RADIO CLUB is sponsoring the Summit City Hamfest on Sept. 12 from 8 a.m. to 3 p.m. at the Allen County Fairgrounds. Features include new dealers, tailgating, flea market, free parking and refreshments. Admission is $3 in advance or $5 at the door. Tailgate spaces $7; table/chair in open air building $10. Talk-in on 146.16/76, 449.875/444.875. Contact Frank Jaworski, K1FJ, Box 15127, Fort Wayne, IN 46815; 219/485-2634.

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THE AMERICAN RED CROSS ARC will sponsor their second annual Warsaw Indiana Hamfest on Sept. 26 from the National Guard Armory, north of Warsaw. Admission is $3.50 in advance and $4 at the door. Tables are $5 each. Contact John Sparks, KA9QWV, ARC-2 Hamfest, 501 N. Lake St., Warsaw, IN 46580; 219/269-5187.

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THE HUNTINGTON COUNTY ARS is sponsoring its 4th annual hamfest on Oct. 4 from 8 a.m. to 3 p.m. at the Police Athletic League Club in Huntington. Features include indoor flea market, free parking, VE exams and handicap accessibility. Admission is $3.50 in advance and $4 at the door. Tables are $5 on first come, first

served basis. Vendor set-up time is 6 a.m. Talk-in on 146.085/.685 and 448.975/443.975. Contact Ray Tackett, KC9DZ, 420 Market St., Andrews, IN 46702.

Kansas

THE NORTH EAST KANSAS ARC is sponsoring the third annual 'Fest '92 on Sept. 5 from 9 a.m. to 4 p.m. in Topeka. Features include swap table, seminars, VE exams and door prizes. Admission is $5 in advance and $6 at the door. Swap tables are $8 in advance and $10 at the door. Vendor set-up time is 5 p.m. to 11 p.m. Friday and 7 a.m. to 9 a.m. Saturday. Talk-in on 146.995- and 444.725+. Contact Rob Nall, WV0S, 5707 SW 28th Terrace, Topeka, KS 66614.

Kentucky

The ARRL Great Lake Division Convention and Greater Louisville Hamfest will be held Sept. 26 from 8 a.m. to 5 p.m. and Sept. 27 from 8 a.m. to 3 p.m. at the Commonwealth Convention Center in Louisville. Features include commercial vendors, flea market area, ladies' programs, forums and VE exams. Admission is $6 in advance and $8 at the door, children under 12 free. Flea market spaces $12, tables $6 and chairs $2. Contact GLHA, P.O. Box 34444-W, Louisville, KY 40232-4444; 502/551-4118.

Massachusetts

THE SOUTH EASTERN MASSACHUSETTS RADIO ASSOCIATION is holding their 5th annual hamfest and flea market on Sept. 13 from 8 a.m. to 3 p.m. in South Dartmouth. Admission is $2. Table space is $8 in advance or $10 at the door. Talk-in on 147.000/147.600 and 145.490/144.890. Contact Michael Enos, P.O. Box 79064, North Dartmouth, MA 02747.

Michigan

THE ADRIAN ARC is holding their 20th annual hamfest/computer show on Sept. 20 from 8 a.m. to 2 p.m. at the Lenawee County Fairgrounds in Adrian. Features include inside table sales, outside trunk sales and VE exams. Admission is $3 in advance and $4 at the door. Talk-in on 145.370. Contact Dennis Boydston, WE8Z, 2383 E. Clearview Dr., Adrian, MI 49221; 517/265-8054 after 4 p.m. EDT.

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THE GRAND RAPIDS ARA is holding their swap and shop, Return to Hooterville; Super-Swap '92, on Sept. 26 from 8 a.m. at Unity Christian High School in Hudsonville. Admission is $3 in advance or $4 at the door. Vendor set-up time is 6 a.m. Talk-in on 147.26/224.64. Contact Craig VanDyke, N8SFD, P.O. Box 22, Comstock Park, MI 49321-0022; 616/530-6586.

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THE L'ANSE CREUSE ARC is holding their 20th annual Swap and Shop on Sept. 20 from 8 a.m. to 2 p.m. at the L'Anse Creuse High School in Mt. Clemens. Features include swap tables, trunk sales, refreshments and VE exams at 11 a.m. Admission is $3 in advance and $4 at the door. Vendor set-up time is 6 a.m. Talk-in on 147.08/.68 or 146.52. For VE exams, contact Don, WA8IZV at 313/294-1567. For info, send SASE to Jerry Luh, KA8QBC, 732 Brookwood Lane, Rochester Hills, MI 48309; 313/651-7387.

Mississippi

THE GRENADA LAKE ARC is sponsoring the 10th annual Bogue Creek Festival on Sept. 12 from 8 a.m. to 12 p.m. at the Duck Hill Community House in Duck Hill. Features include area for swap tables, food, family activities and VE exams at 1 p.m. Special event station N5UHW will be in operation. Talk-in on 146.700(-600). Contact Paul E. Wood, N5UHW, Box 292, Duck Hill, MS 38925-0292; 601/565-7286.

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THE MISSISSIPPI COAST ARA is holding their 16th annual Ham/Swapfest Oct. 3-4 at the Mississippi Coast Coliseum and Convention Center in Biloxi. Features include swap area, free parking, handicap parking, RV hookups and dump station ($10 per night), door prizes and VE exams at 1 p.m. on Saturday and 11 a.m. on Sunday. Admission is $2. Swap tables $15. Talk-in on 146.730(-600) and 147.375(+600). Contact Ernie Orman, W5OXA, 15625 Little Joe Rd., Biloxi, MS 39532; 601/392-2816.

Missouri

THE ST. PETERS MISSOURI ARC is holding its annual hamfest on Sept. 27. For more information, contact SPARC, c/o Mike, N0LBM, and Diane, N0LCF, Trail, 607 W. Booneslick Rd., P.O. Box 311, Warrenton, MO 63383.

New Jersey

THE SOUTH JERSEY RADIO ASSOCIATION is holding their 44th annual Hamfest/Computer Show on Sept. 20 from 8 a.m. to 3 p.m. at the Pennsauken High School parking lot in Pennsauken. Features include computer dealers, swap shop, refreshments, free parking, table and tailgate sales, door prizes and VE exams at 9:30 a.m. Admission is $4 in advance or $5 at the gate. Tailgate space is $5. Talk-in on 145.290. Contact Alan Sherman, KE2VX, 222 Park Ave., Atco, NJ 08004; 609/768-8380 after 7:30 p.m.

New Mexico

THE NORTHERN NEW MEXICO ARC is sponsoring the 1992 Northern New Mexico Hamfest on Sept. 26 at Glorieta Baptist Conference Center in Glorieta. Features include flea market, free tailgating and overnight camping with hookups at $9.30 per night. Admission is $5 at the gate. Talk-in on 146.18/78 and 146.52/52. Contact Helenrose Burke, W5IXS, P.O. Box 73, Ojo Sarco, NM 87550; 505/689-2367.

New York

THE SARATOGA RACES ASSOCIATION will hold a hamfest on Sept. 12 from 8 a.m. to 5 p.m. at the fairgrounds in Ballston Spa. Features include tailgate space, inside tables, food, overnight camping for $15 and VE exams. Admission is $4 which includes outside tailgate space. Inside table $5 each. Vendor set-up time 7 p.m. to 9 p.m. Friday. Talk-in on 147.000(-600) or 147.24(+600). Contact David Atwell, N2FEP, P.O. Box 41, Rockcity Falls, NY 12863.

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THE METRO 70CM NETWORK is sponsoring an electronic flea market on Sept. 7 from 9 a.m. to 3 p.m. at Lincoln High School in Yonkers. Features include free coffee, ham gear, computers, refreshments, hourly prizes, free frequency checks, free parking and VE exams. Admission is $4, kids under 12 free. Tables $15 for first one, $10 each additional table. Vendor set-up time is 7 a.m. Talk-in on 440.425, 445.425 (PL 1567), 146.910R/146.310T, 223.760R/222.160T (PL 67.0). Contact Otto Supliski, WB2SLQ, 53 Hayward St., Yonkers, NY 10704; 914/969-1053.

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THE ELMIRA ARA is sponsoring the Elmira International Hamfest and Computerfest on Sept. 26 from 6 a.m. to 4 p.m. at the Chemung County Fairgrounds in Horseheads. Features include pancake breakfast, lunch, flea market, VE exams at 9 a.m., dealer displays, door prizes, free parking, refreshments, QSL contest and camping at $8 for hookup. Admission is $3 in advance and $4 at the door, children under 10 free. Talk-in on 147.96/36 and 444.20. Contact Dave Lewis, Elmira Hamfest, 465, CR 13, Van Etten, NY 14889.

Ohio

THE FINDLAY RADIO CLUB is holding its 50th annual hamfest on Sept. 13 at the Hancock County Fairgrounds in Findlay. For more information, contact Ronda Tendam, KB8ETT, Findlay RC, Box 587, Findlay, OH 45840.

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THE SPRINGFIELD INDEPENDENT RADIO ASSOCIATION is sponsoring the Springfield Hamfest and Computer Expo on Oct. 4 from 8 a.m. to 3 p.m. at the Clark County Fairgrounds in Springfield. Admission is $4 in advance or $5 at the door. Tables are $8 in advance and $10 at the door. Talk-in on 145.45/R-, 224.26/R-. Contact Ralph Pamer, WA8KSS, SIRA, P.O. box 523, Springfield, OH 45501; 513/325-1456.

Pennsylvania

THE RADIO ASSOCIATION OF ERIE will be holding a hamfest on Sept. 12 from at the Rainbow Gardens in Erie. For more information, contact Steve Nehez, NX3I, 833 W. Grandview Blvd., Erie, PA 16509.

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THE UNIONTOWN ARC is holding their 43rd annual Gabfest on Sept. 12 in Uniontown. Features include free swap and shop set-up with registration, free parking, prizes and refreshments. Talk-in on 147.045/.645 and 145.17/144.57. Contact John Cermak, WB3DOD, UARC, P.O. Box 433, Republic, PA 15475; 412/246-2870.

THE FORT VENANGO MIKE AND KEY CLUB is holding a Ham Auction-Fest on Sept. 19 from 8 a.m. at the Venango County 4-H Fairgrounds. Features include auction beginning at 10 a.m., indoor flea market, food and free parking. Admission is $2, children under 12 free. Flea market $5 per space. $1 per auctioned item. Talk-in on 147.12+, 145.23- and 145.19-. Contact Jim Clinefelter, N3BAT at 814/437-1781 or Bruno Wolozyn, K3MHB at 814/677-8694 or write to Fort Venango Mike and Key Club, RD #1, P.O. Box 591, Cranberry, PA 16319.

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THE MT. AIRY VHF RADIO CLUB annual hamfest, Hamrama '92, will be held on Oct. 4 from 7 a.m. to 4 p.m. at the Garden State Park in Cherry Hill, NJ. Features include food and unlimited parking. Admission is $4 plus $1 per car parking fee. Vendors $8 for each 10' X 20' space. Talk-in on 223.50 and 146.52. Contact Hamrama '92, Box 311, Southampton, PA 18966.

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THE BUTLER COUNTY ARA is holding their 15th annual hamfest on Sept. 13 from 9 a.m. to 4 p.m. at the Butler County Farm Show Grounds in Butler. Features include free outside flea market, overnight camping and handicap parking. Admission is $1, children under 12 free. Indoor vendor's space is $10 per 8ft. table. Talk-in on 146.52 (W3UDX) 'til noon. Directions 147.96/36. Contact WA3BVQ, RD 5, Box 8815, Slippery Rock, PA 16057.

Texas

TEMPLE ARC is hosting Ham Expo '92 on Sept. 26 from 8 a.m. to 3 p.m. at the Bell County Expo Center in Belton. Features include demonstrations, VE exams, handicap accessibility and a fully equipped test bench for equipment checks. Admission is free. Vendors $8 in advance and $10 at the door. Additional tables are $4 in advance and $5 at the door. Electricity is $2. Vendor set-up time is 6 a.m. Talk-in on 146.82. Contact Mike, WA5EQQ, Temple ARC, 2014 S. 53rd, Temple, TX 76504; 817/773-4768.

Vermont

THE CENTRAL VERMONT ARC will hold their fourth annual Fall Foliage Hamfest and Fleamarket on Sept. 19 from 8 a.m. to 3 p.m. at the National Guard Armory in Berlin. Features include door prizes, VE exams at 1 p.m. and refreshments. Admission is $2. Tailgating is $4. Tables $6 in advance and $8 at the door. Talk-in on 146.625/W1BD. Contact Tom Girardi, WA1YNU, P.O. Box 53, Plainfield, VT 05667; 802/426-3789.

Virginia

TIDEWATER RADIO CONVENTIONS is sponsoring the 17th annual Virginia Beach Hamfest and Computer Show Sept. 19 from 9 a.m. to 5 p.m. and Sept. 20 from 9 a.m. to 4 p.m. at the Virginia Beach Pavilion and Convention Center. Free parking. Admission is $5 in advance and $6 at the door. Contact Manny Steiner, K4DOR, 3512 Olympia Lane, Virginia Beach, VA 23452; 804/340-6105.

Washington

THE WALLA WALLA VALLEY ARC is sponsoring a hamfest Sept. 19-20 from 8 a.m. to 5 p.m. at the Community Building in Milton-Freewater, Oregon. Features include commercial displays, demos, swap tables, ARRL section meeting, XYL activities, snack bar, potluck, prizes and VE exams Sunday afternoon. Admission is free. Swap tables are $5. Talk-in on 147.28/88. Contact Carl Elsner, N7PVW, 223 W. Chestnut, Walla Walla, WA 99362; 509/522-1270.

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THE STANWOOD-CAMANO ARC is holding an electronic flea market and swapmeet on Oct. 3 from 9 a.m. to 4 p.m. at the Stanwood-Camano Fairgrounds. Features include prizes and food. Admission is $3 in advance and $5 at the gate and includes parking. Tables are $15 in advance and $20 at the gate. Vendor set-up time is 7:30 a.m. Talk-in on 145.19 or 444.6. Contact Mark, WA7UGB, at 206/387-1097 or Vic, N7KRE, at 206/387-7705 or write SCARC, P.O. Box 941, Stanwood, WA 98292.

DMV approval

I was delighted and proud when the Florida Department of Motor Vehicles approved my request to use "N4XIG" on my license plate. I was even more delighted and totally surprised when the DMV approved my request to use "XYL" on the license plate for my wife's car.

Nita has always been a careful driver but I've warned her that now, with such a distinctive license plate, the members of the North Florida Amateur Radio Society and the Orange Park

Amateur Radio Club will surely be watching for her on the road (hi hi). *Chuck Stalfort, N4XIG*

California QSO Party

Sponsored by the Northern California Contest Club, this event will be held from 1600 UTC Oct. 3 to 2200 UTC Oct. 4.

Rules: Single operator entries are limited to 24 hours maximum; off times must clearly be marked in the log and be a minimum of 15 minutes. Multi-operator entries may operate the full 30 hours. Stations may be worked once on CW, and on phone once per band. Single operator and multi-single entries are allowed only one transmitting signal. All CW contacts must be made in the CW sub-band except for 160M. MCW is not permitted. All contacts must be simplex. California stations that change counties are considered a new station and may be contacted again for point and multiplier credit. California stations operating on a county line may be counted only as one QSO.

Object: Stations outside of California work as many California stations in as many CA counties as possible. Stations in California work anyone.

Exchange: California stations send QSO number and county. Stations outside of California send QSO number and State, Province, or Country.

QSO points: Each complete non-duplicate phone contact is worth two points. Each complete non-duplicate CW contact is worth three points. No partial contact credit and duplicate contacts must be clearly identified in the log.

Multipliers: California stations count states and VO/VE1-7 AND VY1/VE8 for a possible total of 58. All other stations use California counties for a maximum of 58. California stations on a county line may be claimed as a multiplier for any or all of the counties they give in their exchange. Number each multiplier as worked.

Total score: The total score is the total number of QSO points multiplied by the total number of multipliers.

Frequencies: 160 through 2M excluding WARC bands. CW on 1805 and 40 kHz up from band edge. Phone on 1815, 3850, 7230, 14250, 21300, and 28450 kHz. Novices 10 kHz up from band edge and 28450. Try CW on the half-hour; 160M at 0500 UTC; 80/75M at 0300 and 0700 UTC; and 147.54 MHz at 2000, 0000, and 0400 UTC.

Logs: All logs and signed summary sheets must be submitted to NCCC, c/o Ken Anderson, K6PU, Box 853 Pine Grove, CA 95665 postmarked no later than Nov. 15. Please include $1 for results if desired. Entries may be submitted in CT Version 8 format with .BIN, .SUM, AND .ALL files on 5 1/4" or 3 1/2" diskettes with a signed hard-copy summary. Label each diskette with call, entry category and state/county/province/country.

Entries of more than 200 contacts must include duplicate check lists. For a CQP paperwork package containing log and summary sheets, county abbreviations, and contest records, send a business size SASE to the above address.

Awards: Certificates to the top single-operator entry in each California county, state, province, country, and stations with 100 or more QSOs.

Trophies to the top three non-CA single-operator entries, top three CA single-operators, top CA multi-single, top CA multi-multi, top single and multi-operator CA county expeditions.

The Special QCP Wine Award will be awarded to the top 20 California and the top 20 non-California single-operators. They will receive a personalized bottle of NCCC Private Reserve California Wine. Winners under the age of 21 will receive a non-alcoholic personalized award.

Special trophies will be awarded to the CA and non-CA single operators with the most CW QSOs, to the mobile single-operator or team with the most total QSOs, to the top CA and non-CA single-operator low power entries (200W or less), to the top CA and non-CA single-operator Novice/Technician entries, to the top scorer outside of the USA and Canada, and to the top club in California (5 entries minimum - NCCC and SCCC are ineligible).

Also, 200 special CQP T-shirts will be awarded to those who made an effort to achieve a good score.

YLRL Howdy Days

This contest will take place from 1400 UTC Wednesday, Sept. 9, to 1700 UTC Thursday, Sept. 10.

Eligibility: All licensed women operators worldwide are invited to participate.

Procedure: Call "CQ YL."

Operation: All amateur bands and modes may be used. A station may be worked only once on each band for contact points. No crossband, net or repeater contacts. The maximum power output that may be used at any time during the contest is 750W on CW and 1,500W PEP on SSB.

Exchange: YLRL member or non-YLRL member.

Scoring: Score two points for each YLRL member contacted and one point for each non-YLRL member. NO MULTIPLIERS.

Logs: Contest logs must show for each QSO the date, time, band and call sign of the contacted station. Logs also must show the QSO number and RS(T) sent and received, and whether contact was YLRL or non-YLRL member. Include your claimed score for each QSO. Please print or type submitted logs. No carbon copies, but photocopies are acceptable. List your name, call, address YLRL status (member or non-), and your claimed score. For each duplicate contact that is removed by the YLRL vice president a penalty or three additional and equal contacts will be exacted. Logs must be signed, and will not be returned. Send logs postmarked no later than October 10 to: Carla Watson, WO6X, 473 Palo Verde Dr., Sunnyvale, CA 94086.

Awards: Top scoring YLRL member will receive her choice of YLRL pin,

charm or stationery. Top scoring non-YLRL member will receive a one-year YLRL membership certificate.

Montana QSO Party

Sponsored by the Montana HF Society, this event will run from 1600 UTC Sep. 12, until 0400 UTC Sep. 13. Stations may operate the entire 12-hour period.

Object: Non-Montana stations work as many Montana stations in as many Montana counties as possible. Montana stations work anyone.

Entry Classification: Class I - Single Operator; Class II - single operator, Mobile (Montana only).

Exchange: Montana stations send QSO number and county. Stations outside Montana send QSO number and state/province/country.

Scoring: Each SSB contact is worth one point. CW, RTTY, AMTOR contacts are worth two points. Stations can be worked on each band and each mode. Mobile Montana stations may be worked again on each additional county by stations not in Montana (will count as another contact).

Multiplier: Montana stations use states (50), Canadian call areas (12), and DXCC countries. Non-Montana stations use Montana counties (56).

Total Score: The total score is the number of QSO points times the total number of multipliers.

Frequencies: 80 to 10M SSB. Phone on 3850, 7230, 14280, 21350, 28450. CW use band edge plus 25 kHz. Novices use their band edge plus 50 kHz.

Logs: Logs must be submitted with a summary sheet listing QSOs and multipliers by band and mode, total contacts and multipliers, claimed score, name, call, mailing address, phone, and a written, signed statement of "Fair and Ethical Operation."

Entries with more than 200 QSOs must include dupe sheets.

Entries may be submitted on diskettes in lieu of paper logs. The diskette must be in MS-DOS format, 5 1/4", 360K only. The log must be in an ASCII file and contain all of the above information. A separate summary sheet and signed statement are also required with disk entries.

All entries must be postmarked no later than Oct. 1. Mail entries to: The Montana HF Society, 1009 Madison Ave., Helena, MT 59601. Please include a business size SASE for results.

Awards: A plaque will be awarded to the highest scoring station out of Montana. Certificates to the highest scoring entry from each state, province, or country, with at least 25 QSOs and contacts with at least 10 different Montana stations. Plaque to the highest scoring Montana station, and certificates to the 2nd and 3rd places, and top mobile.

Classic Radio Exchange

Scheduled for 2000 to 0400Z September 27 and 28, the Classic Exchange (CX) is a celebration of the older commercial and homebrew equipment that was the pride of our ham shacks just a few, short decades ago. The object of the contest if to restore, operate and enjoy older equipment with like-minded amateurs. A "classic" radio is at least 10 years old, an advantage but *not* required to operate CX. You can use anything, although new gear is a distinct scoring liability and not as much fun!

Exchange: Exchange your name, RST, QTH, receiver and transmitter type (homebrew send final amp tube or transistor) and other interesting conversation. The same station may be worked with different equipment combinations on each band and each mode. CW call "CQ CX"; phone call "CQ Classic Exchange." Non-participants may be worked for credit.

Suggested frequencies: *CW*—up 60 kHz from low band edges; *phone*—3880, 7290, 14280 and 21380; *Novice/Tech*—20 kHz up from low band edges. 7060 and 3560 tend to be the most popular CX frequencies.

Scoring: Multiply total QSOs (all bands and modes) by the following sum: total number of different receivers and transmitters worked on each band and mode plus the total number of states/provinces/countries worked on each band and mode. Multiply that total by your *classic multiplier*: the total age in years of all receivers and transmitters used, three QSOs minimum per unit to qualify. If equipment is a transceiver, multiply age by two. If homebrew, count as 25 years old unless actual construction date or design is older.

Awards: Certificates are awarded every now and then for the highest score, exotic equipment, the best excuse, and other unusual achievements.

Logs: Send logs, comments, anecdotes and pictures to Jim Hanlon, W8KGI P.O. Box 581, Sandia Park, NM 87047 or Marty Reynolds, AA4RM, P.O. Box 13354, Atlanta, GA 30324. Include SASE for the next CX Newsletter.

PHOTOS

Remember to include photos whenever possible in submitting contributions to ***Worldradio.***

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

P.C. Electronics ATV transceiver

P.C. Electronics introduced their new 10W TC70-10 70 cm ATV transceiver at the 1992 Dayton Hamvention. Any code-free Tech or higher licensee can easily have his or her own ATV station with the TC70-10, camcorder, TV, 70 cm antenna, coax and power supply. Aimed at those who want a rugged all-in-one box unit for portable public service events or minimum operating table space in the shack, the rig is housed in a 7.5 X 7.5 X 2.7 in. black die cast aluminum box. P.C. Electronics pioneered the 70 cm ATV transceiver in 1977 with the 10W model TC-1, which was produced for eight years.

While the successor TC70-1 1W transceiver provides the flexibility to drive companion 15, 50 or 70 amplifiers, many long-time ATVers said they missed the stand-alone 10W version, which was just the right power level for most for local simplex and repeater work, with snow-free video up to 90 miles line-of-sight with 14dBd beams. The new TC70-10 again fills this desire but at the same time has some new features.

There is an internal variable sync tip power control (from 2 to up to 15W PEP) and sync stretcher to allow properly driving the Mirage D1010-ATVN or RF Concepts 4-110 to their full PEP (100W) output, without overdriving into sync or audio clipping, for the DXer. Separate volume controls are provided for a low impedance dynamic mic and line audio from a camcorder or VCR which enables voice over commenting while transmitting a home

video tape. A video monitor output jack provides camera video for focus and lighting setup before transmitting, and true video RF detected at the final amp output in transmit for proper video gain adjustment. The unit comes tuned with one customer-specified transmit crystal and a socket and switch for an optional second crystal. For receiving, the low noise figure GaAsFET downconverter variable tunes the whole 420 to 450 MHz 70 cm amateur band down to your TV receivers channel 2, 3 or 4. Power supply requirement is 12 to 13.8 VDC at 3A.

All P.C. Electronics brand equipment is manufactured in the USA. Priced at $499, the TC70-10W 70 cm ATV transceiver is available from P.C. Electronics, 2522 Paxson Lane, Arcadia CA 91007; 818/447-4565; FAX 818/447-0489. □

Nemal cable assemblies

Nemal Electronics International of North Miami, Florida, has introduced a new line of EMI/RFI suppressed coaxial and multiconductor cable assemblies. The coaxial assemblies are available in 50 and 75 ohm versions with either type N, BNC, or UHF connectors, and the multiconductor assemblies are available in 2-40 conductor with D-subminiature or circular connectors.

By selecting the appropriate material, number, and placement of ferrite beads, the assemblies offer optimum performance over

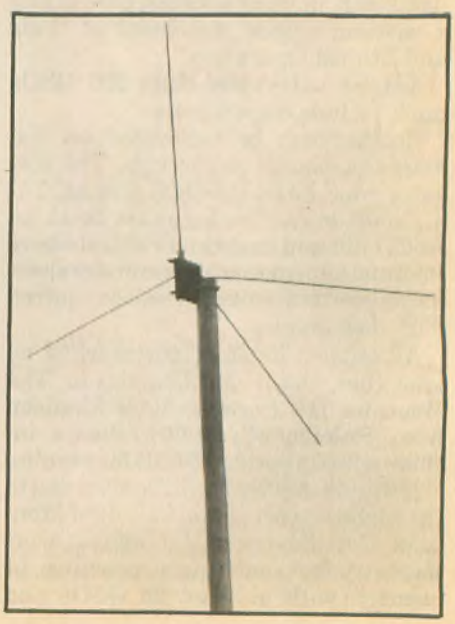
the desired frequency range. A section of heat shrink tubing covers each bead group to maintain exact position and insure mechanical integrity. Hot stamped labels are also available in assorted colors printed per customer requirements. The assemblies are 100 percent tested for continuity and dielectric withstand voltage. Certified test data is available at an additional cost.

For pricing, please specify length, frequency range if desired, cable type, and connector type. Typical delivery is five to seven working days after receipt of order. For additional information, please contact Nemal Electronics International, Inc., 800/522-2253; or FAX 305/895-8178. □

MFJ Quarter-wave groundplane

MFJ Enterprises, Inc. announces the new MFJ-1740 quarter-wave groundplane for 144, 220 and 440 MHz for only $12.95. Adding a new antenna to your existing VHF or UHF transceiver or including it in the purchase of a new rig is a terrific idea, and the new MFJ-1740 fills that bill perfectly!

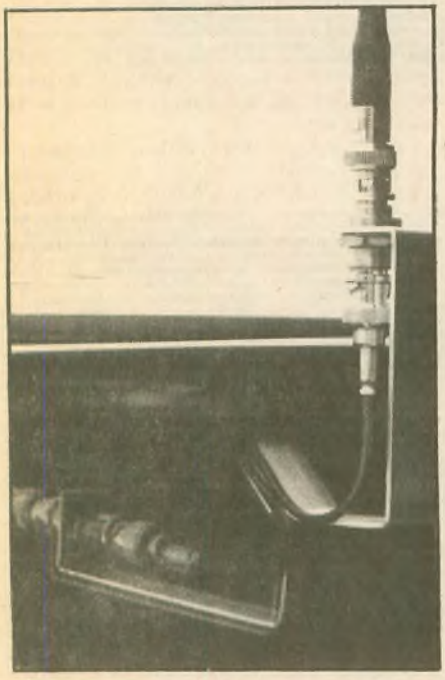
Its improved design gives superb impedance matching and maximum bandwidth with lowest SWR. This antenna easily covers the full 2M band with less than 2:1 SWR. Its radials are raised from the regular 45 degrees to 28 degrees to reduce inductive coupling,



then the radiator is lengthened to move the feedpoint from the voltage node so capacitive coupling cancels the remaining inductive coupling. This minimizes feedline radiation, gives more useful radiated power, reduces TVI and cuts noise pickup on the coax shield.

The MFJ quarter-wave groundplane is rated at 300W, can be fine-tuned to your favorite part of the band, has low-loss ceramic antenna insulator for maximum radiated power, and features MFJ permanent molecular bonding technology to protect the radiator. This antenna is so durable it may outlast you! Mounting hardware is included: a single U-bolt mounts it to any 1 to 1½ in. mast.

It comes with MFJ's full year unconditional warranty. For more information or to order, contact any MFJ dealer or MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762; 601/323-5869; FAX 601/323-6551; or order toll-free at 800/647-1800. □



No, you're not seeing double; this vertical bracket is reflected here by the car window.

Trionics window mount

Trionics introduces a new window mount antenna, Model BWM-1, designed to get the user's antenna out of the car and above most rooflines. This rugged metal mount fits onto the car or truck window for temporary mounting of hand-held antennas, like the "rubber duck."

The almost 4 in. height to the top of the connector is an aid in extending the range of the hand-held's signal to local repeaters. The mount features a dual BNC type connector that allows the user to use his own coax, or the optional Model BC 6-174 can be used with a 50 ohm, 6 ft. BNC-BNC, small coax cable.

The BWM-1 mount is priced at $13.95, and the BC 6-174 cable is $10.95. Both the mount and cable are available as a combined package for $23. Mail or telephone orders can be placed directly with Trionics at 916/366-7408, or write to P.O. Box 1434, Rancho Cordova, CA 95741-1434 (CA residents add sales tax). Or, look for the mount and cable in your favorite radio store. □

MFJ Catalog

MFJ Enterprises, Inc. proudly announces the release of its free 1992 MFJ Catalog, loaded with exciting new and improved products. It's free! Simply call or write for your copy.

In this catalog, you will find the new MFJ-247 HF antenna analyzer—newest SWR analyzer with a built-in 10-digit LCD frequency counter for only $189.95; the new MFJ-9020 20M QRP transceiver with a 5W rating for only $179.95; and the improved MFJ-945D compact mobile HF antenna tuner that covers 1.8 to 30 MHz with a new lighted cross-needle meter, rated at 300W, for only $89.95.

You'll find a new and exciting line of 2M antennas—the MFJ-1730 2M Pocket Roll-Up 2M halfwave vertical J antenna for only $14.95; the MFJ-1740 improved quarter-wave groundplane 2M antenna for only $12.95; and the MFJ-1750 300W 5/8 wave groundplane 2M base antenna and MFJ-1752 300W 5/8 wave groundplane 220 MHz base antenna for only $19.95 each.

Plus, there are several new products from Ameritron in this catalog—the QSK-5 T/R switch for only $349 and the ICP-120 and ICP-240 Inrush Current Protectors for only $79.

You will find the most affordable and reliable antenna tuners, SWR/wattmeters, artificial RF ground, SWR analyzers, antenna bridge, noise bridge, antenna current probe, keyers, code practice oscillator, antennas, speaker/mics, clocks, repeater controller, RFI choke kit, antenna switches, dummy loads, low-pass filter, line monitor, speaker, power outlets, filters, phone patch, transceiver/preselector, antenna tuner/preamplifier, indoor and outdoor active antennas, computer interfaces, books about Ham Radio, Morse code computer programs, theory tutor computer programs for IBM and Macintosh, packet radio controllers, and amplifiers from Ameritron.

To get your free copy, call 601/323-5869 or write to MFJ Enterprises, Inc., P.O. Box 494, Mississippi State, MS 39762. To place an order, call toll-free: 800/647-1800. □

Four-band Metropolitan antenna

Ten years' experience in building and supplying the three-band Metropolitan antenna (144, 220, and 450 MHz) has provided the ability to meet the increasing demand for 1200 MHz. The availability of modular mobile radios which permit rapid band switching requires broad antenna performance.

Austin's four-band Metropolitan antenna covers 144, 220, 450 and 1200 MHz with great results in a single antenna that is 19 inches tall.

The antenna operates as a quarter-wave radiator on each band and uses the metal car body as a groundplane. No tuning is required; simply screw onto a low profile Motorola/NMO style mount. Price is $45. For more information, contact Austin Antenna, 10 Main St., Gonic NH 03938; 603/335-6339. □

There are basically three types of people:
1. Those who make things happen.
2. Those who watch things happen.
3. Those who wonder what happened.

What category are you?

— TRARC Newsletter

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

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

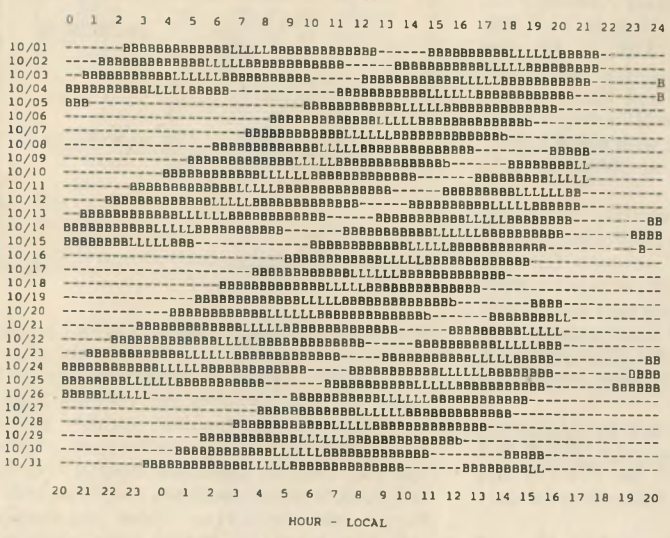
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

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

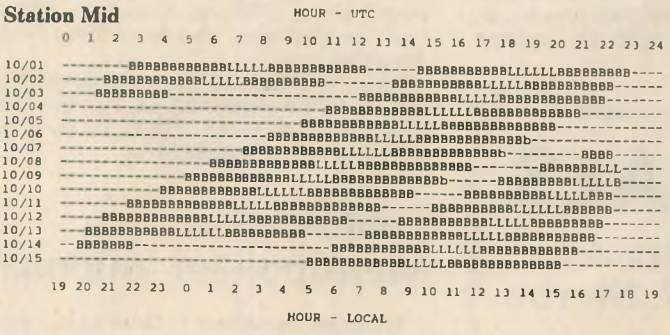
Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send a SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. □

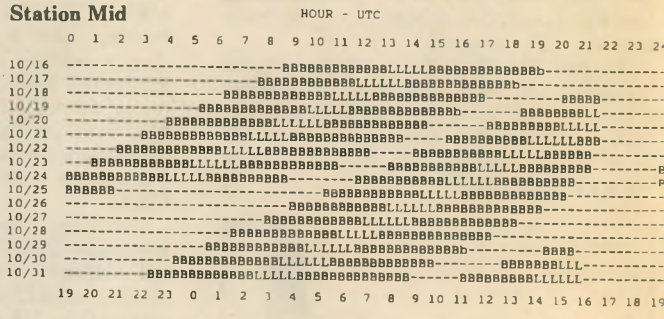
Station East



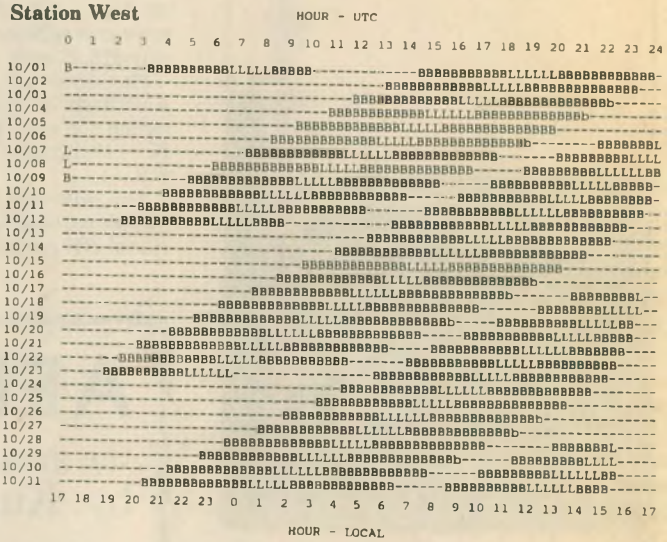
Station Mid



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 three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r=pre-register w/i=walk-in

Date	City	Contact	Notes
Alabama			
Oct. 17	Tuscaloosa	Kelly Bruce, WD4DAT 205/339-7882	w/i OK
Arizona			
Oct. 3	Tucson	K7OPX 602/886-7217	w/i only
Oct. 17	Tucson	Robert Olson, WV7P 602/577-1050	w/i OK
Arkansas			
Oct. 17	Little Rock	Chuck, KI5HA 501/888-7517	w/i OK
Oct. 10	West Memphis	Gene Bagley, AB5BL 501/739-4029	w/i OK
California			
Oct. 3	Burbank	KE6AR 818/349-0927	w/i OK
Oct. 10	Camarillo	Tom, KC6JLW 805/486-7619	p/r pref.; w/i OK
Oct. 4	Chico	W6YKU 916/342-1180	p/r pref.
Oct. 4	Clearlake	Art, 707/994-0646	w/i only
Oct. 17	Downey	KA3DSE 213/923-5598	w/i
Oct. 31	Fairfield	Jerry 916/662-0801	w/i only
Oct. 10	Grass Valley	John, N6PGZ 916/272-6728	w/i OK
Oct. 4	Hanford	Carleton, 209/924-4221	w/i only
Oct. 3	Lancaster	805/948-1865	p/r
Oct. 29	Long Beach	KA6HOQ 714/897-6331	w/i OK
Oct. 3	Los Angeles	Ali Hassan, AA6WC 213/778-6226	w/i OK
Oct. 10	Merced	KI6PR 209/383-2166	w/i OK
Oct. 3	Northridge	818/348-4457	w/i OK
Oct. 3	Ontario	Harry J. Kozlowski, KM6LO 818/810-0442	w/i OK
Oct. 17	Pasadena	818/585-7038	w/i ltd.
Oct. 17	San Francisco	Dan, K6GOW 415/753-5368	p/r or w/i
Oct. 10	Santa Maria	KI6XG 805/922-8509	w/i OK
Oct. 17	Santa Monica	310/398-8538	w/i OK
Oct. 17	Stockton	Ed, N6XMA 209/952-5996	w/i only
Oct. 17	Westminster	Walt, KM6MQ 714/373-6077	w/i only
Colorado			
Oct. 12	Boulder	Barbara, NØBWS 303/530-2903	p/r pref.; w/i OK
Oct. 10	Denver	Glenn Schultz, WØIJR 303/360-7293, 24-hr. voicemail	w/i OK
Oct. 17	Pueblo	719/948-2291	w/i OK
Oct. 17	Westminster	NØBLU 303/650-6826; NØHNR 303/278-4280	p/r or w/i
Connecticut			
Oct. 25	Milford	NB1M 203/933-5125; WA1YQE 203/874-1014	w/i
Oct. 28	Shelton	WJ1T 203/736-0488	w/i pref.
Florida			
Oct. 5	Dunedin	Marv, WC2G 813/938-7810	p/r or w/i
Oct. 24	Fort Pierce	Fred Newmann, W2EUX 407/340-1069	w/i OK
Oct. 17	Melbourne	WB9IVR 407/724-6183	w/i OK

Date	City	Contact	Notes
Oct. 22	Miami	Norm Ward, K4RBR 305/823-5437	w/i only
Oct. 27	New Port Richey	Marv, WC2G 813/938-7810	p/r or w/i
Georgia			
Oct. 25	Atlanta	Dale Gaudier, N4REE 404/396-1332	w/i OK
Oct. 10	Augusta	Ace, NA4I 404/798-5060	w/i
Oct. 24	Dalton	Bert, N4BZJ 404/673-2214	p/r only
Hawaii			
Oct. 16	Hilo	AH6P 808/959-8893	w/i
Idaho			
Oct. 10	Boise	W7JMH 208/343-9153	w/i
Illinois			
Oct. 20	Aurora	N9AKE 708/892-1252	w/i pref.
Oct. 17	Bolingbrook	NM9J 708/442-7100	
Oct. 17	Chicago	312/929-8500, ext. 2221	w/i
Oct. 24	Chicago	KE9X 312/233-0605	w/i
Oct. 2	Elgin	K9WMP 708/888-8333	w/i
Oct. 16	Elmhurst	WK9U 708/833-7371	p/r
Oct. 8	Granite City	Larry, NZ0P 314/524-3254	p/r pref.; w/i OK
Oct. 3	Hoffman Estates	NO9A 708/593-8658	w/i
Oct. 22	Lombard	KD9I 708/495-0498	w/i
Oct. 17	Loves Park	Paul, WB9HGZ 815/987-6754	p/r; w/i
Oct. 10	Mt. Prospect	WA9DLI 708/437-1464	w/i
Oct. 1	Mundelein	K9IW 708/367-6303	w/i
Oct. 10	Oak Forest	KA9HDN 312/247-0650	w/i OK
Oct. 31	Oak Forest	WG9R 708/687-0511	w/i
Indiana			
Oct. 10	Hammond	WO9H 219/738-2728	w/i
Oct. 3	Portage	KE9I 219/762-0580	w/i
Oct. 3	South Bend	NI9Y 219/259-9445	w/i OK
Oct. 4	Terre Haute	K9EBK 812/466-2122	w/i OK
Iowa			
Oct. 31	Council Bluffs	Lorraine, AA0BS 712/322-1454	w/i OK
Oct. 30	Sioux City	NR0Z 402/494-2673	w/i OK
Kansas			
Oct. 27	Emporia	K0JDB 913/343-2158	w/i OK
Oct. 30	Leavenworth	Martha Auchard, WB0ERI 913/651-7350	w/i OK
Oct. 10	Olathe	Joe Scalet, WK0G 913/764-2822	w/i OK
Maine			
Oct. 23	Augusta	N1BCF 207/623-4249	w/i OK
Oct. 10	Bucksport	N1FPP 207/374-2184	w/i OK
Oct. 14	Farmington	KI1B 207/778-2417	w/i OK
Oct. 20	Presque Isle	WA1YNZ 207/455-8333	w/i OK
Oct. 4	Yarmouth	W3EZ 207/846-7734	w/i OK
Maryland			
Oct. 10	Davidsonville	NT3Z or NS3V 410/761-7115; or WC3I 301/262-5083	w/i OK
Oct. 17	Laurel	WB3GXW 301/572-5124	p/r pref.
Oct. 23	Springfield/Holyoke	WA1ZUH 413/245-3228	w/i OK
Oct. 22	Towson	Robert Kennick, WB3HNV 410/HAM-TALK; ID 923468	w/i
Minnesota			
Oct. 20	Eden Prairie	Tom, AA0GP 612/448-2074	w/i
Mississippi			
Oct. 10	Grenada	Paul Wood, N5UHW 601/565-7286	w/i OK
Missouri			
Oct. 8	Big Bend	314/567-8777	w/i ltd.
Oct. 10	Dutzow	Ed, WD0ELL 314/459-6581	w/i ltd.
Oct. 3	Hillsboro	WD0GDY 314/671-4243	p/r only
Oct. 3	Kimberling City	NQ0G 417/739-2888	w/i OK
Oct. 17	St. Louis	N0IS 314/892-4434	w/i OK
Oct. 10	Valley Park	Dave, N0DN 314/225-1952	p/r only
Nevada			
Oct. 17	Reno	K7HRW 702/827-8450 day, or 702/972-3933 night	p/r 30 days prior, w/i OK
New Jersey			
Oct. 17	Bayonne	WA2QYX 201/451-9471	w/i OK
Oct. 15	Bellmawr	WA2VQG 609/546-7710	w/i
Oct. 10	Cranford	24-hr hotline: 201/377-4790	
Oct. 14	Fort Monmouth	WB2GYS 908/532-5354	w/i
New York			
Oct. 17	Fort Drum	David, NR2S 315/562-3532	w/i
Oct. 10	Greenvale	WA2BGE 516/921-0085	w/i OK
Oct. 15	Lower Westchester Co.	WK6R 914/834-2322	w/i OK
Oct. 4	Yonkers	AC2V 914/237-5589	w/i OK
North Carolina			
Oct. 24	Asheville	Norman, N4NH 704/253-1192	w/i OK
Oct. 17	Rutherford County	A.B. Brackett, KO4BJ 704/245-6334	
Oct. 11	Salisbury	Isabelle, AB4UX 704/284-2414	w/i OK
Ohio			
Oct. 24	Akron	Tony, KA8ICF 216/836-8869	
Oct. 3	Cincinnati	Herb, WA8PBW 513/891-7556	p/r pref.; w/i OK
Oct. 18	Elyria	Ola, WD8MOU 216/647-5116	
Oct. 17	Mansfield	Cooper, KF8EW 419/522-9819	
Oct. 10	Maumee (Toledo)	Ross, NS8C 419/693-3023	
Oct. 3	Mentor	Scott, KO8O 216/256-0320	w/i OK
Oct. 10	North Olmstead	Dan, KB8A, 216/267-5083	
Oct. 10	Van Wert	KA8IAF 419/795-5763	
Pennsylvania			
Oct. 3	Erie	W3CG 814/665-9124	w/i
Oct. 17	Hermitage	WM3H 412/347-5960	w/i OK
Oct. 1	Philadelphia	ND3Q 215/482-0386 or 215/879-0505	w/i
Oct. 17	Pittsburgh	Ben, W3OJW 412/795-2775	w/i OK
Rhode Island			
Oct. 8	Providence	NN1U 401/231-9156 or 401/454-6848	w/i OK
Oct. 24	Slatersville	W1YRC 401/333-2129 or 401/333-2373	w/i OK
South Carolina			
Oct. 17	Charleston	Pat Foster, AC4IH 803/553-3871	w/i
Oct. 17	Columbia	Ray, N4WR 803/345-3373	w/i OK
South Dakota			
Oct. 17	Hot Springs	WS0V 605/745-5929	p/r pref.; w/i OK
Tennessee			
Oct. 12	Blount County	Carroll, W4PCA 615/982-5839	w/i OK
Oct. 15	Fentress County	Mike Ledbetter, AB4BX 615/879-8626	w/i
Oct. 3	Gallatin	Ronnie Gilley, KA4LUG 615/452-0883	w/i
Oct. 3	Henry County	Mackie Gallimore, AA4YF 901/247-5489	w/i OK
Oct. 11	Jasper	Charles Wooten, KD4XX 615/942-5116	p/r pref.
Oct. 17	Knoxville	Ray Adams, N4BAQ 615/688-7771	w/i OK
Oct. 24	Loudon County	Bob Gray, KE4SK 615/458-6115	
Oct. 17	Memphis	Win Guin, W2GLJ 901/754-4552	w/i OK
Oct. 10	Roane County	Richard Spillee, AA4KS 615/354-4281	w/i OK
Texas			
Oct. 10	El Paso	Art Block, W3YK 505/382-5272	w/i OK
Oct. 10	Houston	Jim, KB5WAM 713/486-2032	
Oct. 13	Houston	ND5F 713/464-9044	p/r pref.; w/i OK
Oct. 17	Irving	Hall Bond, K5ZSB 214/255-1077	w/i OK
Oct. 10	McGregor	AB5BA 817/859-5374	w/i OK
Oct. 10	Midland	KT5G 915/694-9450	w/i OK
Oct. 31	San Antonio	K5JWK 512/657-1549	w/i
Oct. 10	San Benito	WA2VJL 512/399-0806	w/i only
Virginia			
Oct. 10	Williamsburg	WJ4X 253-2811	w/i only
West Virginia			
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THE MART

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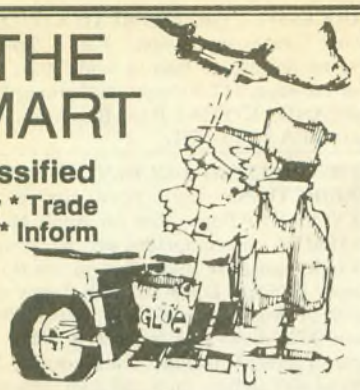

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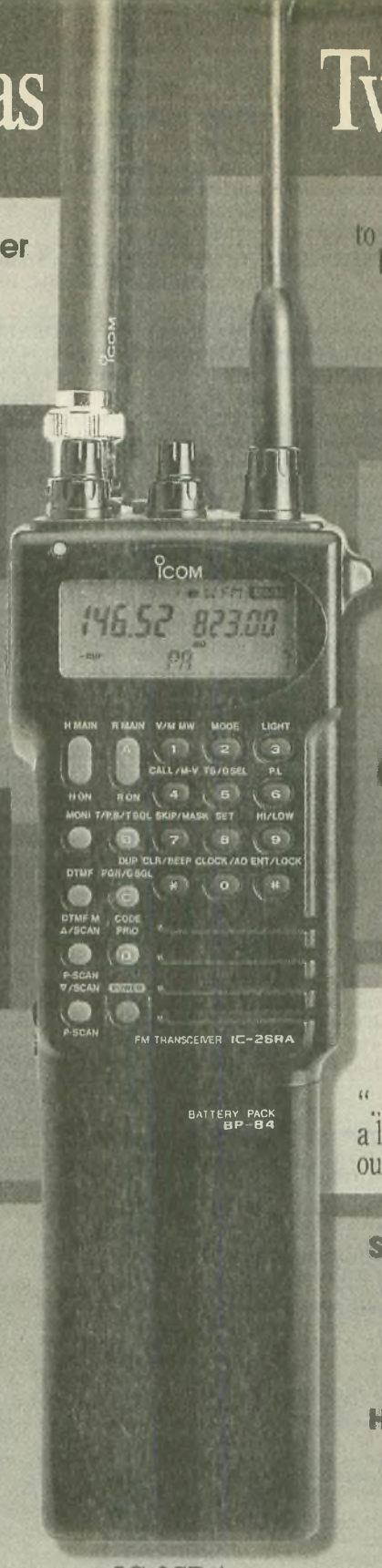

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* Our thanks to Bill, one of the all-time greats in antenna writing.

Rooftop rescue

DEBORAH RIEHL, KB7NFL

I'm a new Tech Plus who got involved in Amateur Radio for search and rescue. Since then I've discovered lots of other fun aspects of the hobby and am studying for my General. As soon as I got my 2M hand-held I began to monitor the SAR repeater 24 hours a day.

Seattle Mountain Rescue was paged out for a car over a cliff in the wee hours of the morning last summer. I couldn't go due to work commitments. Later I was awakened by the sheriff calling the operations leader (OL) on 2M. As I regained consciousness it occurred to me that the OL that night was not a ham (he soon will be!).

I grabbed my radio and ran out to the spot on my driveway where I can usually hit the repeater. No dice. To increase my elevation I put up an extension ladder and climbed to the roof peak. From there the sheriff and I held a long discourse in the rain. Then I made some phone calls.

Afterwards, as I dried off and climbed back into bed, I hoped none of my neighbors had witnessed my 3 a.m. performance on the roof! Since then my elmer has helped my put up a quarter-wave groundplane on the same roof.

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