Worldradio
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Amateur Radio at the Campbell fire

JAMES W. RICH, N6SZQ

The call out occurred at 11:45 p.m. "Guess what Jim — you're going to a fire!"

Earlier that evening on Wednesday, Aug. 8, I and other Sacramento-area Amateur Radio operators had been put on alert by the California Department of Forestry (CDF). We were members of the CDF's Volunteers in Prevention (VIP) program. A forest fire was raging in the hills to the northeast of Chico, which is 90 miles north of Sacramento. We were needed to help provide radio communications in support of fire suppression and public safety efforts.

We reached the rendezvous point in Chico at 9 a.m. The on-scene VIP leader, Marty Wyatt, WA6GUT, then led our seven vehicles up into the hills, past a road block, to the tiny town of Cohasset. Smoke obscured the sun as we parked outside the Fire Information Center (FIC), located in the Community Hall.

Inside the hall we met Gordon Fuller, WB6OVH, a VIP leader from Sacramento who had established the FIC's radio net the night before. We were soon joined by Charlie Jakobs, KC6LKC/KT, a fire captain and the VIP coordinator.

The FIC was equipped with a 2M radio, two telephone lines, a fax machine and a well-stocked refrigerator. Our main mission was to support Charlie and the volunteer Fire Information Officers (FIOs) as they gathered information for the news media and the CDF. We would also accompany reporters to the fire line and pass some logistical traffic concerning several major fires in the Chico-Redding area.

After an hour as the net control operator, I was assigned to shadow one of the FIOs, Roy Del Carlo. Roy was an affable fire investigator and a veteran FIO. While Roy drove his 4WD vehicle along the dusty roads, I sat in back with my handie-talkie. It was connected to the cigarette lighter socket and attached to my mag mount antenna on the roof.

On our first trip to the fire break line we took three reporters with us. I lost contact with the FIC's simplex net halfway to the fire line. So I got on a local repeater and asked for help. A message was soon relayed to the FIC.

By the time I had returned to the FIC for lunch, Les Ballinger, WA6EQQ, had a packet station set up. A second 2M rig was monitoring the repeater frequencies, and the sun had broken through the smokey haze.

After lunch Roy and I headed back up the road with some more news people. We wanted to reach the CDF crews, which were setting a back fire to protect Cohasset. But trees which had fallen across the road forced us to turn back. Roy then decided to go on a reconnaissance journey down an old rutted logging road into a canyon. He wanted to check out citizen reports of smoke and fire in the area.

I used the repeater to inform the FIC of our progress as we bounced down the road. We stopped at a clear spot on a ridge and piled out of Roy's Blazer. At first all we could see was smoke from the canyon below. When the flames appeared, the TV reporter and camera man did a quick take as I snapped two photos. Then I heard Roy call out, "Jim, it's time to go now!" I dashed back to the Blazer in the 90 degree heat, sweating profusely in my yellow Nomex fire suit.

As soon as we were under way I reported the fire to the FIC, and ap-

(please turn to page 12)

N6SZQ, shown here operating at the fireline, learned the importance of thorough preparation.

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Scouts across the world

The Scout Association of Australia will be hosting the 8th World Moot at "Gilwell," Gembrook in the Dandenong Ranges east of Melbourne from Dec. 29, 1990, to Jan. 8, 1991.

A "Moot" is a gathering of Scouts in the 18 to 25 year age group, called Rovers in some countries (like Australia). This Moot is international and will include members of the sister movement as well — Ranger Guides, Girl Scouts — and leaders from both organizations, all from many countries.

Gilwell is the Wood Badge Training Center for Scout Leaders in Victoria and has a "boys field" for general camping.

As one of the many Moot activities, a special team of Scout radio Amateurs is organizing Moot Radio Station VK3SWM:

To provide a communication link to enable visitors to "talk back home."

To provide an informative and enjoyable onsite activity at the Moot.

To provide a contact facility for contingents to keep in touch with their headquarters.

To introduce Scouts and Guides of that age to Scout Amateur Radio for the many facets of the hobby to show its breadth and appeal and its value to the community, particularly in communications in emergencies and disasters.

To demonstrate the social aspects of Amateur Radio as a medium for international friendship consistent with many of the aims of Scouting — for many Scouts around the world their only international capability.

To this end the organizers are inviting Amateurs and Scout or Guide stations to make contact. To facilitate these important contacts, an invitation is extended for "skeds" to be booked by mail. The station will be established with two HF rigs to a rotatable beam and is prepared to accept skeds at any time of the 24 hours each day of the Moot. It has been found that once an Australian Scout station starts transmitting, the number of on air requests for skeds can be more than the DX windows will allow, so early booking is advisable.

For skeds with VK3SWM write to Peter Hughes, VK6HU, 58 Preston St., COMO 6152, Western AUSTRALIA. The station will operate as near as possible to the recognized World Scout calling frequencies of 14.290 MHz, 21.360 MHz and 28.990 MHz, so skeds should be requested on whichever is considered the best band at the time selected.

Requests for skeds should advise: name of the person or contingent contact who will attend the Moot station: date and time for sked — UTC please, band wanted — or a specific frequency if preferred, call sign and handle of calling station and any alternate suggestions. — *Information provided by Peter Hughes, VK6HU* □

How empty is the life that is filled with nothing but things
— W4ZGG

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PUBLISHER'S MICROPHONE

We first salute those who are just absolutely radiant with their brilliance. Here are the latest **Worldradio** Super-Boosters (Lifetime Subscribers): Richard Bean, WA1KDL, Westwood, MA; Ronald Bookbinder, KE2MF, Augusta, NJ; Carl Starnes, W4EAT, Stanfield, NC; Chuck Brudtkuhl, WA0ROI, Polk City, IA; David Wilcox, N5RBW, San Angelo, TX; Chris Mullin, Sr., N6ZAB, Tiburon, CA; Gary McCrorey, AL7BL, Wasilla, AK.

•

Older folks sometimes write in and ask if there is a special Lifetime Subscriber rate of about half the usual amount for those of a certain age. I've always suspected that such queries come from those you see in the newspaper who run 10 miles a day, win the tennis tournaments or the weightlifting contests and figure that they'll beat us out of a few bucks.

I've always believed that Worldradio's lifers were showing an extra amount of support for what we're trying to do, rather than just staying ahead of inflation. So, no special rate for grandpa. If we did that, then it would be reasonable to charge twice as much for a 15-year-old.

•

Some have said that our DXathon discriminates against the average Amateur because of the deep pockets it would take to get on all five modes. Not really. A quite moderate CW station, with a motivated operator, can make many more contacts than a more casual operator on some other mode. And it is quite possible to get on other modes inexpensively with used gear or by building the equipment.

•

This magazine is always looking for articles regarding emergency communications, public service, international goodwill and just plain human interest. The finest equipment available has no value until a live human being turns it on and does something with it. We'd like to print a story of what you or a friend do with the boxes (don't forget pictures!).

•

Uncle Wayne said in the Sept. issue, "Near's I can figure, today's ham market is running about 25 percent of what it was 25 years ago, when the ARRL dropped their Incentive Licensing bomb on members."

All I can say to that is, haul out your *QST* or *CQ* of 25 years ago and compare them to the ones today. Compare the thickness (number of pages). The number of pages is a direct indication of advertising revenue. If the market is truly but 25 percent of what it was in 1965, we should have some magazines running 75 percent less pages than way back then. You may come to your own conclusion.

•

In Fiscal Year 1988, 18,550 people got a Novice license. In FY 1989, 20,047 did the same. The increase was eight percent. Those getting their Technician license went from 15,167 to 16,522, for an 8.9 percent increase. The General increase was only 1.3 percent. There was a 10.3 percent drop in those upgrading to Advanced. There was an 11.3 percent dip in the numbers upgrading to Extra.

•

The letters coming in about how well the OSCAR info of Ross Forbes, WB6GFJ, is received means a lot to the recipient. Kudos sent to John Minke, N6JM, about his DX column do warm his heart. John will be out in Sierra County for the California QSO Party.

The Search and Rescue column is getting good words from readers. Digital Bus amuses many. We're told how much people enjoyed Gordon West's upgrading classes in Southern California.

We're grateful that there are those who will dash off a note or a lengthy letter (even with knocks in it), who are doing it in a true communications mode, rather than just to see their name in print.

Every incoming missive is thoughtfully read.

— Armond, N6WR

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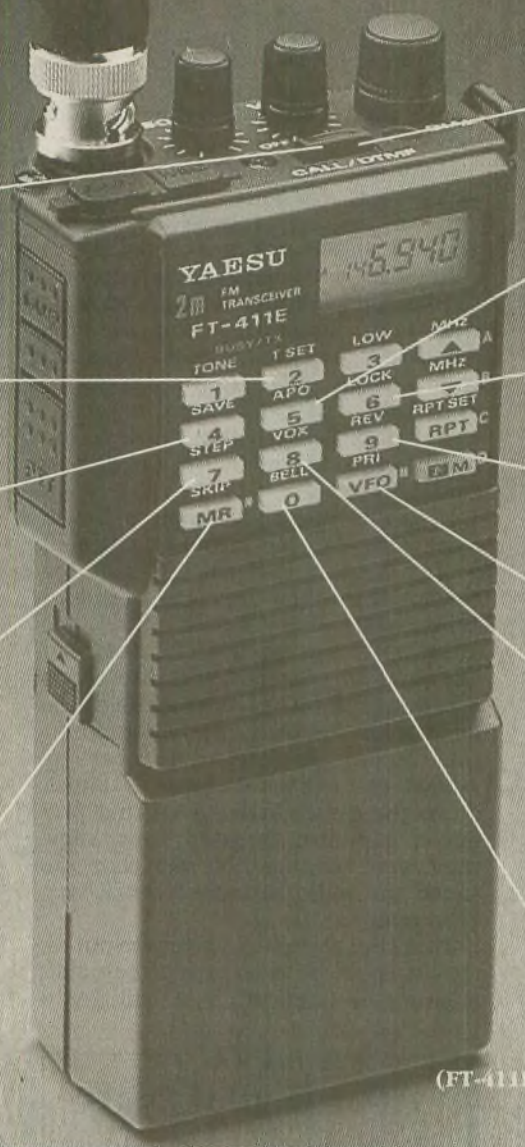

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T-Hunting: Serious fun

JOE MOELL, K0OV

Excitement is always around the corner for Amateur Radio enthusiasts. There are new counties and countries to be worked, new circuits to be built and tested ("Wow! It didn't smoke!") and new friends to be made. But there is no greater excitement than successfully completing a challenging T-hunt.

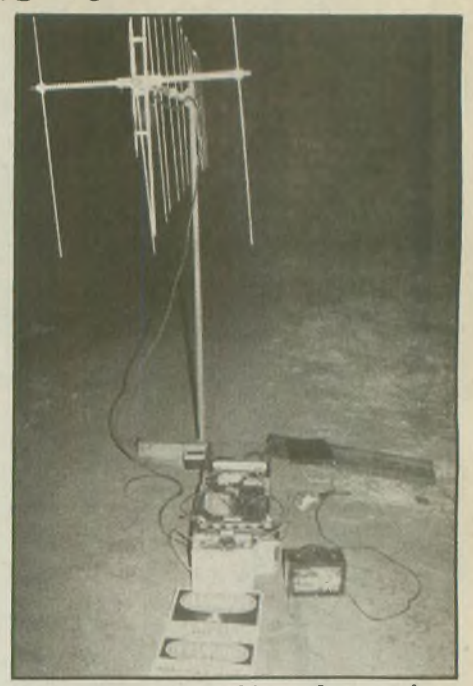
A T-hunt? you say. What's that? Well, it's also called a foxhunt or a bunny hunt. Still a puzzled look? How about a "hidden transmitter hunt." That's what it was called three decades ago.

If you still don't know what I'm talking about, then you haven't participated in one of these hunts and you've missed some great fun.

A T-hunt is simply a grown-up way to play hide-and-seek on a grand scale with radio equipment. One or more Amateurs go out somewhere and start transmitting. The hunters set out to find them. They use special antennas and their radios to detect the direction to go and the S-meter to gauge how close they are.

It can be just that simple or much more complex, depending on the skill of the hunters and the rules of the chase. In the February 1990 issue of **Worldradio**, K6FO told about the simplest kind of 2M T-hunt. All hunters were on foot and directivity was obtained by "body shielding" the hand-helds. As the hunters got closer, their radios overloaded, so they removed the rubber duckies to knock down the signal. When even that produced a pinned S-meter, they knew they were getting hot and they detuned the radio to reduce sensitivity even more.

This kind of hunt is so easy to put on that it could be a feature of any club meeting or hamfest. You will get a great thrill when you find the "fox," and it will whet your appetite for some serious T-hunting.



It took all day and into the evening, but the hidden T has been found. This one is 135 air miles away from the Palos Verdes starting point, running 160W down low in an almond grove near Wasco, CA.

Serious hunting? Yes, in both senses of the word. Some hunts are serious because the transmitter being hunted is a jammer or a station in distress. Other hunts are serious because the participants are serious competitors. They are going all out, both in equipment and technique. Their mobiles are equipped with sensitive and accurate RDF gear and they have prepared for the hunt just as any other kind of Amateur Radio contester prepares for a weekend of point scoring.

Southern California has groups of intrepid T-hunters who give new meaning to the word "serious." There are no less than a dozen competitive hunts every month, with starting points from Santa Barbara to Escondido and many points in between. All involve driving and many require a walking hunt at the end to "sniff" out the off-road bunny.

Our smallest hunt boundaries include about 80 square miles. The

Here's one way to have a long beam on the truck for the All Day Hunt! They're hoping the weather is nice going over the mountain passes. ***(WB6UZZ photo)***

average is about 1,500 square miles. Transmissions may be intermittent through a repeater or continuous on a simplex frequency. Besides 2M, there are monthly hunts on the 220 MHz and 50 MHz bands. A 440 MHz hunt is in the works.

Most southern California T-hunters use a beam or quad for hunting, on a rotating pole coming from a window or a hole in the center of the roof. There is typically a two or three Amateur team in each car, van or truck, with one person driving, another turning the antenna and reading the S-meter to get bearings and possibly a third to plot on the maps and plan the route. A few hunters employ special dual-antenna commercial or homebrew RDF sets or Doppler ring antenna sets, either instead of or in addition to a beam. Small field strength meters are a big help when sniffing on foot at the end.

The ultimate in serious hunting is the All Day Hunt. It's an optimistic name, because this hunt often consumes most of the weekend. Some variation of the All Day Hunt is held on 2M every month. Starting at 10 a.m. Saturday on top of Rancho Palos Verdes, the hunters never know where they will end up, because the boundaries include the entire continental United States! All day transmitters have been hidden near Yuma, AZ, and Las Vegas, NV. The distance record is held by N6MI and WA6FAT, who hid the transmitter on top of 8,351 ft. Shuteye Peak, 252 air miles from the starting point.

Hiders are not content just to see how far away they can be. They delight in finding unusual roads (preferably not on the maps). They look for large terrain features to bounce the VHF signals and devilish ways to conceal their transmitting setup. They have used such exotic antennas as rhombics and helicals to put English on the signal and deceive the hunters.

The winner of the All Day Hunt, as with the majority of hunts, is the team with lowest elapsed mileage, not necessarily the shortest time. This encourages safe driving and careful map reading. Occasionally the last, but most careful, team to find the T is the winner.

Conversely, there are a few hunts each month when time is the only factor and mileage doesn't count. These sprint hunts test the hunters' preparation to quickly find jammers or stations in distress.

One such hunt is the "SCAM" hunt, when the hider is mobile-in-motion along with the hunters. How's that for a challenge?

When you're in the Los Angeles area, check the coordinated T-hunt frequency: 146.565 MHz. If it's a weekend, there may be a hunt in progress. If not, give a call. Hunters may be lurking, ready to tell you about the joys of T-hunting.

See you on the hunt!

(Joe Moell, KØOV, has been sniffing out hidden transmitters for 12 years. He is co-author of TRANSMITTER HUNTING — Radio Direction Finding Simplified, *published by TAB Books.)* □

In response to two petitions (RM-2567 and RM-3138), the FCC initiated a rule making (Docket #78-250) which looked toward reducing or eliminating the telegraphy requirements for handicapped persons seeking licenses in the Amateur Service. The Commission added that if it creates a class of Amateur Radio operator license with no telegraphy requirements, the class will be available to any applicant, not limited to those with certain disabilities. Hams interpreted that statement to mean that the Commission would be using the disabled as their justification for the long rumored and awaited no-code "Communicator" license; first discussed in 1974 as a part of Docket #20282. The ARRL objected profusely to allowing the shortcomings of the handicapped to be used as the grounds for a no-code ham ticket for everyone. Even disabled persons protested, especially those who had already struggled to pass the telegraphy requirements. On March 11 the FCC was persuaded to think better of their approach to no-code and killed their proposal, on the basis that FCC examiners couldn't determine who was indeed incapacitated. (*W5YI Report*, 07/15/90).

Intervention by President Bush and Jordan's King Hussein, JY1, is partially credited with causing a change in the FCC's stand on code testing for physically handicapped Amateurs. As a result of his letter to the King, a 15 year Technician class license, Tom McMillen, WB3HGW, now has received a waiver of the General class code test. McMillen has epilepsy and is paralyzed and confined to a wheelchair. According to his doctor, McMillen's disability and the effects of medication have prevented him from raising his Morse code speed to the required 13 wpm, even after extended study and practice.

There have been a few indications that the ARRL may be preparing its members for a concerted effort to once again kill of the chance of a codeless class of Amateur license from being instituted in the United States. While the ARRL hierarchy has gone on record as favoring a no-code license, it did so before the FCC issued P.R. 90-55, in which the phase-out of both the Novice and Technician classes is traded for the adoption of a new Communicator class. (*Westlink Report* 07/20/90).

•

At its July 20 and 21 meeting, the ARRL Board of Directors reaffirmed the League's position on a codeless entry-level Amateur Radio license, paralleling a "strawman" recommendation made by committee in May (see July *QST*, p 54). The board remains committed to the retention of both Novice and Technician classes of license, in addition to the proposed new Communicator class. One change from the recommendation was that accredited volunteer examiners holding General class licenses should be authorized to administer Communicator and Novice examinations. (*ARRL Letter*, 07/27/90).

•

While the agenda for the 1992 World Administrative Radio Conference (WARC-92) has been established, the full extent of possible threats to Amateur allocations will not be known for some time. In the fall it is possible that a recommendation may emerge to separate the 40M Amateur band from the 41M broadcasting band, providing a 300 kHz exclusive worldwide Amateur allocation of 6950-7250 kHz adjacent to a worldwide broadcasting band beginning at 7250 kHz. The FCC's Second Notice Of Inquiry (NOI) this fall will provide the best opportunity for the public to comment on U.S.WARC-92 proposals as they develop. (*The ARRL Letter* 07/13/90).

•

The FCC has formally asked the Soviet Ministry of Posts and Telecommunications to solve an interference problem on the Amateur 20 and 17M bands. In messages to Moscow on June 21, the FCC requested assistance in mitigating harmful interference on 14.024 and 18.125 MHz, coming from

(please turn to page 10)

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 August 1, 1990.

For more information about the call sign assignment in the Amateur Radio Service, see Section 97.51 of the FCC Rules, or write to the FCC, Consumer Assistance Branch, Gettysburg, PA 17326.

Radio District	Group A Am. Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	AA0BQ	KF0LY	N0MHU	KB0HKI
1	WJ1F	KC1WI	N1HYJ	KA1WGV
2	AA2AT	KF2VI	N2LCV	KB2KZH
3	WD3B	KD3TI	N3IKM	KA3WSQ
4	AB4YA	KN4NK	N4ZZD	KC4SGJ
5	AA5UA	KI5IB	N5RDS	KB5NME
6	AA6XF	KK6OB	N6ZZZ	KC6MWQ
7	AA7FO	KG7HJ	N7PIK	KB7LMF
8	AA8BX	KF8IO	N8MUC	KB8KOJ
9	WU9G	KE9YP	N9KAC	KB9FJD
North Mariana Is.	AH0I	AH0AG	KH0AM	WH0AAL
Guam	KH2N	AH2CH	KH2EO	WH2AMQ
Johnston Is.	AH3C	AH3AD	KH3AC	WH3AAG
Midway Is.		AH4AA	KH4AD	WH4AAH
Hawaii		AH6KN	NH6XH	WH6CIM
Kure Is.			KH7AA	
American Samoa	AH8D	AH8AD	KH8AI	WH8AAZ
Wake Wilkes Peale	AH9A	AH9AD	KH9AE	WH9AAH
Alaska		AL7MG	NL7UQ	WL7BZG
Virgin Is.	NP2F	KP2BU	NP2DX	WP2AHD
Puerto Rico		KP4QY	WP4YN	WP4JGT

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FCC Highlights

(continued from page 8)

stations signing "URS" and "RKA," respectively. These requests came after many reports were received from concerned Amateurs. (*ARRL Letter*, 7/13/90).

•

The ARRL has offered an alternative to an FCC proposal to move the 80M Novice/Technician band. Citing interference from radiotelephone stations in the 3725-3750 kHz segment, the FCC proposed in PR Docket 90-100 to move the 80M Novice sub-band from its current 3700-3750 to 3675-3725 kHz. As an alternative, the League has proposed, in comments filed June 15, that the sub-band be expanded to 3675-3750 and, concurrently, that the 200W power limitation for General, Advanced and Amateur Extra class operators (in that segment of 80M) be changed to 1500W. This would provide increased flexibility for Novice and Technician operators without reducing the privileges of other licensees. (*ARRL Letter*, 7/27/90).

•

The Radio Television News Directors Association (RTNDA) asked for a change in the rule prohibiting Amateur stations from providing communications facilities to support broadcasting operations, except when common carrier facilities and broadcast remote pickup links have been disrupted and life and property is in immediate danger. Specifically, RTNDA requested the immediate safety of life or property provision in the rule be expanded to include information relating to any important news event, or in the alternative, that the immediacy factor be eliminated from the rules.

The Commission was not persuaded that it should either adopt RTNDA's substitute rule or eliminate the immediacy factor from the current rule, believing that the prohibition against use of Amateur stations for commercial purposes, including broadcasting, must be retained if the Amateur service frequencies are to remain free of commercial and broadcasting exploitation. (*ARRL Letter* 07/27/90; *QST*, Aug. 1989, page 59).

•

The Anti-Drug Abuse Act of 1988 permits the FCC to deny telecommunications licenses to persons convicted of drug offenses. Amateur Radio is the *only* type of license excluded from the new program, because the Anti-Drug Abuse Act encompasses only licenses used for professional or commercial purposes. Amateurs will not have to certify that they are drug-free, nor will the FCC be able to deny ham licenses to convicted drug offenders. (*W5YI Report*, 07/01/90).

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END-OF-MONTH LICENSE TOTALS

MAY 1990		JUNE 1990
48,840	Extra	48,624
99,047	Advanced	98,615
113,650	General	113,329
111,325	Technician	110,790
81,066	Novice	80,620
453,928	Totals	451,878□

The Radarman

MELVIN HAMILTON, N4DYI

If you should see upon the street,
a man who walks with dipole feet
with a train of pips trailing behind,
he's the radarman with the micro-mind.

With micro-seconds and micro-waves
and micro-volts, he spends his days.
And we find with passing time
his mind has shrunk to a micro-mind.

This man attains with passing years,
infinite impedance between the ears.
As he chews his molars oscillate
and his heart pumps blood at a video rate.

Finally he succumbs to a heavy jolt.
To what he thinks is a micro-volt.
the doc looks up from his microscope
and says to the nurse, "Behold this dope,
not a brain cell can I find.
He's the radarman with the micro-mind." □

Dreams can come true!

MIKE ANDERSON, WB0LEY

Many years ago as a teenager (I was one once!) I was given a fictitious book about Amateur Radio (sure sounded exciting). A few years passed and while I was attending high school in Colorado, I met my first "elmer."

Ron Seats, K0LZD, was the electronics instructor at school and through his tireless efforts and the help of Rosie Lewis, WA0MNL, I became WN0EQM in May 1971.

There just didn't seem to be enough hours in a day to make contacts. One evening I was chatting in CW (it's all Novices had then, including crystal control, no VFOs) with my friend David Hamula, WN0FHQ, and I fell asleep on the key. Dave had to call my mother on the phone to come to the shack and wake me up so I'd stop transmitting a dead carrier.

No one ever told me how to properly tune up a transmitter, so with no manual I just peaked up everything and . . . BOOM! No more filter capacitors! I spent my Novice internship with a fine Amateur club, the Pikes Peak Radio Amateur Association of Colorado Springs, CO.

Not being all that bright with theory, but very good at CW, taking the General exams (the old 50 question test) in Denver was not a festive event. Five written exams had come and gone when WN0EQM expired. I was bummed out! Depressed! Fortunately with Article 97.79D, I was still able to ham in a fashion.

Forty-five days after 'EQM became history (attempt number six) I finally passed the General and in August 1973 WB0LEY was born.

A year and eight months in the Navy (four at Great Lakes, IL) and four exams later, WB0LEY changed from General to Advanced. The license caught up with me in the Philippine Islands at the moment my ship was pulling out to sea.

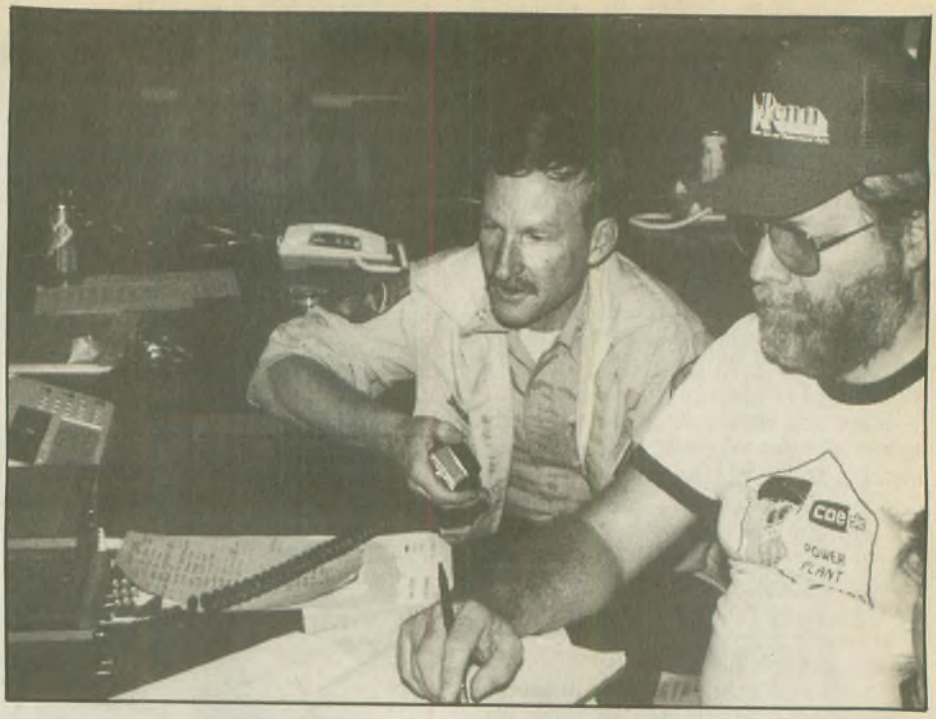
After doing four years in "Uncle Sam's Canoe Club," I returned to Colorado to attend college at the University of Southern Colorado with my longtime friend Martin Roe, WB0JNV (Amateur buddies since high school). I then set forth on a journey to scale Amateur Radio's highest mountain . . . the Amateur Extra!

In the passage of time, I married my XYL Rhoda, formerly KN0YFP. She's now KB2BZY and is a Technician working on General. It was a funny coincidence — her license expires on my Navy retirement date (wonder if that means something?).

After 10 years and 10 exams, in November 1987 I finally made it to the summit of Amateur Radio. I passed the Extra!

So in the course of 18 years, with 22 Amateur exams, I became an Amateur and made it to the top and I have an Amateur XYL, very rare vintage too! She doesn't mind my getting that new rig. Don't you wish you had one, *too* (the Amateur wife that is!)?

So it seems apparent to me that dreams can come true! □



Charlie Jakobs, KC6LKC/KT, operates from the fire information center.

Campbell fire

(continued from page 1)

prised them of our progress as we roared out of the canyon. As we drove back to the FIC we passed a convoy of fire trucks headed in the opposite direction.

Back at the FIC I learned that Robert Lyman, KI6FT, had been sent to check out reports of a fire to the north of the main one. Gordy had lost contact with him, and was concerned. I was serving as net control 20 minutes later when I heard his voice break through the static.

After having dinner in an outdoor mess with the fire crews, some of the VIP members helped distribute information fliers to the Cohasset residents. Then we closed down the FIC. The CDF put us up in the Chico Holiday Inn for the night.

The next day brought more of the same. Two events stand out: looking out the window of Roy's Blazer to see a solid wall of fire as the pine trees along the fire break burst into flames, and racing along the edge of a pond with a newspaper photographer to photograph a National Guard helicopter which hovered as buckets were lowered into the water for refills.

Through it all, I learned the importance of proper training and preparation, and that you can never take along too much equipment. I experienced more excitement in two days of a VIP operation than I had seen in 13 years as a government economist. And all the VIP volunteers involved had the satisfaction of helping to bring under control a forest fire that would eventually claim over 110,000 acres. □

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

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The MFJ-989C is a compact 3 KW PEP roller inductor tuner with a new **peak** reading Cross-Needle SWR/Wattmeter. The roller inductor lets you get your SWR down to absolute minimum.

With **three continuously** variable components - two massive 6 KV capacitors and a high inductance roller inductor - you get precise control over SWR **and** the widest matching range possible from 1.8-30 MHz.

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You get a **new** lighted **peak** and average reading Cross-Needle SWR/Wattmeter with a **new** more accurate directional coupler.

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The roller inductor lets you tune your SWR down to absolute minimum. 3-digits turns counter lets you quickly return to your favorite frequency.

You get MFJ's **new** peak and average reading Cross-Needle SWR/Wattmeter with a **new** directional coupler for more accurate readings over a wider frequency range. It reads forward/reflected power in 200/50 and 2000/500 watt ranges. Meter lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

A **new** current balun for balanced lines reduces feedline radiation and forces equal currents into antenna halves that are not perfectly balanced for a more concentrated, stronger signal. Add $10 s/h.

MFJ's *Fastest Selling* Tuner

MFJ-941D **$109.95**

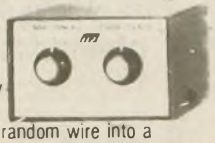
The MFJ-941D is MFJ's fastest selling 300 watt PEP antenna tuner. Why? Because it has more features than tuners costing much more and it matches everything continuously from 1.8-30 MHz.

It matches dipoles, vees, verticals, mobile whips, random wires, banlanced and coax lines.

SWR/Wattmeter reads foward/reflected power in 30 and 300 watt ranges. Antenna switch selects 2 coax lines, direct or through tuner, random wire, balanced line or tuner bypass. Efficient airwound inductor gives lower losses and more watts out. Has 4:1 balun. 1000 V capacitors. 10x3x7 inches.

MFJ's *Random Wire* Tuner

MFJ-16010 **$39.95**



You can operate all bands anywhere with any transceiver when you let the MFJ-16010 turn any random wire into a transmitting antenna. Great for apartment, motel, camping operation. Install a wire anywhere! Tunes 1.8-30 MHz. 200 watts PEP. Ultra small 2x3x4 in.

MFJ's *Deluxe* 300 Watt Tuner

MFJ-949D **$149.95**

The MFJ-949D gives you lower SWR than **any** tuner that uses two tapped inductors. Why? Because you get two **continuously** variable capacitors that give you infinitely more positions than the **limited** number on switched coils.

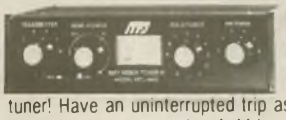
This gives you the precise control you need to get your SWR down to a minimum. After all, isn't that why you need a tuner? Covers 1.8-30 MHz.

You get MFJ's **new** lighted 2-color **peak** and average reading Cross-Needle SWR/Wattmeter, dummy load, antenna switch, and 4:1 balun - all in a compact 10x3x7 inch cabinet. Meter lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

With MFJ's **deluxe** 300 watt PEP tuner you get an MFJ tuner that has earned a reputation for being able to match just about anything - one that is highly perfected and has years of **proven** reliability.

MFJ's *Mobile* Tuner

MFJ-945C **$89.95**



Don't leave home without this **mobile** tuner! Have an uninterrupted trip as the MFJ-945C **extends your antenna bandwidth** and eliminates the need to stop, go out and adjust your mobile whip.

You can **operate anywhere in a band and get low SWR.** You'll get maximum power out of your solid state or tube rig and it'll run cooler and last longer.

Small 8x2x6 inches uses little room. **SWR/ Wattmeter and convenient placement of controls make tuning fast and easy while in motion.** 300 watts PEP output, efficient airwound inductor. 1000 volt capacitors. Mobile mount, MFJ 20, $3.00.

144/220 MHz VHF Tuners

MFJ-921 **$69.95**

MFJ's new VHF tuners cover both 2 Meters and the 220 MHz bands. They handle 300 watts PEP and match a wide range of impedances for coax fed antennas. SWR/Wattmeter. 8x2½x3 in. **MFJ-920, $49.95.** No meter. 4½x2½x3 inches.

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MFJ's *Artificial* RF Ground

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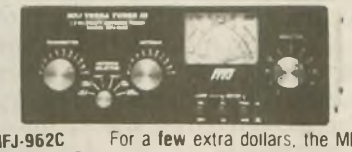
You can create an artificial RF ground and eliminate RF "bites", feedback, TVI and RFI when you let the MFJ-931 resonate a random length of wire and turn it into a tuned counterpoise. The MFJ-931 also lets you electrically **place a far away RF ground directly at your rig** - no matter how far away it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

Barefoot/1.5 KW Linear Tuner



MFJ-962C **$229.95**

For a **few** extra dollars, the MFJ-962C lets you use your barefoot rig now and have the capacity to add a 1.5 KW PEP linear amplifier later. Covers 1.8-30 MHz.

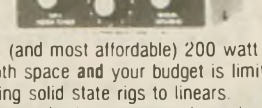
You get two husky **continuously** variable capacitors for maximum power and minimum SWR. And lots of inductance gives you a wide matching range.

You get MFJ's **new** peak and average reading Cross-Needle SWR/Wattmeter with a **new** directional coupler for more accurate readings over a wider frequency range. It reads forward/reflected power in 200/50 and 2000/500 watt ranges. Meter lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

Has 6-position antenna switch and a teflon wound balun with ceramic feedthru insulators for balanced lines. 10¾x4½x14 7/8 inches. Add $10.00 s/h.

MFJ's *smallest* Versa Tuner

MFJ-901B **$59.95**



The MFJ-901B is our smallest 5x2x6 inches (and most affordable) 200 watt PEP tuner - when both space **and** your budget is limited. Good for matching solid state rigs to linears.

It matches whips, dipoles, vees, random wires, verticals, beams, balanced and coax lines from 1.8-30 MHz. Efficient airwound inductor. 4:1 balun.

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The Novice experience: Circa 1912

DONALD F. MEADOWS, N6DM

In 1912 Amateur Radio, in fact radio itself, had not yet reached the legal age of 21.

The term then was not radio, but "wireless." Imagine, signals through the air without wires! It was a young science, something new, something a bit awesome. Everyone who worked with it, professionally or otherwise, was a novice.

One of those early experimenters was my father, born in 1897, who shared in this early development as a teenager, with a teenager's enthusiasm. His call was DCM, his initials.

Licensing was unheard of at that time, although government regulation was just around the corner. The Radio Act of 1912, passed later that year, provided for licensing of Amateurs but required no examination. Operation was governed only by what worked and what didn't.

No one balked at learning the code in order to operate. The matter was simple. If you didn't know the code, you didn't communicate. Period.

DCM built himself a buzzer and a key and sat down to learn the code. In about three weeks he was able to copy slowly, around five words a minute, but that was fast enough to get on the air.

Back then, several Amateurs were already active in DCM's town of Orange, in Southern California. They had been operating two or three years and had advanced stations with rotary spark gaps powered from the AC lines. These "old-timers" were in their late teens or early twenties, and were an important source of information and guidance for the raw Novice.

ARRL publications didn't yet exist. Although publications were available for the beginning wireless experimenter, they cost money. DCM chose instead to invest his meager funds in equipment, but he made a fortunate discovery. In his *Boy Scout Handbook,* 1912 edition, in the chapter headed "Tracks, Trailing and Signaling," there was a brief section on wireless telegraphy. The Scout was instructed on how to set up a station "capable of sending messages from 8 to 10 miles."

DCM now proceeded apace to get on the air. Let us extract portions of the same instructions that he tried to follow:

The most fundamentally important part of a wireless telegraph station is the aerial. The builder should aim to get as high and long an aerial as possible, height being the more important factor.

DCM's parents were cooperative — up to a point. When his feet clambering on the roof began to loosen shingles, there was trouble. But a 20 ft. mast with guys finally stood tall.

In the back yard a pole was sunk in the ground. It provided the rear support for a horizontal flat top about 40 ft. high.

The experimenter was instructed how to make his receiving and sending sets out of materials commonly available. For the receiver, however, two items had to be purchased.

For use in the detector, lead sulphide or Galena crystals must be secured. The telephone receivers cannot well be made and must therefore be bought. The type of phones used will depend entirely on the builder's purse.

With a friend down the block, also a wireless novice, DCM traveled to Los Angeles by streetcar to purchase a single headphone and a piece of "silicon," which he was advised to use for his detector.

Parts for the sending set were also homemade. The exceptions were the spark coil and the batteries.

For the experimenter, it will be far cheaper to buy a spark coil for his sending set than to attempt to make one.

DCM used the spark coil out of a Ford automobile. This was powered by four dry cells in series.

The main operating expense was the frequent replacement of these batteries. DCM made his own spark gap and his own key.

The four dry cells and Ford coil could produce a spark barely able to jump an eighth-inch gap. Although the text points out how to construct a condenser for the sender and receiver, DCM dispensed with these items. Apparently he was told by one of the "old-timers" that his gear would work just about as well without them. A penciled comment in the margin reads: "Condenser is not necessary in the receiving outfit." His station was the essence of simplicity.

Once he was on the air, DCM was able to copy one or two of the advanced "old-timers" across town, but his best two-way DX was his friend CJL, who had a similar station three houses down the street. Even at this distance they had difficulty hearing each other. A Ford spark coil powered by six dry cells put out a marginal signal at best.

Even if DCM had trouble hearing CJL, at least commercial and government transmitters in San Diego, San Pedro and the San Francisco Bay region came in loud and clear. Starting up, their rotary spark gaps left a clear

impression on the listener. A slow rumble around 60 cycles slid upwards in a musical glissando to a tone leveling off at around 1,000 cycles. Then the transmission began.

Most of the time the code was sent too fast, but just being able to hear these stations was a thrill.

Of greatest interest historically were the days when DCM's silicon detector picked up the sounds of music — real music! The single earphone's diaphragm vibrated out the tune of *Oh, You Beautiful Doll!* The tune came through again and again, over and over, sometimes interrupted by comments in a male voice. These were rumored to be experimental transmissions of Dr. Lee DeForest in California, then known to be working on sending music via radio. On May 7, 1912, DeForest was issued Patent No. 1,025,908 for a "Wireless Music Transmitter."

DCM and CJL finally discovered that wired communication was more dependable. What's more, they could work "phone." To do this they ran a wire between their houses and each operator used his headphone both as a mic and as a receiver — a private telephone circuit. This wasn't wireless, but at least they could talk to each other while they tinkered with their radios.

DCM's experience was considered valuable. Six years later, during WW I, he was assigned to a signaling unit of the US Navy because he knew the code.

What lies behind us and what lies before us are tiny matters compared to what lies within us.

Waterproofing

BLAIR BATES, K3YD

The January 1989 issue of *Radio Communications,* journal of the Radio Society of Great Britain, recommended the use of "self-amalgamating" electrical tape wrapped around the coax connectors to seal them from water. The tape should be wrapped with 50 percent overlap and stretched very tightly — wrapping from small to large end.

Wrap a barrel junction from both ends to center. The tape will fuse into a custom-made waterproof boot for the connector. IT MUST BE COMPLETELY OVERWRAPPED WITH ORDINARY PVC TAPE (SCOTCH 33+ OR EQUIVALENT) OR THE FUSING TAPE WILL BREAK DOWN UNDER UV LIGHT (read sunlight).

In the US of A, "self amalgamating" tape is better known as Scotch 23 Rubber Splicing Tape and is available at your favorite electrical supply house at about $8/roll. When you remove this tape, plan on using a NEW Stanley utility knife blade — it gets tough!

(If you are still using Coax-Seal™ to seal connectors, old fashioned LIGHTER FLUID does a pretty fair job of removing the sticky black residue from that stuff. No, don't light it — just use it as a solvent!)

Greases and sealants

The RSGB article mentioned two other interesting substances which also belong in your tool kit if you use antennas or coax. Let's say you want to waterproof the terminal block on the bottom of a rotator or the driven element connections of a beam which uses nuts and bolts. Here, Dow Corning MS4 is an alternative. This is silicone grease which comes in a five ounce tube (like a large toothpaste) for about $9.50. It has good dielectric strength — 21.7kV/mm, and is also a handy lubricant for feeding wire through tight grommets.

A good silicone grease just sits there and protects — and doesn't react.

If you want a sealant which sets up to a semi-solid, DON'T USE COMMON RTV or any common caulking or bathtub sealant. These emit a strong vinegar smell when curing and will corrode and destroy electrical connections to nonconductivity within a year.

Dow Corning Silastic 738 is designed for corrosion sensitive electrical or electronic equipment/connections. Its disadvantage is a long-slow curing time — about two to three days to tacky and one to three weeks to dry. A small tube ±5 Oz. costs about $9; a 10.3 ounce tube (which fits a caulking gun) is about $13.50.

If you have an especially critical application (i.e. EME or satellite), you may want to use Dow 3145 Hi-Tech RTV. A good application of either is sealing the PL259/SO239 junction on a Hy-Gain balun. Wrap the coax as far as you can with Scotch 23, then pot the connection with the Dow 738.

Both 738 and 3145 have a 500+V/mil dielectric strength. The applications notes for *both 738* and 3145 recommend cleaning the surface to be sealed (except plastics) with acetone and then, always, priming the surfaces with primer — Dow 1200 for 738 and Dow 1204 for 3145. Rubber surfaces should be lightly sanded and acetone wiped.

Why bother?

All of these great tapes and sealants sound like a lot of bother and are expensive, too. You might ask, "Do I really need any of this stuff?" Let me quote a line or two from the RADCOM article:

"The PL-259 . . . is about as waterproof as a fishing net. If you put a PL-259 on the end of a run of RG8 and there's a light shower 30 miles away, the coax (conductor and braid) will turn green in 10 seconds flat!"

Perhaps a slight exaggeration, but with good coax costing to fifty cents per foot, it seems to make sense to spend a few dollars to protect the dollar and time investment in a coax run. WATER IN YOUR COAX WILL CAUSE CORROSION AND A CHANGE IN THE ELECTRICAL PROPERTIES OF THE COAX.

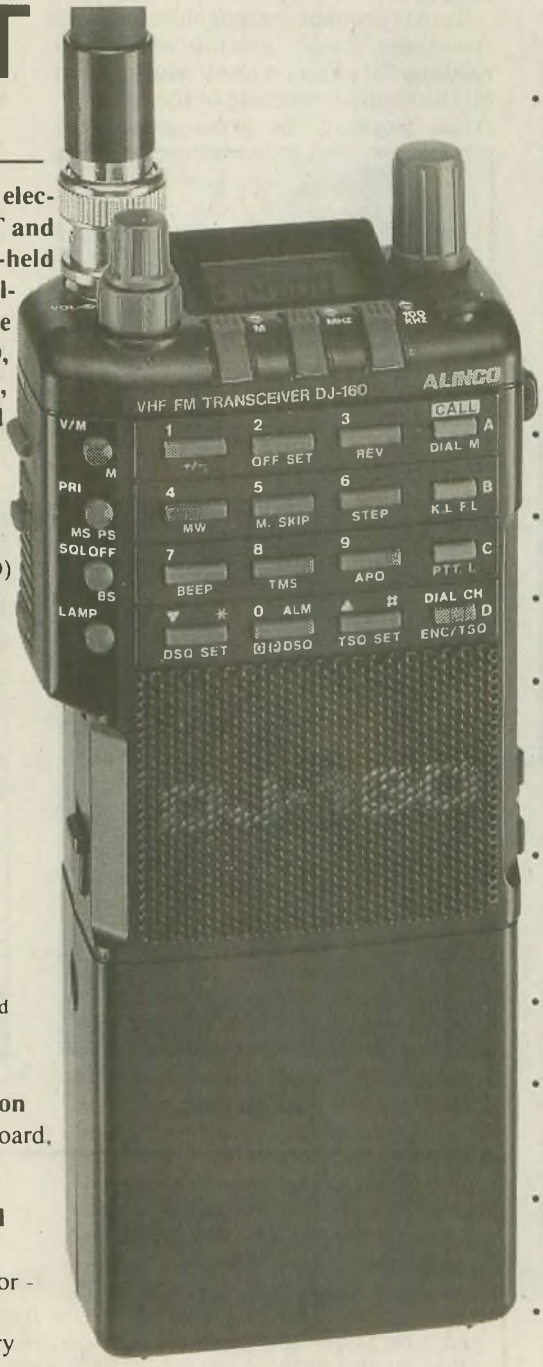
Do you want a conductor or a semiconductor in your feedline? —*The Delaware-Lehigh ARC Inc., Nazareth, PA* □

HF FLEAS: West Virginia University Agriculture and Forestry Experiment Station researchers have discovered that fleas communicate with each other by high frequency sound signals.

WOW!
SO MANY FEATURES!

DJ-160T
DJ-460T

Engineered with the most advanced electronic technology, the new DJ-160T and DJ-460T, VHF and UHF FM hand-held transceiver from Alinco are now available. Standard features include simple operation, easy to read LCD, 3 methods of frequency selection, 5W when operated on 12V DC, and a unique DTMF Decode/display features.



- **Ultra Compact Body:**
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  DJ-160T 3 Watts
  DJ-460T 2.5 Watts
  with standard 700mAH Battery
- **Extended Frequency Coverage**
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  144.0 Mhz - 147.995 Mhz (TX)
  137.0 Mhz - 173.995 Mhz (RX)
  DJ-460T
  440.0Mhz - 450.0Mhz (TX)
  410.0Mhz - 470.0Mhz (RX)
  Specification guaranteed on amateur band only (Modifiable for mars / Cap-permits required)
- **Easy to Enter Frequency Selection**
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  3 Types of paging Fucntion, Group Paging, Private Paging in a group or Private Paging to a specific person (This Function is compatible with other manufacturers units) The DTMF decode Function and optional tone squelch (DJ-160) will give you additional flexibility in your communication needs
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- **Auto Power Off Function**
  This function will turn the power off automatically after 30 minutes of non - use
- **Auto Dialer**: There are two, 16 digit memories for frequently used numbers
- **DTMF Decode/Display Function:**
  The unit displays DTMF Codes, as received, on LCD
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- **Limited 2 Year Factory Warranty**

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Visit from Pitcairn

ARMOND NOBLE, N6WR

One of the world's best known Amateurs, Tom Christian, VR6TC, of Pitcairn Island, and three members of his family are enjoying traveling throughout the U.S.A.

They arrived on the first of June for the primary purpose of Tom's service as a delegate to a Seventh Day Adventist conference in Indianapolis, IN. Donations from Amateur Radio operators, stamp collectors, members of the Pitcairn Island Study Group and other interested people are making it possible for Betty, VR6YL, and their two younger daughters, Sheri and Darlene, to accompany Tom. Money is also being raised along the way through the sale of Pitcairn Island T-shirts, stamps and maps.

Betty Christian, VR6YL, chatting with a Sacramentan who has just purchased a Pitcairn map.

In Sacramento, CA, Howie Phelps, WA6TUJ, (the energy behind the fundraising effort) hosted the Christians. Publicity in the local Sacramento papers about the Pitcairners' visit brought an overflowing crowd to attend Tom's slide presentation of life on Pitcairn. A local hospital granted the use of its facilities for the slide show.

Among Amateurs Tom has visited while here in the U.S. (he and Betty were last here 26 years ago) have been noted DXer Jules Wenglare, W6YO, and Edwin Pullen, WA6ECC.

You weren't able to work VR6TC as he mobiled around Yellowstone Park because the FCC claims we do not have a reciprocal agreement with Pitcairn. Tom, in his capacity as the licensing authority on Pitcairn, grants a license to any visiting Amateur — if that's not reciprocity on his part, what is?

Tom is probably responsible for more Amateurs finally getting around to reading "Mutiny on the Bounty" than all the English teachers in the country. After working the great-great-great grandson of Fletcher Christian, one's curiosity is piqued.

VR6TC and John Minke, N6JM, Worldradio DX editor.

Tom Christian, VR6TC, famous voice of Pitcairn Island.

The Christians will travel to Germany, Austria and Switzerland in September, with arrangements being made for that trip by Frank Mohrmann, DL8FL. Prior to their return to Pitcairn in March, they also plan a stop in New Zealand, where their two elder daughters are attending school. □

Darlene, 13, and Sheri Christian, 14, were charming models for the T-shirts they had on sale.

Plastic repairs

BARRY SHARROW, KI6W

Anyone who owns one of those tiny Kenwood TH-XXA/Ts has probably had the same trouble I have. The magazine ads show the little hand-held in a shirt pocket and that certainly seems to be a neat place to carry it.

All goes well until you lean over to pick up something. Then, sure as MURPHY, that "pocket-portable" turns into a "slippy-flippy" and then a "droppy-ploppy."

I'm at a loss to explain why, but Kenwood designed those wee beasties so they always land on the battery and split the retaining rail. The upshot is that the battery loosens and eventually makes intermittent contact.

I don't know about you, but personally I find a tiny transceiver wrapped with rubber bands or tape a little "tacky" — in more ways than one! As you have already discovered, Kenwood has also managed to mold that case out of an ungluable plastic.

Take heart, owners of "crackable-packables." There IS a SOLUTION. Or, more specifically, a SOLVENT! These cases are mendable to better-than-new specifications with a commonly available cement.

Run, do not walk, to your local, friendly hardware store and head straight for the plastic plumbing department. There, you will find several cements in small cans with dauber-tops, each designed for a different plastic. The one you want for your suicidal superheterodyne is the MILKY goo which is good for everything. The black slime for ABS plastic may work, but I have not tried it. The clear stuff for PVC plastic does not hold.

A word of caution: If you have unsuccessfully tried another substance, that material MUST be removed so that the universal pipe cement can dissolve the edges of the repair. Cyanoacrylate (super glue) can be removed with acetone or lacquer thinner. Do NOT use nail polish remover, as most of these leave an oil residue to counteract their drying effect.

Other glues, such as epoxy resins, can be physically pried off, since they do not really adhere to the Kenwood case. Hot glues, obviously, do not stick, but they ARE quite good on linear polyethylene, such as our SPECS helmets.

When you have the repair surfaces clean and ready, gently pry apart any cracks and hold them open with a round wooden toothpick. Take another toothpick and use it to transfer a SMALL amount of the cement to the fractured areas.

Removing the spreaders and positioning the pieces should leave a welt of cement along the joint. DO NOT WIPE the joint. The cement works rapidly and you will only create a messy, permanent smear. The welt will shrink as the solvent evaporates.

Play it safe and leave everything alone for at least 48 hours. Because the cement has some substance in itself, you can, within reason, gradually build up missing areas with successive layers.

Remember to allow thorough drying time and to keep your layers thin. The cement will dissolve itself and, because it is mostly solvent, will shrink considerably.

After your repair has set, slide the battery pack into place. If it binds remove the excess dried cement with files, blades or whatever. If you cannot get it to slide as well as new, do not force it. Take it to someone who has the proper tools or to a friendly dentist you know. —*EMARC Relay* □

•••••DON'T FORGET•••••

INCLUDE FIRST AND LAST NAMES with call signs.

STATION APPEARANCE

Win a one-year **Worldradio** *subscription! Submit photos and description of your shack to "Station Appearance." Entries are judged on neatness and accessibility, not monetary value.*

Stephen Garrett
KB9ACW

This month's winner is Stephen Garrett, KB9ACW, of Muncie, IN. Read on as he tells us a little bit about himself and describes his equipment.

This is a father/son shack. I share the shack with my father, WA9TGT. I am 15 years old and Dad is 38. He has been an Amateur for 23 years. His favorite band is 40M. He also likes 30M. He works mobile CW Monday-Friday from about 3:30 to 5 p.m. around 7.035.

My father holds an Extra class license and I hold a General. My favorite band is also 40M.

The equipment at our station, starting at top left, is an MFJ 949 antenna tuner, an old telegraph sounder, Kantronics RTTY CW interface and a homebrew WB4VVF electronic keyer, Ten-Tec Argonaut 509 and matching filter, Commodore 1541 disk drive and a Zenith monitor. On top of the monitor is a Lionel J38 bug and a T.R. McElroy bug. Below that is a Heathkit HW 202 2M rig/ps, Ten-Tec Argosy II and an Astron 12A/ps.

Next to that is a Ten-Tec Corsair II and ps and a CDC antenna rotor. The keyer paddles on the bench are two Vibroplex "Vibrokeyers" and an "original" bug.

By the way, the computer is a Commodore 64. We also have a printer off to the side.

Don't be bashful!
Write something for
Worldradio

AEA's IsoLoop™ HF ANTENNA

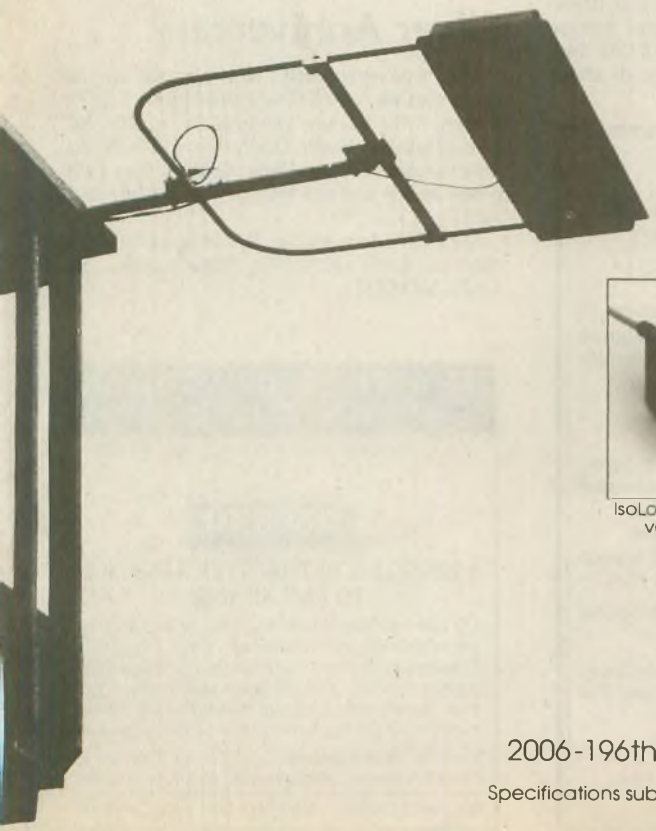
REVOLUTIONARY COMPACT DESIGN

Once again AEA has achieved a significant engineering breakthrough with its high-performance, low profile HF IsoLoop antenna. Performance isn't compromised by its small size. Operate your favorite HF band (14 to 30 MHz frequency coverage) from areas with restrictive zoning ordinances or apartments and condos. Or take it with you on vacation. . . it's the ideal go-anywhere portable antenna. And it's the only antenna you need to cover 14 to 30 MHz. ONE antenna instead of numerous dipoles and without any traps!

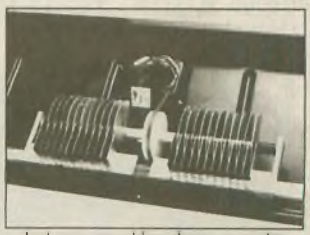
150 Watts. Rated up to 150 watts, the IsoLoop transmits and receives on any frequency between 14 to 30 MHz. When mounted with the loop in the horizontal plane, the radiation pattern is omni-directional and horizontally polarized, with about the gain of a dipole. Maximum radiation is at low angles which is ideal for DX operation. The IsoLoop may also be mounted with the loop in the vertical plane to provide a null in a desired direction. Tuning is provided by a precision stepper-motor and a small remote control box, the LC-1.

The IsoLoop does not need ground radials and its balanced, shielded feed-loop isolates the feedline from the antenna. The IsoLoop is well-isolated from the feedline. Like AEA's Isopole antennas, your signal is radiated by the antenna and not the feedline. With end-fed antennas, the outside of the coax becomes part of the antenna, resulting in noise and computer hash pickup and increased TVI problems.

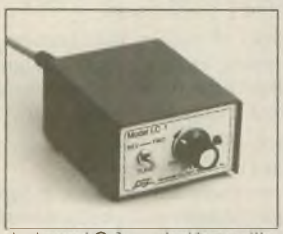
High-Q Design. One of the unique features of the IsoLoop is its inherent High-Q. The IsoLoop can be considered a very sharp tunable filter that radiates. The narrow bandwidth suppresses harmonics from your transmitter reducing TVI problems. It also attenuates out-of-band signals from nearby transmitters that could overload your receiver.



Compact. The IsoLoop is square, with rounded corners, and measures 32 inches on a side and weighs only 12 pounds. Because of the IsoLoop's small size, it makes a perfect attic or balcony antenna. It's also excellent for portable operation, recreational vehicles or camp-site use. A rotator is not necessary when used in the omni-directional, horizontally polarized mode.



IsoLoop precision stepper motor provides accurate tuning.



IsoLoop LC-1 control box with variable speed tuning.

Revolutionary. The AEA IsoLoop antenna represents years of research and development. Others may try to imitate the IsoLoop, but none can match the patent-pending design.

AEA also provides technical support from the factory or through your personal computer and modem on CompuServe's HamNet. If you are already a CompuServe member, just type GO HAMNET at any CompuServe prompt. For a free introductory CompuServe membership, call 1-800-848-8199 and ask for representative #48.

AEA Brings You A Better Experience

Advanced Electronic Applications, Inc.

2006-196th St. SW/P.O. Box 2160 Lynnwood, WA 98036 206-775-7373

Specifications subject to change without notice or obligation. Dealer Inquiries Invited. Copyright 1990. Stand optional.

SPECIAL EVENTS

150th Birthday

Members of the Lake County, OH, Amateur Radio Association will celebrate the 150th birthday of the county by operating special event station WT8F Oct. 6 and 7. Operation will be from the Lake County Historical Society's Shady Brook Farm from 1700Z Sat., Oct. 6 to 1900Z Sun., Oct. 7. Frequencies will be 28.440, 21.320, 14.265 and 7.278 MHz.

A special commemorative QSL will be awarded to those sending an SASE to the Callbook address of WT8F. □

Three Mile Island

The Harrisburg Radio Amateur Radio Club, W3UU, will be operating a special event station from the Three Mile Island Visitor's Center from 14:00 UTC Oct. 6 to 02:00 UTC Oct. 7. Frequencies and times as follows: 40M, 7.240 MHz, calling on the hour; 20M, 14,240 MHz, calling on the ½ hour; 10M, 28.340 MHz, late afternoon as conditions permit.

Contacts will be SSB and frequencies will be plus or minus QRM. Additionally, there will be 2M FM operations on 146.58 simplex and through the W3UU 146.76 repeater.

For a certificate send a QSL with QSO number, along with 9×12 SASE, to: W3UU @ TMI, c/o Jeff Kisner, N3HCZ, 202 W. Green St., Shiremanstown, PA 17011. □

Air Show

The South Texas Amateur Repeater Society (Harlingen, TX) is sponsoring commemorative station N5CAF, to celebrate the Confederate Air Force annual Air Show on Oct. 13 and 14. Attempts will be made to establish contacts directly with several of the WW II aircraft in the CAF inventory. Listen for operation from a B-29, B-17, B-25, P-51, P-40, etc.

Station operation will be from 9 a.m. to 8 p.m. local time on SSB frequencies 14260, 21260 and 28460 kHz.

For a special photo QSL, send your QSL and SASE to Dr. David Woolweaver, K5RAV, 2210 S. 77 Sunshine Strip, Harlingen, TX 78550. □

Navy Birthdays

The Great Lakes Amateur Radio Club at Naval Training Center, Great Lakes, IL, will operate special event station WV7T/9 to celebrate the US Navy's 214th birthday. Operation will be from 0000Z Oct. 13 to 2359 Oct. 14, in the General portions of the bands and Novice phone portion of 10M.

For a special QSL, send an SASE to Mike Anderson, WV7T/9, President, Great Lakes ARC, 2381-C Delaware Ave., Great Lakes, IL 60088-2510. □

RCARA Anniversary

The Riverside County Amateur Radio Association will celebrate the 107th anniversary of the incorporation of the city of Riverside with operation of special event station W6TJ from 0000Z Oct. 13 to 2359Z Oct. 14.

Operation will be on all bands on or about 3875, 7250, 14250, 18150, 21350, 24950 and 28450. Also, 146.88 MHz and 2M Packet 145.07 MHz. For a commemorative QSL send an SASE to QSL Manager Fred Roberts, W6TKV, 5464 Peacock Lane, Riverside, CA 92505. □

Big Apple

The Radio Club of Junior High School 22 will operate special event station WB2JKJ daily from 1100 to 1900 UTC October 17 through 19 on 7.238 and 21.395 MHz from the "Core of the Big Apple," to commemorate the 10th anniversary of the club and Education Thru Communication.

For an outrageous card contacts and SWLs may QSL to: The 22 Crew, POB 1052, New York, NY 10002. □

Centennial station

To celebrate the University of North Texas' 100th anniversary, the Denton County Amateur Radio Association will operate special event station N5NT from Oct. 19 to 21.

On 10M the suggested frequency is 28.350 MHz. On other bands check the General phone segments.

QSL with an SASE to DCARA, P.O. Box 50433, Denton, TX 76206. □

50th anniversary

The Joliet Amateur Radio Society, celebrating its 50th anniversary, will operate special event station W9OFR from 14Z Oct. 20 to 24Z Oct. 21. SSB — 3955, 7255, 14255, 21355 and 28455; CW 3555, 7055, 14055, 21055 and 28055; FM — 146.55 MHz.

For a certificate send a QSL and a #10 SASE to W9OFR/W9DE, 602 Manhattan Rd., Joliet, IL 60433. □

Silver Anniversary

The Monsanto ARC will operate special event station AA0A Oct. 27 and 28 during the Silver Anniversary celebration of the St. Louis Gateway Arch. Operation will be in the lower sections of the General 40, 20 and 15M phone bands and the Novice phone portion of 10M.

For a QSL card send an SASE and your QSL card to: KA0IAR, 12 W. Glendale Rd., St. Louis, MO 63119. □

Silent Keys

Tom Stephens, WA8SIG

Thomas Stephen Jarzynski, better known by his on-air television name of Tom Stephens, passed away on May 7, 1990. He was 42.

Tom was well-known in mid-Michigan and central Indiana, and his last request was that his story be told. Tom, popular TV weatherman, weather speaker, Skywarn spotter and 6M enthusiast, died of complications resulting from AIDS.

Tom was born and raised in Detroit, and from the time he was a little boy he wanted to be on television. He worked for the National Weather Service and for a television station as weatherman in Indianapolis before moving to WJRT-TV, Flint, MI, in October 1984. Tom's cheerful enthusiasm for the weather quickly made him very popular with his viewing audience there. He was a popular speaker at schools, retirement homes, etc., often using his racoon hand puppet "Dewpoint" to help explain some of his teaching.

But it was Tom's dedication to warning the public about severe weather that attracted his biggest following. And when WJRT-TV, at Tom's urging, upgraded its weather radar to a Kavoris Doppler radar, people from outside WJRT's primary viewing area said they had begun watching Channel 12 just because of Tom's weathercast.

Tom had installed his 2M rig in the Weather Center, and thus was able to monitor the reports on the Skywarn Net when it was in session. On several occasions the feed of the Detroit NWS radar to the Flint office was lost. Tom's description of what he was seeing on the WJRT Doppler radar became the only radar report for the 10 county region served by the Flint NWS office.

Some Amateurs at WJRT-TV put together a severe summer weather tape which explained the Skywarn spotter system, warning system for Genesee County, how to protect yourself and the basics for Skywarn spotting. This 34 minute videotape quickly became a standard training tape for many schools and organizations, not only in Genesee County, but across a sizable area of Michigan and beyond. Tom did the narration, not as part of his job, but as a public service.

The management of WJRT saw the value of the tape as a public service and also its public relations benefit to them. Thus, they allowed copies to be made at no cost for any organization requesting one if that organization would supply a blank tape and return postage. Over 400 copies of The Tornado Tape were made in the four years it was available, and copies apparently are still being made both by WJRT-TV and by N8FAU at WUCM-TV, University Center, MI.

Just over a year ago Tom learned he had AIDS. This past year he has been in and out of the hospital. His first bout with pneumonia looked like it would also be his last, but Tom amazed his doctors as he fought it off.

Soon after the complications started, Tom requested some of his friends on the WJRT-TV news staff to interview him and prepare a special news segment, to be aired after his death. The reason — "It is important that people know about AIDS . . . if they don't, it's going to kill them."

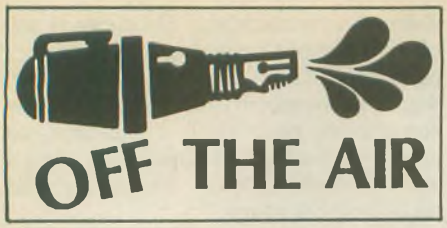
As Tom's friend, co-anchor Sue Zelinko summarized, "He spent much of his time out speaking to groups . . . educating them about the weather, which he loved very dearly . . . and if he can educate people about something as controversial as AIDS, then that's what he wanted to do. And he insisted on telling his story."

"What was the hardest thing about AIDS," Tom was asked. "The loss of my friends," he replied.

As Tom completed the interview, he turned toward the camera and gave his little sly wink. It had been difficult watching the physical and mental deterioration of a close friend, but it was good to see that he was still the same old Tom up to the last.

Tom loved broadcasting, the weather and Amateur Radio. He loved to encourage others to understand what was happening in the weather around them. And he insisted upon using even his death to attempt to reach those who perhaps other educational programs could not. — *Information submitted by Shelby Ennis, W8WN* □

One of the most difficult things to give away is kindness — it is usually returned. — *Cort R. Flint.*



Maxcom and the sea

Recently, I have noted with interest comments regarding the comparative differences between SGC, SEA, Hull and some of the other active electro-mechanical couplers and the Maxcom device. I have a difference of opinion as to which type of unit is more valuable for cruising boatmen. It has to do with the philosophy of being at sea.

I have noticed in magazine columns concerning the installation of SSB radios, antennas and their radiation aboard boats, that a constant reference is made to the close range radiation of a few hundred yards to several miles away. These tests that are conducted are not done at sea, but rather at a dock, in a marina with a new installation. Everything works fine when new.

My experience at sea has been rather extensive, first as a crew member of my parents' cruising vessels (both sail and power), and following later as a crew member aboard various yachts, as a captain of tug boats, a delivery skipper of all sorts of vessels and culminating in a five year stint as the captain of a rescue and salvage tug in the Caribbean, based on the uninhabited island of West Caicos. (While in the Turks and Caicos Islands, I operated on the Amateur bands as VP5SI). This experience has led me to believe very strongly that there is a tremendous difference in a product, such as an antenna tuner, operating at a dock under ideal conditions and what happens once a person takes that vessel to sea and the first huge green wave washes down the deck and filters into the lazarette, through the cowls and into the nav-station and soaks the electronic equipment. Even at best, on board larger vessels, where there is sufficient space to better secure electronic equipment, you still have the coupler mounted outside and still have the constant, corrosive intrusion of salt-laden air that is not found dockside.

I have been the proud owner of every type of antenna matcher: automatic, semi-automatic and manual. I have learned that there may be, because of shorter radiator lengths, an S-unit's difference between a Maxcom and any other electro-mechanical tuner. However, once you're at sea, once you arrive at the circumstance where you desperately need to communicate by radio, that difference becomes not just an S-unit's difference, but the difference between a Maxcom's S-7 signal and the non-existent signal of a malfunctioning electro-mechanical tuner.

I remember one of our monthly crossings from West Caicos to Haiti, when we were caught in the center of an unusually strong storm cell, so strong, with such intense lightning, that I could actually see water splashing as the lightning bolts struck the sea. We were the only boat out there! I looked at that 60 ft. steel mast with all those antennas up there, and wondered when we were going to be hit.

We never took a direct hit, but the induced voltages were sufficient to destroy those 50-volt transistors in the antenna tuner. Sure, it's true we didn't need to make an emergency call that night, and when I returned to West Caicos I was able to make emergency repairs to the tuner and make it work once again. But if I had had to use a radio that night, I wouldn't have been able to make a call for help. That coupler with an S-unit stronger signal back at the dock, compared to the Maxcom, simply didn't work under those conditions at sea. It would have brought me no help.

The Maxcom would have worked. In fact, I have received many phone calls from Maxcom users telling me of direct and indirect lightning strikes where all the electronics, except the Maxcom, were destroyed. Yes, the Maxcom still worked.

Now, to me this means that once the 90-day guarantee runs out on ordinary couplers, say a year out from San Francisco, down in Micronesia, or a year out from Miami, down in Venezuela, that I might really need to radio for help. And I don't believe the station that I'm calling is going to give a darn if my signal is an S7, when another coupler might have given them an S8. I only care that I can communicate to get the help I need when I need it — every single time I need it, even after many huge green waves have washed down my deck. And that's what the Maxcom is all about.

After going through tuner after tuner and spending hundreds of dollars flying in technicians from Miami to the Caribbean to replace those CPUs, I began to get very interested in electronics, and especially radio communications. It was there, on West Caicos, where I began constructing antennas and antenna matchers for myself and visiting yachtsmen. We were on the air every single day, and I learned a lot of things about radios, antennas and propagation. I learned, for example, that when you really want to get good help, not to call the Coast Guard on their own frequencies, but to call one of the high seas operators such as WOO, WOM or KMI. These operators are more technically proficient than the 18-year-old kids operating the radio at the Coast Guard station and they know how to handle emergency

(please turn to page 26)

rfconcepts DualBand

revolutionary **AMP**

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

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

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

For a detailed technical specification sheet, call your **rf**concepts dealer or contact **rf**concepts direct.

The **rf**concepts DualBand, extra power for both 2m and 70cm. automatically.

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

Off the Air

(continued from page 24)

traffic. In our circumstances, we had to rely on the radio not only to protect ourselves, but primarily to provide protection and relief for vessels that found themselves in trouble, in the dangerous areas around the Turks and Caicos Islands. There are dozens of vessels who can tell you about the help that was rendered to them by the tug *Final Victory* and its crew during the five years that we spent in this area.

After learning something about electronics, through the trial-and-error method, I became more interested in an antenna coupler design that could withstand the corrosive and vibrating environment at sea. It was all too obvious to me that the electro-mechanical designs were, by design, mechanical — they had switches. After all, a switch can only switch a certain number of times and then it fails. That is the nature of mechanical things.

I decided that I was going to build an antenna matching device that was not mechanical, would not wear out and would last forever. This matcher could be depended upon under any circumstances. Even if my main antenna fell down, I could take the output of that antenna matcher and attach it to the stump of a mast, my lifelines, or even the remnants of my smokestack and get help.

My first attempts at building such a matcher took place in the wheelhouse of the tug *Final Victory,* anchored off the east coast of West Caicos. My wife, KC4AP, and I wound countless transformers and built a base of knowledge that eventually produced the Maxcom device. In fact, the first 17 Maxcom units that were sold commercially were manufactured in the wheelhouse of the salvage tug.

My concern is not how strong the signal is from a Maxcom, compared to an electro-mechanical coupler a few hundred yards or a few miles away when brand new, because let's face it, anyone waiting to communicate that distance will use either a VHF radio or a loud hailer. I really care about how much of my signal comes down after the first bounce or halfway around the world. And that's why I have always maintained that "on-the-air" transmissions to your desired station is the proper way to measure your ability to communicate. That's the only test that counts. And it counts especially at sea, one year or five years after installation, all the way back from your trip around the world.

When a Maxcom gets back, I guarantee it will still work. I wonder how many repairs would have been made to conventional electro-mechanical couplers by that time?

Some people have told me, one boat builder in particular, that "most people really never leave the dock and go to sea — at best 2 percent go any significant distance." So, he says, "Why build something for 2 percent of the people?"

I guess most companies build equipment for those 98 percent who never leave the dock. Maxcom is not one of those pieces of equipment.

Maxcom is built by a man and his family who know the importance of communications, who have desperately needed radio communications to help themselves and other people at sea. We appreciate that "quality" is not a matter of price — "quality" is a matter of simplicity of design, quality of construction and dedication to those ends, based on experience. The 7,000 Maxcom users around the world have learned to appreciate those facts.

If you are a member of that 2 percent who actually leave the dock, I hope you will consider and install a Maxcom system. During that inevitable lightning storm, you can always unplug the radio, but the antenna matcher is securely wired into the circuit and not easily disconnected. Your choice of antenna matcher will determine your ability to summon help when you most need it, and maybe by someone not technical.

Look into the new Maxcom marine units that we recently put on the market: I designed these units to work with the shorter lengths of radiators normally found on board boats. The standard Maxcom works extremely well with long lengths of radiators attached. These long lengths are not possible aboard most vessels.

All of my attempts to insert some kind of coil in the Maxcom failed. The Maxcom saw all coils as traps. I discovered recently that by inserting a zig-zag copper strip to the output of the

Maxcom, significantly increased RF loading and its inherent efficiency occurs. Inside the marine Maxcom boxes you will find an 11 inch long copper loading strip that I feel improves radiation from shorter marine-type antennas.

I will continue to look for ways to improve the Maxcom's design, never forgetting the real world of serious salt water cruising.

Sonny Irons, KA4LEG
Ft. Lauderdale, FL □

The 'good old days'

The other day I went through my bank safety deposit box and ran across the following letter, dated Oct. 21, 1927, from the office of the supervisor of radio in Boston, MA. If we were all using the power stated in the letter, we definitely would not have to put up with all the QRM.

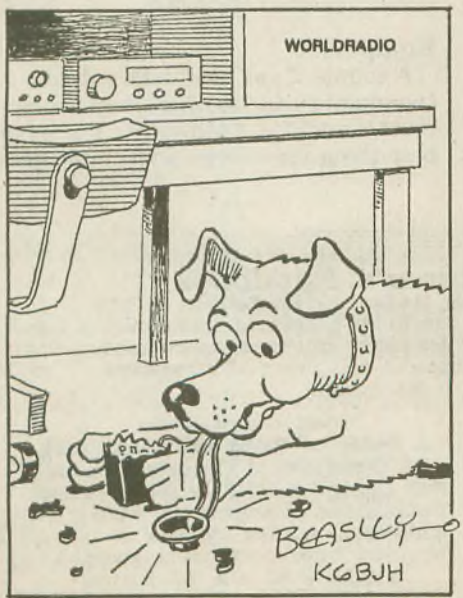
Sir:

Authority is hereby granted you to increase the power rating of your Amateur Radio station from 15W output to 75W output. The call signal 1BMG must be used to over all of your radio operations.

Please note that my call at that time did not have any prefix. My call now is W1HWG (Wow One Hard Working Guy).

My first license is dated March 4, 1926, and my present call I have had since 1934.

CHARLIE STEVENS, W1HWG
Stafford Springs, CT □



BILL, ARE YOU MONITORING ?? I FOUND A BUYER FOR YOUR HANDHELD --- HE'LL PAY MARKET PRICE --- BILL ??

DXing tribulation

Listening on 14195 kHz and 21195 kHz during the 3Y5X Bouvet DXpedition was almost enough to make me want to abandon DXing. Between the intentional jammers, the policemen, the imitation Canadians and the real Canadians, it was difficult to hear 3Y5X. In the whole lot, I hardly ever heard a Canadian accent.

The only ones who identified were those who mistakenly transmitted on the wrong VFO, and then everything broke loose while they were told where to go.

I really did my best to keep the 3Y5X frequency clear, and it turned out to be an excellent way of doing so. It was so simple, I can't believe I thought of it. I just didn't transmit on his frequency, but rather where 3Y5X was listening. No one got mad at me, nor told me to listen someplace else, nor told me anything about my ancestors.

But, since I am not transmitting on the air right now, let me say to all of those who QRMed 3Y5X, "You are the most ill-mannered hams and the worst operators I have ever heard."

FRED ROBERTS, W6TKV
Riverside, CA □

You need a license! Yep, a LICENSE to be an SAR person. Not just any license, but a LICENSE!

Tell you what. Fire up your computer, load some fancy software and create yourself a LICENSE. Put lots of fancy scroll around the border and some big words on the license. Maybe some long numbers and a date and indicate that you're LICENSED!

Are you an SAR volunteer who has a LICENSE (any license) that makes you qualified with no further training required? Some SAR people fit this category, claiming their license (pilot, EMT, driver's, GMRS, Amateur, etc) endows them communicator status. (And any attempts to suggest training are rebuffed violently, accompanied by frantic waving of licenses.)

MARS people seem to best resist the attitude by using on-the-air training and experience as criteria for the training certificate. While the license is important, often I'll hear MARS training stations helping members with suggestions and spontaneous instruction.

ARES stations fare pretty well too. Although our Amateur Radio pride sometimes gets in the way, most of us are open to suggestions and helpful on-the-air hints during ARES nets.

A common thread for MARS and ARES is that they are communication organizations. Members may have other interests and talents, but radio is what they do.

Search and rescue groups are a little different. They may have EMTs, pilots, divers, hikers, briefing officers, etc. To many SARS groups a communications officer isn't high priority and, hey, have walkie-talkie will communicate — right?

For example, if you attend a Civil Air Patrol meeting, you may see military pomp, uniforms, salutes, radios, planes, cadets or aerospace education. One could be confused at a CAP meeting until you understand that CAP has a cadet program (for youth), an aerospace education program and an emergency service program.

One of my joys is listening to MARS, ARES, CAP and other HF nets. It did bother me when, on a CAP net, one member offered a mostly pilot-oriented squadron a "study sheet" for the CAP's radio operator permit examination. It covered most of the test questions, leaving a couple out because the study sheet author didn't know the answers.

To explain. CAP has a communications manual (CAPM 100-1) and to obtain a radio permit, the member studies the book and takes a multiple choice test. According to the manual, the member should also demonstrate on-the-air proficiency, but in reality the written test is often the only thing required.

On another CAP net a "discussion" ensued when several members did not want to take the radio test, claiming significant aircraft radio experience and a license — a pilot's license.

Shouldn't the license be a starting point to develop a skill, the end result not being the license, but the continued gaining of experience? So, if you've not done anything recently to expand your expertise, get busy. Make your radio license more than just a colored piece of paper!

(Maybe on the next search I'll volunteer to fly. After all I have a radio license, won't that do?) Wouldn't it bother you, thinking that maybe your pilot used a "study sheet" to pass the FAA examination?

Take communications seriously. Your Amateur Radio license, MARS license or CAP permit authorizes you to participate in a great learning experience! Your expertise is what helps during the emergency — not your license.

(P.S. During a CAP communications exercise, I once had a participant who had been licensed for a long time (with only VHF-FM experience) get on HF-SSB and check into a net. He asked about all the noise and why the squelch didn't work better. The best question about HF was, "Where is the repeater located?" By the way, he was upset when I suggested there was more to the SAR than VHF-FM!)

Equipment

A couple of you have asked me about the equipment I use. Concerning equipment, some of you will say packet is the best thing for emergency communica-

tions. Others will say RTTY or CW is best and some of us who use phone on HF SSB think that's neat too.

And then there is the VHF-FM only crowd. They put up a bunch of repeaters, link them and have SAR coverage.

Who is right? All of you. USE WHAT YOU HAVE! USE THE SKILLS YOU HAVE!

I've hugged a few crash survivors (and a missing kid or two), and none have cared whether or not you were an Amateur or used smoke signals to handle mission traffic. If it helps the mission, it's OK.

Don't wear blinders. A local company loaned us a lot of business band rigs for a search once and they worked just fine. Use any resource you have! Amateur Radio is fine, yet I admit to having a CB base and mobile and have been using 11M since I was in high school.

Why tie up your FM repeater to communicate 100 yards to the flight line? In some rural areas of the country, some ground search teams use CB quite reliably. A small boy was found in the mountains after 11 days. I don't recall what frequency was used, but Amateur Radios, CBs and sheriff radios were all very important parts of this 11 day effort!

Please don't limit your options and victim's chances by deciding one service is better or worse than another. You're a communicator. The SAR boss is counting on you to support the mission — the more you know about communications the more effective you are at helping save lives!

Comm shack

Several years ago I spent some time as a public safety dispatcher and still love to tour emergency operations centers and the like to get ideas. My "shack" evolved over the past 20 years and includes: a couple of HF rigs; a few scanners; commercial VHF FM, dual-band Amateur rigs; marine bands, aircraft band, general purpose receiver; CB; tuners; desk mics; headsets; foot switches and slow speed tape recorder. There are separate control units for RTTY, AMTOR and packet (HF and VHF), as well as phone patch, telephone amplifier and printers for RTTY and packet.

Speakers in the ceiling distribute the sound a little and improve the fidelity. The shack runs on a 680 amp lead calcium battery array with a float charger and everything (including the packet terminal) operates on 12VDC. I've taken some elbow lamps, clipped the AC plug off, replaced the bulbs with motorhome 12VDC bulbs (they have the same screw-in base as a 110 V house bulb) and wired them into the DC panel.

The 2kW generator is there to run the furnace (in winter) or swamper — I like to operate in comfort! Heck, I even have a tiny refrigerator to keep my soda cool and handy.

The shack is in a 10 x 15 ft. room with suspended ceiling, carpet and lots of shelves. Among the tower critters are several J poles, dipoles, 22-element VHF array and multi-band dipoles. Once in a while I get called to operate from the shack because of the many frequencies available, the flexibility and the local coverage. Salt Lake is ringed by mountains (airplane catchers) and canyons (hiker challenges), so we get quite a few local searches.

All the equipment has standard microphone, headphone and power connectors and can quickly be put into the mobile antenna farm (having the same standard connectors). I have a small utility trailer that has my camping gear (tent, dried food, stove, sleeping bag, etc.).

We got called to furnish on-scene communications for a plane search about 180 miles south of here. It took 22 minutes to get the gear loaded and the trailer hooked up to get underway. Not bad. Four people were rescued from a plane crash early the next morning and that's what made it worthwhile.

Whether you're a radio team, a ground search team or an air crew, you've got to respond quickly and have everything you need. Your equipment has to be operational when you arrive and you've got to be prepared to stay a while. It's great to have a neat shack and a local packet node for armchair copy. What counts is getting communications where it's needed reliably and quickly. If your gear isn't ready to go — neither are you.

In the next few months let's talk equipment — What works, what to look for and some ideas on making it work better. Open your minds, take pencil in hand and drop me a letter. I know you've got some nifty ideas that will make my shack better. Tell me what works for you. Heck, send me a picture of your shack or command post if you've got one.

Volunteer and continue to learn — that others may live! □

QUARTER CENTURY WIRELESS ASSOCIATION INC.

Esther Given, W6BDE

QCWA's 1990 election of five directors resulted in the re-election of three incumbents, Lew McCoy, W1ICP; El Charlton, W5MD; and Jim Walsh, W7LVN; and two new directors, Neil Foster, KC4MJ and Bob Rickey, NF6P. These successful candidates will serve a two year term commencing 1 September 1990. Ballots for the 1990 election were processed by Dallas, Chapter 41. QCWA's 1991 ballot will present candidates for the four major offices and another five directors.

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Every year Seaside Oregon is the site of a popular hamfest held in the northwest attracting Amateurs from all over the country. This year was no exception and QCWA's luncheon boasted 140 attendees. For QCWA Director, Jim Walsh, W7LVN, Seaside '90 was a most memorable occasion. He presented a 60 year certificate to QCWA's President Emeritus, Leland Smith, W5KL; he introduced QCWA's first Russian member, Eugene Stavitsky, UW0CA, whom he had just signed up, and after 46 years Walsh was reunited with Don Johnson, W6AAQ, renewing a Navy friendship which originated on New Guinea during WW II.

•

QCWA welcomes Eugene Stravitsky, UW0CA, a primary organizer of the original Friendship Radiosport Games which is a competitive team event between the Soviet city of Khabarovsk and its two sister cities, Portland, Oregon, U.S.A. and Niigata, Japan. In addition another team consisting of Amateurs from all parts of the Soviet Union joins in the fun. Stravitsky holds the top Soviet Amateur Radio title of "Master." He is a well known transceiver builder and designer and is chairman of the Khabarovsk Territorial Radiosports Federation. His recent trip to the U.S. included visits with Portland OR team members KX7Z, WA0DIM, WA7VTD, K7RUN and N7MYO. While at Seaside Stavitsky sat in on a VE session where he passed the U.S. Novice test and will be assigned an American call. He was accompanied on his trip by Mike Zavaroukhin, UW0CN who was the first Soviet Amateur to pass U.S licenses Novice through Extra. He now holds AA7CH and is an ardent contester.

•

Ever since QCWA's certificate for 75 years of Amateur licensing became

WWII buddies Don Johnson, W6AAQ, and QCWA Director Jim Walsh, W7LVN, reunited, thanks to Amateur Radio.

available, we have tried to introduce the proud recipients to our readers. Oliver "Skipper" Greene, W1CPI was so honored recently. The award was presented to him at his home in Wakefield, R.I. by Milt Ch[illegible]fee, W1EFW.

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QCWA Chicago A[illegible] Chapter has an outstanding prog[illegible]m committee which presents ex[illegible]ent entertainment at its chapter f[illegible]tions. A recent luncheon featured Chuck Schaden, whose unusual hobby is a private collection of over 45,000 vintage broadcasts. He is recognized as an outstanding authority on radio nostalgia and for 20 years has hosted Radio Classic shows on two Chicago radio stations.

•

Retiring after seven years on QCWA's Board of Directors and over 80 consecutive QCWA columns in **Worldradio**, this reporter has opted to terminate duties that require deadlines. We are indebted to the many readers who have followed QCWA's progress via this column. We greatly appreciate the cont[illegible]ution of news items and pictures ar[illegible] the friendly fan mail, and we're gratified that so many who read about QCWA opted to participate. Special kudoes to the staff at **Worldradio** whose cooperation and assistance have been outstanding and with whom we have enjoyed excellent rapport. It's been a joy to make so many friends along the way. Please welcome Ethel Smith, K4LMB, former officer/director and dedicated QCWA booster who follows in this endeavor. MEGATNX FOLKS! 30 & 73, Esther Given, W6BDE. □

DX WORLD

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

Activities Calendar

06-07 Oct.	WIA/NZART Oceania Contest (SSB)
06-07 Oct.	NCCC California QSO Party
20-21 Oct.	RKDDR Worked All Y2 Contest
20-21 Oct.	WIA/NZART Oceania Contest (CW)
27-28 Oct.	*CQ* World Wide DX Contest (SSB)

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

The World Wide DX Contest is the biggest DX event of the season and is a very good source of DX for new DXers wishing to add to their totals. Don't miss it!

W-100-N

No applications for **Worldradio's** Worked 100 Nations Award were received this month. Details are available from N6JM. Please include an SASE.

According to *Inside DX,* the team of TA5B, TA5C, HA0DU, HA0MM, HA0NNN and HA0LC made over 20,000 contacts signing TA5KA and YM5KA from May 20 through 27. A total of 5068 contacts were made from the Adana location during the recent WPX contest signing YM5KA.

Philippines (DU)

Did you see p. 76 of the August issue of *CQ*? In the "Contest Calendar" by John Dorr, K1AR, there is a story about Ken Claerbout, KE9A/DU3, a contester presently at Clark Air Base in the Philippines. Ken also operates other than contests; Try 20M CW near 14.023 MHz from 1100 UTC.

Here is the team that handed out all those contacts. The operators: HA0LC, HA0MM, TA5B, HA0DU, HA0NNN and TA5C. The location was Adana, Turkey. *(QSL photo courtesy of HA0MM).*

Other calls reported recently from this country include the following:

DU1AK	14.180 MHz	1045 UTC
DU1EK	14.207 MHz	1300 UTC
DU1EMN	14.013 MHz	1315 UTC
DU1KK	18.144 MHz	1315 UTC
DU1KT	21.300 MHz	0930 UTC
DU2TA	14.015 MHz	1115 UTC
DU6BG	7.080 MHz	1915 UTC
DU9AER	14.032 MHz	1030 UTC
DU9CO	14.190 MHz	1015 UTC
DU9JG	14.227 MHz	1500 UTC
DU9RG	14.165 MHz	1030 UTC

Two other reciprocal calls reported were DU1/KZ5K on 14.009 MHz at 1330 UTC and DU7/N7ET on 14.015 MHz 1015 UTC. Note that these calls with the appended prefix may lead or follow the licensee's call.

Malpelo Island DXpedition (HK0)

According to *The DX Bulletin* the Liga Colombiana de Radioaficionados DXpedition to Malpelo Island will be on the island Nov. 3 through 7, subject to transportation by the Colombian Navy.

Look for HK0TU, operating CW, SSB and RTTY, 10 through 160M. The frequencies given include: 1.825, 3.505, 7.005, 14.025, 21.025 and 28.025 MHz on CW; 1.835, 3.795, 7.085, 14.145, 21.195 and 28.395 MHz on SSB.

QSL chores will be handled by HK3DDD; he requests one envelope per contact. Be sure to include the IRC or Green Stamps for each envelope.

Ogasawara Islands (JD1)

About the time you read this, Kuni Fujii, JH1QDB, will be operating from Ogasawara Islands as JH1QDB/JD1. The operation includes the period Sept. 22 through 30. Listen up 35 kHz from the bottom of the band on CW and 88 kHz up on RTTY. The SSB spots include 14.195, 21.295 and 28.495 MHz.

South Georgia & South Sandwich DXpedition (VP8)

After extensive negotiations, the upcoming DXpedition to South Georgia Islands and South Sandwich Islands have acquired a ship for the trip. At a cost of $90,000 for a 30 day charter, including fuel and meals, the *Indiana* will transport the team to their destination.

The DXpedition will leave on Nov. 13 from Miami International Airport and arrive the next day at Punta Arenas, Chile, where they will load the ship with gear and provisions and then depart for Port Stanley, where they will pick up the licenses.

The first stop will be South Georgia with the final stop at South Sandwich. The equipment will be provided by Kenwood USA Corporation for six complete stations.

The owners of the *Indiana* require a deposit of 25 percent in advance to reserve the ship, but the DXpedition team is still short the necessary funds.

Cyprus - U.K. Bases (ZC4)

Several calls were reported from this one and two of them on 6M. On 50.110 MHz, ZC4MK was worked at 1400 and 1815 UTC by deserving DXers in the United Kingdom. And on 50.120

MHz, ZC4AB was also worked from that area at 0900 UTC.

However, most of us can get on 20M, so look for the following:

ZC4JW	14.185 MHz	1400 UTC
ZC4CZ	14.025 MHz	2145 UTC
ZC4JJ	14.011 MHz	2015 UTC
ZC4MK	14.160 MHz	0030 UTC

Fifteen meters is another good band to check for these stations on Cyprus. On CW, ZC4RF was found on 21.009 MHz at 1800 UTC where ZC4BS favored the nets, one particularly on 21.335 MHz.

Seventeen meters is also popular with ZC4CX on 18.085 MHz at 0415 UTC working into Alabama at the end of July and ZC4CX on 18.084 MHz around 2100 UTC.

Finally, we had one lone report for 10M with ZC4GA on 28.457 MHz at 1900 UTC.

IOTA

RSGB's IOTA (Islands on the Air) Awards Program is something to consider. After one has pretty near worked most of the available DX, why not pursue island chasing. And if your DXCC count is high, you are well into the IOTA program.

The following activity has recently been reported from these islands or island groups:

AF-19	Lampedusa Island	I2KYM/IG9
	14.161 MHz	0630 UTC
AF-36	Chafarinas Island	ED9ICM
	14.201 MHz	0700 UTC
AS-12	Amakusa Island	JI6KVR/6
	21.260 MHz	2045 UTC
AS-27	Wrangel Island	UA0QT/U0K
	14.193 MHz	0630 UTC
AS-43	Hachijo Island	JI2GRU
	21.254 MHz	1400 UTC
AS-63	Andreya Island	4K4/UA6WCG
	21.017 MHz	0845 UTC
AS-65	Kolyuchin Island	4K4POL
	21.016 MHz	2145 UTC
EU-12	Shetland Islands	GM/DL6DK/P
	14.015 MHz	0500 UTC
EU-49	Lesbos Island	SV8QG
	14.260 MHz	1745 UTC
EU-55	Karmoy Island	LA4DM
	14.235 MHz	1945 UTC
EU-89	Fores Island	CU8AG
	21.029 MHz	2215 UTC
EU-90	Palagruza Island	YU2UM
	21.011 MHz	2010 UTC
EU-93	Tabarca Island	ED5GGK
	21.255 MHz	1800 UTC
NA-14	Campobello Island	VE1ANJ
	21.260 MHz	1415 UTC
NA-45	Cancun Island	XF3R
	14.114 MHz	0645 UTC
NA-74	Nunivak Island	KL7IEI/P
	14.260 MHz	0600 UTC
OC-80	Suwarrow Atoll	ZK1XY
	14.180 MHz	0500 UTC

DX News Sheet reports that JA2NQG will be signing V63AN on Yap Island (OC-12) in Micronesia from Sept. 16 through 18, 10 through 40M, CW only.

Suggestion Department

New subscriber John Tuchscherer (no call given) wants more "before the fact" information in our DX column rather than reports of activity from months past.

I use much information "after the fact" to inform DXers what is active and where and when to look for the DX. I try to select a different group of DXCC countries for each month. All the information comes from the DX newsletters and readers.

If you need to know what DX activity is about to happen now, subscribe to one of the DX bulletins that we list at the end of our column.

Antique QSL department

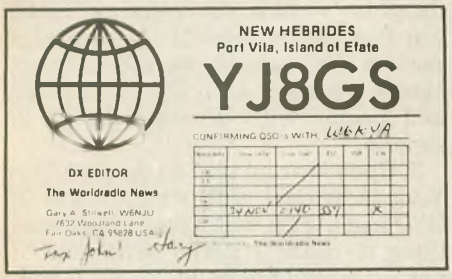
The following aren't what you might call antiques, but more or less your DX Editor reminiscing of past years DXing.

Back in 1972 I worked KJ6CF out on Johnston Island. The operator was

Wyman Fong, a civilian employee who had left the Department of Water Resources where we worked in Sacramento. Several years later he returned to the Department and sat right across from me. He was delighted that I had remembered working him as KJ6CF. Wyman was

my Chinese interpreter for the various correspondence I had sent to the brand new Chinese DX stations until he accepted a higher position in another Department. His call is now N6BE.

A couple of years later I worked Gary Stilwell, W6NJU, who was vacationing at New Hebrides (now Vanuatu). Gary, who at one time was number one on the Honor Roll, took First Place for Oceania in the World Wide DX Contest that November. Note that Gary was DX Editor for **Worldradio** at the time. Gary now signs KI6T.



QSL information

Bill, N2FZ, mentions that he has been making use of the QSL services of Konstantin Dorofeev, UA6HSN, in the handling of Soviet cards. He is interested to know if anyone else has used this service and what the outcome has been.

QSL routes

A35AU	—JG1AOU	I7VRK/IL7	—I7VRK
A35QC	—JF1WQC	IA2PA	—I2YAE
A35UN	—JG1DUN	ID9/I4ALU	—I4ALU
AA6LF/KH5	—AA6LF	IM0CPU	—IS0JOO
C30EMA	—ON4AAQ	IX2A	—I2YAE
C56/DL7FT	—DL7FT	J5CVF	—CT1DIZ
C56/6W6JX	—F6FNU	JW/PA3CDO	—PA3CDO
	(See Note 1)	JW/PA3FMK	—PA3FMK
CI0GI	—VE2EBK	JW/PE1MIS	—PE1MIS
CN2DX	—F6EEM	KH6LW/KH7	—KH6JEB
CN2YL	—F6FYP	KH9AC	—KH6AQ
CO2RX	—I2YAE	LO1H	—LU7HJM
D68WB	—WV4F	OD5IG	—OE5BJN
	(See Note 2)	OH0MB	—OH2BVF
DJ9KH/C6A	—DJ9KH	OJ0/KF7PO	—KF7PO
DL7FT/6W6	—DL7FT	OJ0/N7BG	—KF7PO
DL8CM/ZS1	—DL8CM	ON4USA/P	—ON5PL
ED1LBD	—EA4DL	OQ7AR	—ON4AAQ
ED2LBD	—EA4DLD	P30S	—5B3ES
ED3LBD	—EA4DLD	R6L	—UZ6LWZ
ED5ICE	—EA5AR	R7ARAL	—RL7PEO
ED5URP	—EA5GEO	RQ9W	—UQ1GWW
ED6GGK	—EA5GGK	SN0POL	—SP5PAU
ED91CM	—EA3CUU	SO9KG	—ON7KG
EJ1D	—EI6EW	SO9SBI	—DL2SDQ
EK5ZI	—RO5OC	SV9/KN8M	—K8CW
EX3AB	—UW3FH	SX8LSV	—SV8BEV
FK8GJ	—F6CXJ	T32Z	—N7YL
FO0IGS	—F6EEM	TI9CF	—TI2CF
FP/VE1DXX	—VE1AL	TI9US	—TI2US
FY4FP	—ON4ZD	TI9ZM	—TI2ZM
GM0EVV	—G0EVV	TJ1RP	—VE2CH
GM/DL6DK/P	—DL6DK	TR8GL	—F6IXI
GU4VPM	—G4VPM	V2/NF6H	—NF6H
H44RW	—ZL1AMO	V44KJ	—WB2TSL
HA2RP	—N6FL	V631K	—JA3OIN
HB0/ON4KST	—ON4OU	V63SB	—WA7ZEF
HF0POL	—KB6GWX	V63TX	—JA3OIN
HS0ILY	—JA2BCQ	V73AT	—K2CL
I2KYM/IG9	—I2PTE		

DX Prediction — October 1990

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

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

OCTOBER 1990 WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	(14)	15	21	(11)	19
12	(13)	14	19	(11)	18
14	(27)	14	18	22	33
16	31	15	23	22	**39**
18	32	14	(19)	(18)	41
20	32	24	29	(14)	41
22	27	31	36	(13)	40
24	23	33	40	(12)	37
2	18	29	38	11	30
4	16	19	33	11	26
6	(15)	17	27	12	22
8	(14)	16	24	(12)	18

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	(17)	12	20	(11)	18
10	(17)	11	18	(11)	18
12	34	11	18	22	32
14	39	15	26	25	36
16	41	(14)	23	23	39
18	40	(14)	(20)	19	40
20	33	24	30	14	41
22	27	26	36	(13)	39
24	23	23	37	12	33
2	21	(15)	30	11	28
4	19	(14)	25	11	24
6	(18)	(13)	22	12	21

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	17	(12)	(19)	11	20
9	17	11	18	(11)	18
11	34	11	17	22	29
13	40	13	29	25	34
15	42	(12)	24	24	38
17	42	(11)	(22)	21	40
19	36	(11)	(26)	15	41
21	30	22	34	13	39
23	24	22	37	12	35
1	21	(15)	28	12	29
3	19	(14)	24	11	25
5	18	(12)	(21)	11	22

V73AZ	—N4ASF	ZD8Z	—W6CF
VE2DWU/		ZS9A/ZS1	—ZS9A
CI0GI	—VE2DWU	ZS9AAA/ZS1	—DK9KX
VE2EDK/			*(See Note 3)*
CI0GI	—VE2EDK	1S1RR	—*See Note 4)*
VP2EBN	—KA3DBN	3D2CC	—VE6AKV
VP2EE	—KA3DBN	3G6MBQ	—CE6OS
VP2EHF	—KA3DBN	3R3RR	—*(See Note 4)*
VP2V/		4K4/EK9JG	—IK2IKW
KC6KOU	—WD6GFF	4K5ZI	—RO5OC
VP2V/N2HNQ	—JH4IFF	4U1ITU	—KE8FT
VP2V/OH2BH	—WD6GFF		*(See Note 5)*
VP5P	—WN5A	5K0C	—HK1HHX
VY2QST	—K1ZZ	7O8AA	—F6EXV
XU8DX	—JA1NUT	7Q7RM	—K6KII
Y90SOP	—Y42DA	8P6AX	—WD6GFF
YJ8MB	—SP5DYO	8P6BH	—WD6GFF
YL75ID	—UQ1GWW	8P9FF	—WB2UYM
ZD8CUE	—G4ZVJ	9H3MV	—GW3NYY

CI6OR	—P.O. Box 592, Station M, Calgary, AB T2P 2J2, CANADA
CX4PA	—Carlos, P.O. Box 64145, Rivera, URUGUAY
DX1UST	—P.O. Box SC73, Manilla, PHILIPPINES
EA6DXX	—Lynx DX Foundation, P.O. Box 351, 26080 Logroño, SPAIN
FP5DX	—Pat, P.O. Box 4204, St Pierre & Miquelon
RZ9Z	—EUDXF, P.O. Box 620620, D-5000 Köln, WEST GERMANY
VK9NX	—Koji Tahara, c/o Consulate General of Japan, G.P.O. Box 4125, Sydney, NSW 2001, AUSTRALIA
ZK1XY	—P.O. Box 3, Tokailmura, 31911 JAPAN
4L2FS	—P.O. Box 73, Leningrad 196 070, USSR
7Z1AB	—P.O. Box 9041, Riyadh 11413, SAUDI ARABIA

Notes

1. You may also QSL direct to Salilns du Sine Saloum, BP 200, Kaolack, Senegal.
2. This QSL manager has a temporary address until October: Bob Strathy, Route 2, Box 402A, Stone Lake, WI 54876. After that date use CBA.
3. Direct requests for cards should be routed via DK9KX; requests for cards via the bureau should be routed to DF0KD.
4. Two addresses are available: P.O. Box 1, Simferopol-36, 333 036, or P.O. Box 308, Moscow 103 009, USSR.
5. This route applies for the period of July 20 through 25. For June 3 use HB9IIH; July 12 use W0QV; July 14-15 use N6TR. Cards may also be sent via the bureau or direct to 4U1ITU.

Many thanks to the following contributors: N2FZ, KA3DBN, K4EIH, AA6BB, DJ9ZB, HA0MM, UA1NDR, John Tuchscherer, Salt City DX Association (KB2G), Southern California DX Club (WB6PSY), Western Washington DX Club (KS7L), *CQ Ham Radio* (DX News JA3BG), *The DX Magazine* (VP2ML), *Long Skip* (VE3IPR), *DX News Sheet*

(please turn to page 40)

Maureen Pranghofer, KF0I

There are many ways in which the Amateur Radio hobby could be described. It is internationally practiced, it is becoming computerized, it is technically challenging for some and it is boring. "Boring?" you might say! That was my initial reaction too, when this came up at a staff meeting about ways to motivate inactive Novices. How could you possibly infer that talking to someone on the other side of the world was boring?

Then I thought about it, and unfortunately came to the conclusion that had it not been for the variety of Amateur activities I had pursued over the 19 years I've been a ham, I would say the same thing. In fact it has probably been boredom that has driven me to choose to go off the air.

I've been in an "off" phase for the past year, even though my station works beautifully. The purchase of a new keyer didn't even help me to get motivated. However, I feel an "on" spurt coming along.

Over the past 19 years I have tried MARS, county hunting, a smattering of DX and packet. But even when I've been in the throws of an "on" phase in my Amateur life, the bulk of my time has been spent in QSO. Over these past many years I can't count the number of QSOs I've had. But I can easily recall those which have not been boring.

If you answer yes to any of the following questions, then perhaps you too will come to the conclusion that in some ways our hobby is boring:

1. How many times have you brought up an unusual topic (one other than the rig or weather) and had the other party immediately give you a friendly "73"?

2. How about those times on CW when you have asked questions of the other operator and he has not answered? Sometimes you wonder if they are copying.

3. In CW, does 50 percent of your QSO time once you've doled out the essentials consist of "dah dit did did dah"?

4. Have you ever felt like you have absolutely nothing in common with the person to whom you are speaking?

It's the people who are willing to take that little bit of information given in the beginning of the QSO and expand upon it that make ham radio truly fascinating. For example these are what have made a couple QSOs very memorable to me over the years:

1. Upon hearing my name, a CW operator told me that I shared his daughter's name. As "Maureen" isn't a real common name (at least in this part of the country), we talked about others we knew with the same name and people with unusual names in general.

2. Upon hearing that an upstate New York individual with whom I was in QSO had a QTH which was Lake something or other, I asked what kind of fishing was done in his area. He indicated that he worked at a salmon fishery, which led us to a lively conversation about how salmon are caught, a bit about their life span and how best to prepare them for eating.

3. Another individual, upon hearing that I was from Minnesota, asked about the Vikings and we then discussed a variety of sports experiences.

It's the ability and willingness to converse which has brought all of us into this hobby. Perhaps with the idea of truly sharing more than our name and weather each time we make a contact we can bring less boredom and more excitement into our great hobby. □

The wedding band

It was the decade of the family, a return to the traditional values of matrimony and a time when one sailing couple chose to tie the knot with a twist: They wed via the radio waves.

Harry Hinz and Nancy Araujo spent a year and a half sailing in the South Pacific before they agreed to marry. The couple wanted to exchange bands through one of their shared hobbies, Amateur Radio operation.

They met through a publication devoted to Amateur Radio operators and planned to marry after sailing from California to New Zealand. On Oct. 22, 1983, shortly after completing a 20,000 mile voyage aboard their 31 ft. Golden Hind sloop, a minister tapped out the 20 minute ceremony of holy matrimony in International Morse Code. It was transmitted up and down the coast from the radio room of the Seal Beach Yacht Club in Long Beach, CA. The couple, still happily married, ended the ceremony with the traditional hug and kiss, transmitted for their listening friends as dashed and dotted 88s. — *Florida Keys ARC, Big Pine Key, FL* □

One of the neat things about doing this column is the access I have to all sorts of information that seldom sees wide distribution. Such is the article by C.F. Rockey, W9SCH, which appeared in *The Five Watter (T5W)*, quarterly publication of the Michigan QRP Club, regarding the "Terragator."

I've known "The Rock" for about 20 years. He has written many fine articles on QRP projects in "*The Milliwatt, QRP Journal*" (now defunct), *QRP ARCI Quarterly* newsletter and other publications, including *T5W*. Rock's involvement with the radio hobby goes back quite a ways (note the call sign!) and his grass roots approach to the hobby is refreshing. When I saw his article on the Terragator, I just had to pass it along to the readers of **World-radio.**

You've got a ground rod pounded into the sod and you're "grounded" . . . right? Wrong! Depending on whether you are talking about RF or DC ground, you could have a solid DC ground path but be well "above" ground when it comes to RF applications.

"True ground" on an antenna system is about as easy to find as the Holy Grail. Those of us who have a second story ham shack are hard pressed to have a good RF ground at all HF operating frequencies. Alas, there is a solution, a tunable ground system called "Terragator."

The Terragator will tune your ground system and alleviate RF "hot spots" and "tingles" that occur when the radio equipment is isolated above RF ground. While I seldom run more than 5W RF output power in my shack now, there have been times in the past that K7YHA had been known to run 500W. It only takes a couple of good RF burns due to an inefficient RF grounding system to convince one that things need to be changed!

Basically, all the Terragator does is act as an antenna tuning unit for the ground path. Instead of tuning the antenna, the Terragator tunes the ground system.

In order to fully understand how and why the Terragator works, let's review some basic principals about RF current and associated ground systems. For those of us who have second or third floor ham shacks, the following information will not be a surprise.

When you try to establish a ground system by grounding to a cold water pipe or running coax braid out the window to a ground rod (or two) several stories below, the RF current generated by your transmitter may follow a random path on its way to Earth (that point of minimum RF potential that constitutes "true ground"). If this path is close to a quarter-wavelength (or odd multiple thereof), your transmitter may be INSULATED from ground at certain frequencies. If, on the other hand, this path length is approximately close to a half-wavelength (or even multiple thereof) you may find that you have a very good ground at the equipment end of the ground cable and no RF "floating" around the shack.

For most of us, these two situations won't exist. Actually, we will have

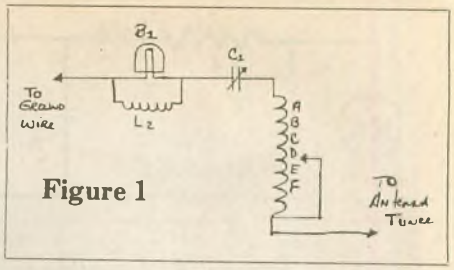


Figure 1

something in between the two extremes. Since it would be physically impossible to shorten most ground systems to overcome the quarter-wavelength scenario, the only option left is for us to ELECTRICALLY lengthen that ground run to approximate a half-wavelength ground run. We can add an "extra" quarter-wavelength (¼+¼=½ wavelength) electrically by placing a coil/capacitor arrangement in the ground lead, next to the antenna tuner (you don't use an antenna tuner? For shame!). If we make this coil/capacitor arrangement tuneable (tapped coil and variable capacitor), we can then tune the ground system to resonance at various frequencies of operation, assuring an adequate RF ground anywhere on the bands that we operate.

The Terragator connects between the ground lug of the antenna tuner and the ground wire. A #48 bulb is con-

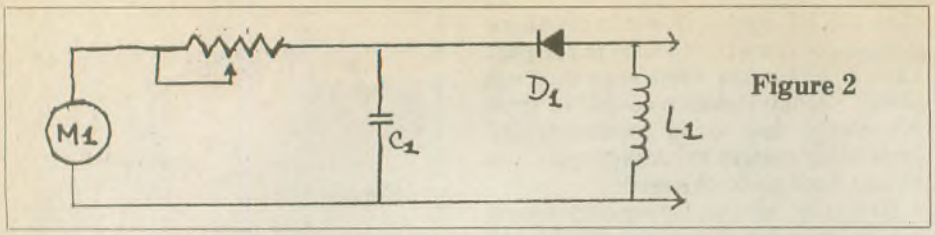


Figure 2

nected in series with the ground wire. Power is applied to the antenna and the Terragator is tuned for maximum RF current indicated by maximum glow in the lamp. (REMEMBER: Maximum RF current = minimum RF voltage or "true" ground!) Adjust C1 and L1 (see figure 1) for max brightness.

Figure 1 shows what the Terragator looks like in schematic form. Note that there are only two parts to the unit: a variable capacitor (C1) salvaged from an old BC radio and a hand-wound coil (L1). If you want to get fancy, add a switch to select the coil taps in place of using an alligator clip. The RF indicator is B1, a #48 bulb with a shunt coil (L2) across the leads. Coil data: L1 — 1.5 inch OD PVC pipe with turns as shown in figure 2. L2 — 10 turns of #22 wire on ¼ inch OD coil form (BIC pen body or similar).

Construction is straightforward and basically non-critical. Any form of layout can be utilized, just remember to insulate the capacitor frame from ground and keep L1 its own diameter away from any metal sides or chassis bottom. If you use a switch, make it a NON-shorting type, with at least six to eight poles. Chassis can be a piece of stained and finished wood, old metal chassis or you can buy an enclosure.

Cost of the entire project (if you scrounge everything) will be minimal. If you bought everything new, the cost should be no more than $20. Hamfest flea markets are great places to find high quality ceramic capacitors, rotary inductors (yes, you can use a rotary inductor in place of a tapped coil), B&W coil stock, chassis, etc. Look around and BE CREATIVE. After all, this is a fun project and half the fun is scrounging the parts necessary to build it.

Operation of the Terragator goes like this. Set up the coil tap for the frequency that you are going to operate (Tap A or B = 10 and 15M; Tap C for 40, 30 and 20M; Taps D, E and F for 80M), adjust the coil taps and capacitor for max brilliance of the bulb when the transmitter is key down. That's all there is to it. Once you have maximum brilliance on the bulb, you have tuned the ground to an even multiple of a half-wavelength and your equipment is now at "true" ground.

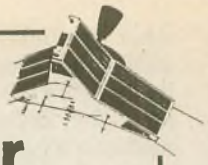
NOTE: The RF path to Earth must be a low resistance path. The Terragator cannot correct for resistive losses in the ground system. An interesting exception exists when the ground system to which you are connecting is well insulated: The Terragator can tune the insulated ground as a counterpoise instead of a conductive ground.

Figure 2 shows a more sensitive circuit, which replaces the bulb and shunt coil. M1 is a 0-1mA meter movement, R1 is a 10K pot (sensitivity control), C1 is a .01mF bypass cap, D1 is a 1N34 diode (for RF rectification) and L1 is 10 turns on a ¼ inch OD form (BIC pen barrel or equivalent). This new circuit goes in series with the coil and capacitor of the original circuit. The new circuit will provide a much more sensitive indicator as to when the maximum RF current has been reached.

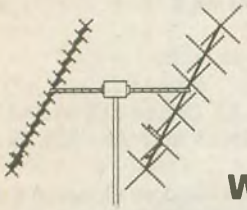
A couple of things that the Terragator is NOT: The Terragator will not act as any form of lightning protection, nor will it eliminate in AC induced hum problems currently encountered in your station. Both these applications require a solid, low resistive ground path. It will not take the place of a truly effective ground radial system or effective counterpoise.

It is interesting to note that MFJ Enterprises markets an artificial ground (MFJ-931) which works in the same fashion as the Terragator. Price of the MFJ unit is around $80. Compared to the cost of building the Terragator, I know which option I'd go for.

Don't forget the *QRP ARCI* Fall QSO party Oct. 20 (1200Z) and 21 (2400Z). And the Holiday Spirits Homebrew Sprint Dec. 2 (2000 to 2400Z). An SASE to Red Reynolds, K5VOL, 835 Surryse, Lake Zurich, IL 60047, will bring full details and a sample log sheet. □



Amateur Satellites



WB5ZDP
Keith Berglund

Hurray! Dove-OSCAR 17 (DO-17) is back on the air and giving reams of easy to copy packet data on 145.825 MHz with any Packet TNC and an ordinary 2M antenna. The word is that the digitized voice beacon will have been turned on by mid-August. If I get a few requests from you, I'll run an article on what all that data appearing on your packet screen means.

New satellite

It seems that we have a new satellite on the Amateur bands. The bird is called BADR-1 and was built by students in Pakistan. It was launched on July 16 aboard a Chinese Long March rocket into a 220 x 1000 km elliptical orbit. The launch caught us all by surprise and details on just what this bird is supposed to do are still sketchy.

What is known is that the bird initially had an AFSK beacon on 145.825 MHz, but now seems to be transmitting just a carrier. It is thought that whatever was aboard the satellite went belly up (it broke). The exact orbit is a mystery also. Given its present geometry, the satellite will probably re-enter in about six months.

New publication

OSCAR Satellite Report is a new subscription-based publication which provides timely information via mail on the latest happenings in the Amateur satellite program. Publication is bi-weekly. *OSR* is independent of AMSAT, but shares many of its goals and objectives. For those who do not have access to the AMSAT HF or Satellite Nets, *OSR* can be a great source of current information.

OSCAR Satellite Report is published by R. Myers Communications, P.O. Box 175, Litchfield, CT 06756. Subscription rates are $26 per year in the U.S. and, in my opinion, is well worth it.

Mode A

The reason that I keep talking about Mode A is that the equipment is simple, the satellite is easy to work and it's a fantastic learning place to springboard you to other, more complex satellite modes. If you do Mode A for a while, you'll learn all about satellite tracking, transponders, doppler shift and the art of transmitting and receiving *at the same time!*

Don't think that Mode A is just a sort of satellite version of the Novice license. You'll find that people (myself included) with many years of satellite experience frequent the low altitude Mode A birds quite often.

Last month we summarized the equipment required to work the Mode A satellites. As you know, Mode A is where you transmit to the satellite transponder (repeater) using 145 MHz and receive the downlink on 29 MHz. The antennas can be verticals or J-poles or whatever you're already using. Any ordinary HF rig capable of receiving 29 MHz is fine on the downlink. On the 2M uplink side, any way you can generate 10 to 50W (or so) of 145 MHz SSB or CW energy is what it takes. This may mean using an "all mode" 2M rig (the small mobile type is perfectly OK) or a 29 MHz to 145 MHz transmit converter driven by your HF transmitter. Places to locate transverters or just transmit or receive converters include Hamtronics, Spectrum International, Down East Microwave, Advanced Receiver Research, SSB Electronics USA or you can homebrew your own!

As before, I want to urge you to make at least *one* QSO through RS-10/11. Remember, you don't have to have a permanent satellite station; field day or temporary style is just fine.

The first step is to inventory what gear you have and fill in the blanks on the remainder. You will need the following:

- 29 MHz receiver
- 29 MHz antenna (dipole, Yagi, etc.)
- 2M SSB/CW transmitter
- 2M Amplifier (25-100W depending on the TX antenna)
- 2M antenna (Yagi, J-pole, etc.)
- computer printout of the satellite pass to be worked
- straight-key
- headphones

When you (and the guy who you borrowed the amplifier from) have finally assembled all of the necessary equipment, the next step is to determine when the bird will be over your QTH. The best way to do this is with a computer (see **Worldradio**, March 1990). With your longitude and latitude entered into the program and a reasonably up to date set of orbital elements, you can get an accurate schedule of when the satellite will be in view.

AMSAT has inexpensive tracking software for most computers and will be happy to see that you get one (302/589-6062). If you don't own a computer, send an SASE and I'll provide you with a schedule printout stating when RS-10/11 will be over your QTH.

The Mode-A QSO

When you've assembled all of the equipment and you've picked the pass in which you want to participate, it's time to watch the ol' WWV clock and wait. Tune your receiver one or two kHz higher than the beacon frequency (29.357 for RS-10) and listen. The reason that you listen above the real beacon frequency is because of the doppler shift. Because the satellite is traveling toward you at three miles per second, the radio waves are compressed and appear as a slightly higher frequency.

What you'll hear first is the CW telemetry of the beacon (see **Worldradio**, April 1990). Now tune up into the 10M passband and listen to a few QSOs. They're pretty much like HF QSOs with a few twists. The biggest difference is that the QSOs are being conducted *full duplex*, like a telephone conversation. Like on the telephone, the speaker can be interrupted in mid-sentence. Try that on HF!

When you think that you've got the hang of things, it's time to talk to yourself. I suggest beginning with CW using a straight-key. Pick a place low in the passband that is unoccupied, then place your 2M VFO on a frequency that is exactly 116.5 MHz higher than your 10M VFO. For example, if you are listening to 29.390 MHz, place your 2M VFO on 145.890 MHz. Start out by sending a few dit dit dits while carefully tuning your *receive VFO* ± three or four kHz. *DO NOT widely swish your transmit VFO up and down the band!* When you hear your own downlink, congratulations, you're talking through an orbiting Amateur satellite! It's that simple!

After sending dits for 10 or 15 seconds, you'll notice that the tone of the CW note drifts steadily lower and lower. Again, this is due to the doppler shift and not your receiver drifting. While in QSO, the standard is to correct for doppler by tuning your *transmitter* and leaving your receiver alone. This prevents QSOs from colliding into each other.

Now it's time to make a QSO. My advice is to call CQ and let a more experienced satelliter find you. Start out by calling CQ as you would on HF. When you find yourself drifting, remember to retune your transmitter only. With the satellite only in view 10 or 20 minutes, QSOs seem to be almost contest style.

On SSB the procedure is much the same. In order to find your own downlink, place your 10M VFO on an unoccupied spot and then place your 2M VFO on the calculated uplink frequency. Fine tune by saying "hello, hello" a few times while tuning your receive VFO. On SSB, I strongly urge you to use headphones because the sound coming out of the receiver will feedback into the transmitter microphone and cause quite an oscillation; the effect is exactly the same as placing a microphone too close to a loudspeaker of a public address system.

Next month

Next time we'll survey just which Amateur satellites are now flying (there are 10 at present) and perhaps what is planned for the near future. Remember, the latest satellite info can be found on the AMSAT bulletin board located in Dallas, TX, at 214/397-7438 all day, every day. □

DX World

(continued from page 35)

(G4DYO), *The Long Island DX Bulletin* (W2IYX), *Inside DX* (N2AU), *QRZ DX* (W5KNE) and *The DX Bulletin* (VP2ML).

That World Radiosport Contest was quite an interesting affair. I feel that it should have been run a day later so the working class would have more time at it. But that would have conflicted with the Northwest DX Convention in Portland. The good news is that Team USA took 1st, 2nd and 3rd, with the first place team making over 1400 QSOs in 10 hours. We understand that the Soviet teams even had a training camp to prepare for the event, but they were just no match for the American teams.

Fall is approaching and so are several top rate contests. Look for N6JM from rare Sierra County in the California QSO Party. GL DX es 73 de John N6JM. □

Visit Your Local
RADIO CLUB

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

ALABAMA

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

ALASKA

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

ARIZONA

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

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

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

CALIFORNIA

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

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

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

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

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

Downey Amateur Radio Club. 12708 Glynn Ave., Downey, CA 90242. Meets 1st Thur./monthly, 7:30 p.m., South Middle School, 12500 S. Birchdale, Downey, CA. Weekly nets Thurs. - except 1st, 7:30 p.m. 144.930 (S) Voice - Tues., 8:00 p.m. 145.700 (S) RTTY.

East Bay Amateur Radio Club. P.O. Box 1393, El Cerrito, CA 94530. Meets: 2nd Fri./monthly 8 p.m., Salvation Army, 4600 Appian Way, El Sobrante. Nets: Slow CW, Wed., 8 p.m. & SSB Net, Wed., 9 p.m., 21.395. Info, Bob Fields, KC6AOH.

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

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

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

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

Gabilan Amateur Radio Club GARC. P.O. Box 2178, Gilroy, CA 95020-2178. Meets: South Valley Jr. High School, 385 I.O.O.F. Ave., Gilroy. 2nd 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.

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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Solano County Amateur Radio Society. P.O. Box 457, Fairfield, CA 94533. Meets: 3rd Wed. 7:30 p.m., Vanden High School. 441.150+5 (Remote 145.69 simplex) PL 77Hz, (707) 448-1461.

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

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

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

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

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

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

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

Vaca Valley Radio Club Inc. Meets 2nd Wed./monthly, 7 p.m. at Vacaville Fire Dist. Station, 420 Vine St., Vacaville, CA. Net: WX6F club net every Tues., 7:30 p.m. 147.475/146.475 rptr. (1MHz split) PL removed during nets.

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

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

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

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

Yucaipa Valley Amateur Radio Club (YVARC). Meets 3rd Mon./monthly, 7:30 p.m. Far West Savings & Loan Community Rm., 1195 Calimesa Blvd., Calimesa, CA 92320. Pres: Don Ames W6RTM, (714) 795-5743.

CONNECTICUT

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

DELAWARE/PENNSYLVANIA

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

FLORIDA

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

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

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

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

GEORGIA

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

HAWAII

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

ILLINOIS

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

KANSAS

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

LOUISIANA

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

MARYLAND

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

MASSACHUSETTS

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

MICHIGAN

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

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

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

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

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

MINNESOTA

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

MISSOURI

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

NEVADA

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

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

Sierra Intermountain Emergency Radio Assoc. (SIERA). P.O. Box 2348, Minden, NV 89423. (702) 782-8266. Meets: 2nd Tue./monthly, 7:30 p.m., Douglas County Lib., Minden, NV. Talk-in: 147.330.

NEW HAMPSHIRE

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

NEW JERSEY

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

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

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

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

NEW YORK

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

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

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

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

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

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

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

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

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

NORTH CAROLINA

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

OHIO

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

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

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

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

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

North Coast Amateur Radio Club. P.O. Box 30529, Cleveland, OH 44130. Meets 2nd Thurs./monthly at the Old North Olmsted Town Hall, at Dover Center and Lorain Roads, between City Hall and the Police Station. Repeaters - (all K8SCI/R) 145.29, 224.76, & 443.15.

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

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

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

OREGON

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

PENNSYLVANIA

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

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

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

TENNESSEE

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

TEXAS

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

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

VIRGINIA

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

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

WEST VIRGINIA

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

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

WASHINGTON

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

WYOMING

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

10-10 INTERNATIONAL News

Chuck Imsande, W6YLJ
10-10 19636

What's a Chapter?

With so many new members to 10-10, the question, "What's a Chapter?" comes up many times, both in conversation and letters to the writer. Soooo . . . let's review just what a Chapter is and the basic requirements for becoming a 10-10 Chapter.

First, the basic purposes of the 10-10 International Net Inc. are ". . . to promote activity on the 10M Amateur band, to handle traffic and to assist radio Amateurs in improving their technical skills and operating procedures . . ." Chapters are responsible for promoting these purposes on a local level, particularly during periods of minimum sunspot activity.

A 10-10 Chapter is a group of 10-10 members in good standing, normally located in the same geographic area (groundwave distance), who wish to act as representatives of the 10-10 International Net Inc. The Chapter exists to promote the purposes of the International group on a local basis.

The requirements for becoming a Chapter are quite simple. A U.S. Chapter must consist of seven or more local members, except in Alaska and Hawaii. A Chapter in Alaska, Hawaii or any DX country must have five or more local members. All members must be "active," that is, in good standing with their dues paid.

A Chapter that does not have the required number of "groundwave" members may apply for authorization after a probationary period of six months of operation. The Chapter must have a name and must conduct a weekly scheduled net. They must select a Chapter Head whose responsibilities are to guide the Chapter activities and be the liaison with the parent organization.

As you can see from the above summary, it's very easy to become a local chapter in your area, if there is not one at the present time. Multiple Chapters in a local area are discouraged; a number of people are required to sustain Chapter operations for a long period of time because people come and go, so multiple Chapters tend to dilute the available talent.

If you and a group of your friends are interested in creating a 10-10 Chapter, send an SASE to 10-10's Chapter Coordinator, Hugh Sullivan, WA4QZU, 10-10 #23166, 2112 York Dr., Owensboro, KY 42301, for an information package and application.

Worked all Continents

The Worked all Continents Award of 10-10 continues to attract a number of award seekers, with certificate #268 just issued. Certificate #262, issued on 6-26-90, went to Tom Virag, HA6IAY. Tom holds 10-10 #51533 and lives in Egercsehi, Hungary. But the best part about it is that Tom is only 18 years old. Nice going!

A change in the rules of the 10-10 WAC Award has been announced, stating that QSL cards are no longer required to be submitted with the application. A photo copy of the QSL cards showing all necessary information may now be submitted.

Finally

Wanted: information to use in this column. What about your "other hobby"? I know that some of you collect antique cars, antique radios and just antiques in general. What activity is your Chapter planning? What has 10-10 meant to you? Are you a 10-10 family? Help me gather interesting information that we can use in this column and the *10-10 International News*. Photos are welcome. My address is listed below. Take a minute and do it now. We all thank you.

If you are interested in obtaining an information pack and application form to learn more about the 10-10 organization and how you can get your own 10-10 number, send me a business sized SASE.

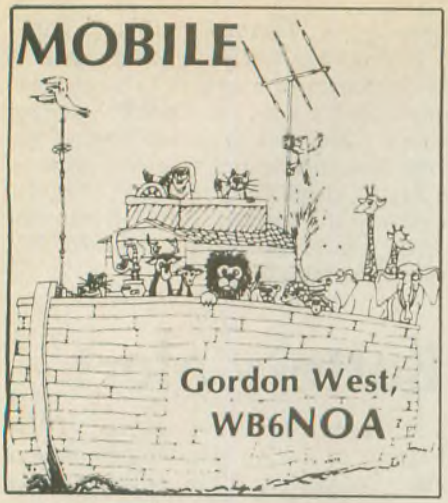
If you would like to receive a copy of the latest issue of the *10-10 International News* along with your information pack, send me a "green stamp" ($1) and one of your address labels if you have one (no SASE required if you send a buck). My address is 18130 Bromley St., Tarzana, CA 91356-1701.

If you have lost your 10-10 number or do not know to whom to send your dues, send a note and an SASE to the above address. If you are looking for your lost 10-10 number, please enclose a list of all of your previous calls, as well as your current call. Previous address information is not required. 73, es cu next month. □

Battery alert

A recent Safe Alert warned of the hazards of mixing alkaline and carbon zinc batteries. This combination created a pressure explosion great enough to split and blow the end cap off an explosion-proof flashlight.

The Eveready Alkaline Energizer was the only battery of the seven different styles inspected that incorporated a warning label concerning mixing battery types. Also, it appears as though all major manufacturers are converting from carbon zinc to alkaline, which has increased the hazard of mixing, especially with the green jacketed military batteries which contain no warning labels of chemical description. □



Installing a Marine Whip

If you plan to install a high frequency mobile whip antenna on a boat or a fiberglass motorhome, this month's column will simplify things dramatically! The installation principles remain the same regardless of the type of whip you choose:

- Multi-band Outbacker
- Multi-band Spider
- Single-band Ham Sticks
- Single- and multi-band Hustler whips
- Single-band Texas Bug Catcher whip
- Mobile Mark helical single-band whips
- Any other mobile-type whips

No matter what whip type you have, single or multi-band, the following installation principles apply to mobile marine and motorhome mobile.

The photos with this article show me working with the new popular Outbacker mobile, multi-band whip. I am featuring it because the whip contains taps for both ham band settings, as well as marine single sideband channels. This makes the Outbacker, originally from Australia, a most unique whip, with up to 10 bands of coverage by simply changing the lead-in taps. This is great for me — nothing to lose overboard and no changing of whips!

OK, here's how to make a mobile SSB whip work well aboard a boat or fiberglass motorhome:

1. Select a location where the entire whip shaft is above anything metal. The whip will not work if it is right next to a metal structure — i.e., the side of a motorhome with a metal frame.

2. Select a location where you can mount the mobile whip directly to a horizontal metal surface, such as a horizontal sailboat rail, an aluminum ladder on a mobile home, a stainless steel rail on a power boat flying bridge or a wrought-iron railing in a condominium or apartment.

3. Affix the antenna mount to the horizontal metal surface. Stainless steel L brackets are available from leading Amateur Radio dealers. Make sure it's stainless steel! For flat surfaces, remove the adjustable back bracket. Ensure a tight connection to something metal. I use the inexpensive Valor L brackets.

4. Most L brackets feature a $\frac{3}{8}\times24$ receptacle in the top for accommodating lightweight whips. The whips simply screw into the receptacle and as long as the little nylon or plastic spacer doesn't fatigue, the hardware should last for years.

The Outbacker may be ordered with standard $\frac{3}{8}\times24$ threads, but for marine use, I recommend using the heftier spring/base assembly. This easily mounts to any L bracket by removing the standard $\frac{3}{8}\times24$ fitting that normally comes with the L bracket. This provides a perfect fitting hole for the stainless steel spring with accompanying stainless steel bolt that affixes through the hole to the spring assembly.

5. On the $\frac{3}{8}\times24$ thread mount, the coaxial cable is screwed into the bottom of the adapter. On the larger Outbacker mount, the coaxial cable screws into the side of the spring. In both cases, the coaxial cable connector *must* be completely sealed using a marine silicon rubber sealant, Coax Seal™ or ScotchKote, to protect it from the environment.

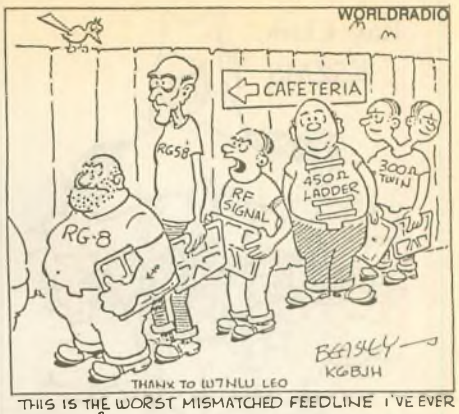
6. The coaxial cable is then routed through the deck or through the body of the vehicle to the transceiver. Special cable "thru-hulls" are available to professionally route the coax through a deck or side panel.

In order for the *whip assembly* to see an impedance match near 50 ohms, a good *horizontal* ground plane must be present at the base-mount. If the ground plane is too small, or if the metal to which you have mounted is not horizontal, chances are the impedance will be whacko, and the darn thing won't tune. Sound familiar?

A whip that refuses to tune in a mobile installation may require additional ground plane counterpoise. This is accomplished by using copper foil from a good ground source and brought up to the base of the whip or

Bands can be changed easily with the Outbacker "Wonder Lead."

A good antenna ground will help reduce R.F. feedback and allow whip to tune properly.



stanchion. And this requires some hard work running 3-inch wide copper foil (available from Ham Radio Outlet stores) from good grounding sources to the base of the whip or the base of the metal that supports the whip.

Can't tune a whip aboard a boat? Try this trick: Take some Reynolds Wrap, squash it around the base of the whip mounting bracket and drop the other end into the drink. If all of a sudden the whip now tunes, your problem is inadequate ground plane. Get busy with copper foil below decks.

On mobile homes or balconies, try this same Reynolds Wrap foil trick to see whether or not a large capacity ground plane makes the whip pop into resonance. If it does, then what you are mounted to is not horizontally long enough to act as a good ground counterpoise. More copper foil grounding is necessary.

But won't a tiny little wire run down to a ground plate do the trick? No, it won't! Counterpoise is the horizontal metal directly below the base of the whip to make whips resonate. A little tiny wire looks highly reactive at radio frequencies, but won't convey the ground plane to the base of the whip.

You can angle the whip back at a 45-degree angle without adverse effects. The SWR may change a bit, but with a good ground plane right at the base of the whip, it shouldn't change much. Try it and see what happens.

My marine "trouble notes" indicate 27 cases of "bad whips" to be checked out. In half of the cases, the connection went bad because the exposed PL-259 was waterlogged. If you've had a system that has gone from good to bad, change the coax and the coax connector.

The other half of the "bad whips" cases were installed to wood, fiberglass, or irregular vertical pieces of metal that had no horizontal counterpoise effects. Reynolds Wrap revealed the problem instantly, and running ground foil below decks cured the problem completely.

Just remember that the very best mobile whip installation would be smack dab in the middle of your trusty car roof. This is what the whip needs as a ground plane aboard your boat or motorhome. Until you can bring the ground counterpoise up to the feedpoint of the whip, it just won't work well.

And once you have your whip attached to stainless steel stanchions with both vertical and horizontal runs, stand by for some terrific performance! The big, tall Outbacker with both ham and marine taps offers low silhouette windage yet strong performance equal to a single-band whip of its same approximate length. If you haven't seen one of these whips in action, check them out! □

The Fall SMIRK Party contest

The 1990 Fall SMIRK Party contest is on for 0000 UTC Nov. 17, through 2400 UTC Nov. 18. That's 6 p.m. CST Friday the 16th through CST Sunday the 18th, here in Texas. Exchange call, SMIRK number and grid square. No cross-band, multi-op or partial contacts allowed. No check logs/dupe sheets required. Score two points for a SMIRK contact or one point for a non-SMIRK contact. Total SMIRK score plus total non-SMIRK score times total number of *different* grid squares worked equals Claimed Score.

To obtain a copy of the log send a business sized SASE to KA0NNO. Where log asks for your Section/State/Country or Major Political Subdivision, if a W or VE station put your ARRL Section; if Japan, your Prefecture; if Australia/New Zealand, your state; if UK, your shire/county/Scottish region, etc. If none of the above, put your country. Use Universal Coordinated Time (UTC). Use the NEW MULT block of the log to number sequentially the different grid squares worked.

Awards: Certificates will be issued for high score in each geographical division.

Eligibility: To be eligible for contest awards, pay your 1990 dues. *Failure to provide your name, call and SMIRK number on your log will disqualify you.* Send contest entries postmarked no later than Nov. 30 to Lisa Lowell, KA0NNO, P.O. Box 307, Hatfield, AR71945. All contacts between the contiguous 48 states must take place above 50.125. Only contacts with stations outside the 48 states should take place below 50.125.

The DX report:

Pat Dyer, WA5IYX, has characterized this summer Sporadic Es season as being fair. The number of hours of Es activity that has shown up is about on a par with last year. In this area there has been the usual cross-country Es activity for July, with little in the way of activity outside the United States. The 29th brought VP2, V29, KP4 and CO2 activity here. There has been nothing reported here in the way of activity from Central America in July. I have reports of some Los Angeles stations working into the Azores around 2100-2130Z on July 11. Portugal was reported into the Midwest and Gibraltar into New Mexico on the same day. I also have an unconfirmed report that Dave Strawe, K7KV, worked into England.

DXpeditions and results

As of this writing Jimmy Treybig, W6JKV, has not determined where he is going to be in the Fall. The trip to Eastern Russia was just a rumor.

QSL info

QSL Brain Rogerson, CT1DRP, via Rua Felizardo de Lima 149, P-4100 Porto, PORTUGAL; HB9QQ/HB0 via HB9QQ: LA0BY via Stefan Hech, DF9PY, im Aul 21, D-5569 Schalkenmehren, WEST GERMANY; LW1EKH to Sergio A. Passano, Av. Vergara 2843, Libertad-Buenos Aires C.C. 18, C.P. 1716, ARGENTINA. QSL Aland Island, OH0BT, via OH3FP; OY3QN via Allis Andersen, OZ1ACB, Kagsaave, 34, DK-2730 Herlev, DENMARK; QZ1GRS via P.O. Box 44, 6000 Kolding, DENMARK. QSLs for SM7AED, SM7BAE, SM7CMV, SM7FJE, SM7FMX, SM7LXV and SM7SCJ can be obtained from Arne Nilsson, SM7AED, Trumslagareg 3, S-23100 Trelleborg, SWEDEN; TF3EJ via Jakob Helgason, Lokastig 7, 107 Reykjavik, ICELAND; ZC4MK via Adrian McGonigle, C Watch, Commcen, 12 SU, Episkopi, BFPO 53, London, ENGLAND. If you worked Seal Island, ZS9A/ZS1, QSL to Ian Sutherland, P.O. Box 2327, Walvis Bay 9190, SOUTH AFRICA.

Who's on six!

There are more Italian stations active on 6M than you can shake a stick at! OY7MO is reportedly active on the Faroe Islands now.

Reports being received from Japan indicate a lot of new Chinese stations are now operating on 6M.

If you heard 3A/FC1MKY (I hope you got him), Christian was to be operating in Monaco in August. QSL to his home address.

Watch for VK2RG operating from Christmas Island in October.

See you on the Magic Band all of a sudden! □

A closed mouth gathers no foot.

SMIRK/Worldradio subscription combo

The Six Meter International Radio Klub members whose dues are current (check your address label) are eligible for a combined **SMIRK** membership and subscription to **Worldradio** magazine.

Send **SMIRK** $16 (make the $16 check out to **SMIRK** and send it to **SMIRK**, 7158 Stone Fence, San Antonio, TX 78227 to cover both your **SMIRK** dues and a one-year **Worldradio** subscription — **ONLY SINGLE YEAR SUBSCRIPTIONS, PLEASE.**

Current **Worldradio** subscribers **RENEW THROUGH SMIRK.** Although your combination renewal notice will come from **Worldradio**, your $16 check should be made out to **SMIRK** and sent in the envelope provided to the **SMIRK** address. Be sure your name, callsign, **SMIRK** number, current address, and **Worldradio** subscriber number are included with your renewal.

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

In a recent column I had a bit about the origin of the acronym "HAM." I must have missed the following explanation, which originally appeared in the Quarter Century Wireless Association bulletin, however it was recently reprinted in a newsletter from the Family Motor Coach Association Amateur Radio Club, edited by "Doc" Klaes, KD9BS. It is the most interesting and plausible explanation I have seen. Keep in mind that this story happened in the days of spark CW, not too long after Marconi did his stuff for the benefit of humanity.

The acronym "HAM"

The acronym "HAM," as applied to Amateur Radio, dates back to 1908. It was the call letters of the first Amateur wireless station operated by three members of the Harvard Wireless Club. They were Albert Hyman, Bob Almy and Reggy Murray. At first they called their station "Hyman-Almy-Murray," but tapping out such a long name in Morse code soon called for a revision. They changed their call sign to HY-AL-MU, using the first two letters of each name.

Early in 1909 some confusion resulted between HYALMU and the Mexican ship named *Hyalmo*. It was then decided to use only the first letter of each name and the call became HAM.

In the early days Amateur Radio operators picked their own frequencies and call signs. Then, as now, some Amateurs had better signals than some commercial stations. The resulting confusion finally came to the attention of Congressional Committees, and they in turn gave much attention to proposed legislation designed to critically limit Amateur activities.

In 1911 Albert Hyman chose the controversial legislation bill as his thesis at Harvard. His instructor insisted that a copy be sent to Senator Davis Walsh, a member of one of the Committees hearing the bill. The Senator was so impressed that he sent for Hyman to appear before the Committee.

He took the stand and described how their little station was built. He almost cried when he told the crowded committee room that if the bill went through they would have to close the station. They could not afford the license fee and other requirements called for in the bill.

The debate started and the little HAM became the symbol of all the little Amateur stations in the country crying out to be saved from the menace and greed of the big commercial stations that didn't want them around. Finally, the bill got to the floor of Congress and every member talked about the poor little "HAM" stations. That's how it all started!

You'll find the story in the Congressional Record. Nationwide publicity associated radio station HAM with Amateurs. From that day to this and probably to the end of time, in radio language, an Amateur is "HAM."

Motor coach club

If you are an RTTY/AMTOR/Packet fan and you wander about in a motor coach, you should investigate joining the FMCA Amateur Radio Club. They have an RTTY net on 14.096 daily and an FB newsletter. KD9BS, Box 747, Seymour, IN 47274, or packet: KD9BS @ N8GTC.IN.USA.NA, are the addresses to use.

CD-ROM revisited

I certainly enjoy using the Sony CD-ROM disk player (from Buckmaster) hooked to my AT clone computer. Every time I access information on it I

marvel at the huge amount of data stored in a little compact disk. The Microsoft Bookshelf program disk (a writer's reference) containing a dictionary, thesaurus, quotation finder, world almanac, zip code directory and the *Chicago Manual of Style* is very helpful, although it doesn't work perfectly on my favorite word processing program, Jim Button's PCTYPE.

I would like to see Microsoft do two things: first bring out interface software for all word procesing software, not just WORD and WORDPERFECT; second, issue updated versions of the disk on a subscription basis. The World Almanac in my disk is dated 1986, and I bought it "new" in 1990.

Bob McAtee, AG5F, had difficulties similar to mine in getting the Buckmaster HAMCALL program and Sony CD player to work.

"I pulled some hair and smoked a package of cigarettes before I got it going," said Bob.

If you will recall a recent issue, I recounted my problems with the instructions which accompanied the drive and software. Buckmaster could do the community a favor by publishing a simplified step-by-step instruction manual. As it stands, you get three different booklets and papers to puzzle out.

I thought I had an assorted collection of computers, but AG5F outscores me in every way. He has 17 in storage! I only have my two old SOL computers (1976 vintage) with North Star disks and software. I wonder if there is an SOL computer antique club. Anybody have any ideas?

The SOL came as a contemporary of the Apple back in the mid-70s. Processor Technology, the manufacturer of the original kits, went belly-up as one of the first casualties of the computer revolution. In its day, it was a great little machine. I used it in my business, even if I had to turn off my scanning receiver when the computer was being used to avoid hash.

Summer travels

Living in North Dakota means living without mountains; it's a flat place, more or less. So I look forward to heading down the highway toward the Rocky Mountains of the western USA. This summer I managed a few weeks in Montana and Washington. Murray Fisher, W7NSU, of Walla Walla, WA, a retired telegraph operator for the Northern Pacific Railway, made a threat to buy me dinner in the restaurant conversion of the depot where he worked for many years. I took him up on it by visiting Walla Walla on my way to Pasco and Seattle. I had a very enjoyable visit with Murray and his wife Bettye.

I first became acquainted with Murray through packet and Bob Lawrence, W7VFR. Bob would send me printouts of RTTY QSOs which featured conversations with Murray and others in the Washington state area. I dug out a lot of choice "eavesdroppings" from those prints, so I looked forward to meeting Murray. I write a column for the Northern Pacific Railway Historical Society magazine, so I was interested in his stories of his early day telegraph experiences.

I also visited Bob in Pasco, had lunch with a stack of Walla Walla hams and swapped reminiscences with Bob Leo, W7LR, the guy I hammed with from Kenya and Tanganyika in 1947-48. So it was a fine bit of travel, but as a result of my wandering, I didn't pick up many eavesdroppings.

Anniversary

If I remember correctly, this completes eight years of writing this column. The Eavesdropping section represents a lot of hours scanning the RTTY, AMTOR and packet sub-bands of our great hobby. If my mail and packet messages are any indication, it is the most popular thing I write each month. I also get a kick out of doing it; I keep a pad by the rig and jot 'em down as I see *bon mot* type cross my screen.

It all started when I was writing the DX column in the W6IWO's *RTTY Journal*. I became fascinated with the typographic errors that sometimes creep into a QSO and change the meaning of a sentence. When conditions are poor and RTTY signals weak, a viewer can see quite a few in a short time. So, I started collecting them and putting them in the DX column.

Then I started gathering the funny QSO chatter that sometimes appears on the RTTY channels. And that was the start of Eavesdroppings. Many of my RTTY Friends began contributing the stuff they see on the tube, and so that part of my column grew.

Well, last month my tablet of eavesdroppings was zilch. So, I figured if Johnny Carson can have the "Best of Carson" on about as often as he is on live, I can dig through the old issues and pick the "Best of Eavesdroppings" now and then. Here then, including a few I did manage to see for real, are some of my favorites:

"I TOOK MY BEAM ANTENNA DOWN WITH THE HELP OF A 60 KNOT WIND ... THE POOR GUY DROPPED HIS HANDHELD WHILE SITTING IN A HOT TUB ... MY UNCLE IS A BISTRO-NAUT, HE FLIES HIGH ALL DAY ... MY ANTENNA BLEW DOWN AND MY FINAL BLEW UP ... THE GUY WIRES ON MY TOWER ARE STRETCHED LIKE AN OLD BRASSIERE ... AFTER HAM CLUB WE STOPPED IN A DRUNKERY FOR A BUMPERY ... AT THE GOLF CLUB THEY CALL HIM THE UNPLAYABLE LIAR ... YOUR RTTY SIGNALS ARE UPSIDE DOWN OR THE MARK FREQUENCY IS LOW, I DON'T KNOW WHICH ... THE RIG HERE IS HOPE-BREWED ... IT'S AS REVEALING AS READING YOUR SIXTEEN YEAR OLD DAUGHTER'S DIARY ... I HIT THE BUFFER KEY BUT THE LITTLE BUFFIES DIDN'T COME OUT ... I NAMED MY PET JACKASS "LID" ... YOU ASK HIM WHAT TIME IT IS AND HE TELLS YOU WHAT COMPUTER CHIP TO BUY ... LOST ALL THAT GOOD INFORMATION YOU GAVE ME BECAUSE IT SCROLLED OFF THE TOP OF THE SCREEN AND I DON'T KNOW WHERE IT WENT ... I CAN'T TYPE VERY WELL WITH MY XYL SCREAMING AT ME TO COME EAT ... HIS BRAG TAPE LISTS EVERYTHING HE OWNS BUT HIS LOGBOOK AND PEN ... MY STATION IS MORE OF A RTTY MUSEUM THAN A HAM SHACK ... I GAVE UP DRINKING AND LOST ALL MY FRIENDS."

Thanks to WØHAH, W7NSU, W7VFR, W7LR, KD9BS and the Walla Walla group. Write me: Bill Snyder, 1514 S. 12th St., Fargo, ND 58103. Packet address: WØLHS @ WØLHS.ND.USA.NA 73. DIT DIT. □

Life is uncertain . . . eat your dessert first!

No pun intended but HF propagation is a global affair! I say that because radio communication on HF frequencies is of vital interest to the governments around the world, to say nothing of Amateur Radio operators who ply the HF spectrum. Thus, there's a keen, continuing interest in solar-terrestrial conditions and how they affect HF radio and forecasts of things to come.

As one devoted to this cause, at least from the Amateur Radio standpoint, I have been interested in learning how those problems are handled around the globe. I can't say that I have made a survey that answers all the questions that come to mind but I have at least been in contact with some of the major players in this game. So let's get to what they do.

To begin, I don't know of a single Amateur Radio magazine that does not contain some sort of information on HF radio propagation. Here at home, we see something in *QST, CQ, Ham Radio* when it was published and here in **Worldradio.** Thus, the reader will be given some sort of propagation forecast to help him on to greater fame and glory as a DXer. The same is true in England, West Germany, Italy, Australia and the USSR. Like the weather, nobody can do anything about propagation, but that doesn't keep them from trying to anticipate it qualitatively or quantitatively.

In open societies, information about forecasts of HF radio propagation is easy to come by; all you have to do is get a copy of the national Amateur magazine, write to the HF propagation columnist and you'll have the story in short order. Indeed, he will probably tell you more about propagation than you wanted to know.

On the other hand, closed societies were something else and a problem until recently. Now, with "glasnost" and such, it's a different story, and I was able to get a glimpse of the HF radio propagation information that's available to Amateurs in the USSR.

This all started when hams in the USSR were able to give out their addresses and receive QSLs directly. With that, I struck a blow for glasnost at every opportunity, sending QSLs direct after each QSO with a UA when I had an address to go on. That brought a number of interesting replies, including one from Alex, UA4LFR. Alex was interested in learning more English and I was happy to oblige him by exchanging letters and such.

Alex sent me a book describing the sights around his home in Ulyanovsk as well as the Volga River, where he works as a Third Mate on a river tug boat. I reciprocated with books about our fair state, Washington, as well as the terror of the Mt. St. Helens eruption. But my attention was captured when Alex sent me a copy of *RADIO,* the Amateur Radio magazine of the USSR. There, I noted a column on HF radio propagation by Herman, UA3AOW, giving MUF forecasts for six paths (to KH6, VK, ZS, LU, HP and W6) from six sites in the USSR. With that, I immediately tried to learn what I could about how he prepared his column for *RADIO.*

It wasn't easy with slow mail going back and forth to the USSR but I wrote him trying to learn his methods. At the outset, I must admit that Herman got the best of me; whereas I told him about running HF propagation programs on my IBM AT clone, roaring along at 8 MHz with a math coprocessor, he came back by sending me something akin to the computer he used, an abacus! Score one for Herman!

Not to be outdone, I sent him a slide rule in return, a snazzy log-log duplex decitrig affair, as well as some remarks to the effect that I'd be displaying that Soviet "hardware" to all who visited my shack, putting it right beside the USSR DX Awards that I'd earned, say RAEM as well as R-100-O and R-15-R. Score one for me!

Going beyond that side game, my letters to Herman have been kind in tone and seem to have paid off; Herman sent me an official document showing the forecast data for the month of April 1990, as well as an instruction manual for its use. And that was truly an eye-opener!

Those documents were based on a series of MUF prediction maps for every two hours and covering the entire globe, centered on Moscow. Anyone having those maps could prepare forecasts of the maximum useable frequency (MUF) on any path in the world. The only problem with all this is that the work involved visual interpolation between data lines on the maps, something that had to be done *manually.* From that, I could see that Herman's monthly forecast must have taken hours to prepare!

By that one mailing, Herman had revealed that the USSR is about a decade behind us in HF propagation forecasting, compared to our having been into computer forecasting all that time, NOAA using the IONCAP program whose results you see each month in *QST.* Indeed, computer forecasting schemes have reached right into the ham shack, starting with MINIMUF back in 1982.

I won't say I was shocked by what Herman sent me; let me simply say that if I had to deal with those MUF maps on a regular basis, I'd take up something other than HF propagation, such as looking for super-nova that are

visible to the naked eye or some other equally rewarding hobby.

Don't think that I'm a spoiled brat! All the other countries I've contacted use computer programs to forecast HF propagation conditions. Amateur circles here in the US seem to be tied to MINIMUF, putting it in all sorts of Amateur software as well as DX packet programs and on the NOAA BBS.

In all honesty, I think MINIMUF is a poor program, its physics flawed in the sense that it does not take into account that the ionosphere is controlled by the geomagnetic field. Others in the US know this and acknowledge it as well, but the program seems to have a currency that carries it on and on, bad forecasts not withstanding.

Slowly but surely, however, an awareness is developing in the US that MUF predictions by themselves are simply not sufficient; one needs signal strength predictions as well, which I mentioned here in **Worldradio** back in October 1988.

In great Britain there does not seem to be any particular interest in HF propagation programs for PCs in ham shacks, at least judging by inquiries I've made and the reply I received from the Propagation Studies Committee of the RSGB. Instead of encouraging Amateurs to work in this area, they provide band predictions, month by month, in their publications. Personally, I find that most curious, as some of the best propagation algorithms now available were developed by Raymond Fricker, a propagation engineer from the BBC.

But to go on, the predictions for the RSGB are prepared by the Cable and Wireless Company's computer and give representations as to the quality of propagation on the various bands, 28 to 3.5 MHz, every two hours to something like 47 different sites around the world. The way the data is presented it looks like S meter readings are given.

The Amateur Radio magazine in Italy does something similar but it is limited to the highest three bands (14-28 MHz). The bands are characterized in the course of a day as being somewhere between closed (aperta) and open (ottima). The legend by the propagation chart, covering some eight paths, does not indicate which program was used in making the forecasts.

The most complete propagation HF forecasts come from the Germans, published each month in their Amateur Radio magazine *CQ DL*. They present hourly values of signal strength in S-units and signal/noise ratios for nine different paths on nine different bands. These calculations are done on the assumption of a 100W transmitter and 3-element Yagi antennas at each end of the path. Their forecast even includes the possibility of long-path openings.

These calculations are done by the Research Institute of the Deutsches Bundespost in Darmstadt. Information related to the monthly forecasts is readily available by telephone. A simplified version of their program, MINIFTZ4, is presently in circulation in Amateur circles, even here in the US; it does the MUF and signal calculations (in uV/m) as well as provides information on ionospheric modes. The Australians, who are among those who have found fault with MINIMUF, also use the MINIFTZ4 program in their propagation predictions.

Having read all of the above, you probably wonder how to evaluate Amateur propagation software. Here in the US, we generally put our faith in the IONCAP program, written for a mainframe computer but now available for IBM XT and AT PCs and their clones. In that connection, back in the spring of 1988, the SYSOP of the NOAA BBS ran a comparison of the predictions of several MUF programs with the results on the BBS.

This study involved four paths from Boulder (to Midway Island, Easter Island, London and Mexico City), with sunspot numbers of 60 and 120 and for 24 hours a day at the peak of each of the four seasons. For those runs, the mean difference between individual programs and IONCAP's predictions were determined, as well as the corresponding RMS values. The MUF programs by Fricker proved to be the best, their average predictions being a fraction of a MHz below those of IONCAP in predicted frequency, and essentially indistinguishable in RMS values, in the range 2.7-3.1 MHz.

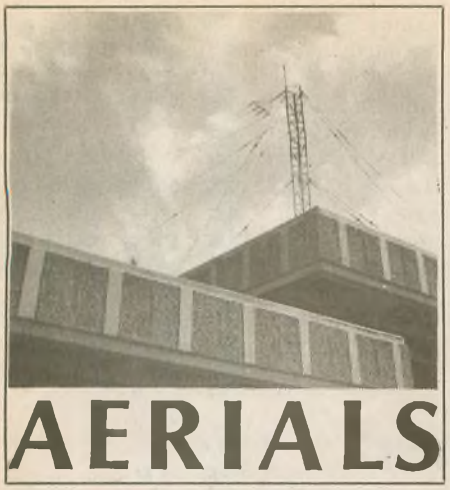
MINIFTZ4 was next, about 2.6 MHz below IONCAP on the average and with an RMS deviation of 3.7 MHz. Finally, MINIMUF-85 and MINIMUF 3.5 were the others tested, coming in 3.2 and 4.2 MHz high on the average when compared to IONCAP and with RMS deviations of 4.6 and 5.6 MHz, respectively.

If you have a MUF program you want to test against IONCAP, I'd suggest you look into the IONCAP MUF data that's in the back of the ARRL Operating Manual. Nothing like checking things out for yourself; that's the old Amateur Radio spirit! But if your propagation program doesn't have signal strength information, you need to look further if you plan any serious DXing now that we're on the downside of Cycle 22. □

Pot calling kettle

Did you ever notice that some Amateurs on 2M are the world's BEST automobile drivers?! You always hear about "the other driver" doing this dumb thing or that . . .

Just once, I'd like to hear what "the other driver" has to say about the jerk with the microphone in his hand! — *Raleigh ARS Inc., Raleigh, NC* □



AERIALS

(Kurt N. Sterba relinquishes his space so the following may run. KNS will return next month to please his friends and mortify his critics.)

Tell it like it is
NORM BROOKS, K6FO

It seems your reporter has become an "intermediary" in an antenna dispute. Although I have been an Amateur Radio operator since 1935, and Extra class since 1963, I don't claim to be an antenna engineer. But I do believe that I can fairly represent the average "Joe Amateur," the guy who will shell out the bucks to buy an accessory for his ham station.

If you've been reading Worldradio religiously (don't we all?), you'll know that I'm talking about AEA's new Isoloop antenna. Mike Lamb of AEA sent me one to try out, in the hopes of settling the argument that has been going on about its specs.

I decided to mount it on an 18 ft. pole alongside my house. This location would not be readily seen from the street, if you live in an area where antennas are discouraged or not allowed at all. If you can have a TV antenna on your house, I'd suggest mounting it just above or below your TV Yagi. It would pass as a TV antenna, as it is actually smaller than a TV Yagi.

The Isoloop is just what its name implies. It is a loop antenna made of heavy tubular aluminum (less than three feet on a side). The joints are aluminum welded, making the loop itself very sturdy.

The novel characteristic of this antenna is that it uses a large transmitting type variable capacitor that tunes the loop to any frequency from 14 to 29 MHz. The capacitor, with its drive motor, is located on the antenna in a black plastic, weather protected box. If this description leaves you wondering, just look, at the picture in AEA's advertisements and you'll see what I mean.

As soon as I got the antenna, I opened the black box to see what was inside. It's a good thing that I did, as the belt between the motor and capacitor had fallen off in shipping. I connected up the control box, control cable and antenna so that I could observe the operation of the motor. It is quite ingenious. It moves slowly, in tiny steps. At the highest speed setting, the motor turns the capacitor from zero mesh to full mesh in less than a minute. At slower speed settings it could take several minutes to get from open to closed on the capacitor. I'm giving you these details because I believe that some of the criticism of the antenna comes from the user's lack of perception of what's happening up in that black box when he operates the controls.

I used the Isoloop for the first half of the IARU Radiosport contest. There was no opening on 10M that weekend, so I could use it only on 20 and 15M. Of course, in a contest everyone's signal is declared to be 5 and 9, or 599, and no time is taken to discuss antenna experiments.

Here are some of the log entries: *20M SSB* — JA8YBY, XE2DXA, JA1ZLO, JR3XEX, JA7YAA, UZ0IWA/A, JA0YAK, RC2CQ/UA0I, RA0LDX, JA3RL, RB5BA, DL1YAW, YU5PK, OH6YF, YB1HQ, UB5WE, RW8T/UZ9OWD, plus numerous VEs; *15M* — JA8RWU, KH6FKG, HG1S, JR1CBC, JA9YBA, XE2DXA, UW0LZ, TE5T, JA7DLE, JE2YRDE, JA1ZLO, HL9OB, JA7YAA, and again numerous VEs. Of course, interspersed were contacts with U.S. Amateurs in IARU zones 6, 7 and 8.

The outstanding characteristic of the Isoloop is its very high "Q." This means that the tuning is *sharp.* As a result, you can't tune it to frequency in a slap-dash manner. You must carefully adjust the motor speed control and

painstakingly watch for indication of resonance. Even at slow speed, it goes by fast!

In the instructions, AEA suggests that you turn your receiver gain control up and listen for an increase in noise to indicate resonance. Then, before transmitting, they suggest that you adjust, using slow speed, for minimum SWR. Unlike a vertical antenna, the Isoloop is not noisy. I found that when the band was quiet, an increase in noise was often hard to judge, so I found an unused spot on the band and tuned the antenna, looking for the sharp dip in SWR. If there is a strong signal on the band, use it to adjust your antenna tuning for a maximum on that strong signal. Watch out — said signal will blow your head off when your antenna comes into resonance!

I contacted an Amateur in the East, who was also using an Isoloop. He was complaining that he must have a faulty control cable, as there are times when he thought the tuning motor wasn't turning the capacitor. I explained that he may have been turning it too fast, and missing the resonant point, or turning it too slowly, thus taking too much time to find the resonant point.

Ten meters has opened up from time to time, and I have contacted everyone I called. One of my contacts was experimenting with a mobile antenna to send to his son who would use it on an apartment balcony. I suggested that he also look into the Isoloop for his son's installation.

Just before I sat down to write this article, I tuned up on 15M and heard RØL/UA6XGL call CQ USA only. Many were calling him on his own frequency, and I almost fell out of my chair when he came back to me on my second call!

To Kurt Sterba and others who are concerned about how much dB difference there is between a dipole and the Isopole, I say "who cares?" The antenna does work, and that's really what we hams want.

I would, however, suggest to Mike Lamb that he have his engineers devise some sort of inexpensive indicating device that would let the operator see that the capacitor is turning when he is operating the motor. If he could see that, and get an indication that would permit him to come back to a previously tuned spot, he would have it made. □

Grouch's corner

Well, someone somewhere on some frequency is always grouching, if not on the radio, then in some magazine. You get those who are going to put the world right or tie up a repeater talking about inconsiderate Amateurs who tie up repeaters.

Personally, I cannot stand those who like to nitpick on little points like 73 or 73's. Who cares? 73 may be correct, however, most people say 73's. The English language or any language, code or abbreviation came to be by usage. Codes that the pioneers of radio used have changed many times over the years. So, now that all those but the perfect use 73's, should not the law of usage change the meaning?

The same person who argues about 73's may tell you that he and his wife ate out last night. She had a Petite Filet Mignon and he had a regular Filet Mignon. If we want to argue about correctness, then Petite and Mignon mean the same, so his wife had a Small Filet Small and he had a regular Filet small. It is the mis-usage of French in American restaurants that brought this about. But who cares. That is how it is used over here. —*Alliance ARC, Alliance, OH* □

Connecticut

The Eighth Annual TRI-CITY ARC Auction will be held on Sat., Oct. 27, at the Uncasville VFW, Uncasville.

Setup will begin at 9 a.m. and the auction will go from 10 until sold out. Admission is free and there will be food available. The premises are wheel chair accessible. Bring your equipment to be auctioned.

Talk-in on the 146.73 repeater.

For information call WA2RYV at 203/464-6555, or contact Bob Dargel, KA1BB, 8 Willow Lane, East Lyme, CT 06333; 203/739-8016 (home) or 203/739-1300 (business). □

Indiana

The HUNTINGTON COUNTY ARS is sponsoring its annual hamfest on Sunday, Oct. 7, at the P. A. L. Club in Huntington from 8 a.m. until 3 p.m. Sellers set-up is at 6 a.m.

The hamfest will feature an indoor flea market and free parking, and the building is handicap accessible.

Admission is $3.50 in advance, and $4 at the door. Eight foot tables are available at $5 each and available on a first come/first served basis.

Talk-in on 146.085/.685 and 448.975/443.975.

For tickets or reserved tables, contact Jim Covey, KC9GX, 1752 Kocher St., Huntington, IN 46750; 219/356-3269. □

Michigan

The UTICA-SHELBY EMERGENCY COMMUNICATIONS ASSOCIATION AMATEUR RADIO CLUB Swap & Shop will be held Sunday, Oct. 14, from 8 a.m. to 2 p.m. at Eisenhower High School in Shelby Township.

There will be prizes awarded hourly, with the main drawing at 1 p.m. First prize is $300, second prize is $100 and third prize is $50. There will also be food and drinks available.

Tickets are $2 in advance, $4 at the door. Six foot tables are $10, trunk sales are $5. For advance tickets and table reservations, send payment and an SASE to Arpad R. Miklos, WY8M, 3180 Chard, Warren, MI 48092; 313/751-3804.

Talk-in on 147.18+. □

Minnesota

The TWIN CITIES FM CLUB will sponsor a hamfest and computer expo on Oct. 27 at the Hennepin Technical College, Brooklyn Park Campus, from 7:30 a.m. to 3 p.m.

The event will feature a double-decker flea market, VE exams, prizes, food, seminars and top Amateur and computer retailers. Guest speakers will be Ron Parise, WA4SIR, astronaut (schedule permitting), and Wayne Green, W2NSD.

Admission is $4.50 in advance or $6 at the door; parking is free.

Talk-in on 146.16/.76.

For more information or advance tickets, send an SASE to Hamfest Minnesota & Computer Expo, P.O. Box 5598, Hopkins, MN 55343, or call 612/474-1529. □

Mississippi

The MS COAST AMATEUR RADIO ASSN will sponsor a hamfest on Oct. 6-7, from 8 a.m. until 5 p.m. (2 p.m. on Sun.) at the Point Cadet Plaza in Biloxi. Admission is free, and features will include forums and VE exams. Food will be available.

Talk-in will be on 146.13/73.

For more information contact Charlie Kunz, AA5QJ, 6331 Chaucer Dr., Ocean Springs, MS 37564; 601/377-6495 or 601/875-9516. □

New Jersey

The TRI-COUNTY RADIO ASSOCIATION hamfest/flea market will be held from 8 a.m. to 2 p.m. on Oct. 21 at the Passaic Township Community Center in Stirling. The premises are wheelchair accessible.

Admission is $3; children under 12 may enter free when accompanied by a parent.

There will be limited tailgating (reservations required). Tables are $8; $10 with air conditioning. For information or reservations contact Dick Franklin, W2EUF, 23 Shawnee Rd., Cranford, NJ 07016; 201/276-6522.

Talk-in on 147.255/.855 or 146.52. □

New York

The HALL OF SCIENCE AMATEUR RADIO CLUB Electronic Hamfest & Computerfest will be held at the New York Hall of Science parking lot in Queens on Sept. 23. Hours are from 9 a.m. to 3 p.m.; sellers may set up after 7:30 a.m.

Featured will be an Amateur Radio exhibit station, VE exams at 10:30 a.m. and 12:30 p.m., a tune-up clinic, ARRL films, ARRL information and door prizes. Free parking and food and refreshments are available.

Visit the newly reopened New York Hall of Science Museum, including HOSARC's Amateur Radio station, WB2JSM.

Donations required for buyers are $3, sellers are $5 per space.

Talk-in on 144.300 simplex link, 223.600 repeat and 445.225 repeat.

For further information call Steve Greenbaum, WB2KDG, at 718/898-5599; or Phil Kubert, N2HYE, at 212/777-8648, both in the evenings. □

North Dakota

THE FORX AMATEUR RADIO CLUB will hold a hamfest on Oct. 13 from 9 a.m. to 5 p.m. at the City Auditorium.

Talk-in on 146.34/.94 WA0JXT repeater.

For more information contact Warren Tobin, WF0V, 515 Sixth Ave. SE, East Grand Forks, MN 56721. □

Pennsylvania

The PENN WIRELESS ASSOCIATION is sponsoring Tradefest '90 in Bensalem on Sunday, Oct. 21, at the Yezzi Athletic Field. Featured will be radio gear, computers, test equipment, VE exams, a consignment stand and more!

Outdoor tailgating only. Vendor check-in is at 6:30 a.m. General admission from 8 a.m. to 2 p.m.

Admission is $3, $7 per carload. Kids 12 and under enter free. Spaces are $5. Premium or multiple spaces guaranteed by advance payment.

Refreshments and restrooms are available on site. Talk-in on 146.52 + 146.925/325.

For information contact 215/752-1202. For advance sales send checks with SASE to PWA Tradefest '90, P.O. Box L-734, Langhorne, PA 19047. □

South Carolina

The SUMTER AMATEUR ANNUAL RADIO ASSN. will hold their hamfest and SC ARRL state convention on Oct. 27, at the Sumter County Exhibition Center in Sumter.

VE testing and forums on MARS and ATV will be given. Lots of great prizes will be given away.

Doors will open at 6 a.m. for dealers and 8 a.m. to the public. Kids under 12 admitted free.

For more information call Hap, WA4UMU, at 803/469-6381, or Tommy, KB4CIH, at 803/773-3899. □

1990
Worldradio DXathon

ELIGIBILITY: All licensed Amateur Radio operators worldwide. **DATES:** 1 Jan.1990 through 31 Dec. 1990. **BANDS:** Five bands •80 •40 •20 •15 •10 **MODES:** Five modes •Phone •CW •Satellite •Visual (SSTV, FAX) •Digital (includes RTTY, AMTOR & Packet) **OBJECTIVE:** Contact as many Nations via as many different modes as possible. A Nation is defined as an entity with enough sovereignty to issue its own postage stamps. **SCORING:** Your final score will be the total number of Nations worked per mode. You may count a Nation only once per mode. An example of scoring: If you work Japan on CW and SSB on 20 meters, the point value would be 2 points. If you work Poland on CW on 10 meters and 20 meters, the point value would be 1, as a Nation can only be counted once per mode. **SUBMISSIONS:** All entries must be submitted on official DXathon entry forms or a reasonable facsimile and should include call, date, time, band and mode for each entry. Use separate sheets for each mode. QSL cards are not required. In addition, a DXathon Summary Scoresheet should be filled out with your score totals on it. All entries must be postmarked no later than 28 February, 1991. Entries must include your call, name, address and be signed with a declaration that the contacts were complete two-way contacts. Mail your entries to: **Worldradio, 2120 28th St., Sacramento, CA 95818 USA.** All participants will be listed in Worldradio. Decisions of the DXathon committee will be final. The committee has the right to disqualify an entry for violation of the letter or the spirit of the rules. By submitting an entry, the participant agrees to abide by the decision of the committee. **AWARDS:** Will be given based on the number of entries. 100-point minimum must be accumulated to be eligible for an award. **RULE CHANGES:** Rules may be modified over the years to reflect feedback from the participants. Please send copies of this notice to your DX friends. Send $.45 business size SASE to Worldradio for entry forms and nations list.

1990 Illinois QSO Party

Sponsored by the Radio Amateur Megacycle Society, this event will take place from 1800Z Oct. 14 until 0200Z Oct. 15.

Suggested frequencies: *CW* — 3550, 7050 and 14050; *phone* — 3890, 7290 and 14290. Novices call 30 kHz above bottom end of subbands for CW and 28390 for phone. Other bands may also be used.

Exchange: Illinois stations give RST and county; others give RST and state, province or country.

Scoring: Count one point per phone QSO, two points per CW QSO. No repeater QSOs. Stations may be worked once per band and mode and once per band/mode/county for IL mobile stations. Contacts with/by mobile stations stopped at the border of two Illinois counties count as two counties and two QSOs. Illinois stations multiply points by sum of states, IL counties, VE provinces and a maximum of five DXCC countries (W/K and VE included). Count additional DX for points but not multipliers. All others multiply points by number of IL counties worked. Illinois mobiles may add 200 points to final score for each county from which 10 or more QSOs were made. All stations may earn one extra multiplier for every eight QSOs made with the same Illinois county.

Awards: The highest Illinois fixed station and mobile station scores will receive an award plaque. Certificates will be awarded to: A. 10 highest scores, Illinois fixed station B. Five highest scores, Illinois mobile station C. Highest score in each state, province and country D. Highest club/team aggregate score.

Logs: Entrants shall submit a log containing GMT, call, RST, state or province, IL county, band and mode. *Circle new multipliers as worked.* IL mobiles must indicate county changes in log. Any station with over 100 QSOs must submit a dupe sheet. A summary sheet shall also be submitted with every log. Entries must be postmarked by Nov. 12. Mail to RAMS, c/o Joe LeKostaj, WB9GOJ, 9134 Ewing Ave., Evanston, IL 60203. □

YL Anniversary Party

The CW portion of the contest will take place from Wed., Oct. 17, at 1400 UTC to Thursday, Oct. 18, at 1359 UTC. The SSB portion of the contest will take place from Wed., Oct. 31 at 1400 UTC to Thursday Nov. 1, at 1359 UTC.

Eligibility: All licensed women operators throughout the world are invited to participate. YLRL members only are eligible for the cup awards. Non-members will receive certificates. Only YLRL members are eligible for the Corcoran and Hager awards.

Procedure: Call "CQ YL"

Operation: All bands may be used. No cross band operation. Net contacts and repeater contacts do not count. A station may be worked and counted once on each band. Do not send carbon copies of logs. Logs must be signed by the operator and no logs will be returned. Please type or print. For each duplicate contact that is removed from the log by the Vice-President, a penalty of three additional and equal contacts will be exacted.

Exchange: Station worked, QSO number, RS(T) and country/state/VE province.

Scoring: A) CW and SSB will be scored as separate contests. Submit separate logs for each contest. B) All YLs within one of the United States or within a Canadian province — Score one point for each QSO with another station located within a state or province. Score two points for each contact with a station not located within a state or province (i.e. DX). DX is all stations not located within a state or province. DX YLs shall score two points for each contact with a station on another continent and one point for each contact with a station on their own continent. Multiply the number of contact points by the total number of different states/provinces/countries worked. C) Contestants running with a power output of 100W or less on CW and 200W PEP or less on SSB, *at all times,* may multiply the results of B) by 1.50 (low power multiplier). The maximum power output that may be used at any time during the contest is 750W on CW and 1500 PEP watts on SSB.

Logs: All logs must show the operator's state, province, or country to qualify for awards. Logs must also state whether or not operator is a member of YLRL. For each QSO, logs must show the station worked, time, band and date. Logs must also state the power output. If you have 200 or more QSOs, submit a separate log for each band and submit a "dupe" sheet. Remember to file separate logs for each contest. Logs must show claimed score and be postmarked by Nov. 30, or they will be disqualified.

Mail logs to: Dana Tramba N0FYQ, Vice Pres., YLRL RR1, Box 213, Peck, Kansas 67120. □

Worldradio spreads the word about Amateur Radio!!

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

Software

A cartridge version of DIGICOM>64, the TNC emulator program for the Commodore 64 (or C128), is now available.

DIGICART is autobooting, making it ideal for unattended operation. Should there be a power interruption, the program and parameters will re-boot instantly.

The cartridge is also ideal for those Commodore users without a disk drive. A unique feature of this cartridge is the ability to rewrite and save parameters without the need for disk access. This is achieved by using a 2864 EEPROM (Electrically Erasable Programmable Read Only Memory) for parameter and text storage. Unlike RAM, no battery backup is needed to maintain data storage.

Each DIGICART cartridge is supplied with an updated 25+ page instruction book. The DIGICART kit is available for $49.95. A tested/assembled version is available for $69.95. Please add $2.50 for shipping/handling (United States only; others write for shipping charges).

The DIGICOM modem (see *QST*, April 1989, p. 76) which supplies both HF and VHF packet tones, is required for operation. □

2kW baluns

Palomar Engineers has a series of high power baluns available. Rated at 2kW CW and 6kW PEP, the Model MB baluns operate from 2 to 30 MHz. Fifth ohm input is to a teflon insulated UHF connector (or an "N" connector on request). Balanced output is to two cone insulators.

Available output impedances are 50, 75, 100, 150, 200, 300, 450 and 600 ohms. MB baluns are in cast aluminum cases, epoxy filled and weatherproof. Prices range from $100 to $165.

For additional information contact Palomar Engineers, P.O. Box 455, Escondido, CA 92025; 619/747-3343. □

Remote base intertie

The RB-1 from Heil Ltd. allows easy interconnection of two transceivers for the purpose of remote base operation. For instance, a 220 or 450 MHz rig can be intertied to control a fixed station connected to hi gain Yagi or dipole antenna systems. This provides extended coverage from a UHF or VHF portable or mobile. By utilizing the squelch circuits of the TS-430, IC-740, FT 102, etc., the RB-1 allows the bands to be worked from a UHF portable. It also makes a great simple repeater for portable or emergency work.

Two eight pin connectors on the RB-1 back panel interfaces the squelch line, PTT, microphone input and speaker output of each rig. With the front panel switch in the "off" position, both rigs operate normally. Switching it "on" will cause a signal received on rig "A" to key up the transmitter of rig "B," and vice-versa.

The RB-1 measures 4¼×4⅛×1⅞ inches. It comes complete with two mating eight pin connectors and instructions. The net price is $54.95 (add $5 UPS S&H).

For information contact Heil Ltd., No. 2 Heil Dr., Marissa, IL 62257; 618/295-3000. □

Dual band HT

The TH-75A 2M/70 cm dual band HT is available from Kenwood for a suggested retail price of $549.95. Features include:

- Dual watch function which allows you to monitor both bands at the same time
- Large dual multi-function LCD display
- 10 memory channels for each band store frequency, CTCSS, repeater offset, frequency step information and reverse. A lithium battery backs up memories. Two memories are included for "odd split" operation.
- Selectable full duplex operation
- Extended receiver range for 140 to 163.995 and 438 to 449.995 MHz

• Volume and balance controls, plus separate squelch controls on top panel
• Built-in CTCSS encode/decode
• Automatic band change
• Automatic offset selection on 2M
• Tone alert system for quiet monitoring
• Four ways to scan, including dual memory scan, with time operated or carrier operated scan stop modes and priority alert

See your nearest Kenwood authorized Amateur Radio dealer for more details. □

Versatile keyer

Available from AEA is the Morse Machine MM-3 high-performance keyer, packed with features to help you increase your code speed or increase your QSOs during the heat of a contest.

Features:

• Digital or analog speed selection
• 8,000 characters of memory that can be stored in 20 memories (36,500 with 32K RAM)
• Training system that allows random code group practice at a steadily increasing speed, random four-letter word generator and a Dr. QSO™ QSO simulator
• Automatic serial number insertion and incrementing in any memory message for the serious contester
• Six programmable modes of operation: Keyer/Memory Send, Beacon (to automatically repeat a Morse or RS-232 ASCII message at a programmed interval of one to 999 seconds), Memory Load, Trainer, Morse Terminal and QSO Simulator
• RS-232 computer compatibility enabling operations from your computer, including displaying practice sessions on on your screen

The Morse Machine MM-3 keyer is now available through AEA authorized dealers. The suggested retail is $209.95 and the Amateur net is $189.95.

For information contact AEA, P.O. Box C-2160, Lynnwood, WA 98036; 206/775-7373.

Spectrum analyzer

This spectrum analyzer was adapted from Al Helfrick's, K2BLA, article in the November 1985 issue of *QST Magazine*. The circuit is based on using a modified CATV RF converter with digital prescaler, followed by a mixer and 10.7 MHz IF, where standard receiver IF filters are used.

Ceramic filters provide wide bandwidth and a crystal filter provides narrow bandwidth. A ramp generator with selectable scan widths provides output to the CATV module VCO and sweep for your low frequency scope, which is used for the spectral display. A logarithmic conversion amplifier provides a wide CRT vertical viewing range, which is calibrated in dB.

The prescaler output is fed to a digital counter which subtracts the VCO offset and provides a three digit center frequency LED display.

Features include: Logarithmic amplitude display, calibrated in 10dB steps; three digit LED center frequency display; 12 position calibrated scan width, off and 1 kHz to 50 MHz; switchable bandwidth, Wide = 300 kHz, Narrow = 10 kHz; switchable video filter; variable scan rate; variable IF attenuator for comparison measurements.

The kit includes a prepunched, painted and silkscreened enclosure; CATV module with modify instructions; three circuit boards for the main assembly; power supply and LED display with bezel. All hardware, wire and electronic components are supplied.

A full kit sells for $459.95, plus $4.50 shipping to US addresses. A fully assembled and tested unit is available for $799.95, plus $7.50 shipping to US addresses.

The finished unit measures 8.25 inches wide, 3.50 inches tall, 8.25 inches deep and weighs only five pounds. For the spectral display use any low frequency scope capable of X-Y operation. Vertical requires 50mV DC sensitivity, horizontal requires one volt per division. The standard unit operates from 110V 50/60Hz; a 220/240V 50Hz Version is available for $5 extra

For foreign orders or additional information, please contact A & A Engineering, 2521 W. LaPalma, Unit K, Anaheim, CA, 92801; 714/952-2114; FAX: 714/952-3280. □

No-ground radial vertical

The R5 is a third generation development of the highly successful ½ wavelength no-ground radial vertical antenna.

The R5 has optimum current distribution for low angle radiation and excellent DX. The antenna is only 17 ft. total height. It can be utilized for either portable or fixed operation and weighs only nine pounds.

Automatic frequency selection of all five bands is accomplished through high Q traps and a broadband solid state impedance matching network that accepts 50 ohm input through a PL259 connector. By incorporating a unique counterpoise ground system, utilizing four 48 inch long stainless steel rods, the antenna offers excellent RF decoupling for mounting in any location from ground level to rooftop.

The R5 is ideal for limited space applications like apartments, condominiums and small lots. It is easily transported for portable or motorhome operation.

The R5 is available through Amateur dealers worldwide. □

THE 1991 QSL BOOK!

Extending a 70 year tradition, we bring you three new Callbooks for 1991, bigger and better than ever! The North American Callbook, the International Callbook, and the new Callbook Supplement bring you accurate up-to-date QSL information on over 1,000,000 amateurs throughout the world.

The North American Callbook lists the calls, names, and address information for over 500,000 licensed radio amateurs in all countries of North America from Canada to Panama, including Greenland, Bermuda, and the Caribbean islands plus Hawaii and the U.S. possessions.

The International Callbook lists over 500,000 licensed radio amateurs in countries outside North America. Its coverage includes South America, Europe, Africa, Asia, and the Pacific area (exclusive of Hawaii and the U.S. possessions).

The 1991 Callbook Supplement is a new idea in Callbook updates, listing the activity in both the North American and International Callbooks. Published June 1, 1991, this combined Supplement will include thousands of new licenses, address changes, and call sign changes for the preceding 6 months.

Every active amateur needs the Callbook! The 1991 Callbooks will be published December 1, 1990. Order now for early delivery as soon as the new books are available. See your dealer now or order directly from the publisher.

- Over 1,000,000 current amateur listings in all countries of the world • Telegraph Codes
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- Standard Time Charts • International Postal Information • World-wide QSL Bureaus
- Table of Amateur Prefix Allocations • Prefixes of the World • Plus many other features.

Publication: Callbooks - December 1, 1990
Supplement - June 1, 1991

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VE exam schedules

As a service to our readers, **Worldradio** presents a feature listing those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid July.

Worldradio, 2120 28th St., Sacramento, CA 95818.

Please mark the envelope "VE Exams."

List the location, and information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information.

p/r = pre-register

w/i = walk-in

Date	City	Contact	Notes
Alabama			
Oct 27	Montgomery	Leroy Bell Jr. (205) 269-4201	w/i
Arizona			
Oct 6	Tucson	K7OPX (602) 886-7217	w/i
California			
Oct 6	Burbank	KE6AR (818) 349-0927	w/i OK
	San Dimas	K6THQ (714) 596-9383	p/r
	San Francisco	WO6F (415) 333-1916	p/r pref; w/i
Oct 7	Chico	W6YKU (916) 342-1180	p/r pref
	Clearlake	Art (707) 994-0646	w/i only
Oct 13	Camarillo	N6SR (805) 484-4461	p/r pref; Ltd. w/i
	Palm Springs	WK6I (619) 564-2655	p/r
	San Marcos	(619) 465-EXAM	p/r 10/3
	San Pedro	N6DYZ (213) 325-2965	ltd w/i
Oct 17	Eureka	KB6FIW (707) 442-9245	p/r pref by 10/15/90
Oct 18	Fountain Valley	KI6WK (714) 846-6984	
Oct 20	Downey	KA3DSE (213) 923-5598	w/i
	San Dimas	K6THQ (714) 596-9383	p/r
Oct 25	Long Beach	KA6HOQ (714) 897-6331; NF6X (213) 434-8278	w/i
Oct 27	Eagle Rock	KB6RXE (818) 791-1779; AA6HI (213) 256-2904	
	Stockton	AA6NO (916) 662-0810	w/i
Nov 10	San Marcos	(619) 465-EXAM	p/r 10/31
Colorado			
Oct 6	Pueblo	(719) 948-2291	w/i
Oct 13	Denver	W0IJR (303) 366-9689	w/i OK
Oct 20	Westminster	N0CFM (303) 451-1231; (303) 278-4280	p/r or w/i
Nov 24	Pueblo	(719) 948-2291	p/r 10/24; w/i
Connecticut			
Oct 28	Milford	NB1M (203) 933-5125; WA1YQE (203) 874-1014	w/i
Florida			
Oct 20	Melbourne	WB9IVR (407) 724-6183	w/i OK
	W. Palm Beach	W4SS (407) 967-1477; KG4U (407) 582-7617	w/i
Idaho			
Oct 13	Boise	W7JMH (208) 343-9153	w/i
Illinois			
Oct 13	Oak Forest	KA9HDN (312) 247-0650	w/i
Oct 20	Loves Park	W9SS (815) 877-6768	p/r; w/i
Indiana			
Oct 6	South Bend	NI9Y (219) 255-4455	w/i OK
Oct 7	Terre Haute	K9EBK (812) 466-2122	w/i
Kansas			
Oct 13	Olathe	WK0G (913) 764-2822	p/r pref
Maryland			
Oct 27	Laurel	(301) 572-5124	ltd w/i
Minnesota			
Oct 13	Bloomington	KD0CL (612) 881-7181	p/r pref
Mississippi			
Oct 11	Ocean Springs	AA5QJ (601) 875-9516 or AA5TX (601) 875-2142	
New Jersey			
Oct 10	Fort Monmouth	KZ2P (201) 905-3146 or (201) 370-8055	w/i
Oct 13	Cranford	N2XJ (201) 635-7686	
Oct 18	Bellmawr	WA2VQG (609) 546-7710	no p/r
	Bayonne	WA2QYX (201) 451-9471	w/i OK
New York			
Oct 19	Verona	KA2NIL (315) 363-4297	w/i
Oct 28	North Babylon	KA2RGI (516) 957-0218	w/i OK
North Carolina			
Oct 13	Yadkinville	AB4TF (919) 838-9109; N4XRY (919) 699-8469	w/i
		N4AAD (919) 679-8059; N4UAN (919) 679-8954	p/r; w/i
Oct 14	Salisbury	AB4UX (704) 284-2414	p/r; w/i
		N4UXO (704) 636-2853	w/i
Oct 27	Asheville	NC4N (704) 667-3758	w/i
Ohio			
Oct 6	Mentor	KO8O (216) 256-0320	w/i OK
Oregon			
Oct 25	North Bend	WA7PHI (503) 756-6846	p/r pref; w/i OK
Pennsylvania			
Oct 6	Erie	W3CG (814) 665-9124	w/i OK
Oct 15	Perkasie	Warren Erdman (215) 679-5764	p/r; w/i
Tennessee			
Oct 9	Memphis	WA4KRP (901) 795-3712	w/i OK
Oct 13	Memphis	W4MI (901) 357-8148	p/r 2 days prior
Texas			
Oct 13	Eddy	N5KZD (817) 859-5374	w/i
	Midland	KT5G (915) 694-9450	
	San Antonio	AA5HG (512) 680-2371	w/i
Oct 16	Sherman	AA5PP (214) 786-2644	w/i
Washington			
Oct 3	Spokane	WA7IIR (509) 467-1208 or KM7U (509) 326-4833	p/r pref; Ltd. w/i

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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.

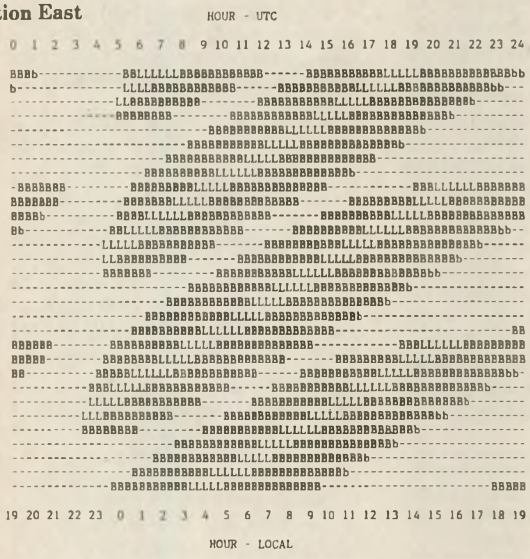
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

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).

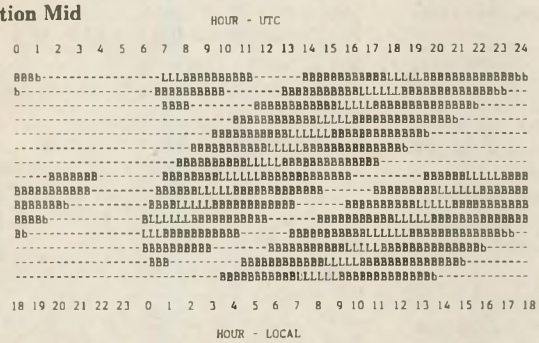
Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

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. □

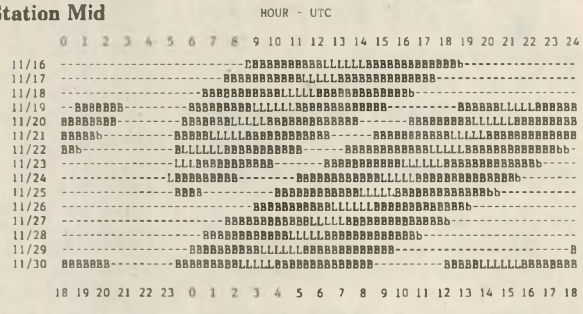
Station East



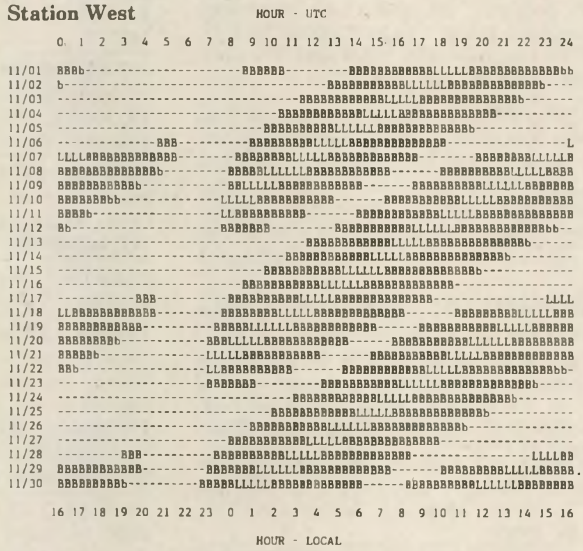
Station Mid



Station Mid



Station West



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This month's winner is Walter M. Drozdiak, DDS, W6LDO, of San Jose, CA. The FCC never forgets.

A cartoon in an issue of **Worldradio** depicting an Amateur sweating out a "pink ticket" prompted me to search out one I received in 1934 as newly-licensed W8LEY.

I had only minimal homemade gear in those days, so as a method of measuring my transmitter's operating frequency, I relied on the family's Philco broadcast radio, which also had a "shortwave" band and a tuning "eye."

But as a function of the superhet's IF, I got two minimums on the Philco eye while tuning up my rig on 80M. One minimum was properly inside the band, the other outside. Unknowingly, I chose the wrong one and went ahead and called W8LDO, a local Amateur. Because I was transmitting outside the band, W8LDO did not hear me, but the FCC did, and sent me a "pink ticket" and also a "green ticket."

The next day I retuned the rig and finally worked W8LDO. Later, as the FCC had requested, I sent them a letter of explanation of my violation.

Years later, I moved to California and requested a new call. Apparently the FCC wanted to give me a call as close to my old W8LEY as they could. They gave me W6LDO. Now wasn't that thoughtful of them to give me a "W8LDO" reminder to stay on assigned frequencies? In remembrance, I now use the handle Waldo. □

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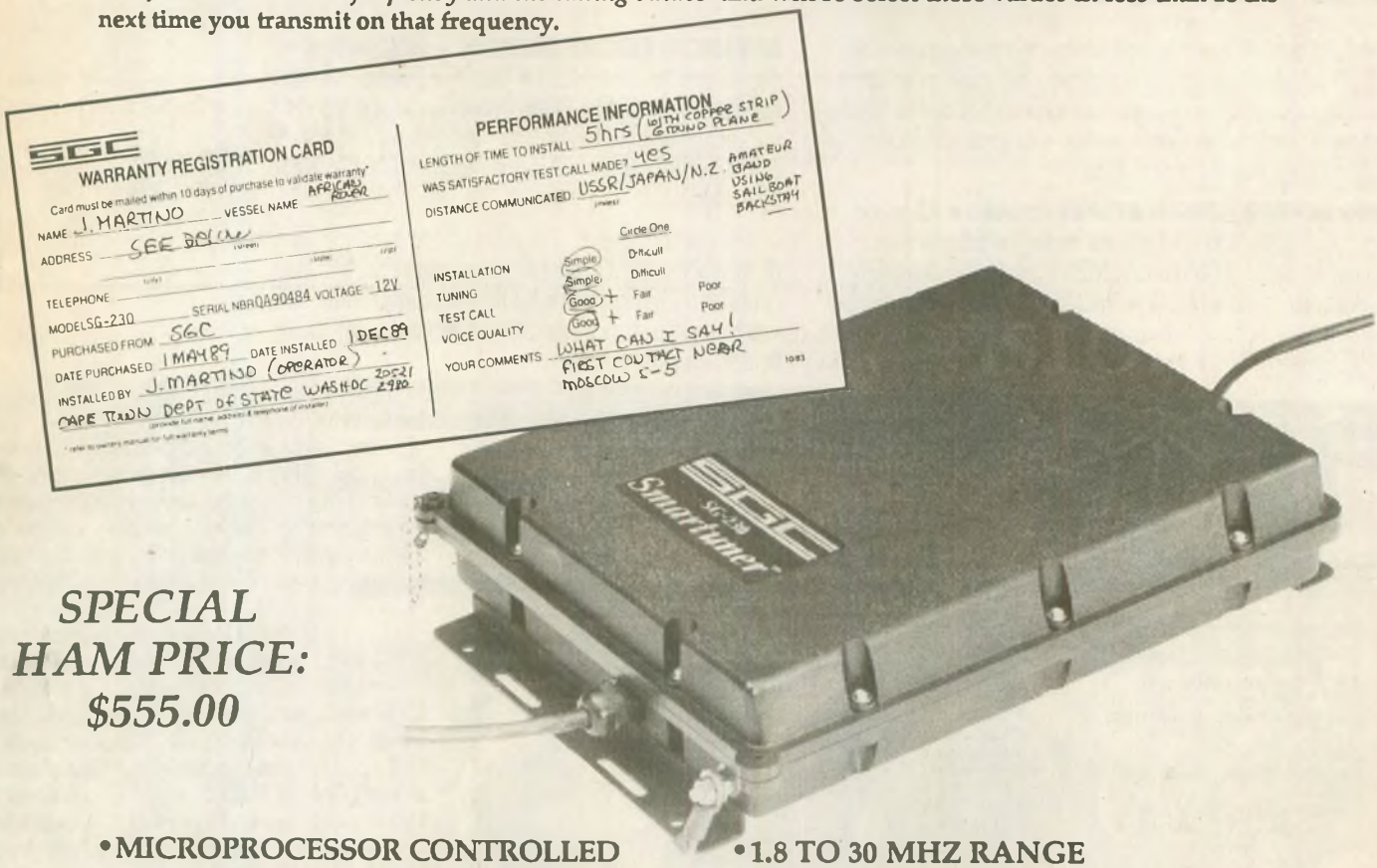

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