FCC • DX • MARS • QRP • SAR • CONTESTS • FM • QCWA • QSLs • NEWS

WORLDRADIO

Year 28, Issue 8 www.wr6wr.com February 1999 • $1.50

FCC enforcement official done "taking names"

The FCC's Riley Hollingsworth, K4ZDH, is making his list and checking it twice. Now that he knows which Hams are naughty, not nice, he's ready to take action against flagrant amateur offenders.

"Fully half of the amateur problems on HF relate to a specific group of jammers — malicious interferers who apparently enjoy disrupting as much amateur communication as possible," said Hollingsworth, the FCC's point man for amateur enforcement within the Compliance and Information Bureau. "Enforcement action against this group is long overdue."

Hollingsworth has prepared a report to his boss, CIB Chief Richard D. Lee, detailing his findings and fingering the most serious violators in a "top 10" list which he declined to make public just yet. His memo urged "immediate enforcement action."

Hollingsworth said he's talked with more than 250 people on the amateur enforcement line (202-418-1184) since the end of September 1998, when the FCC's latest amateur enforcement initiative kicked into high gear. In addition, he has received more than four dozen letters and e-mailed comments concerning problems in the Amateur Service. Hollingsworth has concluded that, while most amateurs abide by the rules, a few habitual offenders continue to flout the law. "We are not going to stand for the Amateur Service to be further degraded or destroyed by them," he said.

Hollingsworth says that jamming and deliberate interference is the most common problem, accounting for 31% of all complaints. Repeater misuse and jamming account for another 29%. But he considers the HF abuses, most typically reported on 75 and 20 Meters, to be the more serious offenses because they can be national or international in scope. Other general problems accounted for another 17% of the complaints, Hollingsworth said. A full 10% of complaints concerned an unlicensed individual in California who already has spent time in jail for past convictions.

Hollingsworth has sent out 30 informal "warning letters" to individual operators as a result of complaints. The letters warn the recipients that a complaint has been received about the recipient or someone using his or her call sign, indicate that the allegations, if true, could jeopardize the amateur's license, and request the recipient to contact the FCC to discuss the matter.

"In almost every case the recipient has contacted us," he said. "In one case, the licensee contacted us, apologized, and reports since that time indicate that the licensee has become a model operator." Some amateurs have reported to the ARRL that amateur behavior has improved, dramatically in some areas, since word hit the street that the FCC was taking amateur enforcement seriously. For its part, the League has said it is willing, for now, not to pursue its request to further privatize amateur enforcement.

Hollingsworth says the warning letters will continue, but now he's taking aim at the hard-core scofflaws within the Amateur Radio community. "We have now let everyone out there know we're back," he said. Continued violations will "guarantee" license revocations, fines, or, in extreme cases, equipment seizures.

"Church is out now," he said. "We mean business and we're strapped in and ready to ride." Hollingsworth said Amateur Radio rulebreakers "continue these violations at their own risk." — *ARRL Letter*

Northwestern Division Director, SK

Northwestern Division Director Mary Lou Brown, NM7N, of Anacortes, Washington, died December 3, 1998. She was 71. Brown was just re-elected without opposition to a new two-year term on the ARRL Board. Her husband, Bob, NM7M, reports that Director Brown collapsed and died at Los Angeles International Airport, apparently after suffering a heart attack. She was returning from Australia where she had just taken part in the Lord Howe Island, VK9LX, DXpedition.

DXpedition member Nick Hacko, VK2ICV, called Brown "the most-liked person" on the DXpedition. "Although I knew Mary Lou for only a few days, it was very clear to me and to the other Lord Howe operators that she was an exceptional person," he said in an Internet posting after learning of her death. He said Brown helped out with all phases of the operation and deserved "a lot of credit for helping the rest of us get a great lot of enjoyment out of our trip."

Brown has been the ARRL Northwestern Division Director since 1995 and was a vice director from 1990 through 1994. She also served as a member of the ARRL Executive Committee.

She received her doctorate from Columbia University. Before retiring to Washington, she taught physical education at the University of California at Berkeley and served as a department chairperson. — *ARRL Letter*

Sugrue named Wireless chief

Thomas J. Sugrue has been named chief of the FCC's Wireless Telecommunications Bureau, effective 19 January 1998. The WTB oversees Amateur Radio at the FCC. A communications lawyer in private practice since 1995, Sugrue has previous FCC experience as chief of the Policy and Program Planning Division in the FCC's Common Carrier Bureau and as special counsel for competitive policies. He later spent six years as deputy assistant secretary of Commerce in the National Telecommunications and Information Administration and twice served as acting NTIA administrator. Sugrue replaces Dan Phythyon as WTB chief.

He's a graduate of Harvard Law School and also holds a master's in public policy from Harvard and a BS in physics from Boston College. — *FCC, ARRL Letter*

Morse Code in the cinema

Several Amateur Radio moviegoers have alerted ARRL HQ that the movie "Enemy of the State" contains a snatch of CW. In scenes depicting a spy satellite, the sound track includes a little Morse code. The satellite calls CQ! "As though pictures were sent from satellites by Morse," said Tom Bradbury, NU4G, who saw the movie in November with his daughter, Elizabeth, KE4IWN. "I broke out laughing, no doubt to the puzzlement of those around me," he said. "Somewhere in moviedom is a chuckling Ham, I guess." Steve Kaufman, VE2SKA/KB2SPH, says characters in the movie also use what appears to be a Yaesu HF transceiver to break into police frequencies. "The frequency shown is in the 40-meter band," he says, "but they do speak to the police dispatcher." The movie stars Will Smith and Gene Hackman. — *N9XJF, VE2SKA/KB2SPH, NU4G, ARRL Letter*

WORLDRADIO
February 1999 Year 28, Issue 8

On the cover

The QTH of Bob Ehramjian, K2US, Pawleys Island, South Carolina. That's a US Tower with six element quads for 15 and 20 meters. The rotator is a propeller pitch controller from a B-24 bomber. Bob is the second of our six winners in our recent photography contest, and wins a three year subscription to *Worldradio*.

SATERN helps Mitch Victims

One of America's largest relief organizations swings into action in the aftermath of Hurricane Mitch
— Page 6

Submersible Station

When is the last time you took your station underwater on purpose? Yes, there are "Submersible Stations"
—Page 12

The art of collecting "junque"

Have you been accused of being a "junque" collector? Now you have someone to blame it on. Your parents! Yes, it's in your genes
—Page 16

Features

Departments

Next month: Club Huddle, County Hunter, FM, Repeaters and VHF, MARS, Old-time Radio, QCWA

Published monthly by **Worldradio**, *Inc., 2120 28th St., Sacramento, CA 95818 USA; 916/457-3655. Subscription Department:* **Worldradio**, *1901 Royal Oaks Dr., Ste 190, Sacramento, CA 95815; 800/366-9192. Periodicals postage paid at Sacramento, CA & additional offices.* ***POSTMASTER:*** *Send address changes to* **Worldradio, Inc.**, *P.O. Box 189490, Sacramento, CA 95818 USA.* **Worldradio** ***(USPS 947000) is an international conversation. You're invited to participate. Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality to this avocation. As readers, you are participants in an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio. We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio. Articles for consideration may be submitted through the U.S. Postal Service or e-mail to n6wr@rns.net.*** **Worldradio** *is an independent magazine not affiliated with any other firm, group or organization. Permission is hereby granted to non-profit Amateur Radio club newsletters to reprint our articles with appropriate source credit. Any other use without written permission is a* ***violation of copyright laws and violators will be prosecuted.*** *If there is something useful, we wish to share it.* ***SUBSCRIPTION RATES:*** *$15* one year; $28* two years; $41* three years; $187* Life; *$10 extra per year for surface mail delivery to non-U.S. ZIPs. Please remit international postal money order. IRCs will be accepted. Club call: WR6WR. Visit* **Worldradio** *on the Web at www.wr6wr.com* ***STAFF:*** *Publisher — Armond Noble, N6WR; Associate Publisher — Glen Rudesill, KF6OBS; Editor — Rick McCusker, KO6DJ; Associate Editor — Norm Brooks, K6FO; Advertising Director — Helen Noble; Advertising Manager — Brenda Evans. Graphics Director/Advertising — Dianne Dunning; Graphics/Layout/Web — Ashley Guy, KF6SXE; Circulation Manager — Marcia Watson; Proofreader/comma placement — Krystle Perigan*

Publisher's Microphone

Some race jalopies on country back roads. Others drive Formula 1 cars in the Grand Prix.

Some record family events on a disposable camera, with disposable results. Others take a Leica on a family picnic.

Some go on the steamboat at Disneyland. Others go on a 100-day cruise around the world.

Some play the slot machines at Reno. Others break the bank at Monte Carlo playing baccarat.

Some get Ham licenses. Others do the same but also become ***Worldradio*** Superboosters (Lifetime Subscribers). The latest to do so are:

- **Col. Owen Wormser, K6LEW Washington, DC**
- **Joe Blaser, KC8HGL Bloomville, OH**
- **Bruce Merrill, W8WQ Berkley, MI**
- **Jim Bonting, K8JV Bloomfield Hills, MI**

(The latter two being gifts from Roger Cameron, WB8HBJ)

•

It's all a matter of attitude. In a club bulletin we saw an account of their Field Day. Some of the members said they would help set up the station and antennas but wouldn't operate because it was too much like a contest.

After watching their fellow club members, it appeared the operators were enjoying themselves. So, the reluctant ones asked if they could operate. After awhile they said, "This is fun!"

There are many Amateur Radio operators who just loathe contests and contesters. "What's the big deal about giving out numbers?" Heard on 20 Meters during the California QSO Party was one indignant Ham calling it the "California QRM Party".

But let's look at the other side of the coin. Along with results, *CQ* magazine prints comments from the participants:

"It's great to still feel the rush generated by the contest weekend." N4KW.

"All in all, this was a most excellent journey around the world in a weekend." WO4O.

"I had a blast. Worked a couple of new ones and look forward to doing it again." K5IQ.

"We enjoyed so much and will be back next year with many friendships." JA6ZPR.

"The *CQ* WW is still the most exciting operating activity to work the world. After 32 years as a radio amateur, I'm still thrilled by the enthusiasm it brings to me personally and to thousands of others, too." VX3N.

"My 49th *CQ* WW and still enjoying it." GM3BCL.

"My first *CQ* WW. It was fantastic." PY8MD

"It was great fun. I enjoyed it every bit." VU2BGS

•

Odd, so many say Amateur Radio is dying or withering away. Well, it certainly is NOT fading away for the avid contester, DXer, QRPer, hilltop microwaver, maritime mobile netter, etc., It is not dying for those who enjoy RADIO. I heard someone (a licensed amateur) say, "With cell phones and the Internet who needs Ham Radio? The answer is an easy one. Those who like RADIO! We aren't depending on someone else's wires to get us to wherever we are going.

At work we can fax or email to anywhere in the world. But the thrill of that foreign country only comes when you hear him on the Ham bands. My longtime friend Gary Stilwell, KI6T, just went to the Bahamas for the *CQ* WW DX Contest. Excitement!

That sure beats the Internet. But then, one must bring to the table the ability to be excited about something.

•

The quite well-meaning say that in order to get "young people" into Amateur Radio we should drop the code and make the theory harder. At a recent convention forum such an advocate was asked if that made sense as "young people find the code easy and the theory hard." There wasn't much of an answer.

We may be deluding ourselves by feeling today's "young people" are the salvation of Amateur Radio. How can you entice someone with visions of talking to Japan when they don't know where Japan is, and couldn't care less? They (with some exceptions) can't even find the USA on a map.

•

The actual solution to the dilemma may be elsewhere. In a club bulletin it was related that the club was in favor of running licensing classes. A volunteer came quickly to the fore to teach CW. No one would get off their duff to teach the theory.

It's been stated that the average person watches TV for 7-1/2 hours a day. Maybe that's the culprit.

•

How many Hams can say they are responsible for individually bringing in at least one new amateur into the ranks? —Armond, N6WR

"VHF, UHF, AM, FM, Air Band, Police, Fire--TV too? Wow"*

"The VX-1R is smaller than most pagers!"

"Over 19 hours of use from the rechargable lithium ion battery!"*

"Looks like Yaesu did it again!"

VX-1R

Ultra-Compact Dual-Band Handheld

Features

- Frequency Coverage Wide Multi-Band Receive RX: 76~999 MHz** TX:144~148, 430~450 MHz
- AM/FM/TV Broadcast Receive
- AM Aircraft/Public Safety Receive
- CTCSS Encode/Decode
- DCS Encode/Decode
- CTCSS/DCS Tone Search
- Dual Watch
- SmartSearch™
- Auto Range Transpond System™ (ARTS™)
- Priority Channel Alarm
- ADMS-1D Windows™ Programmable
- 1 Watt External Power Supply
- 80 Minute Rapid Charger
- Flexible Antenna, Belt Clip, Hand Strap

**Cellular blocked*
**Battery Life: 5-5-90 duty cycle.*

LIMITED TIME! SUPER NEW LOWER PRICES! VX-1R, FT-50RD, FT-51R

The world's smallest HT with all the high-tech features Dick Tracy could ever want!

The ultra-compact size of the VX-1R Dual-Band is the first thing you notice as you cradle it in your palm. But the high-tech features make this radio one you must have now! Simple combinations, using seven buttons and one knob, control this marvel of engineering. One soft key touch, and wide receive VHF/ UHF--76~999 MHz RX (except cellular); 144~148, 430~450 MHz TX, or AM/FM Broadcast, Aircraft, Police, Fire--even TV, spring to life! Touch again for Yaesu-exclusives, SmartSearch™ and ARTS™, or Priority Channel Alarm. Built-in CTCSS and DCS Encode/Decode for 2m/440 amateur bands, CTCSS/DCS Tone Search, and Dual Watch, are included along with 291 Memory Channels in 9 banks with 500 mW power output. Backlit LCD Display shows 6-character alphanumeric capability; backlit keypad makes operation easy in dim light. And, although the VX-1R is the world's smallest† dual-band HT, you get over 19 hours* of use with just a 1 hour recharge from its long-lasting lithium ion battery! Big features, small size--the most satisfying combination in the world! See it at your Yaesu dealer today!

FT-50RD
MIL-SPEC,Heavy Duty, Dual-Band Handheld

FT-51R
Dual-Band with Dual Receive and Help Menu Function

YAESU
...leading the way SM

For the latest Yaesu news; hottest products, visit us on the Internet! http://www.yaesu.com

†Smallest HT as of Jan. 1998

Visit us on the web at: www.wr6wr.com

SATERN calms hurricane fury

By Major Patrick McPherson, WW9E

SATERN members responded to Hurricane Mitch's fury with an equivalent measure of compassion. This was the first hemispherical response by SATERN (Salvation Army Emergency Team Radio Network), and thanks to years of practice and involvement in smaller-scale emergencies, SATERN members were equal to the task. Immediately following the devastating rains, the SATERN 20-meter emergency net continued for 19 days; there were more than 500 responses to health-and-welfare inquiries. The Salvation Army, itself, remains deeply involved in assisting Central American victims but now there is no International need for emergency Amateur Radio communications. Indeed, at the time this is being written, amateurs are still providing local emergency communications.

SATERN was organized over 10 years ago to provide a framework for amateurs that wished to support the disaster-relief efforts of The Salvation Army. SATERN volunteers have made dramatic contributions in a variety of disasters such as the Plainfield, IL, tornadoes that struck in 1990; air crashes near Pittsburgh, PA, in 1994 and Rose Lawn, IN, in 1994; the Oklahoma City bombing in 1995; and Hurricane Gilbert in the Caribbean in 1988. The Hurricane Mitch response was different, however, because for the first time SATERN provided incident communications coordination. I want to emphasize, though, that we coordinated the efforts of many volunteer groups such as ARES, Hurricane Watch Net, and MARS; without the assistance of many amateurs (and short-wave listeners, too) the job would not have been done as well.

Quentin Nelson, WA4BZY, handled Hurricane Mitch Traffic.

For years SATERN has maintained a morning net on 14.265 MHz at 1500Z. Most mornings the net is like any other 20-meter net. People check in, exchange signal reports, give information on any unusual local conditions, and rag chew briefly if time and band conditions permit. Things changed rapidly when Mitch began to hover over Central America. Frankly, at first we found it hard to believe the grim reports amateurs on site were reporting. Hundreds dead, thousands missing and homeless. In fact, as we all know now, the final toll was much, much worse than the initial reports. But I take pride in our hobby when I realize that it was Amateur Radio operators who first made the plight of Honduras, Guatemala and Nicaragua known. Their reports from the front lines on the SATERN net provided good intelligence for The Salvation Army and other relief agencies to begin readying themselves for a massive response.

When the enormity of the calamity (and the professionalism of the SATERN net) became known, on 10 November 1998 FCC Deputy Chief Arland K. Van Doom restricted the net frequency to emergency communications. This meant amateurs not involved in handling emergency traffic were ordered to stay off the frequency. Of course the restriction did not limit traffic to official SATERN members, but SATERN members provided the leadership serving as Net Control Stations. Herman Cuerva, HR1HCP, and Father Ray Richard, N1AHB/HR5, were among the many stations who checked in regularly with crucial information.

We quickly decided to dedicate the frequency as much as possible to logistical and administrative traffic. Health-and-welfare inquiries, on the other hand, could be handled more efficiently through the Internet and e-mail. Longtime SATERN volunteer Paul Graham, K9ERG, a professional website designer, created and posted a page called Angel Net. Persons seeking specific information were requested to submit their inquiries to the website; many times Amateur Radio operators collected these inquiries and submitted them to the web on behalf of those desiring information about loved ones. The e-mail, then, was routed to Quent Nelson, WA4BZY, a veteran of many disaster relief efforts. With the assistance of Theresa and Gary Hall, KB5LWZ, and Al Shaver, NH2Z, Nelson responded to more than 500 messages.

This division worked out well. Using email, we could take a little more time with our answers, giving a few words of solace to all who sought our help, even if the news was disheartening.

In fact, the net served both the victims and those providing assistance. One of the primary functions of the net turned out to be monitoring the whereabouts of pilots delivering relief goods under the auspices of organizations such as Wings of Hope, Mission Air, Grace Air and the Texas Baptist Men's Fellowship. Mel, KI6WT; Mike Sullivan, HR3MTS; Shane, KD5ADD/HR3; Jack HR3JFR, and Rich Musat, KAØHIH/HR3 operated aeronautical mobile and became part of the "Net Family." Net members kept track of take-offs, expected arrival times, landings, and so forth. Several of the pilots reported that beyond the actual assistance provided, they felt more comfortable just knowing we were there.

There is never a good time for a disaster, but Mitch happened just as SATERN concluded its Autumn Disaster Services Seminar. Held annually at The Salvation Army's Camp Wonderland in Kenosha, Wisconsin, the conference attracts participants and speakers from all over. In addition to the specific information discussed and the simulations conducted at other sessions, the gathering gave members that priceless experience, the eyeball QSO. I am convinced our team worked together more smoothly because so many volunteers knew each other personally. With this cohesive base, we were able to smoothly include countless other stations that stood by monitoring in case they could help with a relay, a phone patch, or anything else. Repeatedly, stations came on after the net and apprised me that they had monitored in case they could help. We must remember than many times just being there is important. Sometimes the best thing done is simply listening.

It would trivialize what people are calling the worst natural disaster in 200 years to reduce it to a learning exercise. But the truth of the matter is that we did learn a lot from the experience. We learned how to tighten up operations. We refined our ability to track shifting propagation. Perhaps most important, we realized (not for the first time) that SATERN volunteers bring more to the effort than just their communications skills. Some are multilingual, some have advanced computer skills, some know about aviation or epidemic control or weather patterns. They have one important thing in common, however, they want to use their God-given talents to help those in need. I believe SATERN's response to Hurricane Mitch shows Amateur Radio operators at their very finest.

Working DX on the weekend

By Lee Zalaznik, KI6OY

Weekends are made for relaxing, but not the third weekend of April 1998. Saturday started out with an early morning Livermore Amateur Radio Klub breakfast and meeting. The breakfast was the usual fare of bacon and eggs with some pleasant conversation. The club meeting was good; at least no controversies erupted.

After the meeting I came home and started to do yard work. I mowed the front yard with my very old, cranky and hard-to-start lawn mower. I took a break and had lunch, then started on the back yard. The grass was tall in spite of weed-whacking it three weeks before this mowing attempt. Because the grass was so tall, my mower would clog and stall frequently. After restarting the mower and continuing on, I accidentally ran over and cut the coax for my G5RV antenna. After several tries to get the mower restarted, with no success, I took a break and ran down to the local radio store and bought some replacement coax. Upon returning to the back yard, I was able to restart the mower and continued the chore.

What to do next? What any self-respecting Ham would do! I proceeded to replace the coax I had so neatly severed earlier. The installation of new connectors and laying out the cable went without a hitch. I connected the cable to my radio and lo and behold! Signals were stronger! I wonder if that old coax had gone bad, or was it bad when I installed it? I listened around the bands that night, but didn't try to make any contacts.

On Sunday, church services and more mowing kept me busy all day. About 9:00 p.m., I checked the packet cluster for any HF activity. I did see some Russian stations on phone but none on CW. I sat down at the rig and listened for any station calling "CQ." I heard a Russian station calling "CQ CQ CQ de RA9CCK." Another station answered him and made a contact, so I waited my turn. After the QSO, RA9CCK put out another "CQ." I sent my call, KI6OY just one time. He came back "KI6OY de RA9CCK." We were off and running! My first Russian CW contact! I then gripped the key and started to send his call, my call, his report, my name and QTH. I then turned it over to him and he sent his name is Nick, QTH is Kemensk in central Asiatic Russia. He finished the QSO with his greetings and QSL direct. What an experience! I am going to add this new QSL card to my collection to get my DXCC CW award. As some weekends go, it started out uneventful and ended with a bang.

David Splitt, KE3VV

Antenna loophole?

As promised, this month's column is a closer examination of federal authority over local ordinances and private contracts restricting amateur antennas. Ironically, although the FCC's application of its preemptive authority to Amateur Radio has been stagnant enough for mosquitoes to breed, the advent of satellite TV technology has precipitated a flood of rulemaking activity. The FCC has reacted to both industry pressure and congressional mandate to lower many of the barriers to installing the new satellite antennas.

But unlike earlier rules that were intended to override local regulations affecting private homeowners, such as zoning ordinances and building codes, the new FCC rules are much broader in scope. Federal authority is being used to permit consumers to erect satellite antennas in apartments, condos, manufactured home parks, and other areas where private contract and deed restrictions historically have banned any form of outdoor antenna installation.

Before you sit down to fire off an email about "who cares where I get my 200 channels of WWII documentaries and Peruvian soccer league games, this is supposed to be a Amateur Radio column!" let's explore the interesting possibilities for Hams lurking between the lines. (By the way, if you do email with ideas for topics, critiques, or just to ragchew on-line, be sure you use my new email address davidsplitt@erols.com>). The changes in these non-amateur regulations may open some interesting doors for Hams, even those who have no interest in HamSat or other UHF activities.

In last month's column, the discussion focused on the now-ancient FCC Memorandum and Order 85-506 ("Federal Preemption of State and Local Regulations Pertaining to Amateur Radio Facilities), which we all know and love as 'PRB-1.' The FCC's philosophy (OK, those of you stocking up groceries for Y2K can call it a 'modus operandi') revealed in a footnote comment in PRB-1, has been non-involvement. "restrictive covenants in private contractual agreements," the FCC said succinctly, "are voluntarily entered into by the buyer or tenant when the agreement is executed and do not usually concern this Commission." So much for putting up a yagi on your townhouse roof.

While it was giving lip service to restrictions on Amateur Radio antennas more than a decade ago, the FCC also acted to reduce restrictions on the then-emerging satellite broadcast industry. The rule was convoluted and vague, and was cursed with a 'don't bother us with your problems' approach to enforcement (sound familiar?). There were a lot of disputes under the rules, because they were vague in many areas. But parties who could not agree on what the FCC rule meant and how it applied had to jump through many hoops, including exhausting civil court remedies, before the FCC would even look at the issues.

Finally the 2nd Circuit U.S. Court of Appeals told the FCC that its "exhaustion of remedies" policy was no good. In addition to this wake-up call, the satellite antenna manufacturers and service providers were getting organized for a major push to gain access the vast market of folks who rent apartments or live in condos, townhouses, and other communities with antenna-restricting covenants. These powerful entities and their cadres of lobbyists went to the Congress and achieved the passage of Section 207 of the Telecommunications Act of 1996, which directed the FCC to adopt rules "to prohibit restrictions that impair a viewer's ability to receive video programming services through devices designed for over-the-air reception of television broadcast signals, multichan-

Amateur Radio Call Signs

The following shows the last call sign in each group to be assigned for each VEC Region under the sequential call system as of 4 November 1998. For more information about the sequential call sign sytem, see Fact Sheet PR5000 #206-S dated August 1996, or contact the Federal Communications Commission, Consumer Assistance Branch, 1270 Fairfield Road, Gettysburg, PA 17325-7245, toll-free 1-888/225-5322; email: fccitd@fcc.gov.

Radio District	Group A Am Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
0	ABØIC	KIØOM	++	KCØEJH
1	AA1UE	KE1KM	++	KB1DJC
2	AB2FV	KG2PI	++	KC2EGH
3	AA3RV	KF3CE	++	KB3DDM
4	AF4MH	KU4VX	++	KG4AQE
5	AC5RR	KM5TH	++	KD5FMT
6	AD6HE	KQ6YL	++	KF6TLR
7	AB7ZN	KK7QN	++	KD7DDG
8	AB8DK	KI8GX	++	KC8LDZ
9	AA9WQ	KG9OS	++	KB9TPD
N. Mariana Is	NHØG	AHØBA	KHØHJ	WHØABJ
Guam	++	AH2DI	KH2TX	WH2ANX
Hawaii	NH7R	AH6PO	KH7JZ	WH6DFA
American Samoa	AH8R	AH8AH	KH8DM	WH8ABF
Alaska	ALØN	AL7RH	KLØQL	WL7CUY
Virgin Islands	++	KP2CP	NP2KF	WP2AIJ
Puerto Rico	NP3Y	KP3BL	NP3ZS	WP4NOB

++All call signs in this group have been issued in this district.

Very Important Notice!!

If you received this copy of ***Worldradio*** and you're not a regular subscriber, this was your free sample copy. We sent it to you so you could see all the news, features and columns in ***Worldradio***.

You are cordially invited to join in with all the other active Amateur Radio operators by subscribing.

Worldradio is two-way communication. Send in your news, information and letters.

Your comments and suggestions are most welcome.

Amateur Radio is a very rewarding activity and ***Worldradio*** hopes to reflect that.

NEWS:
2120 28th St.
Sacramento, CA 95818
(916) 457-3655
Fax: (916) 457-7339
n6wr@ns.net

SUBSCRIPTIONS:
1901 Royal Oaks Dr. #190
Sacramento, CA 95815
(800) 366-9192
(8 a.m.-5 p.m. PT, M-F)
Fax: (916) 920-1015
n6wr@delphi.com

Name_____ **Call**_____

Address_____

City_____

State_____ **ZIP**_____

❒ **New** ❒ **Renewal** ❒ **Gift**

12 issues	**(only $1.25 per issue)**	**$15.00***
24 issues	**($1.17 per issue • save $2)**	**$28.00***
36 issues	**($1.14 per issue • save $4)**	**$41.00***
Lifetime	**(Be a WR super booster)**	**$187.00***

*(non-U.S. ZIP: 1 year, $25 — 2 years, $48 — 3 years, $71 — Lifetime, $287)

We gratefully accept U.S. Funds drawn on U.S. Banks, International Money Orders, Canadian Postal Money Orders (in U.S. Funds), or you can charge your subscription.

❒ Check enclosed ❒ VISA ❒ MasterCard ❒ AmEx

Card#_____ Exp.date _____

Signature_____

Please clip (*photocopies o.k.*) and mail to:

Worldradio

1901 Royal Oaks Drive, Ste. 190 • Sacramento, CA 95815
For charge subscriptions only, call TOLL FREE: (800) 366-9192 weekdays, 8 a.m. to 5 p.m. Pacific time.

Thank you!

nel multipoint distribution service and direct broadcast satellite services." The stage was set for CS Docket No. 96-83.

The FCC did its rulemaking work in two stages. The first Report and Order (which is the way in which the FCC promulgates a rule) was issued in August 1996. This rule (FCC No. 96-328) covered all types of restrictions, including both local zoning and other codes and private contractual and easement restrictions. The single exception, coverage of leasehold agreements (such as apartment rentals) was put off for further study and wrangling (got to keep the lawyers busy raking in the bucks representing all these parties don't we?). After all was said and done, the second Report and Order (FCC No. 98-273) added contract and lease restrictions to the general coverage of the preemption rules.

Together these two rulemaking orders fill more than 120 pages, so a brief synopsis is in order. The Rules (which are codified in Title 47 of the Code of Federal Regulations, Subpart S, Section 1.4) prohibit:

Any restriction, including but not limited to any state or local law or regulation, including zoning, land-use, or building regulation, or any private covenant, contract provision, lease provision, homeowners' association rule or similar restriction on property within the exclusive use or control of the antenna user where the user has a direct or indirect ownership or leasehold interest in the property, that impairs the installation, maintenance, or use of:

(1) an antenna that is designed to receive direct broadcast satellite service, including direct-to-home satellite services, that is one meter or less in diameter or is located in Alaska; or

(2) an antenna that is designed to receive video programming services via multipoint distribution services, including multichannel multipoint distribution services, instructional television fixed services, and local multipoint distribution services, and that is one meter or less in diameter or diagonal measurement; or

(3) an antenna that is designed to receive television broadcast signals.

For purposes of the rule, the FCC defines a restriction that ìimpairs installation, maintenance or use of an antenna if it:

(1) unreasonably delays or prevents installation, maintenance or use,

(2) unreasonably increases the cost of installation, maintenance or use, or

(3) precludes reception of an acceptable quality signal.

The FCC still allows restrictions that are: (1) necessary to accomplish a clearly defined safety objective in a nondiscriminatory manner,

(2) are necessary to preserve an historic district ,and

(3) are no more burdensome to affected antenna users than is necessary.

It also allows local governments or associations to apply to the Commission for a waiver to address local concerns of a "highly specialized or unusual nature." Parties may also petition a court or the Commission for a declaratory ruling to determine whether a particular restriction is permissible or prohibited under the rule. In each case, the burden of demonstrating that a particular governmental or nongovernmental restriction complies with the rule and does not impair the installation, maintenance, or use of devices designed for over-the-air reception of video programming services is on the party that seeks to impose or maintain the restriction.

I know, I know! So what? The law and FCC preemption rules don't cover Amateur Radio antennas. Correct. Let's be real clear about that. A footnote to FCC No. 96-329 states clearly that the rules in 47 C.F.R. (section 25) do not affect restrictions on towers or other equipment used in personal communications, Amateur Radio, or other such services. So the 40-meter super yagi on the crank-up tower is still not an option. But are there other options that the clever, but law-abiding, Amateur Radio operator might be able to pursue by piggyback on the new-found freedom of apartment dwellers, condo owners, and residents of restricted townhouse or manufactured home communities?

An ARRL petition

The most obvious way for all amateurs currently hamstrung by their landlords and homeowners associations from erecting even modest antennas would be for the ARRL to file a petition with the FCC requesting that Amateur Radio antennas be included in the technology covered by the preemption rule. The door is open wide, and there are a number of factors that might persuade the FCC that such a minor change would serve the public interest. The fact that the emphasis of the rules in on receiving antennas is no deterrent. The FCC specifically found that some of the satellite technologies include transmitting capabilities and stated clearly in FCC No. 9-78 that, "the rule we adopt specifically includes transmitting facilities, with the exception of RF emission hazard regulation."

While the "diameter of dish" limitations in the satellite antenna rule (generally limiting the presumption that an antenna qualifies for exemption from restrictions to dishes a meter or less in diameter) would not apply to most amateur antennas, the principles are the same. The presumption applicable to amateur antennas would be analogous if the same standards were applied. Being able to put up an antenna that was sufficient 'to get the job done,' with minimum intrusion on aesthetics, property values, sight line obstructions, and other considerations would be simple compared to the obvious presence of a satellite dish more than 3 feet in diameter. Geez! All we want to do is put up a skinny little wire or a handsome vertical. I have personally worked all counties (USA-CA #950), all states on all bands, and over 150 DXCC countries (confirmed) using an end-fed 17 foot piece of wire that is looped around branches in the trees. The neighbors know it's there, but they can't see it.

There is plenty of incentive for the ARRL to file a petition. There are an awful lot of Hams and potential Hams living in antenna-restricted housing. Allowing minimal Amateur Radio antenna installations in these venues would greatly expand the pool of potential licensees and ARRL dues-payers. As with most hobbies, the younger they start, the better chances of keeping them. Most younger folks do not own single family homes with lots fit for antenna farms. They live in apartments or have taken the initial home ownership plunge by purchasing a condo or townhouse. It would be an awful lot easier to find new recruits for Amateur Radio if you didn't have to tell them, "by the way, you can't put up an antenna where you live, so your exploration of the world of Amateur Radio will be sharply limited." Of course there

are a number of stealth solutions available now, and some are very effective, but the fact remains that they can be a daunting obstacle to the newcomer.

Full-wave loopholes

If you haven't been blessed with the patience to wait for the ARRL to pick up the ball on this one, there are some other possibilities. Two come immediately to mind. The restrictions in leases and covenants and easements apply to putting up antennas, not to making radio transmissions. They can't stop you from standing on your apartment balcony taking on a 2-meter handheld. In addition to inside stealth antennas and loading up the drainpipes that pass by your window, Hams have found many ways to get around restrictions. One of the most successful ploys I have used when visiting or living temporarily under antenna prohibitions is to run some coax out to the curb (if you are gonna bury it, the nighttime is best) and hook it into the mobile hamsticks on the Big Green Dragon (1984 Caddy... a two-ton steel counterpoise).

But if you put up a satellite antenna on a 12-foot tower, for example, who says you can't use the tower or the guy wires as an antenna? I hope to see some really clever tech articles in the months ahead specifically touting designs for antennas that utilize the perfectly law-abiding satellite antenna set-ups to piggyback a Ham antenna. Remember, they can't stop you from transmitting (as long as you don't violate RF emission standards). As far as they are concerned, using the satellite rig is no different than loading up the metal roof of the carport attached to your manufactured double-wide.

For those of you who are the wheeler-dealer types, or just don't care about putting out the extra cash for a satellite TV system and antenna, no, I don't think you can get away with an antenna that is not actually attached to working Sat-TV equipment, because the FCC rule is meant to prohibit antenna restrictions that impair actual "reception." On the other hand, the FCC has given you a 3-foot plus bargaining chip. You now can go to your homeowners association or community group or landlord and say, with a smile on your face, "Gosh, folks, I can legally put up a pretty good-sized tower on the roof with a satellite dish. I'll agree not to do that if you let me put up a ground-mounted vertical in the back yard or a dipole between the trees." A little diplomacy and some education on the potential benefits of Amateur Radio to the community might lead to a compromise that gets you permission to put up an antenna that really gets out.

There are a lot of fine points in the new rules that aren't covered here, but if you are thinking of pushing your local ARRL reps for action or taking on the community association or your landlady, the full text of the two latest orders can be downloaded from www.fcc.gov (search on the FCC document numbers or "satellite tv antenna order:"). Additional practical information is also likely to be at the fingertips of your local sat-tv dealer.

Next month we might look further into the tangled depths of RF emission regulations or the hidden tricks and treats inside another regulatory document. I'd rather write about your interests, so if you have any ideas, questions, or comments about the world of Rules & Regs, write or send an email. — David Splitt, KE3VV, can be reached at: 6111 Utah Avenue, N.W., Washington, DC 20015; or via email: david splitt@erols.com.

FCC acts in alleged exam, license fraud cases

The FCC's Compliance and Information Bureau has acted in several Amateur Radio cases it inherited from when it shared enforcement duties with the Wireless Telecommunications Bureau. In all of the cases, the FCC said it appeared that individuals attempted to obtain an Amateur Radio license or upgrade by fraud or misrepresentation.

On 14 December 1998, the FCC downgraded two amateur licensees and canceled the ticket of a third in Michigan. Busted from Advanced to Tech Plus were Lawrence A. Repp Jr., N8HFN, of Gaylord, and Alan E. Quirie, KA8ZRR, of Royal Oak. The FCC pulled the Tech Plus ticket of Steven A. Penn, formerly KC8HUM, of Southfield.

The Commission said the three filed amateur applications claiming to have taken examinations at Oak Park 03 June 1997. Evidence shows that the three did not sit for the exams and that their names "were added and signatures forged, sometime after the tests were administered, by one of the four examiners." That examiner, the father of one of the exam candidates involved, is said to have forwarded the session package on behalf of the VE team to the ARRL VEC for FCC filing.

"Three of the examiners knew nothing of the scheme," the FCC said. The other three VEs brought the situation to the attention of the ARRL VEC and the FCC after learning that names had been added to the list and that their names had been forged on the ARRL VEC Administering VEs Record. The FCC said it would act in the case of the fourth examiner by month's end. The Commission also is looking into possible enforcement action against another amateur whose name was added to the list after the test session but whose application was not actually submitted to the FCC.

The FCC also dismissed two amateur applications in Puerto Rico after the applicants failed to answer questions put to them by the Commission. In the case of Jose R. Velez-Rivera, of Rio Pedras, an FCC official said it appears that an imposter tried to change another amateur's call sign, address, and date of birth to his own to get a license without taking an exam. In the second case, the FCC dismissed the renewal and General class upgrade application of Hector A. Santiago, WP4DCB, of Camuy. An FCC official said it appears Santiago tried to renew as a General when he only had a Novice ticket.

Velez-Rivera and Santiago were notified by the FCC 23 October 1998. The FCC has updated its database to reflect the dismissals. — *ARRL Letter*

Slow Scan TV aboard MIR

By Don Miller, W9NTP

The rewards of success is now a reality for a group of Ex perimental Amateur Radio Operators and is currently being shared around the world!

Almost 2 years ago an idea was discussed among Don Miller, W9NTP, Farrell Winder, W8ZCF, Hank Cantrell, W4HTB, Dave Larsen, N6CO and Miles Mann, WF1F, about the possibility of putting a small, lightweight Amateur Radio SSTV System aboard the Mir Space Station.

On Saturday, 12 December 1998 exciting rewards were received after obtaining, assembly and getting the equipment aboard Mir. Beginning around 1725 UTC a series of perfect pictures were recorded, 3 of which are shown here.

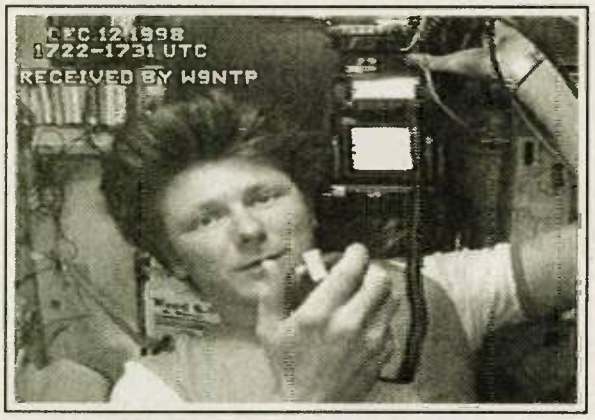
The 1st picture shows Cosmonaut Gennady Padalka (Flight Engineer aboard Mir) with the SSTV equipment in the background. This equipment was sponsored by Tasco Electronics, Kenwood Corp, PictureTel Corp, Apple Computer, and assembled by W9NTP, W8ZCF and W4HTB.

The 2nd picture shows both Flight Engineer Gennady Padalka and Commander Sergej Andeyev aboard Mir in front of the camera.

The last shot is a typical picture being received from the Piroda Module showing a part of Mir and the Earth in the background. A very detailed history and narrative of the evolution and progress of this story can be found at the MAREX(NA) web at: www.geocities.com/CapeCanaveral/Hangar/7355/sstv_proj.htm.

Initial tests were set up on 145.985 MHz FM being shared with the Mir PMS frequency. At the conclusion of tests, the frequency set aside for SSTV from Mir is 437.975 MHz(+/-) doppler. SSTV Mode is Robot 36, pictures every 2 minutes, with the possibility of 720 pictures/day.

Earth Stations should now be able to become closely aquainted with the Mir Space Station and share in the excitement of receiving pictures from Outer Space. Schools who schedule contacts with Mir will especially benefit in educational aspects by being able to see who is actually speaking to them.



Cosmonaut Gennady Padalka suffers from a common ailment found in outer space — a bad hair day!

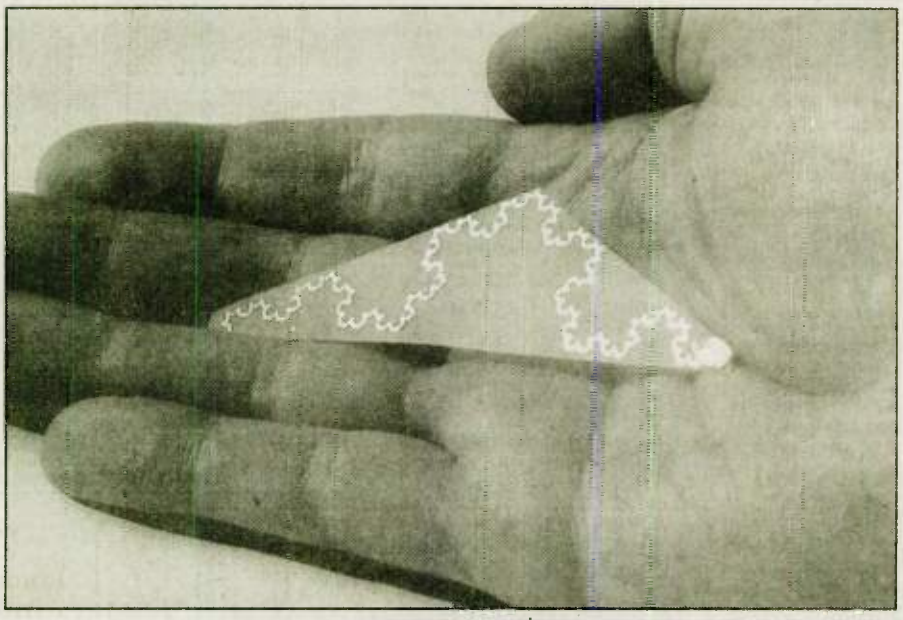
Flight Engineer Gennady Padalka and Commander Sergej Andeyev, "What's that little red light mean?"

Looking out the window of Mir — extended solar panels with the Earth as a backdrop.

Antennas, fractals and determination — profile of "Chip" Cohen, N1IR

By Phil Salkind, N1ZKT

When Nathan "Chip" Cohen, N1IR, built the first fractal antenna, his mind was not on the future of telecommunications antennas. In 1988, Chip had a 'no antenna clause' at his Boston apartment. To assure good 2 Meter repeater connections, he used an intricate fractal shape. The fractal's pattern, repeating on many size scales, acted to self-load the antenna. It provided a good 50 ohm match and could hit repeaters well into New Hampshire. But alas, his neighbor recognized the bizarre structure as an antenna, and its days were numbered.



An actual working 440 MHz fractal antenna.

But Chip wasn't one to give up. Starting as a young 11 year-old novice, WN1HBX, Chip pushed ahead. His first antenna was a dipole up six feet; his best DX a VE2. However, in a couple of short years of odd jobs and yard work, he had managed to pay for a Swan 500 and a Yagi. At 14, Chip had DXCC and was the youngest Extra, as WA1JHQ in New England.

As Chip started his college career, he was drawn more and more to antennas and their applications. After a bachelor's degree in physics, he received his degree in astrophysics from Cornell University. Working with antennas like the Very Large Array and Arecibo, he conducted a number of breakthrough radio astronomy projects and was the only graduate student at the time to actually do work for SETI (the search for extraterrestrial intelligence), completing his Ph.D under SETI pioneer Frank Drake, and later becoming one of the inspirations for the character of Ellie Arroway in the movie *Contact*.

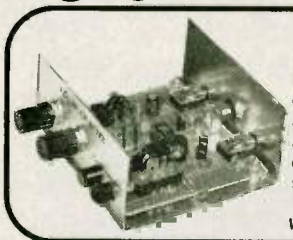
In the last decade, Chip has continued his SETI and antenna work. And as a professor at Boston University, Chip trains the next generation of engineers. In 1995, he achieved a lifelong goal of #1 DXCC Honor Roll. His fractal antenna work extends a flair for invention. In July, Chip was recognized for his ability by being named a finalist in the Discover Magazine Awards for Innovation for fractal antennas.

Fractal antennas pose a few surprises. First, they have a tendency to be very broadband or multiband. Second, they can shrink the size down without coils or capacitors and are very efficient. Several simple designs have been published in *73*, *DX Magazine* and *Communications Quarterly*. Chip promises yet smaller Yagis, rhombics, helices, and many other antennas using fractal design. he recently reported the replacement of spring 'rubber duckies' with far more efficient 'conformal cylinders' which house fractal designs. Small, high performance internal antennas also become viable with fractals.

Forging ahead, N1IR's thoughts are never far from antennas and Amateur Radio, and he looks forward to a future inspired by them.

VECTRONICS® kits

High-performance electronic kits . . . fun to build and use!

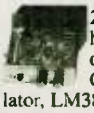


Full featured CW Keyer Kit, $24.95!

VEC-201K, the best electronic keyer bargain in ham radio! Send beautiful sounding Morse Code. Self-completing dot-dashes and dot-dash memory forgive timing errors -- makes sending CW easy and accurate. Front panel volume/speed (3-65 wpm) controls. Weight adjusts 25-75%. Sidetone (300 -1000Hz) has LM386 audio amp for external speaker/phones. Select Iambic A or B, fully automatic or semi-auto "bug" mode. Tune mode for tuning rig. RF proof. Sleep Mode battery saver. Use 9V battery. 1¾x4x3½ in. *Simple skill level.*

VEC-201K shown in optional case (vinyl cover top not shown), VEC-201KC, $14.95

CW Memory Keyer Kit stores 512 characters in four 128 character non-volatile EEPROM message memories. *Carry on entire QSOs by just pressing memory message buttons.* True sinewave sidetone with soft rise and fall time eliminates harsh keyclicks. Has all features of VEC-201K CW Keyer Kit. 1¾x 6¾x5¼ in. *Simple skill level.* Order **VEC-221K, $69.95.**

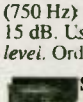


20/30/40/80 Meter Receiver Kits give high performance! Covers entire band or tailor to cover desired portion. Copy CW/SSB/AM. NE602/ 612 mixer-oscillator, LM386 high gain audio amplifier. 1¾x4¾x 5¼ in. *Moderate skill level.* Order **VEC-1120K** (20 Meters).**VEC-1130K**(30 Meters),**VEC-1140K** (40 Meters), **VEC-1180K** (80 Meters). **$29.95 ea.**

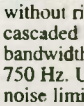
20/30/40/80 Meter QRP CW transmitter Kits let you work the world! Variable crystal oscillator tuning, front panel switch selects 1 of 2 crystals. 1 crystal for popular frequency included. Transmit/Receive switch lets you connect receiver. 1¾x4x3½ in. *Intermediate skill level.* Order **VEC-1220K** (20 Meters). **VEC-1230K** (30 Meters), **VEC-1240K** (40 Meters), **VEC-1280K** (80 Meters), **$29.95 ea.**

Tunable SSB/CW Audio Filter Kit has sharp *four* pole peak and notch filters. Eliminate interference. Zero in with frequency control and adjust bandwidth for best response. Extra steep skirts. Tune frequency from 300 to 3000 Hz. Vary bandwidth from 80 Hz to nearly flat. Notch is an outstanding 50 dB. 1 Watt amplifier. Speaker/Phone jacks. 12 VDC at 300 mA. 1¾x4¾x5¼ inches. *Intermediate skill level.* Order **VEC-841K, $34.95.**

Super CW Audio Filter Kit gives you three bandwidths: 80, 110, 180 Hz. Eight poles gives super steep skirts with no ringing. Pull CW QSOs out of terrible QRM! Plugs into phone jack to drive phones. QRM down 60 dB one octave from center frequency (750 Hz) for 80 Hz bandwidth. Improves S/N ratio 15 dB. Use 9V battery. 1¾x4x 3½ in. *Simple skill level.* Order **VEC-820K, $19.95.**



Super CW filter/amplifier Kit has powerful 1 watt audio amplifier to drive speaker. Pull CW signals out of QRM with extremely narrow 80 Hz bandwidth without ringing. 8 poles active IC filtering uses cascaded low-Q stages. Razor sharp selectivity. 3 bandwidths: 80,110, 180 Hz. Center frequency: 750 Hz. Up to 15 dB of noise reduction. Auto noise limiter knocks down static crashes, impulse noises. Use 9-18VDC, 300 mA max. 1¾x4 x3½ in. *Simple skill level.* Order **VEC-821K, $29.95.**



Super SSB Audio Filter Kit dramatically improves readability with 8 poles. Optimizes audio bandwidth, reduces sideband splatter, low, high pitched interference, hiss, static crashes, background noise, 60/120 Hz hum. 375 Hz highpass cutoff. 2.5, 2, 1.5 kHz low-pass cutoffs. Plugs into phone jack to drive head phones. Use 9V battery. 1¾x4x 3½ in. *Simple skill level.* Order **VEC-830K, $19.95.**

144/220/440 MHz Low-Noise Preamplifier Kits soup up your antenna system. Helps pull in weak signals. Works wonders for scanner or ham-band receiver. Quality microwave type bipolar device gives great low-noise performance and immunity from damaging electrostatic discharge. 1x1½ in. *Simple skill level.* Order **VEC-1402K** (144 MHz),**VEC-1422K** (220 MHz), **VEC-1444K** (440 MHz), **$17.95.**

High-performance 2 Meter Preamp Kit pulls weak signals out of noise. Solves three reception problems -- boosts signals using a 1-dB noise figure microwave transistor, provides razor-sharp bandpass filtering, eliminates unwanted electrical noises with built-in balun. Uses 9-14 volts DC. Tiny 1½x3x1 in. fits in any size box. *Intermediate skill level.* Order **VEC-1402DK, $59.95.**

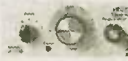
2/6/10 Meter FM Receiver Kits let you tune into the world of ham radio. Catch all the action! Each covers the entire FM sub-band and runs off your 9 volt battery. Plug in speaker or headphones for loud clear reception. 1¾x4x3½ in. *Intermediate skill level.* Order **VEC-1002K** (2 Meters), **VEC-1006K** (6 Meters), **VEC-1010K** (10 Meters), **$34.95 each.**

2 Meter Monitor Kit receives 144-148 MHz. Low noise, high gain RF preamp gives you excellent 0.1 uV sensitivity. Air variable tuning capacitor has 8:1 reduction. Dual conversion superhet provides selectivity and stability. Automatically eliminates squelch tails. Built-in speaker, squelch, tone, volume controls. 19¾ in. telescopic whip. 9V battery. 2x4¼ x4 in. *Intermediate skill level.* Order **VEC-104K, $79.95.**

5 Watt 2 Meter FM transmitter Kit lets you transmit voice and data -- AFSK data (up to 1200 baud) and FSK data (up to 9600 baud). Jumper select reactance or direct FM modulators. Reliable Motorola NBFM transmitter IC and PA transistor. Crystal controlled (x8 frequency multiplication). -60 dBc spurs and harmonics. Use 12-14 VDC, 1.5 amps. 5-pin DIN microphone jack. 1¾x4¾x5¼ in. *Difficult skill level.* Order **VEC-1202K, $99.95.**

All purpose Ni-Cad/Ni-MH Rapid Battery Conditioner Kit safely quick charges expensive batteries -- no overcharging -- many in less than an hour. HTs, cell phones, camcorders, lap top computers. Handles 1 to 12 cells. Charging status LEDs. Discharge before charge function reconditions batteries. Also removes memory effect. Runs on 12-15 VDC. 1¾x4¾x5¼ in. *Moderate skill level.* Order **VEC-412K,$49.95.**

Crystal radio set Kit lets you relive the experience of early radio pioneers. This baby really works! Wind your own inductor, wire up the earliest radio circuit without soldering a thing and listen to the magic of radio that needs no power. Put up an antenna, connect a ground. Stations come in amazingly loud and clear. Includes antenna wire, sensitive earphone. 1¾x5x6½ in. *Simple skill level.* Order **VEC-121K, $19.95.**



Shortwave Receiver Kit lets you listen to the world! Covers 75/80, 49, 40, 30, 31, 20, 25, 22, 19, 17, 16, 15 and 13 Meter bands. Explore AM, SSB, CW, WWV, RTTY and Packet signals. Vernier reduction drive, smooth regeneration control, RF stage. *Includes all metal cabinet.* 2 earphone jacks. Use 9V battery. 2½x7x6 in. *Intermediate skill level.* Order **VEC-102K, $59.95.**

Shortwave Converter Kit converts AM or AM/FM radios to shortwave receivers at a push of a button. Hear stations all over the world at various times of the day and year. Choose two 1 MHz bands between 3 and 22 MHz. Popular 13, 16, 19, 25, 31, 41, 49 and 60 Meters international broadcast bands. On/off bypass, NE-602/612 mixer-oscillator IC and tuned input circuit. Use 9 V battery. 1¾x4x3½ in. *Intermediate skill level.* Order **VEC-101K, $27.95.**

Aircraft Receiver Kit tunes entire voice aircraft band 118-136 MHz. Picks up air traffic 100 miles away. Track progress of incoming/outgoing traffic in your area, gain advanced weather information, and discover how the National Air Traffic System really works. Great way to learn about aviation. Use 9V battery. Drives external speaker/phones. 1¾x4x3½ in. *Intermediate skill level.* Order **VEC-131K, $29.95.**

AM Radio Transmitter Kit lets you set up your own AM station and broadcast crystal clear programming from your studio with *you* as the disc jockey or talk show host. Play music from CD player, tape deck or other source. Choose clear frequency from 530-1750 KHz. Standard line level or microphone input. Easy to connect to CD, tape deck or mike mixers. Audio level adjustment. Has high level AM modulation for low distortion. 1¾x4x3½ in. *Simple skill level.* Order **VEC-1290K, $29.95.**

TV Transmitter Kit lets you plug in camcorders, VCRs or TV cameras and transmit high quality audio/video to nearby TV sets. Imagine watching your favorite movie on a portable TV by the pool with a tape playing indoors. Create your own personal TV station for some great neighborhood fun! Use a hidden video camera to monitor remote areas. Adjustable to channels 3-6. 1¾x4¾x5¼ in. *Moderate skill level.* Order **VEC-1294K, $27.95.**

SCA Decoder Kit tunes in SCA programming hidden in FM broadcast signals. You'll find commercial free background music, all news programs, weather reports, stock quotes, digital data, ethnic programs, reading services for the blind! Tunes entire SCA band 50-100 KHz with front panel tuning/ volume control. Drives external speaker. 1¾x4¾x 5¼ in. *Simple skill level.* Order **VEC-422K, $27.95.**

The *GIANT* Book of Electronic Projects, Volume I. Project book includes 19 kits on this page. Has building tips, complete parts lists, parts placement and PC board layouts, test and alignment, operating instructions, in case of difficulty, theory and specs, schematics, cabinet layout. Order **VEC-1901, $19.95.**

Inspect and download our manuals from:

http://www.vectronics.com

Vectronics kits feature a professional quality epoxy glass PC board with solder mask and component legend, simple step-by-step instructions and highest quality components.

All metal cases for most kits, $14.95. Add "C" for case to model #. Example: "VEC-201KC". Has knobs, hardware, rubber feet and brushed aluminum-looking front panel decal.

Order Toll-Free 800-363-2922
• **Fax**: (601) 323-6551 • **Tech**: (601) 323-5800
VECTRONICS, 1007 Highway 25 South, Starkville, MS 39759 USA

AMERITRON *True Legal Limit*™ Tuner

Easily handles 1500 Watts continuous carrier even on 160 Meters . . . High-current edge-wound silver plated Roller Inductor . . . Two 500 pf high capacitance tuning capacitors with 6:1 vernier reduction drives . . . 3 core choke balun . . . Six position antenna switch . . . True peak reading Cross-Needle SWR/Wattmeter . . .

Call your dealer for your best price!

AMERITRON ATR-30

$599

Suggested Retail

- ***Handles 1500 Watts carrier***
- ***Super High Current edge-wound xsilver plated Roller Inductor***
- ***500 pf tuning capacitors with 6:1 xvernier reduction drives***
- ***3 core choke balun***
- ***6 position antenna switch***
- ***True peak reading meter***

AMERITRON's ATR-30 *True Legal Limit*™ roller inductor antenna tuner is ham radio's toughest! It'll handle 1500 Watts *continuous carrier output* on *all* modes and *all* HF bands into most antennas -- even on 160 Meters where most antenna tuners fail.

It's perfect for Ameritron's most powerful amplifiers where the ATR-30 just loafs.

All band coverage lets you operate 1.8-30 MHz including all MARS and WARC bands.

***Super High Current* Roller Inductor**

You'll see Ameritron's new *super high current* air core roller inductor. It's *edge wound* from a thick solid copper strip and silver plated. This produces a large surface area and a massive conductor. It can carry huge circulating RF currents and withstand tremendous heat that'll melt or burn ordinary roller inductors.

A gear driven turns counter and crank knob gives you precise inductance control.

Two 500 pf Tuning Capacitors

Two 500 pf -- *the highest of any antenna tuner* -- variable transmitting capacitors give you no-arc wide range impedance matching for true high power performance.

6:1 vernier reduction drives makes capacitor tuning smooth and easy.

Super Balun, 6 position Antenna Switch

Super heavy duty three core choke balun lets you match virtually any balanced feedline antenna without core saturation.

A 6 position antenna switch lets you select your desired operating antenna.

Read *true* Peak Power

Ameritron's active electronic *true* peak reading meter accurately reads forward and reflected power and SWR *simultaneously* on a lighted Cross-Needle meter.

Roomy Cabinet maintains High-Q

Roomy extra-strong .080 inch thick aluminum cabinet gives highest efficiency and lowest loss. 13¼Wx5⅝Hx17½D inches.

AMERITRON ATR-15 Antenna Tuner

ATR-15, $399. Handles 1500 Watts RF output. Slightly less on 160 Meters. Bandswitched T-Network, peak reading SWR/ Wattmeter, covers 1.8-30 MHz, 6 pos. antenna switch, balun. 13½ W x5½x13¼ in. Perfect for AL-80B/AL572.

Ameritron has the best selection of *TrueLegalLimit*™ HF Amplifiers

AMERITRON's legal limit amplifiers use Peter Dahl super heavy duty Hypersil power transformer capable of 2500 Watts!

Ameritron's *most powerful* Amp

with Eimac® 8877 ceramic tube

xAL-1500

$2795

Suggested Retail *TrueLegalLimit*™

Ameritron's *most powerful* amplifier uses the herculean Eimac® 8877 ceramic tube. It's so powerful that 65 Watts drive gives you the full output power -- and it's just loafing because the power supply is capable of 2500 Watts PEP. All HF bands, all modes. 77 pounds, 18½Dx17Wx10H in.

Ameritron's *toughest* Amp

with Eimac® 3CX1200A7 tube

AL-1200

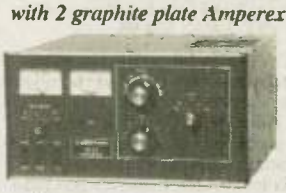
$2295

Suggested Retail *TrueLegalLimit*™

Get ham radio's *toughest* tube with AL-1200. The Eimac® 3CX1200A7 has a 50 Watt control grid dissipation and the lowest history of field replacement of any modern transmitting tube that we use. 90 Watts in gives you full power out. All HF bands, all modes. 76 pounds, 18½Dx17Wx10H in.

Ameritron's *classic* Amp

with 2 graphite plate Amperex® 3-500ZG tubes



xAL-82

$2295

Suggested Retail *TrueLegalLimit*™

Most linears using 3-500s can't give you 1500 Watts because their lightweight power supplies *can't* use these tubes to their full potential. AL-82 is ham radio's *only* super 3-500 amp! 100 Watts in gives you full power out. All HF bands, all modes. Hefty 76 pounds, 18½Dx17Wx10H inches.

1.5 *plus* kW SSB HF Amp

with 2 Eimac® 3CX800A7 tubes

AL-800H, $2295 suggested retail. Two Eimac® 3CX800A7 tubes produces 1500 *plus* Watts SSB PEP with 55 Watts drive. 52 lbs., 8½Hx16½Dx14¼W in. **AL-800, $1595** suggested retail, single 3CX800A7, 1250 Watts out with 70 Watts drive.

NearLegalLimit™ Amp

with four Svetlana® 572B tubes

AL-572, $1395 suggested retail. New class of *Near Legal Limit*™ amplifier gives you 1300 Watts SSB PEP power output (70 Watts drive) for 65% of price of full legal limit amps! Instant 3-second warm-up. 40 lbs. 8½Hx15½Dx14¼W inches.

1 kW Desktop HF Amp

with Amperex® 3-500ZG tube

AL-80B, $1295 suggested retail. Gives you full kilowatt SSB PEP output (85 Watts in) from a whisper quiet compact desk- top linear. 8½x14x15½ in. Plugs into 120 VAC outlet. Graphite plate *Amperex®* 3-500ZG tube. Nearly 70% efficiency. Weighs 48 lbs.

***Precision* SWR/Wattmeter**

AWM-30, $149 suggested retail. Active circuit gives *true* peak/average readings on lighted Cross-Needle meter. 3000/300 Watt ranges. Remote sensor.

Call your dealer for your best price!

Free Catalog: 800-713-3550

AMERITRON®

. . . the world's high power leader!

116 Willow Road, Starkville, MS 39759

TECH (601) 323-8211 • **FAX** (601) 323-6551

8 a.m. - 4:30 p.m. CST Monday - Friday

For power amplifier components call (601) 323-8211

http://www.ameritron.com

Prices and specifications subject to change without notice. ©1999 Ameritron

Son of the packrat

By Ken Neubeck, WB2AMU

Sooner or later, every Ham comes to the realization of what they are and how they fit into the hobby. Some may realize that they are diehard DX or contest operators while others are into things like packet radio or VHF work. I cannot deny the fact that I am a packrat. Actually, I am the son of a packrat and I merely inherited those packrat traits. Being a packrat is not a character trait you can control, it is something that was always meant to be. Packrats are born and not made. As they say, you can't change the spots on a leopard; well, the same thing applies to being a packrat. You cannot change what you are.

There are two types of people in the world: those who throw junk out and those who collect it. The latter group is affectionately known as the packrats or unaffectionately known as junk collectors. The packrat behavior is particularly highlighted in the Ham radio hobby because of high visibility type events such as flea markets. The early roots of the hobby steeped with the accomplishments of the experimenters who homebrew much of their equipment by scrounging parts. Packrat behavior was originally a major attribute of the Ham personality.

I grew up in a natural packrat environment where my father, Ray, W2ZUN, had the basement filled with all kinds of gadgets and radio equipment along with spare parts. The basement featured a number of Command set surplus radios converted for Amateur Radio use. There were parts everywhere along with piles of data books and schematics. My father had this excellent knack of understanding how each electronic component worked and was tinkering with electronics since his teenage years. Growing up, I thought it was natural to have a basement filled with radio parts. My father had a number of packrat friends whom we visited such as Van, W2OQI, who probably had every radio or homebrew design ever built at one time in his basement. The word museum seems appropriate to describe this.

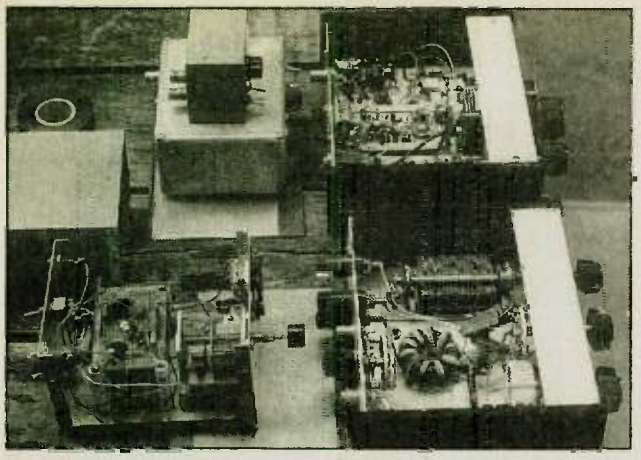
The beginning of my packrat days. Notice the start of my fine collection of Amateur Radio "junque."

The packrat curse did not bite me right away. When I got my Novice license in 1971, I originally got in the hobby in order to make contacts and exchange QSL cards. My first setup was a packrat's delight, however, as I used a surplus command set transmitter pushing out twenty watts and a timeless HRO receiver for 80 and 40 Meter operation. I occasionally built some matching coils and tuners but did not stray much beyond that.

Part of the packrat mentality was that you built your own equipment rather than buy it. Sometimes this philosophy could be expanded to where you could be allowed to buy used gear and work on restoring it into working condition. But to buy new equipment? This went against the grain of being a packrat. However, even this mentality could be taken to the point of being very ridiculous. I have seen people struggle to use really out-of-place equipment to go on some bands rather than shell out a few hundred dollars for something halfway decent. These people do have money but they are trapped in a philosophy that transcends the average packrat. There is the case of a packrat on Long Island who goes scrounging at 5 a.m. through the garbage left on the curb for pickup. This guy found a printer but no manual, so of course he knocked on the owner's door at 5 a.m. to a chorus of profanity that was captured on the packrat's radio which was an open mike on the local repeater!

Most packrats are a little bit more balanced than this as they will buy new equipment on occasion, but they still get the biggest thrill out of making a pile of random parts from the junk box work in a circuit. Many of the avid QRP operators are also packrats since the two philosophies overlap. You really can't be a true QRP operator if you have not built a QRP rig from scratch — operating a commercial rig at QRP power with a Bird wattmeter is not in the true spirit of a diehard QRPer! There is one line most packrats will not cross, and unless they really have to, they will not buy commercially made antennas. They will generally build their own antennas using whatever material they have on hand in accordance with handbook calculations.

The packrat's Nirvana is the flea market. It's here where he meets his fellow packrats and they compete to find the best bargain on anything related to radio. One will notice after attending a few flea markets that the heaviest trading occurs at the beginning and at the very end of the flea market. When a car or truck pulls in loaded with stuff, there will be at least a half a dozen packrats waiting to make bids on a desired piece of gear before it even gets out of the vehicle! I remember one flea market where my partner sold over $200 worth of stuff before any of it was unloaded from the van! Then things slow down during the middle of the flea market until the end when people are selling at incredible bargains so that they don't have to take the stuff home! Often, someone will leave a pile of stuff on the ground when they leave so that a whole group of packrats will scream, "Free stuff!" and pick out good-



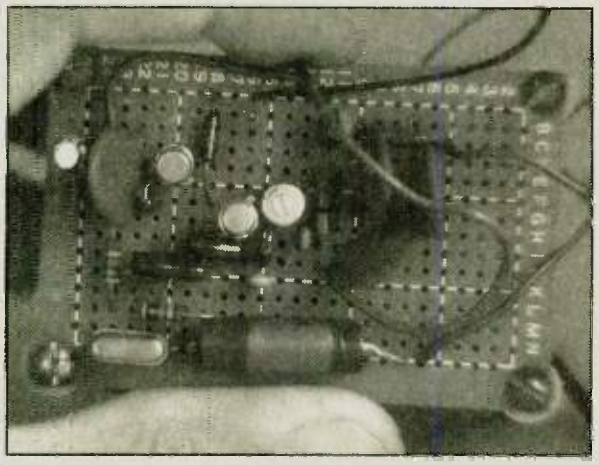
Shown is a collection of single band QRP rigs covering 80, 40 and 15 Meters that were used for a QRP Field Day. Using a homebrew rig to make contacts during Field Day really adds to the fun!

ies for nothing. The conflicts between buyers and sellers are the things that legends are made of in packrat lore.

Of course, the ultimate Amateur Radio flea market is the Dayton Hamvention. I finally had the fortune to visit it in 1998 with my father, fulfilling a life-long dream. The sheer size of Dayton is mind boggling when seeing it the first time. Hams pack the hotels as much as 40 miles away for the three day event. Many a packrat's heartbeat has increased just from the mere mention of the word "Dayton."

The road to becoming a full fledged packrat may vary among different individuals. In my case, I really did not get into the building aspect of the hobby and take full advantage of radio flea markets in my early Ham days until I joined an electronic company in 1987. Prior to that I worked a number of years for an aircraft company. All of a sudden, I had to get smart in electronics as part of my job and took a number of electronic courses. This gave me the push into building simple devices for musical instruments and QRP transmitters for Amateur Radio. This gave me the push towards getting my Extra class license in 1988. Access to parts was excellent as many junk parts were available not only in the trash bins of my company, but also in the dumpsters of adjacent companies in the industrial park where I worked.

It was in this company that I met the undisputed King of the Pack Rats, Fred Franke, WB2NFO. If you needed a part as well as a description, he was sure to have it somewhere in his basement as well as knowing everything about it. He spent so much time at flea markets and looking for junk parts, he had no time to get on the air. One of the biggest hauls we were involved with was when a hybrid manufacturer moved out of the industrial park and left behind all sorts of switches, transistors, Bud boxes and circuit boards. The feeling was similar to that of the buccaneers looting a cargo ship in the Caribbean. It was a full week of ecstasy for us when searching after work to find new goodies. I even made a few bucks selling some transistors and capacitors to a surplus parts supplier.



Packrats are most happy when they can build projects using parts from their junk bin or pulled off of used circuit boards. In this picture, all parts are from the junk box except for the breadboard.

As stated before, packrats are born and not made. Sometimes it may take a few years for the urge to collect parts to build something shows up. The metamorphosis is similar to Lon Channey changing into a werewolf. The packrat will find himself taking out circuit boards from electrical appliances in the junk bin for the purpose of pulling out a certain value resistor. A good packrat will reach a point where he will not have to buy any new resistors, capacitors, switches and transistors. All he may have to buy is an occasional microcircuit. You won't see many packrats using many store-bought parts on their projects. Part of the fun is pulling off old parts from junk boards and watching them work in another application as a homebrew project.

Sadly, the packrat is becoming extinct in the Amateur Radio hobby. You will see less and less parts in junk boxes available at flea markets. It seems people are more geared to selling mostly computer and other appliances. Sometimes after one is so accustomed to having it all in a state-of-the art transceiver, it's nice to make a simple transmitter from scratch that puts out all of maybe two watts. It's hard to beat the feeling of building something yourself and then making contacts on the air with it! I got this feeling when I built an oscillator circuit that later developed into a Two Watt crystal control transmitter and got excellent signal reports from Ohio, Virginia and France. It seems that even in countries where homebrewing is a necessity in order to get on the air, there are more commercial rigs finding their way into these places. I would like to see a radio contest where the various participants must use a homemade QRP transmitter for extra points. I think that contests like these might stimulate an aspect of our hobby that is fading and needs a little boost. It is not just an issue of being an appliance operator as much as it is to preserve a spirit of adventure that had been a major part of the hobby in the early days for many years.

As part of a public service to the hobby, we are providing a short test for Hams to determine if they have the packrat blood in them. If you answer yes to eight or more of the following questions, you are pretty much a die-hard packrat.

Specialized modes in Amateur Radio emergency communications

By Jerry Boyd, K6BZ

History

Much has been written over the years concerning the important roles we as amateurs play in emergency and disaster communications. It is a fact that today in many regions of the United States one of our long-standing roles is becoming obsolete. Historically, most of the communications assistance we have provided in support of clients such as police, fire and emergency medical agencies has been voice communications. Generally, with some exceptions, we have assisted "served agencies" by use of VHF/UHF repeaters or, in some cases, simplex operations.

The primary reason for our use of VHF/UHF voice modes has been the inadequacy of public safety radio systems. Too few assigned police and fire frequencies coupled with "dead spots" in their coverage areas have resulted in the need for what we as Amateur Radio operators do well. In addition, the need for interagency coordination without common public safety channels over which to communicate has also resulted in calls to the amateur community for assistance. Granted, there are sectors of the country where our FM voice capabilities are still needed — perhaps they always will be. In an increasing number of locales, however, the situation has changed or is in the process of change.

Public safety entities over the past ten years in particular have gained more spectrum. Thus, a shortage of frequencies, even in an emergency or disaster, is not the problem it once, was.

Common channels (NALAMARS — the national law enforcement mutual aid radio system as an example) now allow for inter-agency coordination. The switch by many to 800 MHz trunked systems with its mandated mutual aid channels is becoming more common in larger urban areas. While cellular and PCS telephone systems will not always function following a disaster (due primarily to system overload rather than system failure) they actually perform quite well. In several recent wide area disasters cellular did remain available for public safety use.

"We possess technologies and are authorized the use of modes which are very attractive to our clients"

Amateur high frequency voice circuits will, for a long time to come, continue to be utilized for health and welfare traffic. Tactical, administrative, operational, and logistics traffic will, however, more and more frequently be handled by self-sufficient public safety circuits, and, I predict, less and less by amateurs. Does that mean we are nearing the point of obsolescence when it comes to emergency and disaster communications? No! — not if we more fully utilize the technology available to us as amateurs. We possess technologies and are authorized the use of modes which are very attractive to our clients. Some of the modes we are authorized are, except for Amateur Radio, generally unavailable to our public safety clients. What are these technologies and how do we use them on behalf of the agencies we have historically served? Can we begin to use them, or expand their use, so that our hobby can remain a significant player in the disaster response arena? Lets explore a few possibilities, all of which are being used today in some parts of the country.

Packet

Packet as a mode has been around for quite a while. It is extremely popular particularly among the growing number of Technician Class licensees. Its nodes and clusters as well as keyboard to keyboard capability and "error checking" make it ideal for emergency and disaster use. For the nation as a whole, however, it has been underutilized in disaster situations. Packet can and should be heavily used in support of public safety agencies. It is simply a matter of insuring that your ARES or RACES group has an adequate Packet capability and then demonstrating to served agencies how that capability is advantageous.

Packet is ideal for supporting the logistical aspects of emergency and disaster response. Anyone who has been involved in a disaster response knows that logistics is a major part of the effort. Lists of personnel, equipment, and other resources can be sent via packet. A hard copy printout of messages can be handed to the client to read. Documentation in the form of files is automatically created and can be retrieved for later review. Packet eliminates the need for a separate chronological log of messages sent and received via that mode as each is automatically "time stamped" as it is transmitted.

Packet is also useful in documenting who is at a particular location. When evacuations are necessary public safety and Red Cross officials spend a great deal of time attempting to compile lists of who is where. A portable packet station at each evacuation center or shelter can be used to transmit lists of those present. Those lists can be printed at the receiving end, can be consolidated and updated, and referred to at the Emergency Operations Center (EOC) or other appropriate place.

To facilitate information being sent by packet a series of message formats can be developed ahead of time and brought up on screen during the event. It thus becomes a matter of "fill in the blanks" which greatly expedites the information exchange process. The State

Amateur Radio Slow Scan TV is a valuable tool for law enforcement agencies and has been utilized on this helicopter.

of California Office of Emergency Services has developed just such a series of formats for packet use.

APRS

APRS, the Automated Packet Reporting System, is another advantageous but underutilized capability which we as amateurs possess. It is a refinement of packet which allows a visual on-screen display of the location of packet stations which are connected. APRS software is readily available. The station location is sent with each transmission based upon lattitude and longitude coordinates entered. However, a much more accurate location can be determined by use of the Global Positioning Satellite (GPS) Service.

Integration of a low cost GPS receiver, a transceiver, and TNC can result in extremely accurate location displays on a video terminal at the EOC. Direction and movement of mobile APRS stations can be readily seen.

How does APRS technology apply to serving public safety agencies in times of emergency or disaster? It is an ideal means of tracking important movements of personnel and equipment. Is a hospital damaged requiring the re-location of patients to another facility? In the Northridge earthquake in Southern California that is precisely what happened. Placing an amateur with a portable APRS station on board a bus used to transport patients solves the problem of knowing the location of those evacuees at all times. Almost any activity where the safety of the APRS operator is not jeopardized is a logical candidate for use of this technology. How about putting an APRS equipped Ham with each search and rescue team on a major mission? That would enable the search coordinator to have up-to-the-minute and accurate information as to which areas are being searched or have been searched. As use of APRS technology becomes more widespread other emergency and disaster uses will, I'm sure, become evident.

Amateur television

Fast scan UHF (or above) amateur television would be welcomed by almost any Incident Commander in almost any type of circumstance. For years amateur television has been used to assist in managing Pasadena, California's New Year's Day Rose Parade. This medium gives both the event coordinator and public safety officials a close up, first hand look at the event they are dealing with. An amateur television (ATV) equipped Ham in a public safety helicopter or fixed wing aircraft can overfly almost any type of emergency/disaster and send back live "footage" to the command post. The footage can be videotaped off the air for later documentation and training purposes. The real time transmissions can help decision makers determine the extent of the problems they are coping with as well as the effectiveness of the steps they are taking to deal with the incident.

Selling these technologies

When the proverbial "bad stuff" is hitting the fan it is not the appropriate time to tap an Incident Commander on the shoulder and say "By the way did you know we can provide you with such and such." During an emergency the fire chief, triage officer, or police captain you are working for has only the time to use resources he/she is familiar with, not time to pause for a cram course in something new.

The time to explain and demonstrate things like Packet, APRS and ATV is pre-event. If your group is equipped and proficient in the use of these technologies the local ARES or RACES emergency coordinator should contact the agencies your group serves. Preferrably the persons to meet with are those likely to serve as the communications group chief when an incident occurs. These technologies should be both explained and demonstrated. The client should be referred to other similar clients who have already used the "tools" you are offering.

If the client agrees that these modes of operation have some desirable application, a demonstration for as many of the potential end users as possible should be given. In the case of ATV for example, if the agency believes that ATV from an airborne platform such as the local Sheriff's helicopter would be advantageous, a "check ride" in the aircraft should be taken. That serves a number of constructive purposes. First it familiarizes the air crew (particularly the pilot in command) with Amateur Radio and the ATV resource. Second, it familiarizes the ARES operator with the aircraft and its operation. Third it gives the amateur an opportunity to practice. Take it from one who has done it, shooting ATV from a helicopter is "different." If you want the transmissions you send to be clear and useful some practice is definitely necessary. Ideally you will want to demonstrate all of the technologies you will offer to your clients to all of the people you'll likely work with in the "real one." That may not be practical, but over time as many clients as possible should be given a first hand look at what you can do for them.

In conclusion remember "Rule Number One" of amateur radio emergency/disaster communications — NEVER promise what you cannot deliver. You may have your hands full providing just "voice only" communications support to your served agencies. However, if you find that not to be the case some of the technologies discussed herein may prove advantageous to both your group and your clients. I encourage you to give them a try.

Ham operator aids Coast Guard

By Rick Jones, WB6LNH

Cruising aboard the 33 foot sloop *"Pelago"* for the last three months had been nothing but pleasure for my self and XYL. We had anchored at George Town, Great Exuma Island in the Bahamas, but things became real exciting.

On 12 March 98, I heard a frantic distress call on VHF channel 16. (Marine calling and distress channel) A Haitan vessel was breaking up and sinking somewhere within VHF range. It was one of the most agonizing radio transmissions that I have ever heard. The fear in his voice, the screams from his family in the background has to be one of the most horrifing radio transmissions ever. I could hear the boat breaking up and screams of pure fear with every transmission. He said he was sinking and gave his location as best he could.

With the Haitan accent it was difficult to understand just what he was saying. He kept repeating "Save me. Save my family we are sinking" No one was able to get him calmed down, and I felt that I had to do something. The look in Tammy's eyes said "do something". Well, I stepped in and sort of took over.

"TAXI 4" heard the transmission 5 by 5 from his taxi at the airport.

There is no safety or rescue organization, or U.S. Coast Guard here. A mariner is pretty much on his own. I was able to communicate with him and get a more accurate description of the geography of what he was actually looking at. He kept saying he was going to Jamaica Cay and he could see a island about ten miles away that had two houses on it. Then there was silence.

With the help of many of the local inhabitants and a look at the charts, it was determined that he had to be mistaken on his location. I tried to call BASRA (Bahamian Air/Sea Rescue Association) but, they refused to answer or did not have a radio on. I tried HF direct to the USCG and again had no luck. I then tried Amateur Radio and went to 7268 and put out a distress call. Gordon Cray, KI4SL, in Marathon, Florida immediately came up. I explained the situation to him and he called USCG in Miami. And, he called (on his own nickel) BASRA in Nassau. All he received was a rather vague and ambiguos answer from BASRA, and it appeared that BASRA was not going to respond. Another call to the USCG by KI4SL brought more results.

The USCG launched a Falcon jet for a rescue operation. They also requested that I continue as a ground co-ordination station. In about 45 minutes I received a call on VHF from rescue 2133, now on scene and orbiting the area.The search area had to be narrowed down. As far as we knew there were four souls in the water and they had to be found.

VHF radio does not have the range of HF, and we all felt that the radio transmission was strong enough that the Haitan had to be confused as to his actual location. A general call was put out on VHF to anyone who heard the signal to call *SV/PELAGO* and give their location and the signal strength of the received signal.

Based on this information and some geography indicators, and the descriptions of the surrounding cays given by the Haitan it was felt that he was much closer than he thought he was. "TAXI 4" heard the transmission 5 by 5 from his taxi at the airport. It was felt that he was in between Jewfish Cay and Hog Cay. This is the normal trade route for the Haitan sloops that ply these waters. If he was south of here he would have been in a area that is full of reefs.

I contacted the aircraft on VHF and talked to the pilot. I relayed my feelings and the information passed to me by the local inhabitants. He concurred with the assessment of the position. But he was low on fuel, and had to land somewhere or find a gas station in the air. He returned to the George town International airport and refueled.

By the time the aircraft returned, the people had been in the water for about 5 hours and since hypotermia was a factor and two of the victims were children the situation was getting desperate.

One jet aircraft was in a search pattern, four local boats were either enroute or in the search area. I was tasked with the communications control (it was specifically requested by USCG), not really sure why though. I either had a good signal, or sounded like I knew what I was doing (in reality I was winging it)

The USCG jet again had to depart the area, and I was informed that the USCG wanted to talk to me directly on HF, but did not want to lose the link that had been established on HF (7268). Consequently the USCG came up on Amateur Radio freq (7268). We continued to use that freq as the long distance co-ordianating freq. I would be in contact with USCG central command in Portsmouth Va, the aircraft, and Gordon, KI4SL, and Miami USCG on HF, and the local search teams on VHF 16.

At 1610 I received a call on VHF that a search vessel with a weak signal had spotted the Haitans and picked them up, but the USCG needed confirmation before they discontinued the search. I was requested to stand by either on marine channel 601 or 7268 and still act as a communication co-ordinator.

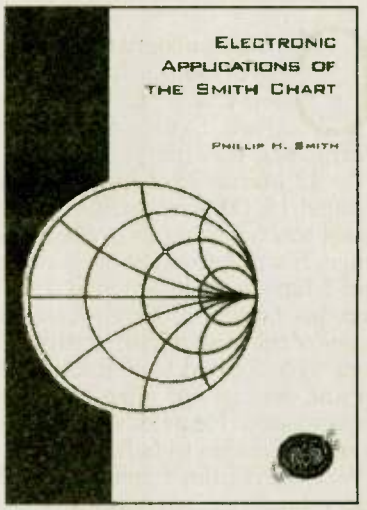
By this time Rescue 6022, a USCG helicopter, had taken over from the jet. I continued to both relay to him on VHF and with Miami and USCG central in Virginia. After some local ground link telephone calls and VHF calls to the local authorities we learned they had been found and were alive.

Since this event Tammy and I have had a lot of "uncomfortable accolades" We did not do this for praise. There were four people in harms way and we just had to do something. I am just glad that I have had the experience in communications and that *Pelago* has such a good system aboard. And most important of all God had more to do with it than we did. At 1749 we were told by the USCG in Virginia that *Pelago* could stand down.

The Smith Chart

Electronic Applications of the Smith Chart

by Phillip H. Smith

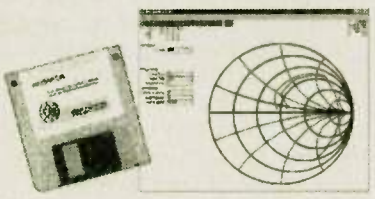


This is an updated edition of the original, classic reference book by the legendary Smith Chart inventor himself. This book describes how the Smith Chart is used for designing lumped element and transmission line circuits and includes tutorial material on transmission line theory and behavior, circuit representation on the chart, matching networks, network transformations and broadband matching. It also includes a new chapter with example designs and a description of *winSMITH (see below).*

Our Price $59.00

*win*SMITH

An easy-to-use computerized Smith Chart for your PC



winSmith, *by Eagleware Corp*

With ***winSMITH***, engineers can have their PCs draw the Smith Chart and measure the distances from one point to another. Easily creates ladder networks of up to nine elements, which can be transmission line segments, inductors, resistors or capacitors, or user-defined elements. Schematic entry simplifies circuit definition, and the Smith Chart display makes manipulation of values a simple task. Can do frequency sweeps, fine or coarse tuning as needed, and provides precise numerical results.

One 3.5" disk. Runs under Windows 3.1, 95 or NT.

Our Price $79.00

Introduction to the Smith Chart

This video teaches the Smith Chart in 50 minutes. ***Introduction to the Smith Chart*** is all engineers need to start using the chart to solve all types of transmission line and matching problems. This is a painless way to learn about the chart, designed to accompany the book *Electronic Applications of the Smith Chart* and the *winSMITH* software package described above. An excellent way for young engineers to learn this important visualization tool and a good review for experienced engineers.

Our Price $99.00

Worldradio Books

2120 28th Street, Sacramento, CA 95818 • Tel: 916/457-3655 http://www.wr6wr.com

Add $5.00 s/h for first book. Add $1.00 per book thereafter.

Submersible station

By Rick McCusker, KO6DJ

A submersible station? Yes, there are several Amateur Radio stations able to go underneath the surface of the water. Of course, I am talking about in installations on submarines.

The *USS Pampanito*, NJ6VT, is a fleet-type World War II veteran, now moored at Pier 45 and open to the public in San Francisco. The boat was launched 12 July 1943. It's 311 feet long and 27 feet wide. The boat served with distinction during the war, making six war patrols including one of the rare wolfpack operations carried out by U.S. submarines.

All of the original radio equipment is in working order. The transmitter is a TBL-7 with coverage on 175-600 kHz and 2.0-18.1 MHz. The transmitter is capable of 50 watts on AM phone, and 200 watts on CW. RAL and RAK receivers can still hear signals, sometimes better than modern receivers. Three long wire antennas are mounted on the port side of the conning tower, running aft to a stanchion near the stern. The original transmitter has been used on many occasions for QSOs and contesting on the amateur bands. With the long wire antenna mounted 20 feet above the salt water of San Francisco bay, signal reports are surprisingly good. The salt water acts as an excellent ground plane, and most stations are very impressed with the signal.

Original HF transmitter. Photographed from the deck below the radio shack, looking up through a hatch. Yes, it still works!

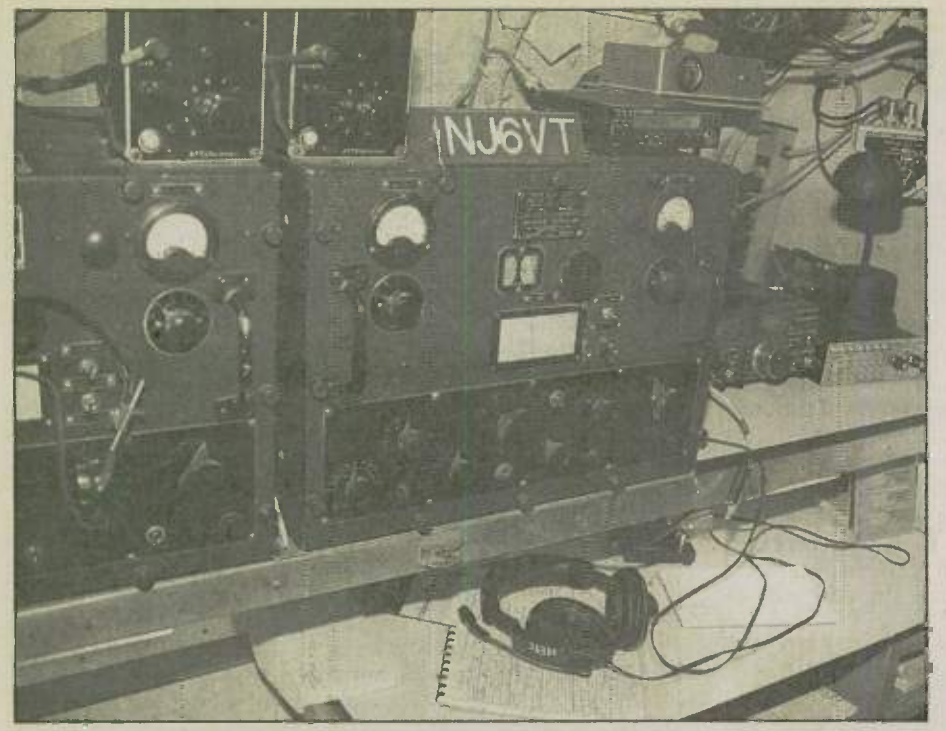
A very interesting piece of equipment is just inside the door to the radio room. Located on a swing-down shelf that's a part of the safe, is a "Sigaba" cryptographic code machine. Radiomen aboard the submarine copied messages in Morse code as five-letter coded groups. The message was then given to the communications officer and he would type the coded groups into the code machine. The code machine would decipher the coded groups into plain language text on a paper tape, provided the machine had the correct settings for the day. When the U.S. Navy was asked for one of the eight remaining code machines left in the world, the Navy sent this machine with practice code wheels installed. The real wheels are still held by the Navy, and will not be released.

USS *Pampanito*, with the SS *Jeremiah O'Brien* in the background at pier 45, San Francisco.

The Amateur Radio call sign is unique in itself. When the *Pampanito* was commissioned, the boat was assigned the call sign of NJVT. When the vanity call signs became available, *Pampanito* was granted NJ6VT, with the "6" inserted in the original call.

The photograph of the radio room does not show how small the room actually is. The room is about five feet wide, and eight feet long, bulkhead to bulkhead. Add the equipment installation, and it is tiny! The room makes a right turn to the operating console, with about a two foot by four foot space for the operator. Directly behind the operator is the transmitter, a deck-to-overhead monster taking up a big portion of the room. When the transmitter is on, the room gets very, very warm.

The photograph of the original transmitter is deceiving. It was taken from a storage area below the deck, looking up through the hatch. I had to photograph it that way because the room was too narrow for the camera to focus. Above the transmitter are three antenna leads, leading into a trunk with



Original WWII receivers are mounted in their original locations. Modern amateur gear sits on the same shelf just to the right.

connectors for the wire antennas. An SGC antenna tuner mounted on the bridge tunes the long wires. Also mounted on the bridge, between the periscope shears is the only outside clue that there is modern equipment aboard. If you look closely, you can see a Diamond dual-band antenna for VHF/UHF on a magmount.

NJ6VT is active in several contests, as well as giving demonstrations of Amateur Radio for groups aboard for a tour of the *Pampanito*. The night before my visit, a group of Cub Scouts spent the night aboard the sub, and were treated to a demonstration of Amateur Radio during the California QSO party on 40 Meters.

A unique feature aboard the fleet-type boats was the lack of room for the crew. There were 10 Officers and 70 enlisted men assigned to the *Pampanito*, but only 30 bunks or "racks" installed for the 70 men. They slept in shifts! If you were on watch, someone else occupied your bunk. The mess deck (dining room) seats 24, so meals also were eaten in shifts. An average patrol lasted 75 days, and there were no showers. By the end of a patrol the boat usually smelled very, very ripe.

Although moored as a museum, the *Pampanito* is capable of getting underway. Her propellers have been removed for restoration, and will be re-installed in early 1999. Three of the four main engines are started once a week with the remaining engine as a display with open viewing windows. The U.S. Navy has reservists coming aboard on a regular basis for training and maintenance of the boat.

A Sigaba crypto machine from World War II days.

If you are going to be in the San Francisco area, stop by for a tour of this unique Amateur Radio station. But be aware, if you suffer from claustrophobia, this may not be your cup of tea. For information about the *USS Pampanito* see: www.maritime.org/pamphome.html or call 415/775-1943.

Dramatically different Field Day

By David Kanitra, WB2AZE

"Let's do something different this year!" I had said this dozens of times, year after year. This time things were indeed different, but not the way I imagined.

Members of our Amateur Radio club decided to plan a joint venture with a neighboring club for Field Day '92. By combining our forces we estimated that we could increase our score as well as share the efforts in setting up a Field Day site.

About two weeks before Field Day we learned that the owner of the area which we use for our Field Day site was having an international soccer match on the same Saturday. We were told that our site would be roped off and the soccer match would not interfere with our operations.

We were running 3A and our antennas included an inverted V for 40 and 80M, a 20M beam, my Hustler vertical and a full-wave wire quad that was dedicated to the CW station. All stations were up and running when the first of about 2,000 automobiles invaded our site. It was chaos. We had to stop radio activity to direct traffic around our site. The "roped off" section was not roped off.

There were cars all over the place. Finally, the trustee came to take down the antennas and phone tent. A big fight broke out between club members and, after about 45 minutes of hearing four and five-letter words shouted, one guy took his tent, the other guy took his radio and the third took his antenna. The president said he was leaving and we would be dropping down to two stations.

"The moral of the story — be prepared for the worst"

Well, this is the magic of Field Day; never underestimate the ingenuity of a ham radio operator. I didn't have a tent. I didn't have a table, or extension cords. But I did have my Atlas 210X with me, my Hustler all-band vertical was up, and I did have coax cables.

With the help of the other club's trustee, we brought a table over to my vertical antenna. He loaned me an extension cord and I set up the rig on a table in the middle of the bushes. I moved my car next to the rig to offer me some protection in case the soccer fans decided to come back.

With my station set up, I retrieved my Atari 800XL computer from my car along with the monitor and Indus GT disk drive, and I booted a database program to use as my logger. I managed to work about 35 stations in the following three hours. The band conditions were terrible and I really had to work to get those stations. The one thing I will say is that it's sure hard to read the digital displays on these new rigs in the sunlight. Even when the stations were in tents, it was nearly impossible to see where I was. But not with my old Atlas; I had the digital and analog displays, and if I couldn't read one I sure could read the other.

I took a short break from radio to set up the tent. We finally moved everything inside. One of our packet operators, who'd remarked that I should dump my toy Atari computer for a real computer such as his IBM laptop, paid me a visit. When he saw my Atari he asked, "Are you playing video games?"

"No," I replied, "I am using it to log in stations, something you cannot do with your IBM." He didn't stay very long, I knew he didn't have a logging program. I had made my point.

I stayed until 11 p.m. and then went home to get some sleep.

Home, did he say home?

Yes, I did. Besides being a ham, I am a volunteer firefighter. I could respond to any fires from home but not from the Field Day site. And I would not like to be called to a working fire after being dead tired from Field Day.

The moral of the story is be prepared for the worst. Amateurs are out on Field Day as an exercise in preparedness. Even though your Field Day group has everything planned out, bring out your extra rig. Even if your radio has tubes, bring it out; in an emergency a rig is a rig. Bring out spare antennas, cables and connectors. Don't forget to bring the best set of tools possible, including a Swiss army knife or a Leatherman survival knife (these two items are invaluable). Nylon tie-wraps and electrical tape are always needed. My spare antenna was a Spider vertical.

Last of all, bring yourself. Operators are always needed, whether they operate radios, cook meals, run errands, bandage cut fingers or just give moral support. That's what Field Day and Amateur Radio are all about.

Antarctica call signs clarified

The call sign blocks for U.S. operations in Antarctica are KC4AAA-AAF and KC4USA-USZ. These call signs are not issued nor administered by the FCC but by either the National Science Foundation (AAA-AAF) or the U.S. military (USA-USZ). As a result, Antarctica call signs do not appear in the FCC database. More information is available at http://www.qrz.com/.— thanks to John Hennessee, N1KB, ARRL Regulatory Information Branch — *ARRL Letter*

Contact All Time Zones

To help commemorate 25 years of ***Worldradio,*** we announced an award known as "Contact All Time Zones" (CATZ).

• Rules

The start date for valid contacts is 01 July 1996 at 0000Z.

The world is divided into 24 time zones. Each time zone is 15 degrees wide. For the sake of this award, half-hourly zones and out-of-zone artificial time changes will be ignored.

This award is based on the true 15 degrees each, world map 24 time zones.

The applying station must have one (two-way) contact on Amateur Radio allocated frequencies with a station in each of the world's 24 time zones. Contact with one's own nation does not count.

The operator applying for the award must have made all 24 contacts from a location within the same country.

The award may be endorsed as the applicant wishes in regard to band and/or modes.

• Application

The applying radio operator must be in possession of 24 QSL cards, one from each of the time zones.

A list shall be made showing each contact's call sign, date, band, mode and the time zone starting with the prime meridian (0°) and moving eastward.

There is a fee of $5 to cover the cost and mailing of the 8 x 10 certificate (mailed unfolded).

It is not necessary to mail your QSL cards to ***Worldradio.*** Send a statement signed by two other licensed radio amateurs (General Class or above) that they have inspected and verified the required QSL cards.

Address applications to CATZ Award, ***Worldradio,*** 2120 28th St., Sacramento, CA 95818.

Recipients of the CATZ award will be announced in the ***Worldradio*** DX column.

Nominations open for Maxim Memorial Award

Nominations are open for the Hiram Percy Maxim Memorial Award. The award goes each year to a radio amateur under the age of 21 whose accomplishments and contributions are of the most exemplary nature within the framework of Amateur Radio activities. These include, but are not limited to:

- Participation or leadership in organizational affairs at the local or national level.
- Technical achievement.
- Operating record.
- Recruitment and training of new amateurs.
- Public relations activities.

In keeping with the tradition of the award when it was first established in 1936, formal nominations are made by Section Managers. Supporting information, including the endorsement of ARRL-affiliated clubs and elected or appointed League Leadership officials, should be submitted with the nomination. An award panel will review the nominations received and select the winner. The prize consists of a cash award of $1000, a suitably engraved plaque, and travel and accommodation expenses to enable the winner to attend an ARRL convention for a formal presentation.

Nominations should document as thoroughly as possible the Amateur Radio achievements and contributions of the nominee during the previous calendar year. Additional information concerning the character of the nominee should be as complete as possible.

The award is intended to provide a tangible reward to those deserving young amateurs who contribute their time, skills and energies daily through their commitment to Amateur Radio. As models for their peers, and inspirations to us all, these fine young people are highly visible boosters of Amateur Radio awareness. We must continue to recognize and encourage their hard work and contributions at every opportunity.

Nominations must be sent to the Section Manager. Nominations must be received at Headquarters from Section Managers by 31 March 1999. There is no limit to the number of nominations one may make.

For more information and an application form, contact ARRL Field Services Manager Rick Palm, K1CE, e-mail rpalm@arrl.org or write him at ARRL Headquarters, 225 Main St, Newington, CT 06111. — *ARRL Letter*

Silent Keys

MARY LOU BROWN, NM7N

ARRL Northwestern Division Director, Mary Lou Brown, NM7N, died 03 December 1998, in Los Angeles, CA. She was returning from participating in a DXpedition on Lord Howe Island and was enroute to her home in Washington. She collapsed and died at the Los Angeles International Airport from an apparent heart attack.

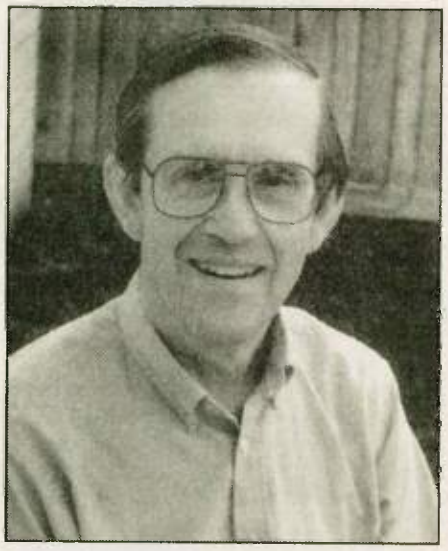
Mary Lou had recently been re-elected as the Northwestern Division Director, an office she had held since 1995. She had previously been a vice director from 1990-94. Mary Lou was also serving as a member of the ARRL Executive Committee.

Mary Lou was a retired physical education instructor and department chairperson at the University of California at Berkeley.

Worldradio will be featuring Mary Lou in a complete story in the March issue. — *W1AW Bulletin.*

ALVIN H. BATTISON, W2IEG

ARRL Western New York Assistant Section Manager and former Vermont SCMAL Battison, W2IEG (ex-W1GNF), of Vestal, New York, died 19 November 1998. He was 81. A Dartmouth alumnus and World War II veteran, Battison was a life member of the ARRL. He also belonged to the Antique Wireless Association, the IEEE and the QCWA. As Section Communications Manager for Vermont in the 1930s, Battison provided vital leadership during severe flooding on the Connecticut River. A civil aviator and antique car buff, Battison was more recently known throughout the section for his presentations on radio-controlled sailplanes and early aviation.— *W2MTA, ARRL Letter*



NORMAN FRISCH, W8YHA

Retired Mathematics Professor, of the University of Wisconsin, Norman Frisch, W8YHA, died 5 August 1998. Norman became interested in Amateur Radio when he learned Morse code in a physics class in High School. He earned his first Amateur Radio license at age 14, but due to transmitting restrictions during WWII, did not get on the air until 1946. His first station was located in the attic of his parents' home, and his mother was suprised when Norman drilled a hole through the roof, enabling him to rotate his dipole antenna manually from his shack.

In 1967, he moved to Wisconsin and helped to establish the Amateur Radio club at the University of Wisconsin, Oshkosh with his colleague and friend Todd Fonstad, N9NE, a professor of geography. Norman was especially fond of the technical part of building and operating Amateur Radio Stations. He had just constructed a 50 foot tower at his home a year before his death.

Norman and his wife Ann, N9HUM, taught school in Malaysia from 1989-1991. He held 9M2NF in West Malaysia and 9M8UM in East Malaysia, and was Professor of Mathematics at Universiti Teknologi Malaysia in Shah Alam Malaysia.

A web page has been established for Normans' friends to visit and leave letters about their memories of him. The address is: www.coehs.uwosh.edu/faculty/frisch/Page4.html

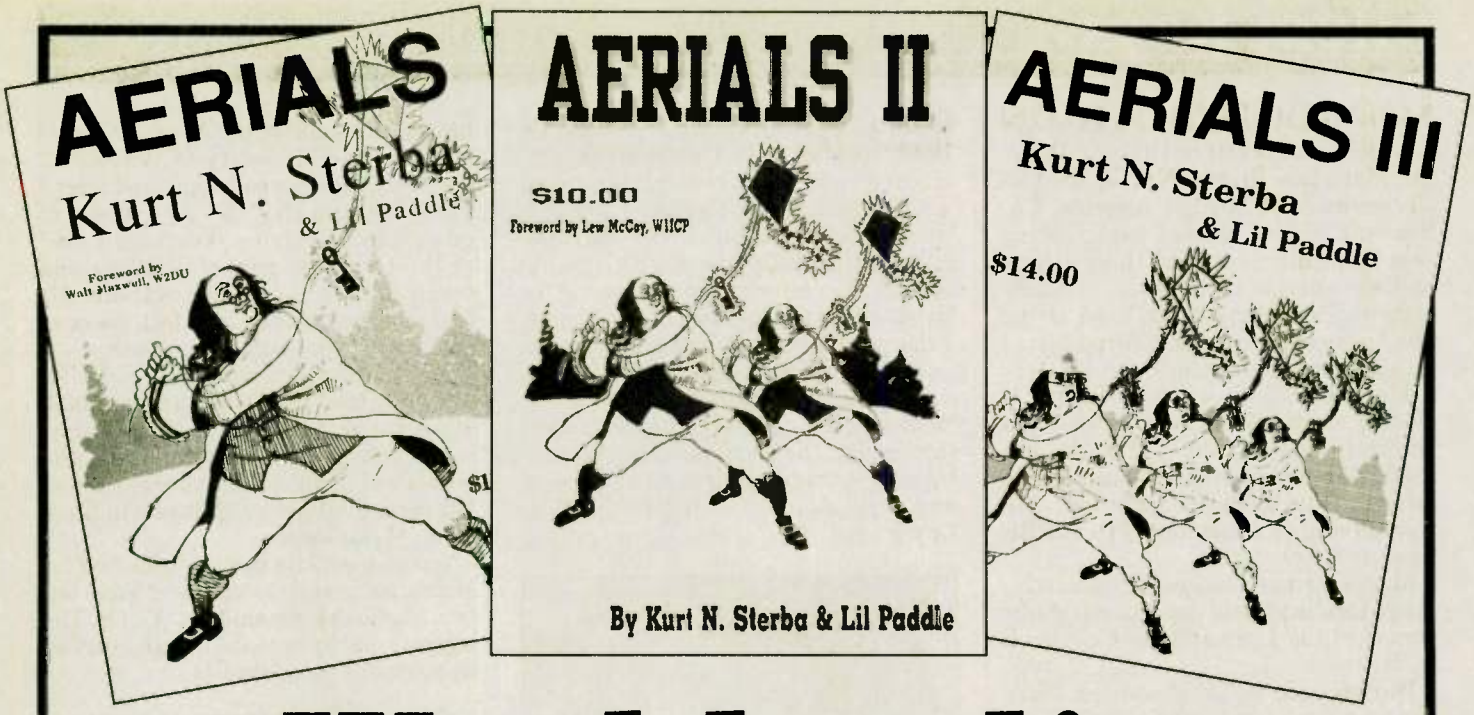
ROGER WHITE, W5SKW

Roger A. White, W5SKW, of Lake Charles, LA., died 13 April 1998. He was first licensed in 1946. Roger was an Aeronautical Radio Engineer, and was a disc jockey and broadcast engineer for several local radio and television stations. He was a clerk at Cities Service Oil Company for 32 years, and was a sergeant in the Army Air Corps during WWII. Roger was assigned to the 33rd Fighter Squadron in North Africa.

Roger was a member of QCWA and the ARRL. Just before Hurricane Audrey struck the area, Roger was appointed Emergency Coordinator by the ARRL, and was responsible for the organization of emergency communications before, during and after the hurricane. He also provided communications for the local Boy Scout Council, receiving 15 Certificates of Merit for his work linking Camp Edgewood and Lake Charles before telephone facilities were installed. His public service work was acknowledged by the ARRL with nine awards. Roger was also recognized by several organizations for his communications work at local air shows. He is survived by his wife, Rosie, N5XKF.

New ARRL NW Division director

Greg Milnes, W7AGQ, has replaced the late Mary Lou Brown, NM7N, as the Director in the ARRL's Northwestern Division. The vacancy in the position of Vice Director will be filled by an appointment to be made by League President Rod Stafford, W6ROD. — *ARRL, Newsline*



Worldradio

proudly presents,

the complete *AERIALS* series by Kurt N. Sterba & Lil Paddle.

"A trilogy J. R. R. Tolkien would envy." — *Elbert Weinstein*

AERIALS

The original collection of antenna columns from the early years with Sterba and Paddle. 2nd printing. 112 pp. $11.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $.85 tax.

AERIALS II

Hot off the presses, 2nd printing. Aerials II shows you how to make an antenna out of almost anything. 80 pp. $10.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $.78 tax.

AERIALS III

Once again the wise words of our advocates for truthfulness in dB claims illuminate our minds. This is Kurt & Lil's latest collection of antenna insights. 160 pp. $14.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $1.09 tax.

Buy all three for just $35 (plus tax if living in the Golden State.) **and *Worldradio* will pay the shipping**

Send your check or MO to Worldradio Books, 2120 28th Street, Sacramento, CA 95818, or for credit card orders call (916) 457-3655, fax (916) 457-7339, email: n6wr@ns.net, or http://www.wr6wr.com/Books/Book_order.html

"Hiram Percy Maxim," Alice Clink Schumacher, Electric Radio Press, Cortez, Colorado (1998)

Known as the Father of Amateur Radio, every Amateur Radio operator should know who Hiram Percy Maxim, W1AW, was. Although many will consider his life covered in *Two Hundred Meters and Down,* by Clinton B. DeSoto, this volume covers the life of Maxim, who, we will discover, was a man much greater than his contribution to Amateur Radio.

The book is in chronicle order of events, including that of his ancestors. There are no chapters. Maxim's father was also of interest and had been working on the development of the electric light, only beaten out by a couple of days by Thomas Edison.

Hiram Percy Maxim was a man of peace and disliked noise. This led him to the development of the silencer. The book covers much of him and the company he founded that manufactured the silencers.

He was responsible for building Connecticut's first motor car and also was the winning driver of the first car race.

The book mentions his introduction to Amateur Radio in 1911. In January 1914 he was president of the Radio Club of Hartford, with Clarence Tuska, age 18, as the secretary. The following year he left the club and organized the American Radio Relay League. The book later gives the date as 1917, and said Maxim wrote the chief editorials for *QST*., chiefly to break bad habits of operating. Here Maxim was referred to as T.O.M., "the old man."

In 1920, Hiram Percy Maxim wrote the movie script for *The Virgin Paradise* by Fox, and included Pearl White, a leading actress of the day.

Other worthwhile accomplishments of Maxim include the formation of the IARU. He was a Lieutenant Commander in the U.S. Naval Reserve in 1926 and he also founded the Amateur Cinema League.

Around 1932 his interests in Amateur Radio began to lessen as he had an interest in the cosmos.

Hiram Percy Maxim died 17 February 1936 at age 66. Much of his Amateur Radio philosophy is included. What the author said of him is interesting regarding his six codes of ethics, particularly the fifth point. She says that, "The fifth point, of balance, is as unique as it is important. Most organizations promote themselves first and foremost, and all the time. Not so with Amateur Radio. The Ham code makes it clear that radio is a hobby, and as such it must never be allowed to interfere with duties owed to home, job, school or community. In this we see the guiding hand of HPM, who believed that the amateur must never become a slave to his rig, but always its master."

There is an appendix to this work that makes reference to his writings in *QST* and includes the month and year of each. — *John F.W. Minke III, N6JM*

A MIR anniversary

06 November 1998 marked an important milestone for Mir. According to Serge Samburov, RV3DR, it was on 06 November 1988, a decade ago, Amateur Radio transmitting and receiving equipment first started operations on board the MIR.

Samburov notes that over the past ten years some sixty cosmonauts and astronauts have made thousands of radio contacts with radio amateurs of the Earth. He adds a special thank you to those who promoted and participated in amateur radio communication with MIR. — *RV3DR, Newsline*

A dream come true

Dear Mr. Noble;

This is a dream come true story which I *must* share with you.

I was first licensed as a novice back in 1970 when I was just sixteen years of age. I upgraded to general class and really enjoyed this wonderful hobby of Ham radio. After graduating from high school, I entered college and radio was becoming less important to me, but my Elmer told me to never let my license expire. Thank goodness I listened to him, because I would not be writing this note right now.

After a twenty year absence from the hobby, I became "radio active" thanks to a friendly auto mechanic, who noticed my call letter license plate on my truck. He told me about this radio club he belonged to, and it was a really good group of people (the Hazel Park ARC). So I went to the next meeting, met some of these fine folks and I was hooked back into it, thanks to this total stranger.

But wait, this story gets even better! Through this club I became acquainted with a gentleman who enjoyed the CW mode as much as I. Well, I was still single at the time, and he and his wife decided to play matchmaker. They set me up on a blind date with a lady they knew was just right for me. Oh boy, I heard that one before, and it never worked. Our date went very well, much to my surprise! We fell in love and about one year later, I asked Bethany to marry me. She said yes!

We have been married for fifteen months now and are expecting our first child next April. I have never been happier in all my life. Bethany has an eleven year-old boy from a previous marriage that I love like he's my own. (By the way, he is working on his Novice license right now; he passed the theory last week!)

So looking back, I owe all of my happiness that I am enjoying in my life to this marvelous chain reaction with Amateur Radio as the catalyst. I have been trying to think of some gift for these two fellow Hams, in appreciation of all my good fortune. Suddenly one day it came to me. What better gift could a Ham receive than a life subscription to ***Worldradio***? Yes, that was it! It would be a constant reminder of my appreciation and friendship, year after year.

Therefore, you will find enclosed a check for lifetime subscriptions to my friends, Bruce, W8WQ the auto mechanic, and Jim, K8JV, the matchmaker. (By the way, Bethany and I have a really nice gift in mind for Jim's wife, too!)

Roger J. Cameron, WB8HBJ
Beverly Hills, Michigan

Santa in Japan

I just read the Lenore Jensen story "Santa in Japan," and the part on using wet twine for an antenna reminds me of what happened when I did not use enough insulators on a long wire at the University of Virginina, while getting W4UVA on the air in 1946 after returning from Europe and the war.

I put up a long wire six wavelengths on 10 Meters about 192 feet, from the shack building to a tree, and not paying enough attention to the tree. I used one small egg insulator and string plus a metal spring to attach to the tree through the branches to the trunk. That afternoon it rained steadily all day and night. I got the transmitter tuned to the antenna and the next day I didn't have any classes, so I started a QSO with a W5. He said my signal was S-8 then dropped suddenly to S-3. I was concerned, and considered QSB as the cause, but then noticed the final amplifier current meter on the next transmission. It dropped to about one third, so I said 73 and shut down. The dummy load said the transmitter worked fine, no drop, so I concluded the antenna was to blame. I went to check it out, and saw (close up on a ladder) that the leaves were draped over the insulator, and the twine and spring were very wet! After lowering it, I placed two more egg insulators in line, and used waxed string to reattach the insulators. Once it was up again, no more problems. I worked a lot of DX on 10 Meters that year.

The moral of the story is use plenty insulation between an antenna and any kind of pole or plant life.

Pete Hardiman, N7DUC
Hillboro, OR.

Please send the following friends a free sample copy of *Worldradio*.

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Name _____
Address _____
City _____
State _____ Zip _____

Mail to:
***Worldradio* Send-a-Friend**
P.O. Box 189490
Sacramento, CA 95818

Station Appearance

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

Elmer Kornchuk, AA1OQ

My shack is a simple CW - voice installation that's all fun and play. Nothing high tech. It's located in the basement where I had the opportunity to plan and construct everything from scratch, including the equipment shelf and operating table. All shack electricity is on dedicated circuits controlled with a master switch. 4 coax cables inside the wall terminate at bulkhead connectors on the multicoupler panel. Equipment connectors and ground straps are similarly dressed inside the wall, providing easy switching and good grouding. Also, it's just 7 feet from the ground lug on the panel to the copper ground rod outside. Antennas are a Carolina Windom 80, a Kurt Sterba 20M loop, a Kurt Sterba 15M half square, and a discone for 2M. I use a Bencher paddle with the Yaesu 767GX and a Vibroplex bug with the Kenwood 820s. My bug is a nostalgic relic that goes back to my Coast Guard days at NMW and NRUN. I don't have an amp.

From my QTH on a Knoll in Northern Maine on the New Brunswick border I regularly check into a West Coast net, and work global DX.

Amateur "Hi"

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

WAYNE ASHWELL, KØOHB, & JEANINE ASHWELL, NØXKL

In 1992, the 50th anniversary of the Alaska Highway, we decided to drive to Alaska from our home near St. Louis, MO. During the next eight weeks we drove almost 12,000 miles, camping out of our van and usually spending the night at campgrounds in provincial parks, state parks and national forests. To keep in touch with our families, we set up a daily evening schedule with Ham friends in St. Louis.

Bumper mount verticals on vans are not the most efficient antennas, so when possible we would string-up a 20 Meter dipole between trees. One evening in southern Alaska, after cooking dinner over the campfire, we put the dipole up about 25 feet with the end of the coax lying on the ground near the side door of the van and took a walk.

When we returned to our campsite, we noticed the campground host standing out at the road trying to peer around and under our van. Wondering what she was looking for, we asked if we could help her. She answered "Before entering your campsite I wanted to see where your dog was." When we asked why she thought we had a dog, she pointed to the dipole and replied, "Any dog that needs a 'dog-run' that high must be a BIG DOG!" We contained our laughter until after she left, but have chuckled about it many times since.

CATZ

Two applications were received for the Time Zones award, and unfortunately, I had to reject both of them. Please include the location of the stations listed. One of the applications just lists the call, such as UN5G. The call sign given for this nation could be in any one of three time zones!

Both applications had missing time zones and duplications. If applicants would show the coordinates (longitude is good enough) this would eliminate the possibility of duplications.

If any locations are questionable, submit another card. Such as the case of Wrangel Island. If you check your maps you will see that the longitudinal line of 180 degrees goes right down the middle of the island. Was he to the east or to the west of this line? I don't know.

Rodriguez Island (3B9)

Frank Smith, AHØW, reports that the DXpedition to Rodriguez Island (AF-017) will commence on 25 March with four complete stations operating from two or three locations on the island.

Fiji Islands (3D2)

Lee Reisenweber, 3D2VA, is reported to be the only resident DXer on CW. However, he does operate SSB and can be often found on 20 Meters from 1100 UTC. Try looking for Lee near 14.165 or 14.226 MHz.

Sri Lanka (4S)

The Ohio/Penn DX Bulletin notes that Kamal Edirisinghe, 4S7AB, is active on the bands and likes working DX. Kamal is a 25-year-old electronics engineering student in his final year. Look for him near 14.190 MHz around 0215 UTC or 21.260 MHz at 1500 UTC.

Kuwait (9K)

After some 163,000 contacts made during his stay in Kuwait, Bob Furzer, 9K2ZZ, has left the country, and has returned to the U.S. where he will be signing with his home call, N6BFM.

Pratas Island (BV9P)

During the month of November there was another DXpedition to Pratas Island for the deserving. This time they used the call BQ9P in place of the BV9P call used during the past DXpeditions. They came on the air with one station around 0530 UTC on 12 November and within a few hours they were busy handing out a new one on all bands.

By the following day they were able to have two stations in operation, each on opposite sides of the island. During the first 20 hours of operation they had over 3,100 contacts in their logs, both CW and SSB. Their final contact was during the early morning hours of 18 November, with over 37,000 contacts in the logbooks.

St. George Reef is as isolated as you can get.

The QSL manager for this operation is Steven Wheatly, KU9C, who was also one of the operators. Steve asks that QSL requests not be combined along with other calls that he manages. This will only delay the return of your Pratas card. In addition, be aware that the cards will still need to be printed.

Eritrea (E3)

The DXpedition to Eritrea came on as planned, although their equipment was held up in customs for two days. The government charged the operators $500 for each license, then held their equipment in customs. Most of the operation has been with the call E3ØGA, with some activity with the calls E3ØBA, E3ØDA, E3ØFA, E3ØIA, and E3ØJA, and those would be the operators using their own calls. Most of the activity was by E3ØGA, obviously more than one operator is using the call. In fact, that was the only call reported later in the operation.

Vance LePierre, N5VL (E3ØFA), and Franz Langner, DJ9ZB (E3ØBA), had hoped to be able to go to the Dahlak Archipelago (AS-038) to satisfy the IOTA crowd but were unable to do so.

The other recent activity from Eritrea was Zoli Szoke, HA5PP, operating as E3ØHA, and Jacky Calvo, ZL3CW, operating as E31AA. Zoli was able to collect some 13,000 contacts during his stay. And, out of that total, 3,000 were with the U.S. Jacky's count amounted to about 20,000 contacts, with a large portion of those made with only 10 watts due to radio problems.

As for the success of the Space A DX Group DXpedition, Bruce Richards, WD4NGB, one of the team members, said they made 35,412 contacts. The original number of 20 operators had been reduced to a handful due to the $500 per person license fee. Several of the operators did not stay through the whole term of operation. In fact, one of the team members was so upset that Zoli had pre-empted their DXpedition operating as E3ØHA that he criticized the DX community for their "lack of support." All I can say is I am sure glad I was able to work Zoli. I can't help but think the attack on the DX community soured the whole operation. If I didn't work Zoli, I would still be needing this one for a new one, so sorry about my "lack of support." By 11 November they had worked over 17,000 contacts with only 7 operators remaining.

Bruce also said the QSL cards should be mailed out soon after the first of the

year, and of the full color fold out type. As for all DXpeditions, please include an SASE plus a little extra to help on this expensive operation.

Amsterdam Island (FT5Z)

November was a good month for DXpeditions as this one was well represented. FT5ZH had been very active from Amsterdam Island (AF-002) well into December. Not only did they have to deal with the pileups but the weather was most inhospitable.

St Peter & St Paul Rocks (PYØS)

Karl Leite, PS7KM, says that the March 1999 Natal DX Group DXpedition to St Peter & St Paul Rocks (SA-014) is on schedule. Presently, the team members include: Masashi Kitao, JA4MRL, Peregentino de Andrade, PT7AA, Karl Leite, PS7KM, and Randy Hollier, WX5L. They plan activity on all bands, 6 through 160 Meters, and should be available for 12 days or two full consecutive weekends. Karl says this may be one of the last DXpeditions to these rocks as the Brazilian Department of Environment and Brazilian Navy are increasing their control.

There is a budget set for this DXpedition for $11,000, U.S. Seventy percent of that amount is allocated for the charter of a sailboat which will be anchored nearby during the entire duration of the operation. Any donations to help with the costs would be appreciated. Please send your donations to PS7KM, WX5L, or JA4MRL, via their Callbook address.

Nunuvut (VYØ)

Not a new DXCC country — just a new territory up north. As of the first of the year the new Canadian territory of Nunuvut now exists, which was created from the existing North West Territories. All stations in the newly formed territory will use the VYØ prefix.

Burkina Faso (XT)

Joel, F5AOW, and Michel Delanoue, F5RLE, will be in Burkina Faso between 07 February and 01 March signing with XT2OW on SSB and XT2DM on CW. Operation is planned on 10, 15 and 20 Meters, but some emphasis will be for 12, 17 and 30 Meters too.

Myanmar (XZ)

The Central Arizona DX Association DXpedition to Myanmar came on the air on schedule signing with XZ1N. The group was also active in the *CQ* Worldwide DX Contest the end of November. Immediately following the contest they went on SSB with little takers, probably due to the exhaustion of the contesters throwing in the towel after the contest.

IOTA

The following IOTA operations have provided validation material:

NA-150 KL7/W6IXP	Lil. Diomede Is.	Jul/Aug 1998
NA-173 VE8C	Charlton Island	Aug 1998
NA-184 N6VV/P	St George Reef	Oct 1998
NA-210 KL7/K6ST	Sledge Island	Jul 1998
NA-211 W5BOS/7	Tillamook Rock	Sep 1998
NA-212 H76C	Cardon Island	Oct 1998

The latter three operations were all issued new IOTA reference numbers and may be added to your copy of the IOTA Directory. In addition, the provisional reference number of AS-139 for the BI7W Weizhou Island operation this past August is yet to be confirmed.

Lew Jenkins, N6VV, one of the recent operators of the N6VV/P operation from the St. George Reef Lighthouse (NA-184), notes that he is busy working another IOTA DXpedition. We doubt that it will be as isolated as that reef (*see photo*).

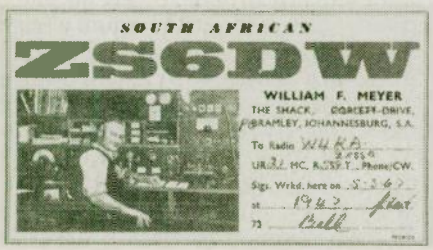
According to *The Daily DX* 8J1RL from the Antarctic is on 21.245 MHz around 0930 UTC on weekends. This one is located on Ongul Island (AN-015).

The Indonesian amateurs have discovered that they are in need and have planned DXpeditions to various island groups. Between 09-11 January (right about now) Ronny Monoarfa, YC8TXW, and Benny Lewu, YC8YZ, will be operating from the Obi Islands (OC-222); and in March they will be on Sula Island (OC-076). Either February or March Kadek Kariana, YC9BU, will be on Lombok Island (OC-150).

To you newcomers who are just starting out in collecting islands, don't forget the easiest one of all. That's Long Island (NA-026), which also includes Staten Island, but not Manhattan Island, which does not count as an IOTA island. If you even operated from Long Island you automatically have credit for the island.

Here is a list of reported activity of IOTA islands during the month of November 1998:

AF-057 5R8PR	St Marie Island	20-25 Nov
AF-057 5R8OP	St Marie Island	17-18 Nov
AN-006 EM1LV	Galindez Island	02-23 Nov
AN-015 8J1RL	Ongul Island	01-18 Nov
AN-017 VP8ADE	Adelie Island	01 Nov
AS-008 7K3EOP/1	Miyake Island	26 Nov
AS-015 9M2TO	Pinang Island	01-06 Nov
AS-017 JR6EA	Okinawa Island	05-19 Nov
AS-024 JR6USF	Yaeyama Islands	16 Nov
AS-028 UAØQMU	Kotelney Island	03-24 Nov
AS-043 JE2WQU/1	Hachijo Island	22 Nov
AS-045 HL5FUA	Ullang Island	01-24 Nov
AS-053 HSØ/IK4MRH	Phuket Island	01-30 Nov
AS-117 7K4STV/1	Jyogashima	14-21 Nov
AS-117 JI3DST/3	Awajishima	14-16 Nov
AS-117 JI3DST/4	Ookunoshima	22 Nov
AS-133 XUXO	Koh Poah Island	22-23 Nov
AS-140 S21K	Bhola Island	01-29 Nov
EU-009 GM3POI	Orkney Islands	03-29 Nov
EU-010 GMØHBF	North Uist Island	01 Nov
EU-010 GM3JIJ	Isle of Lewis	05-13 Nov
EU-010 MMØBJG	South Uist Island	05 Nov
EU-012 GMØEKM	Shetland Islands	21 Nov
EU-016 9A4RU	Brac Island	15 Nov
EU-020 SM1BIQ	Gotland Island	15-19 Nov
EU-029 OZ1GKU	Falster Island	04 Nov
EU-029 OZ1ENH	Falster Island	04 Nov
EU-031 IC8JAH	Isle of Capri	12 Nov
EU-034 ESØNW	Hiiumaa Island	06-17 Nov
EU-036 LA4XGA	Frei Island	02-27 Nov
EU-037 SM7DLZ	Oland Island	21 Nov
EU-038 PA3BLS/P	Texel Island	14-26 Nov
EU-038 PA2JJB	Texel Island	15 Nov
EU-038 PA3FDO/P	Texel Island	20-23 Nov
EU-049 SV8DTL	Lesvos Island	09 Nov
EU-049 SV8CRI	Lesvos Island	10-25 Nov
EU-052 SV8JE	Kefalonia Island	04-18 Nov
EU-055 LA/DL4MN/P	Sotra Island	01-14 Nov
EU-055 LA4CM	Karmoy Island	20 Nov
EU-057 DL4PM	Ruegen Island	04-19 Nov
EU-064 F6IRQ	Yew Island	07 Nov
EU-076 LA1SV	Lofenten Islands	14 Nov
EU-082 U1ZA/A	Kildin Island	02-18 Nov
EU-098 DL2RVL/P	Poel Island	13-15 Nov



DX Prediction — February 1999

Maximum usable frequecy from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 939, Vienna, VA 22183). 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. Smoothed sunspot number = 134. 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.

CENTRAL U.S.A.

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

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(14)*	*15	*19	*(11)*	*18
12	*(13)*	*14	*18	*(11)*	17
14	*(20)*	*14	*17	*(17)*	*33
16	28	*14	*25	21	*37
18	*31	14	*22*	*(16)*	*40
20	*32	22	25	13	*41
22	27	*30	32	*(12)*	*40
24	23	*32	*37	*(12)*	*36
2	*21	*28	*36	11	*28
4	*17	*19	*29	11	*24
6	*(15)*	17	24	*13	*21
8	*(14)*	*15	21	*(12)*	*19

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	17	*(12)*	*(18)*	*11	*19
9	17	11	*17	11	*18
11	*33	11	*17	17	*25
13	*39	*12	*32	*23	*32
15	*41	*(12)*	27	*24	*36
17	*41	*(11)*	23	*22	*39
19	*36	*(11)*	*(21)*	17	*40
21	*30	21	30	13	*40
23	*23	21	35	*12	*33
1	*20	15	25	*12	*28
3	*19	*(13)*	22	*11	*24
5	*16	*(12)*	*20*	*11	*21

— John F.W. Minke III, N6JM can be reached at: P.O. Box 310, Carmichael, CA 95609-0310 or via e-mail: n6jm@pacbell.net.

EU-098 DL2RNS/P	Poel Island	14-15 Nov
EU-110 9A1CZZ/P	Brioni Island	20-22 Nov
EU-124 GMØSLM	Anglesey Island	24-26 Nov
EU-124 MWØAUX	Anglesey Island	26-27 Nov
EU-124 GMØMOI	Anglesey Island	10 Nov
EU-131 IK3PQH	Lido Island	14-26 Nov
EU-133 R1ASP	Kotlin Island	02-24 Nov
EU-136 9A6DCR	Krk Island	16-29 Nov
EU-137 SK7DX	Ven Island	06-08 Nov
EU-163 4N9BW	St Nikolas Island	07-29 Nov
EU-163 4N6IOTA	St Nikolas Island	14-16 Nov
EU-163 YU7ADY/P	St Nikolas Island	07-13 Nov
NA-041 KL7IFP	Revillagigedo Is.	04-26 Nov
NA-046 N7PIB	Nantucket Island	27 Nov
NA-047 VE8TA	Baffin Island	04-29 Nov
NA-048 C6AKP	Bimini Islands	23-30 Nov
NA-051 VE7QCR	Queen Charlotte Is.	05-23 Nov
NA-055 WB1BQJ	Mount Desert Is.	06 Nov
NA-055 AK1L	Vinylhaven Island	01-30 Nov
NA-057 N7QXQ/HR6	Roatan Island	26 Nov
NA-062 W2SF/P	Matecombe Island	19-30 Nov

Antique QSL department

Our cards this month come to us courtesy of Leo Haijsman, W4KA of Florida.

The first card is from PJ5RE in Aruba. His contact information is dated 29 October 1950 with a 5-9 report on 20 Meters. It appears to have been a contest contact, as there is a notation of "No. 5909", on the card. PJ5RE no longer appears in any callsign database.

William Meyer, ZS6DW, sent the second card to W4KA. The information lists the contact as 3 May 1967, on 15 Meters with a 5-9 report. It lists the address as Johannesburg, South Africa. This call is now held by a different amateur.

The third and most colorful card of the three was sent to Leo by G. Palavisini, from Radicofani, Siena, Italy. The card features a caricature of Pinocchio being held in a birdcage. The contact information shows a date of 23 April 1951 on 20 Meters, at 1245UTC, with a signal report of 5-9-9 on a SSB contact. This call no longer appears in the database.

Thanks go to the following contributors for this month's column: Western Washington DX Club (WAØRJY), Northern Arizona DX Association (KI7LS), American Radio Relay League (NC1L), WebCluster (OH2AQ), *425 DX News* (I1JQJ,), *The OPDX Bulletin* (KB8NW), *The Low Band Monitor* (K0CS), *Island/DX News* (N5VL), *The Daily DX* (W3UR), *QRZ DX* (N4AA), and *DX News Sheet* (G4BUE) and individual Hams too numerous to mention.

QSL Managers

1X5AA W3HNK
3A/IK2DUW IK2DUW
3A/N9NC OM2SA
3B7RF HB9RF
3B8/DL9GFB DL9GFB
3B8/F6BBH F6BBH
3C1GS EA5BYP
3C1RV EA1BMH
3D2RW ZL1AMO
3D2VA WA2NHA
3DAØCA W4DR
3E1DX NØJT
3V8BB I5JHW
3V8BB YT1AD
3W6EV JA6EV
4F3CV HB9CXZ
4G50N DU9RG
4J1GC KI4RU
4K9W DL6KVA
4KA6GF 4J9RI
4LØCR IK7JTF
4L1UN IK7JTF
4N1EA YU1EFG
4N6IOTA YU7BW
4N7DW YU7BJ
4N8ØØH YUØSRJ
4S7YSG JA2BDR
4U1UN W6TER
4U1VIC DL5IO
4U1VIC DL6RDR
4X/K5ZD K5ZD
4X6UO WB3CQN
4Z1GY NF4W
5B4/EU1AA W3HNK
5B4/G3NOM HSØ/ G3NOM
5B4/RA9JX RA9JX
5B4/RZ3TX RZ3TX
5B4/UA9YABUA9YAB
5B4/UT7QF UA9AB
5B4/YL2KL YL2KL
5B4ADA 9A2AJ
5H3US WA8JOC
5NØ/OK1AUTOK1AUT
5NØ/YU2WV KI4RU
5NØ/YU2WW YU2WW
5N3BHF OE6LAG
5N3CPR SP5CPR
5N9CEN IV3VBM
5N9EAM IK7JTF
5R8ET K1WY
5R8FL F5TBA
5R8FU SMØDJZ
5R8OP F6AOI
5R8PR F6BFH
5U7DG K4SE
5V7A GM4FDM
5V7FA F6FNU
5V7MF KC7V
5V7ZM G3ZEM
5W1CW ZL1AMO
5W1SA JH7OHF
5X1Z SM6CAS
5Z4EO DL0MAR
5Z4RL GØIAS
6K98WCX HL5FOP
6M5DX HL5CL
6V6U K3IPK
6W1/N2WCQ UT4UZ/ N2WCQ
6W4RK F5NPS
6W6/K3IPK K3IPK
6W6/N3NS K3IPK
6Y/K7CO K7CO
6Y2A WA4WTG
6Y5/AF7Y AF7Y
6Y5/DK3FW DK3FW
6Y5/K7CO K7CO
6Y5/KB0ELW NØLXW
6Y5/N6TV N6TV
6Y5/W4SO W4SO
7P8AL WB5FOQ
7Q7AH GØIAS
7Q7HB GØIAS
7S5BE SK5BE
7Z1IS SMØOFG
8JØWPG JAØDWY
8J6ITU JK6UPC
8P9HT K4BAI
8P9Z K4BAI
8Q7CC JR2KDN
8Q7DV UA9CI
8Q7IK IK1ZPA
8Q7LE GØULN
8Q7US JR2KDN
9A1CZZ/P 9A2DM
9G1TB WK6O
9G5MF KC7V
9G5MG WK6O
9G5SX G3SXW
9G5ZM G3ZEM
9HØA LA2TO
9H1F K5YG
9H3JR DJØQJ
9H3YM PE1OFJ
9H3YN PA3CUZ
9H3YQ DJ7PR
9H3ZJ PA3GMZ
9J2AM JAØJHA
9K2MU WA4JTK
9K2ZZ W8CNL
9M2/G3NOM HSØ/ G3NOM
9M2OM HS0/G3NOM
9M2QQ DF5UG
9M2TD JR4PDP
9M6AAC N2OO
9M6CT G4JMB
9M6HX DJ9HX
9M6JU JA1RJU
9M6NA JE1JKL
9M8QQ DF5UG
9M8TG JH3GAH
9M8YY JH3GAH
9N1UZ UT4UZ/N2WCQ
9N7SON W4SON
A25/W0YG WØYG
A35RK W7TSQ
A35VR WA2NHA
A43XA A47RS
A61AJ W3UR
A61AO N1DG
A627ND KA5TQF
A71/9K2AI IK7JTF
A92GD K1SE
AH2R JI3ERV
AH3C WØRTT
AP2TJ W3HNK
AT0PAI VU2PAI
AT2DPI VU2DPI
AT2HJA VU2HJZ
AT2HLX VU2HLX
AT2MTT VU2MTT
AT2PAI VU2PAI
AT2TMP VU2TMP
AT2UR VU2UR
AT3DJQ VU3DJQ
AT3HKQ VU3HKQ
AT3PRA VU3PRA
AY6D LU6DK
B1Z JA4HCK
BA1DU W3HC
BA4TB 9A2AJ
BD4ED BY4BHP
BD4TB 9A2AJ
BG4TBD 9A2AJ
BMØQRP BV3FG
BOØK BV2KI
BQ9P KU9C
BV4FH KA6SPQ
BV5BG IK7JTF
BY4BNS BD4EE
C4A W0RTT
C4W 5B4WN
C6A/N4RP N4RP
C6AHN KC4SZE
C6AIE WZ8D
C6AJR W8GEX
C6AKP N4RP
C6AKP N4RP
C6DX WZ8D
C94DI IN3BXL
CE3/NE4Z CE3SMN
CF3NJ VA3NJ
CG1CZ VE1CZ
CG1HA VE1HA
CG2ICM VE2ICM
CG2KH VE2KH
CG9HF VE9HF
CJ1TX VO1TX
CJ1WET VO1WET
CM7DJ CO7JC
CN8WW DL6FBL
CO2WF VE2EH
CO8DC VE3NXB
CO8HF CT1ESO
CO8LY EA7ADH
CO8TW W3HNK
CP6AA LU9AY
CP8XA DG9NB
CU2V DL3KDV
CW3C CX3CE
D2CM DJ0MCS
D2GG CT1GG
D44BC D44BC
D68WU F6HWU
D98TOK HL5CL
D98WCX HL5FOP
DU1/WH7C JG1OUT
DU1ØØRG DU9RG
DU3NXE W4NXE
DU6/K9AW WF5T
DU6BG K6BG
E20AT HSØ/G3NOM
E21CJN W3PP
E22AAA HS1CHB
E22AAD KA6LCJ
E22DX HSØ/G3NOM
E28DX HSØ/G3NOM
E3ØBA DJ9ZB
E3ØGA K4JDJ
E3ØKA N9NS
EA6IB EA3KU
EA7ERI/P EA7AJM
EA8/DJ1OJ DJ1OJ
EA8EA OH2MM
EA8ZS EA8ZS
EA9EA EA9AZ
ED1RCW EA1JO
ED2SDX EA2ABM
ED5MVV EA4SS
ED5TMA EA5URR
ED7VLC EA7OO
ED8BA EA8BA
ED9PIE EA9JS
EF1IAT EC1BXI
EF8AAM EC8AAM
EG7AEF EA7AEF
EG7HBP EA7HB
EK278ØGK EK4GK
EK278ØJJ EK4JJ
EK88L IK2DUW
EK9EC W3HNK
EL2VO EA5GIY
EL2WW ON5NT
EM1LV UR8LV
EM3W WB2RAJ
EM4U UT4UZN2WCQ
EO5UUT4UZ/N2WCQ
EP2MKO UA6HCW
EP2PM JF2MXU
EP3HR I2MQP
ER3HW ER3DX
ER5GB W3HNK
ER7N UT7ND
ER8C ER1DA
ET3BT K1WY
EU5A EU1FC
EU6MM IK2QPR
EW200M EW4MM
EX2M W3HNK
EX7MM DF8WS
EX8ML W3HNK
EX8MLE IK2QPR
EX8W DL8FCU
EY6TM F6FNU
EY6TM/8 F6FNU
EY8CQ DJ1SKO
EY8MM K1BV
EZØAB UA4FAO
EZ6L RU6LWZ
EZ8CQ WØFS
F6KFO/P F5ORQ
F8AB F2VX
FH/TK5PB TK5PB
FK5DX WB2RAJ
FK8GJ F6CXJ
FK8GM WB2RAJ
FK8HC VK4FW
FK8VHT F6AJA
FM5DN KU9C
FM5FJ KU9C
FM5GU WA4JTK
FM5JY F5JYD
FOØSAI JI1JKW
FP5BZ F5TJP
FR/G3SWH G3SWH
FR5ZU/G JA8FCG
FR5ZU/G VE2NW
FT5YG F5LBL
FT5ZH F6KDF
FY/DJØPJ DJØPJ
G6D G3LZQ
GB1ØØEGL GWØANA
GB1ØØSFL GWØANA
GB5WW G3LZQ
GD4UOL G4UOL
GIØPCU K1WY
GI3MUS K1WY
GI6YM K1WY
GU6UW G3XTT
GX3YRC G3HNU
H76C HR1RMG
HC1HC NE8Z
HC8N AA5BT
HD1HC NE8Z
HD1J HC1JE
HD6DX HC6DC
HG5C HA5OG
HG9VHF HG9OZD
HH2/KC0ARG F6DJB
HH2LQ VE2EH
HI3K HI3JH
HI8/DL1HCM DL1HCM
HJ6PQI HK6RVS
HK3/GØSHN F6AJA
HSØ/G3NOM HSØ/ G3NOM
HSØAC HSØ/G3NOM
HS1RU JG3AVS
HS5AC W1ZS
HS98AG HS1CKC
IAØPS IKØAIH
IH9/OL5Y OK1VK
II1H I1HJT
II2Y IK2OWX
II2Y IK2OWX
IJ4R IK4IEE
IL3/IW2MVC IK2DUW
IL3/IZ2BKW IK2DUW
IMØ/IK2DUW IK2DUW
IP4T IK4IEE
IQ2W IK2DUW
IQ6T IK6SNQ
IRØMFP IKØAZG
IR2P IK2DUW
IR4D IK4MED
IR4T IK4IEE
IR6W IK6WDY
IS0/IK2DUW IK2DUW
IU4F IK4ZHH
IZ2CEI IK2DUW
IZ4C IK4IEE
J3/N7OV IK3VIA
J37K W8KKF
J39BW WB2RAJ
J3A WA8LOW
J41Y SV1DKL
J45KLN SMØCMH
J68AH AC0S
J68AM W8ILC
J68AR K9JE
J68AS N9AG
J68GS KI6T
J68ID W8QID
J68LU K9LU
J68MM K9MMS
J68RR S5ØR
J6DX N9AG
JT1A OH1RX
JT4/G3NOM HS0/ G3NOM
JT4Ø JT1CD
JUGØMTZ JT1CJ
JW5E LA5NM
JX7DFA LA7DFA
JY5SK W9XY
JY8YB DL5MBY
JY8ZW K4ZW
JY9NE N3FNE
JY9QJ DL5MBY
K3VOA W3LEO
K8VIR W8WC
K9PDH WØRTT
KCØARG/HH2 F6DJB
KC4AAD K4MZU
KHØAS WB4UBD
KH2/N2NL W2YC
KH3/KNØE WØRTT
KH4/KTØF KTØF
KH4/NØWBV KTØF
KH4/NH6YK NH6YK
KH7R WE9V
KL7Y N2AU
KP2/AG8L NN6C
KP2/K8MJZ K8MJZ
KP2/N8NX KU9C
KP2AD OKDXF
KW1JY K1WY
KW1WY K1WY
L5ØV LU5VC
L5V LU5VC
LA8W LA4DCA
LQØN LU2NI
LRØH LU9HS
LTØH LU5HN
LT4A LU1BCE
LUØH LU4HH
LU1DK/D WBADXG
LU5DV/D WBADXG
LX4B LX1TI
LY61DR LY1DR
LY62TZ LY2TZ
LY62ZZ LY2ZZ
LY63BA LY3BA
LZØA LZ1KDP
LZ2TU WB2RAJ
MØARC G3LZQ
M6D G3LZQ
M7D G3LZQ
M7O G4JZO
NHØ/AA5K KI4RU
NH7A N2AU
NP4A W3HNK
OA4DJN W3HNK
OC463DX OA4FW
OD5PI IK7JTF
OD5PL HB9CRV
OD5PN LX1NO
OHØJJS OH6LI
OH1AF OH1XT
OH2U OH2IW
OH6X OH6MSZ
ON4CAT K1WY
ON9CAT K1WY
OT8A ON7LR
OT8T ON4UN
OX3LG OZ2ELA
OX3UB OZ1GER
OY4TN OY6FRA
P29BW N5FTR
P29CC K1WY
P29KH WD9DZV
P29VPY K1XM
P29VR W7LFA
P3A W3HNK
P4ØE W3HNK
P4ØI KR3I
P4ØW N2MM
P49M VE3MR
PJ2HB WA2NHA
PJ9/PA0VDV PAØVDV
PS2E PY2EX
PTØF WØRTT
PVØE W3HNK
PV5V PP5LL
PW5W PP5LL
PX1I PY1KS
PX2A PY2KP
PY1KS PY1KS
R1ANF RK1PWA
R1ANZ UW1ZC
R1FJV UA3AGS
R6L RU6LWZ
R6SRR RU6LWZ
RAØFF N6FF
RA2FBC DF4BV
RA6AX W3HNK
RM6A W3HNK
RSØF W3HNK
RT1U UT4UZ/N2WCQ
RU6L RU6LWZ
RW2F DK4VW
RY1U UT4UZ/N2WCQ
RY6AC RU6LWZ
RY9C RK9CWA
S2/G3NOM HSØ/ G3NOM
S21B W4FRU
S21J K1WY
S21U HSØ/G3NOM
S21ZF HSØ/G3NOM
S52DV KI4RU
SNØSON SP9PLR
STØK WB2RAJ
ST2/G4OJW WB2RAJ
ST2AA WB2RAJ
SU1JOTA WA3HUP
SU3AM DL1FCM
SV5/OM3LA OM1APD
SV9/MUØBKA K4ZLE
TØØRM DL2JRM
T3ØCT DL2MDZ
T32IW DJ5IW
T32KV NØKV
T32NCC HA1AG
T32PS KØMP
T32VU DJ5IW
T71SM T7ØA
T77V ISØQDV
T88HM JF1OCQ
T88II KJ9I
T88LJ JM1LJS
T88TN JAØQBY
T88X JE2PCY
T94DO DL1FDV
T95A K2PF
T98P 9A4SP
TA3DD TA1KA
TA4/DL1CW DL1CW
TE45CDA TI0RC
TF7GX K1WY
TF8GX K1WY
TG9IGI I2MQP
TI1C W3HNK
TI8/AA8HV N8TI
TJ1GD SP9CLQ
TKX8DX WB2RAJ
TL0R PA3DMH
TL5A PA3DMH
TL8MS DL6NW
TM2OO F5KQN
TM5CW F5SJB
TM5NOT F6CPX
TM6TM F6KOB
TM6URI F5OTU
TM7TLT F6KWP
TM80A P6KVD
TM8TEL F8KOO
TM8UN F5HWB
TP5ØCE F6FQK
TR8CA F6CBC
TT8FC EA4AHK
TU2MA OH7XM
TU5GY IK1GPG
TU5IJ I2AOX
TX8A VK4FW
TY8A DL7DF
UAØACG K1WY
UAØAOZ K1WY
UAØAZ W3HNK
UAØDC K1WY
UAØFZ W3HNK
UAØSJ UAØSJ
UAØYAY IK2QPR
UAØYAY IK2QPR
UAØZBK K1WY
UA4LAR UT4UZ/ N2WCQ
UA9XS W3HC
UE3APN RZ3DYG
UE6FST RZ6HWA
UK8GK RW6HS
UK8IZ IK2QPR
UK8OM IK2QPR
UN2O IK2QPR
UN5J W3HNK
UN7FK W3HNK
UN7FZ KA5GMN
UN7LG KU9C
UN7QX RW6HS
UPØL UN9LW
UP5P UN5PR
UP6P UN5PR
US9DUT4UZ/N2WCQ
UT4UZ UT4UZ/ N2WCQ
UU1JA N4NWT
UX1L UX1LA
UZ3AYR WB2RAJ
V26E AB2E
V26K AA3B
V26VG GM3UTQ
V29YS KI4RU
V420KAO KI4RU
V44KAI K2SB
V44KJ WB2TSL
V47KP K2SB
V63HC KQ1F
V63HO KQ1F
V63PD VK4AAR
V63X KQ1F
V63YP KQ1F
V85QQ DF5UG
V85TG JH3GAH
V8A JH7FQK
VA1A K3BU
VA1L VE1AL
VA1S VE1AL
VE8TA VE2BQB
VIØANARE VK4AAR
VK1TX K1WY
VK4DCL DL3SDW
VK5BWR KI4RU
VK8AN VK4AAR
VK8AN/6 VK4AAR
VK8MI VK4AAR
VK9LNQ JM1KNQ
VK9LOO K6KM
VK9LX VK2ICV
VK9NR I2VGW
VP2EJR W1EK
VP5/K5GN K5GN
VP5/N4TO N4TO
VP5DX K4UTE
VP5FXB W8AV
VP5GN K5GN
VP5M N4TO
VP8CRB K4QD
VP8CZJ G4VFU
VP9/AA1AC AA1AC
VQ9QM W4QM
VQ9SS N6SS
VR2/OH6YF OH6YF
VR2FD DL3MFN
VR98FD DL3MFN
VU3EGX F6EGX
VU3MCV ON7LX
W2W W3GR
W5LZG WØRTT
W9LVT WØRTT
WH7/K9NW WW9DX
WP2Z KU9C
WP3R W3HNK
XE1EZM AC7DX
XE1FES W3HNK
XE1RGL N2AU
XR3J HB9AOF
XR8Y CE8ABF
XT2AW DF2WO
XT2DM F5RLE
XU1A JH1AJT
XU1NOM HSØ/G3NOM
XU2C JH1AJT
XU5NRY F5NRY
XUXØ 7L1MFS
XV3ØØS JH1EVE
XV7TH SK7AX
XX9TBH AB6BH
XX9TRR OH2PM
XX9X OH2PM
XY1HT HS0/G3NOM
XZ1N W1XT
YBØDX W3HNK
YCØAZ W7TSQ
YCØMZI W6MD
YC5XIP I1WFF
YC8VIP W6MD
YI1BN IK2DUW
YI1DKS IK2DUW
YI1OM IK2DUW
YI1WL IK2DUW
YI1WMS IK2DUW
YJ8AA VK4AAR
YL8ØJN YL2JN
YL8ØMR YL2MR
YL8ØRP YL2RP
YL8ØRQ YL2RQ
YL8ØZF YL1ZF
YM75DS WA3HUP
YM75ROT TA3BN
YN2EJG K5LBU
YN6HM K5YU
YO2LDE KB5IPQ
YT7A YU7GMN
YT8ØØFG YUØSRJ
YT8ØØS YUØSRJ
YU2WV KI4RU
YU8ØØG YUØSRJ
YZ8ØØMO YUØSRJ
YZ8ØØR YUØSRJ
Z21/ZS6PDX ZS6RVG
Z21KM F6FNU
ZA/YØ2LDE KB5IPQ-SSB/CW
ZA1MH Z32KV
ZB2CN DJ9WH
ZB2FX G3RFX
ZD7DP WZ1T
ZF2AH W6VNR
ZF2LA K9LA
ZF2NE W5ASP
ZF2VR N2AU
ZK3RW ZL1AMO
ZL3KIM K1WY
ZP5SNA JA1SNA
ZP5XF N2AU
ZP5Z W3HNK
ZV3A PY3AAC
ZV3C PY3AAC
ZZ3Z PY3PAZ
ZZ4W PY4KL
ZZ7Z PR7AR

HL5PVN Kyung Chang Kang, P. O. Box 12 Tong-Nae, Pusan 607-600, KOREA

J39BWGraeme Stratton, P. O. Box 703, St. George's, GRENADA

JA1RJU/JD1 Kazuo Ogasawara, 13-12, 4 chome Kamirenjaku, Mitaka, Tokyo 181-0012, JAPAN

JT1CJP. O. Box 100, Ulaanbaatar-44, Mongolia, JAPAN

LX1JHJean-Marie Juchemes, 2, Haaptstrooss, L-6869 Wecker, LUXEMBOURG

P43T Anthony Thiel, P. O. Box 4234, Noord, ARUBA

SV1EDY Apostolos Bourousis, 1 Anaximandrou Str., GR-116 33 Athens, GREECE

SV1ENG Antonis A. Parashis, El. Venizelou 203, GR-141 22 Athens, GREECE

VU2JBK Jagdish Kumar, Amateur Radio Club, D. E. A. L., Raipur Road, Dehradun 248 001, INDIA

WHØV Jun C. Mercado, P. O. Box 1941, Saipan, MP 96950

YC9YKI Bachrun Betta, P. O. Box 37, Serui 98211, INDONESIA

ZP6VLA Victor Hugo Sosa, C. C. 22065, 2160 San Lorenzo, PARAGUAY

9G1PDPatrick John Dzadze, P. O. Box 771, Takoradi, GHANA

BD4REYee, P. O. Box 10, #38 Guangdong Road, Nanjing 210003, CHINA

BG6JWCui, P. O. Box 074, Luoyang 471000, CHINA

Due to space limitations we are unable to publish the complete list. For a complete listing go to www.wr6wr.com/qslmanagers.html

ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.

BURBANK, CA
2492 W. Victory Bl., 91506
(818) 842-1786
(800) 854-6046
Marv, K6VIV, Mgr.
Victory Blvd. at Buena Vista
1 mi. west I-5

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(800) 854-6046
Mark, WI7YN, Mgr.
I-880 at 23rd Ave. ramp

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(619) 560-4900
(800) 854-6046
Tom, KM6K, Mgr.
Hwy. 163 & Claremont Mesa

SUNNYVALE, CA
510 Lawrence Exp. #102
94086
(408) 736-9496
(800) 854-6046
Ken, K1ZKM, Mgr.
So. from Hwy. 101

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Bob, N9GG, Mgr.
RT.13 1/4 mi., So. I-295

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 854-6046
Ray, KI7TN, Mgr.
Tigard-99W exit
from Hwy. 5 & 217

DENVER, CO
8400 E. Iliff Ave. #9, 80231
(303) 745-7373
(800) 444-9476
Joe, KDØGA, Mgr.

PHOENIX, AZ
1939 W. Dunlap Ave., 85021
(602) 242-3515
(800) 444-9476
Gary, N7GJ, Mgr.
1 mi. east of I-17

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Phil, N4DRO, Mgr.
Doraville, 1 mi. no. of I-285

WOODBRIDGE, VA
(Near Washington D.C.)
14803 Build America Dr.
22191
(703) 643-1063
(800) 444-4799
Mike, KA3TMQ, Mgr.
Exit 161, I-95, So. to US 1

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Chuck, KM4NZ, Mgr.
sales@hamradio.com
Exit 1, I-93;
28 mi. No. of Boston

12 Store Buying Power!

HAM RADIO OUTLET®

WORLDWIDE DISTRIBUTION

KANTRONICS

True Dual Port Simultaneous HF/VHF Operation

KAM PLUS

NEW KAM Plus features 128K RAM, EPROM space for 1 MB, on-board clock, expanded personal mailbox and Pactor! And G-TOR! Operating modes include CW/RTTY/ASCII AM, OR/PACKET/PACTOR/WEFAX Terminal programs available for PC, Commodore and Macintosh computers.

Call For Our Special Price!

KPC-3/KPC-9612

A high-performance, low power TNC for new and experienced users. Features dual level command set with 23 and 130 commands, respectively. Battery backed 128K RAM expandable to 512K. PBBS includes two-way forwarding, message header editing, remote sysop access and KA-NODE.

Call For Special Low Price!

Detailed illuminated map shows time, time zone, sun position and day of the week at a glance for any place in the world. Continuously moving - areas of day and night change as you watch. • Mounts easily on wall. Size: 34 1/2" x 22 1/2"

Reg $1295. SALE $999.95

ADI

AT-201HP 2M Handheld

- 40 memories + CALL channel
- Wide receive 130-180 MHz
- Built-in CTCSS enc./dec.
- Full-sized, backlit keypad
- 5 watts RF output

NEW!

AT-600HP 2M/440 Handheld

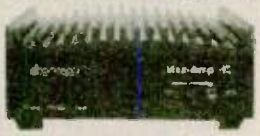
- Wide receive from 100-174, 340-480, and 850-935 MHz (cellular blocked)
- Dual receive • 200 memory channels
- 6 character alphanumeric display
- Crosband repeat • Auto repeater shift
- CTCSS enc./dec. • CTCSS tone scan

(AR-446 also shown)

AR-146 2M Mobile

- 3 select. pwr. settings (5/10/50w)
- 40 memories plus a CALL channel
- Built-in CTCSS encode/decode
- Wide receive cov. 130-180 MHz

concepts



VHF/UHF Solid State Amplifiers

Contemporary design, quality and a 1 year warranty on parts and labor. 1 year on the RF Final transistors. Most amplifiers have GaAsFET receive pre-amps and high SWR shutdown protection.

US TOWER

Shown with Optional Rotor Base

MA-40

40' Tubular Tower

REG. $809

SALE $679.95

MA-550

55' Tubular Tower
Handles 10 sq.ft. at 50mph
Pleases neighbors with tubular streamlined look

Reg.$1369

SALE $1069.95

TX-455

55' Freestanding Crank-Up
Handles 18 sq. ft. @ 50 mph
No guying required
Extra-strength const.
Can add raising and motor drive acces.

Towers Rated to EIA Specifications
Other Models at Great Prices!

SALE $1399.95

All US Towers shipped truck collect.

AZ, CA, CO, GA, VA residents add sales tax. Prices, specifications, descriptions subject to change without notice.

Look for the HRO Home Page on the World Wide Web
http://www.hamradio.com

COAST TO COAST
FREE SHIPPING
UPS - Most Items Over $100
Rapid Deliveries From The Store Nearest To You!

Jim Wades, WB8SIW

Why handle traffic?

This question is often heard at presentations about NTS and traffic nets. It's often phrased as a 'loaded' question, such as: "Why should I use NTS when the Internet or Telephone is much faster?" Of course, the individual asking expects to hear the presenter 'squirm' as he tries to compare the NTS to the Internet, Western Union, or the Public Switched Telephone Networks ("MaBell")!

The simple fact is that NTS was never intended to compete with commercial communications resources. From it's inception it has existed for a variety of reasons, some of which are:

- NTS provides a basic, highly survivable, communications network for medium and long-haul communications.
- NTS provides a 'grass-roots' opportunity for local radio amateurs to provide a direct service to their neighbors through the origination and delivery of traffic
- NTS provides convenient training on net procedures and circuit discipline, in other words, the 'art' of public service communications.

It's probably this last point that's most important. Any night of the week, any interested radio amateur can check into an NTS net and obtain valuable training in public service communications without ever leaving his home! He (or she) will learn the proper use of the ICAO phonetic alphabet, spelling techniques, the correct use of prowords and prosigns (e.g. "over", "out", etc.) and most importantly, net discipline. The skills learned on NTS nets are useful on any public service operation from a Skywarn net to a local Search and Rescue operation. For this reason alone, NTS and traffic handling should be a part of any Amateur Radio public service program.

Parochialism

How often have you heard the following phrases:

"Digital communications is going to make all other modes obsolete."

"CW is slow and inaccurate and belongs in the nineteenth century."

"Phone operators are a bunch of clowns."

Any time I hear one of these comments I suspect the individual uttering them of being 'narrow-minded.' There is certainly nothing wrong with having a preference for a particular mode of communications or perhaps choosing to 'specialize' in one type of operating or another. However, the competent public service communicator understands that a diversity of modes and capabilities is the key to a strong and effective emergency communications program.

During a recent Michigan State Police emergency exercise, Amateur Radio operators were charged with the responsibility of establishing a point-to-point circuit between the 'disaster' location at Traverse City, Michigan, and the State Emergency Operations Center (EOC) at Lansing. First, communications was attempted on a VHF linked repeater system. It failed. Next, communications was attempted on 75-meter SSB. This also failed. Finally, communications was attempted on 40-meter SSB. This failed as well due to malicious interference and computer noise at the EOC. Fortunately, one of the individuals at the EOC was a regular participant on the Michigan Section CW Net, 'QMN'. By switching to CW, the traffic was cleared quickly and efficiently with no fills.

The example above is not intended to suggest that CW is better than other modes. However, it is intended to suggest that had this valuable skill not been available, this portion of the exercise might have failed! The next time someone tells you CW is obsolete, quietly smile and remember this story! Please also remember that "the key to an effective emergency communications program is a diversity of skills and modes!"

Founders Disease

In a recent issue of *Sing Out* magazine, well known folk singer Pete Seeger writes "The term Founders Disease comes from the corporate world, but deserves to be better known. I came across it while singing for the Audubon Society. They used it for a recurring problem: People start a local chapter but 15 or 25 years later it goes belly up. The founders grow old and haven't taken in enough new young members to keep it going."

"All around the country I see lots of good small organizations. But increasingly I see their numbers growing a year older every year. I tell 'em if they don't reach out, bring in a wide assortment of young folks, they're headed for trouble. Watch out for Founder's disease."

It's not news that Amateur Radio operators in general and traffic handlers in particular are not getting any younger. As we take time to consider the current changes in Amateur Radio and perhaps the future of traffic handling, perhaps we should consider carefully the advice Pete Seeger has to offer! If you or your organization has

come up with effective ideas to attract new participants to your ARES or NTS programs, please do not hesitate to share them with other readers of the Traffic column! The future of Amateur Radio may depend on the sharing of such ideas!

Traffic handling "Tip-of-the-Month"

When operating on radiotelephone traffic nets how often have you heard the use of such phrases as:

"Place of Origin is"
"Address is"
"Amateur Call"
"Telephone number".. and so forth

The receiving operator should know the message format, or if he doesn't he should have the radiogram blank in front of him. These unnecessary phrases waste valuable net time and add nothing to the accuracy of message content. Please avoid wasting valuable circuit capacity by avoiding the use of such nonsense. — Next month's traffic column will include information on: Emergency Preparedness for Traffic Handlers and Health and Welfare Traffic.

Educators "go the grant route" to fund school Amateur Radio stations and programs

Three educators have received grants to set up Amateur Radio stations in their classrooms. The biggest grant, $12,000, was garnered by electronics teacher Fred Usherson, N2EGQ, of Floral Park, NY. In his grant proposal to the World of Knowledge Foundation, Usherson cited the need to create an Amateur Radio program so that his Queens Vocational Technical High School students could handle emergency messages and gain marketable electronics skills.

Teacher Sarah Cowan isn't even a Ham yet, but she managed to get a $1,500 grant through Los Alamos National Laboratory to set up an Amateur Radio station at Pajaro Middle School in Santa Cruz, California.

This year's ARRL Professional Teacher of the Year, Bob Lavin, K6BOB, of Calabasas, California, got $3,000 from his school's parent-teacher organization earlier this year to purchase an Amateur Radio station. He has integrated Ham radio into his classes, and 30 students and teachers now hold Technician or Tech Plus tickets.

For those who wish their school had an Amateur Radio station and activities for kids, ARRL Educational Activities Manager Rosalie White, WA1STO, offers some suggestions. "Ask around to learn who're the innovative teachers in your district, and offer a hands-on geography or science lesson," she suggests. "Or get yourself invited to help students take part in the School Club Roundup (see January *QST*)."

Getting grant money from various sources to fund Amateur Radio activities in the school is not a new idea, but it's one more avenue teachers should explore. In 1995, four different grants gave teacher Sheila Perry, NØUOP, $155,000 for her school district. The money funded curriculum development. Amateur Radio equipment, electronic kits, a computer lab and other items.

Teachers interested in learning more about how to write grant proposals should visit ARRLWeb, www.arrl.org/ead/teacher/perry.html. — *ARRL Letter*

Special Events

WASHINGTON'S BIRTHDAY

The Mount Vernon ARC will operate K4US 1600Z-2100Z 13-14 February to commemorate George Washington's Birthday. Transmission will take place from Mt. Vernon, VA, and frequencies include 7.240 MHz, 14.240 MHz SSB and 10.110 MHz CW. For 8 1/2"x11" certificate, send QSL and SASE to MVARC, P.O. Box 7234, Alexandria, VA 22307.

For more information, contact Bob Raevis, KT4KS, 703/765-2313 (evening), 703/305-4919 (day).

Jerry Wellman, W7SAR

National Search and Rescue School

I was reading an article in an emergency management publication where the director of a particular hazard ous materials response group basically said, "the problem with many responses is that no one calls us." The article went on to say how well qualified the group was (in their own opinion) and that the problem with hazmat responses was that their group was not called to help and that everyone else didn't know how to handle such events.

The article brought to mind a seminar I attended some years ago where many volunteer groups met to share ideas and coordinate talents. Most groups represented were eager to hold joint exercises, share talent, and do cross training. However there were two groups (I'll call them legacy groups because they had been around for a number of years) who basically took the stance that "we're the experts, call us, we'll take care of it." The attitude conveyed was one of self-proclaimed superiority but it also occurred to me that if these groups began to cooperate, they opened their operations up to scrutiny. And perhaps the latter was the critical issue.

It's a scary thing for a group to throw their hat into a cooperative ring. Up front, the fact of having an "outsider" work shoulder-to-shoulder with them often challenges the group's traditions when the "guest" asks the worst question: "Why?" ("Why are you allocating a search team to that segment? Why have you deployed a packet radio team to this location? Why is your probability of detection 23 percent?") And we get defensive, thinking the "outsider" is challenging the way we do things.

Because of our natural state of being defensive, we overlook several issues. First, the questioner might simply want to learn how our group works. Second, we become so entrenched in our way of doing things that by simply answering the "Why?" we rethink our actions and either improve or validate the reasoning. It's always bothered me when an individual or group takes the attitude that "we have the answers" and you should "call us and get out of our way."

Now, before you go out and begin fighting fires or cleaning up hazardous materials, please realize there is a need for specialists. The point I'm making is one of cooperation and working together instead of presenting an arrogant stance of "look at how neat we are and we can do it all, we don't need anyone else." If you read reports following the Florida wildfires, you discover a significant level of cooperation among many agencies, both volunteer and paid. Many major fire scenes locally involve fire department, police department, and volunteer social agencies such as the American Red Cross. What you don't see is the fire department telling everyone to go away — rather you see the fire department appreciative that the Red Cross is willing to help the displaced victims in a cooperative effort.

National SAR School

Several weeks ago I had the opportunity to attend a week-long Inland Search and Rescue course taught by members of the National SAR School from the U.S. Coast Guard Reserve Training Center in Yorktown, VA. Even though the school is under the Coast Guard label, the two instructors were active duty U.S. Air Force members assigned primarily to conduct inland (versus over water) courses.

I have to take my hat off to Lt. Col. Stephen Roark, USAF, and SSgt Scott Mounger, USAF, for their instructive efforts. It was an outstanding event! Col. Roark is the former director of the Air Force Rescue Coordination Center and a rescue chopper pilot. Sgt. Mounger, prior to assignment at the SAR school, also worked at the AFRCC as a SAR coordinator and was a joint combat SAR controller. Both brought a tremendous amount of SAR coordination experience (and stories) to the class.

By way of explanation, the AFRCC is tasked with overall responsibility for inland search and rescue efforts. This "responsibility" comes from a 1986 document called the "National Search and Rescue Plan." The whole plan is only four pages in length and its stated objective is to integrate, into a cooperative network, available U.S. SAR facilities which can be coordinated in any one area by a single federal agency. For the contiguous 48 states, this single federal agency is the Air Force Rescue Coordination Center at Langley AFB.

Before you get upset that some federal agency has responsibility for your local SAR, we read the plan further to discover that the plan is "intended to provide internal guidance to all signatory federal agencies. State organizations may wish to retain SAR responsibilities within their boundaries for incidents primarily local or intrastate in character." In other words, this plan does not take the local governments out of the loop. It does, however, come into play when many states are involved, such as an aircraft search where the plane's route covers a long route over many jurisdictions.

Another benefit of having the AFRCC in the loop are the resources the AFRCC can coordinate and possibly make available to a local search effort. Many of these resources are federal and thus are provided at no cost to a local search coordinator. Some of these resources include military choppers and Civil Air Patrol aircraft.

OK, enough about the "administrative overhead" let's talk about the SAR school. Attending the class were members of local sheriff SAR teams, public safety officers, CAP members, park rangers, and county emergency management officials. (The class was sponsored by the State of Utah's Comprehensive Emergency Management.) If this course is offered in your area make every effort to get involved. Some classes I've taken over the years have been exercises in futility. This one wasn't. It was time well spent (in my case, vacation time well spent).

There is no way I can take the 100-plus page course book and the 100-plus page supplemental reading book and do it justice in a single monthly column. What I can tell you is that the material has been culled from available materials you can find by doing a "search and rescue" search on the Internet and following links. And this is significant! What it means is that the SAR body of knowledge (BOK) has expanded to include a wide variety of input from experts all over the world. We no longer have a single agency or a single "manual" of best practice. The BOK has grown over many years and from varied perspectives — refined, if you will, to present information worthy of study.

In essence, no single group or agency knows it all, does it all, or has all the answers. But together, the effort of SAR has improved, giving the lost person the best possible chance at rescue, if we take the time to study what's available.

Thinking outside the grid

I'm going to leave it up to your efforts to find reading SAR

materials on the Internet. Believe me, there are many sources, government and volunteer. You can find grundles if you look. I would steer you toward the signed position papers and training materials from established SAR groups. This helps filter out the opinion from the experience, but look through it all and develop your own ideas.

But here's my message and challenge this month: Think outside the grid. Having been involved primarily in aircraft SAR for going on three decades, I've been schooled in the traditional aircraft search method of taking your map, dividing it into grids and assigning your air search effort accordingly. One obviously looks at route, terrain, weather, leads, clues, etc., but the initial gut reaction is to grid and conquer.

For those of you not familiar with the "grid," it's a 15-minute by 15-minute rectangle drawn on an aviation sectional map. There is an established grid method and numbering so one could assign an aircraft from Colorado to fly grid SLC500 and they would go to the same grid as if you assigned a Utah aircraft to the grid. It is a uniform way to establish search assignments. The system evolved years before we had LORAN or GPS navigation equipment and made for less errors in search assignment.

But here's the catch. The grid, or collection of grids, might not fit the model of highest probability of containment. In other words, the grid might not conform to where the missing plane has the best chance of being. This is because aircraft flight patterns don't follow grids, they follow routes between departure and destination. Yet we have traditionally searched in grids. But grids are lined up east and west, north and south, but some flight paths head northeast or north by northwest.

What you have, perhaps, is a portion of a grid that might have a higher probability of containment, but the grid, taken as a whole, has a lot of "wasted space" if the grid were searched as a whole. Are you visualizing the scenario? For example, if I dropped a key walking diagonally across my lawn, the highest probability of finding the key would be along the route. If I established grids aligned along the diagonal route, I have the highest chance of finding the key. However if I put the grids to conform to the outline of the square lawn, portions of some grids are outside the high probability area and not where I would concentrate my first search efforts.

Making my grids conform to the lost object rather than "traditional" methodology makes my search effort more effective. And this is critical to a search effort — you want to find the lost person quickly to increase the chances of survival. In the first hours of a search, you want to place your resources in the highest probability areas, not put your resources in some of the highest probability area.

For me, it was simply a change in how I visualized the search area and prepared my search assignments. My search area grids need to be based not so much on lines of latitude and longitude, but on natural containment areas - such as from the mountain ridge to the river, or from the road to the railroad line, etc. From a searcher perspective, it makes it easier to search between landmarks rather than calculate a position based on a line drawn on a map. Wow, years of tradition challenged! And the idea came from a ground search perspective applied to air search.

What does this mean for you?

Few of us have the opportunity to do the search planning, but the principle applies to everything we do in a public service arena. Many of my field communication ideas came from Citizens Radio groups in the late 1960s who set up networks in support of bike races, rodeos, and Scout activities. Just because they used a different frequency didn't matter; the ideas applied to Amateur Radio and public safety radio.

The idea of a mobile command post is not unique to the CAP, sheriff, Amateur Radio, or CB radio. Determining communications support does not functionally differ with regard to helicopter, aircraft, or ground team. You may use different frequencies or antennae, but the ideas and concepts apply and we can share what works only if we're willing to work together and listen to others! (And in some cases, rethink "why" we do what we do.)

In a search scenario, a good search manager could coordinate a ground or air search effectively because the fundamentals apply to both efforts. You may need an operations officer who understands aircraft capability and assignment, but the actual coordination can happen with any qualified search manager. The same holds true for a ground-based effort. From a communications perspective, there are common needs that a qualified Amateur Radio group could employ for ANY event — provided they are willing to get involved in the "SAR community" as a whole and seek opportunities to work with others.

The central focus here is a willingness to share expertise and ideas and actively seek ways to get involved. If you have the attitude that "we're the experts, call us" I can almost guarantee you'll get few calls. If you make an effort to make calls, seek opportunities to participate in exercises, and volunteer to teach seminars and do training sessions, I can promise that you'll have more activity than you can imagine. There is no shortage of opportunity to serve. In some areas of Utah, there are hundreds of SAR events in a year. Doing some simple math, that means the potential of twice a week you could be called to help.

One benefit of the SAR school was to share expertise and ideas with many agencies and many ways of doing things. No one way was correct and we all grew from our interaction and the sharing of ideas. The best question always started with "Why?" and lead to the examination of why we do the things we do. Sometimes we were on the right track, other times, there was a more effective way to quickly accomplish our objective. We also learned that as the scenario changes, so does the effort. There are no traditional, firm, always correct answers when you're dealing with humans. Darn, we're so unpredictable!

Great things happen when many people share in finding the solution. Lend your talent and get involved! Until next month, best wishes from Salt Lake City. — *Jerry Wellman, W7SAR, can be reached at: P.O. Box 11445, Salt Lake City, UT 84147 or via e-mail: jw@desnews.com*

International meeting

Kay Eyman, WAØWOF

YL Activities

One of the most popular aspects of Amateur Radio is contesting. This month everyone has the opportunity to join YLs in several fun contests. They are:

YLRL YL-OM CW — 06-08 Feb
YLRL YL-OM SSB — 13-15 Feb
GOTA — 20-21 Feb
International Women's Day Contest — 08 Mar
CLARA Contest — 16-17 Mar

Worldradio and the other major Amateur Radio magazines will have the rules for the contests listed above. For additional information, you can check the CLARA website at http://members.tripod.com/CLARA_YL and the YLRL website at http://home.earthlink.net/~tenmtryl/ylrl/. The Finnish YL group, OH-Young Ladies Society, sponsors the International Women's Day Contest on the 8th of March every year, and this contest runs from 0001 to 2400 UTC.

YL Meetings

Several members of the Texas YL Round-Up Net (TYLRUN) met in Aledo, Texas, 29-30 September for the annual TYLRUN Birthday Party. The party was hosted by President Ann Beadel, WA5GLM, and her family.

TYLRUN's founding dates back to 10 October 1954, when seven YLs met on Amateur Day at the Texas State Fair. They discussed forming a Dallas YL club and decided to meet again in November. Following their second meeting, they began to meet Thursdays on 3885 kc and started contacting other YLs in the 5th district. The first official TYLRUN net was held on Thanksgiving Day, 25 November 1954, and the net continues to meet every Thursday at 1400 UTC, on 3.942 MHz. There are currently TYLRUN members in several central and southern states.

New officers elected at this year's meeting are President Ann Beadel, WA5GLM; Vice-President Joyce Kepler, W5MWK, and Secretary/Treasurer Alma Lang, AB5BA. The 1999 party will be held at the home of Martha Brittain, W5YKE, in Center, Texas.

Among the nineteen YLs gathered for the Sunflower YLs meeting at the Kansas State ARRL Convention, in Wichita, on 03 October, was Ella Koons, WØAYL. Ella is a long-time member and an avid county hunter, who has just worked all the counties for the 7th time!

Although not formally organized as a club, this group of enthusiastic YLs meets for breakfasts throughout the year, has camp-outs and cook-outs, works Field Day, enjoys an annual chili supper, calls a 2-meter net, has sponsored a soldering techniques class, and has provided communications for several community events, such as walks, bicycle rides, and parades. The Sunflower YLs are easily recognized by the colorful sunflower vests they wear at the local activities and Hamfests.

To the Rescue

Those of you familiar with the Boy Scouts of America know about a Camporall, a council-wide camping event, which is held every two years. Akin to an old-fashioned county fair, there are competitions, games, displays, and demonstrations of skills. The Camporalls are usually scheduled in conjunction with the Jamboree On the Air (JOTA).

Carole Ayres, KCØCMQ, had a moment of panic when the people who had signed up to help her provide communications for the Ozarks Trails Council Camporall, near Neosho, Missouri, in October, had to cancel. (This council covers 23 counties in Missouri and Kansas.) Carol put out a call for help and Herb Petereit, WØAFY, who is well-known for his efforts in keeping the YLs on packet and e-mail linked up, answered her call. Herb had a 2-hour drive to get there, but he brought down his motorhome, HF gear, and antennas to help with the Jamboree On the Air.

Carole had only expected help with JOTA, but Herb jumped right in and helped relay the 2-meter traffic, as well, and then managed the activity area. This was a great help since Carole was at the check-in site, about three miles away, so she didn't have to travel back and forth. The activity area was WAY down in a hole, but Herb and Frank Stogsdill, KAØJIQ, the advisor of Explorer Post 30, and nine young men and women of the post jumped into action. (You may remember that three YLs in Explorer Post 30 were featured earlier in this column.)

They directed vehicle traffic, which might not sound too challenging, but there were almost 2,000 people there. They were driving on a gravel road and emergency lanes had to be kept clear. The 2-meter radios were the only means of communication as the cell phones and private band 800 MHz radios the directors were trying to use were of no help because of the extremely low area they were in.

Herb and the Explorer Post 30 group were up until after 1:00 a.m. on Saturday and were on the job again by 7:00 a.m. Carole had no estimate of the number of contacts made, but she was very pleased at the excellent PR for Amateur Radio. The Scouting staff was deeply impressed by the effectiveness, make-do spirit, and dedication of the amateurs, and Carole heard many people expressing interest in the hobby. Congratulations to all for a job well done.

DX YLs

Several YLs have been participating in DXpeditions recently, and there have been other YLs operating outside their countries. How many of these have you worked?

Laura Martinez, 3A2MD, visited the U.S. in August and operated /W6. She's back home now and has been active on 40, 20, and 12 Meters from Monaco. Mondays and Thursdays are the best days to find her.

Mary Ashdown, GØBQV, was one of the members of a group from the Whitton A.R.C. in London, who visited their friend Tony Selmes, A45ZN, in the Sultanate of Oman between 21 October and 01 November. Mary, who is a CW

operator, operated as A4/GØBQV from Tony's shack and as A47RS from the ROARS club station during the time A45ZN worked the *CQ* WW SSB Contest. Mary made over 1,000 CW contacts and one on SSB.

Seven Brazilian YLs activated Comprida Island, IOTA SA-024, and Diploma of Brazilian Island, DIB-021, on 29 October to 01 November 1998. They used PR2YL for SSB contacts and PS2S for CW. The SSB and CW sites were located about one mile apart to prevent interference, and each location had a directional antenna for 10, 15, and 20 Meters, as well as a dipole for 40 Meters. QSLs go to Lira do Valle, PP5LL, who sponsored and organized the event. The QSLs are valid for the Brazilian YL Award.

From mid-November until early December, Denise Le Cleach, F6HWU, was operating as D68WU on Comoros, concentrating mainly on CW and RTTY. QSLs go to her callbook address.

Nellie de Lazard, XE1CI, was the sole YL member of the BQ9P group on Pratas, in November, which was the first YL operation from Pratas. Lenny Mendel, K5OVC, was waiting and worked Nellie on 15 Meters early in the operation. (Lenny is getting very close to having 300 YL countries confirmed, which is a remarkable feat.) Over 37,000 contacts were made and QSLs go to Steve Wheatley, KU9C.

Mary Lou Brown, NM7N, was a part of the VK9LX DXpedition on Lord Howe from 22 November until 01 December. Mary Lou was working RTTY before the *CQ* WW CW Contest started on 28 November and then switched to CW. QSLs go to Nick Hacko, VK2ICV.

Also active in the *CQ* WW CW Contest were Ann Santos, WA1S, and Charlotte Richardson, KQ1F, operating as V63X, from Micronesia. Outside the contest, Ann was V63HO and Charlotte was V63HC, and they planned to work from several islands. QSLs go to Charlotte, KQ1F.

Hazel Schofield, AL7OT, who was featured in this column in August 1996 after her six-month operation in the Congo as TN7OT, is now back in the Congo. Hazel and her husband had always talked about doing mission work when their children were grown and they have served both in South America and Africa. Hazel is again operating as TN7OT, and QSLs go to her at the AL7OT callbook address.

RZ9MYL is on 20 Meters almost every day between 0700 to 1500 UTC. There are around 70 women using the station so the phonetics "Many Young Ladies" are very appropriate. The station is located at The Pedagogical University of Omsk, in western Siberia, which is a teachers college. Most of the women using the station are learning foreign languages and use the airtime to practice their language skills. Yuri Polushkin, UA9MAR, is in charge of the station and his wife Valentina, UA9MIL, helps to run the station and is the Award Manager.

The All-Brazilian YL IOTA DXpedition: L to R on front row are Teresa, PT2TF; Elsa, PY2DHP, and Sina, PY2ATL. On the back row are Alex, PY2KTT; Adri, PY5NT; Alda, PP5ASN, and Arilda, PY5OA.

After this column was written, word was received of the sudden, untimely death of Dr. Mary Lou Brown, NM7N, on 2 December 1998 as she was returning home from the DXpedition to Lord Howe Island, reported in this column.

Mary Lou was a former YLRL President and the current ARRL Northwest Division Director. She and her husband Dr. Bob Brown, NM7M, had lived on Guemes Island, across the water from Anacortes, Washington, after their retirement from the University of California.

She was a devoted representative of the League, and was tireless in her efforts to help members in her division with any problems they encountered. She also quietly contributed very generous amounts to various scholarships for young amateurs and had organized several all-YL Dxpeditions. Our deepest sympathies go to Dr. Bob Brown, NM7M, and also the members of the Northwest Division. She will be sorely missed.— Kay Eyman, WAØWOF, can be reached at: 29048 SE 1200 Road, Garnett, KS 66032 or via email at: waøwof@paola-online.net.

Mobile Antennas

There's good news for BASIC aficionados — we're now on the World Wide Web. Thanks to Ashley Guy, KF6SXE, *Worldradio*'s graphics, layout and web guru, we have a selection of BASIC listings from past columns at the WR6WR site. You can find it at: http://www.wr6wr.com/basic.html. Thanks, Old Man.

A few months ago we discussed VHF/UHF Yagi antennas and their gain. You'll recall that the gain of a Yagi is not so much dependent on its number of elements, but on the length of its boom. Al LaPlaca, W2WW, provided information that resulted in two BASIC VHF/UHF Yagi gain programs (they're both on the BASIC web page).

However, it seems the programs work fine on the higher frequencies, but not so well on HF. Recently Al got back with me on the problem with a solution.

Al said he found part of the answer in a 1970 issue of *QST* and figured out the rest by himself. Try this:

```
10 CLS: REM HFYAGAIN.BAS, BY W2WW, 2/99
20 INPUT "YAGI BOOM LENGTH, IN WAVELENGTHS ";A
30 INPUT "NUMBER OF ELEMENTS ";E
40 PRINT "GAIN=";E+E*(1+(A/(E-1)))-2.148;" dBd."
```

Al claims the formula agrees pretty much with the numbers given in Dr. James Lawson's book "Yagi Antenna Design."

Mobile Designs

Where a Yagi exhibits gain, a mobile antenna exhibits loss — a loss associated with its size inefficiency. In fact, it's not unusual to pump 100 watts into the car stick only to have three or four watts of it radiated. Worse yet, most of it radiates skyward!

That's not to say that you shouldn't try mobile HF. After all, QRPers routinely work the world with even less power.

The biggest headache with most HF mobile antennas is that they require you to stop the car to change resonators or loading coil taps in order to change bands.

One solution to this dilemma is to use a "spider" adapter. Credit for this idea goes to Walt Kenyon, W6IJA, who in the late 1960's was the first to mount multiple resonators and their top sections onto a single mast. The operating principle is very similar to the operation of a fan dipole; only the element that is resonant on a given band will draw power from the transmitter. See fig. 1.

```
10 REM: MOBILE.BAS, BY KD5DL, 5/91
20 PI=3.14159: K=180/PI: PRINT
30 F1=0: INPUT " FREQUENCY (MHz) ";F
40 INPUT "TOP DIAMETER (in) ";D: INPUT "TOP LENGTH (ft) ";C
50 INPUT "BASE DIAMETER ";M:INPUT "BASE LENGTH ";L
60 IF C+L=>234/F THEN PRINT: PRINT "USE A QUARTER WAVE WHIP INSTEAD": GOTO 160
70 A=60*(LOG(48*C/D)-1): B=45*F*C/123
80 E=60*(LOG(48*L/M)-1): G=45*F*L/123
90 H=(G*(1+COS(G/K))+B*COS(G/K))/2: P=B+G: Q=P/2: R=P^2/(312*Q^2)*H^2
100 I=SQR((A/TAN(B/K))^2-(E*TAN(G/K))^2): QF=300: PRINT
110 J=I/QF*COS(G/K)^2: KR=J+R+10: L1=SQR(KR*(52-KR))
120 M1=L1/(2*PI*F): N=I/(2*PI*F)-M1
130 PRINT "ANTENNA WILL REQUIRE ";N;"uH LOADING COIL"
140 PRINT "AND ";M1;"uH MATCHING COIL"
150 PRINT "FOR A ";R;"-OHM RADIATION RESISTANCE."
160 PRINT: F1=0: INPUT "FREQUENCY (ENTER 999 TO QUIT)";F
170 IF F=999 THEN END
180 CLS: PRINT " FREQUENCY (MHz) ";F: GOTO 40
```

Two other solutions were developed by Don Johnson, W6AAQ. His first, the Big DK, had two parallel whips mounted together on a PVC T-adapter mounted above the loading coil. One whip was connected to the top of the loading coil, for operation on the lowest design frequency band, and the other whip was connected to a tap point on the coil that provided resonance on a higher-frequency band. Voila, automatic bandswitching without stopping the car! (see figure 2).

Johnson's other contribution was the famous "screwdriver" antenna, the Big DK3. It has a cordless screwdriver motor that turned a threaded rod to push the loading coil up and down inside an oversized brass mast section. Since the coil makes electrical contact with the base as it moved in and out, its inductance varies according to how far it protruded from the base of the mast.

Because the screwdriver motor could be controlled by wire from the operating position, it was quite easy to switch bands from the driver's seat without having to stop the car.

The beauty of the Big DK3 was that it covered all HF bands from 80 to 10 meters, including the commercial and government bands in between! Although its bandswitching is not totally automatic, those who have used it generally agree that it's the best thing going for HF mobile.

Another way to automatically switch bands was described by A.M. Pichitino, WØEDX, in the June, 1953 *QST*.

Pichitino's solution was to use tuned-circuit networks to electrically switch antenna resonance as the transmitter changed bands.

For a two-band antenna it was Pithitino's idea to use a loading coil to make the antenna resonant on one frequency and a series resonant circuit to short-circuit the coil on the second frequency.

Let's say the antenna was designed for 10 and 20-meter operation. The to-

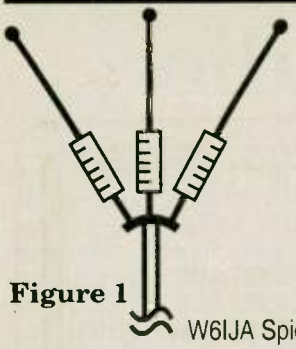


Figure 1 W6IJA Spider

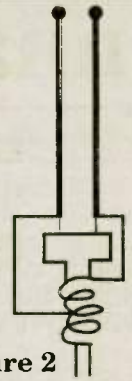


Figure 2 Big DK

tal length of the antenna would be approximately 8+ feet long — to make it resonant on 10 Meters — but would have a loading coil at its center to provide the necessary inductance to resonate it on 20. Across the coil would be a 10-meter series resonant network

When the antenna was fed 10-meter energy, the series network would act like a short circuit that connected both halves of an antenna together to the pretuned 10-meter band. On 20 Meters, however, the series network would appear to have infinite impedance, effectively an open circuit. Now, only the loading coil would be seen by the antenna, and it would appear to provide the appropriate inductance for 20-meter resonance.

Engineers at Swan Electronics developed another way to electronically switch bands. Their Model 742 triband mobile antenna had capacitors tapped into sections of the loading coil to alter its effective inductance for three operating bands. The idea is illustrated in figure 3.

I do not have a BASIC solution to the bandswitching problem yet, but I'm working on it. (If you beat me to it, please share your findings with the rest of us). What I do have, though, is a BASIC listing that will help you find the inductance necessary to resonate given sections of antenna mast. The listing is a modification of one that originally ran in Kurt's Aerials column in May, 1991. It should work with most versions of BASIC

The listing simply asks for a design frequency in MHz, top and base section diameters in inches, and lengths in feet. Line 100 assumes the loading coil will have a Q factor of 300 (not unreasonable for a good coil design), and the rest of the program computes and prints the loading coil inductance, a matching coil inductance and an educated guess at the antenna's radiation resistance.

Once you have the basic coil parameters, then you can begin experimenting with Pithitino's series network idea or Swan's tapped-in capacitor scheme, or develop a design of your own.

Final reminder

Postal rates have increased. If you write me and would like a reply, please remember to include a self-addressed envelope with a 33-cent stamp attached. Also, if you use an incoming QSL bureau, remember to send the bureau manager extra one-cent stamps to use on your return envelopes. Believe me, it will be appreciated.

Next time, BASIC tax tactics. Until then, stay "radio active."

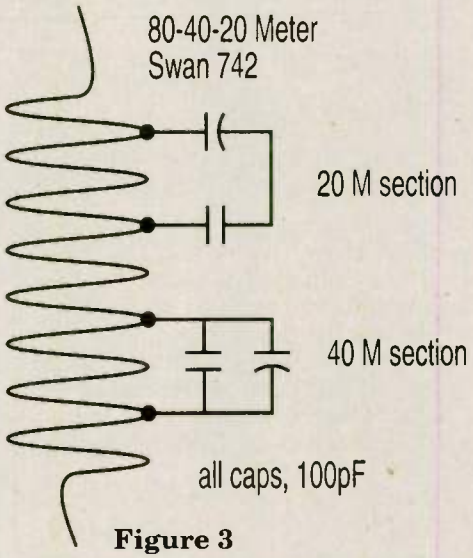


Figure 3

RVs and Amateur Radio

I promised to talk about RV mobile this time, a popular subject in my mail. "RV" stands for Recreational Vehicle, such as a travel trailer or motorhome. I have been camping since the Boy Scouts, and an RVer since 1965. I currently enjoy my little Jayco pop-up trailer. I will start with my favorite related subjects, Amateur Radio caravaning and camping.

In the early 50s, I participated in "Sunday Drives" organized with 75-meter mobiles by the Yuba-Sutter Radio Club in Marysville, California (not related to the present YSARC). Similar family "Mobile Runs" or "Caravans" were being held for HF mobiles around the country by such clubs as the Radio Amateur Mobile Society (RAMS) in Sacramento, and the Amateur Radio Caravan Club of New Mexico in Albuquerque.

But few in this age of FM and repeaters choose HF for local mobile coverage. However, HF is useful to keep in contact with someone converging on a caravan or camping group from a long distance. Either 40 or 75 Meters can be used, depending on the distance, time of day, and other propagation factors. The best approach is to make skeds on both bands and see what works. If the other mobiles are just beyond VHF range, 75 Meters would be the choice because it offers the best ground wave coverage.

Amateur Radio RVers and other Ham campers frequently are not in a caravan, but travel solo. There are a number of HF nets daily available for help, to make contacts, or just to pass the time. Here's a few of the more prominent ones, then I'll tell you how to find more. These nets are open to all Hams. (Local time is shown.)

RV Service Net 7.2685 0800P M-F
Sam's Radio Hams 7.2685 0900P Sun
RV Service Net 14.3075 1200E M-F
FMCA 14.263 1400E Day
RV Service Net 14.3075 1700E M-F
Good Sam RV
Radio Net 7.284 1900C Day

The RV Service Net is sponsored by the Wally Byam Caravan Club. There are more details and nets shown on the web for each of these. The RV Service Net, the Family Motor Coach Association (FMCA), and the Good Sam RV Radio Net are under the RVNET web page in the accompanying list of web sites. Sam's Radio Hams is a Southern California Chapter of the Good Sam RV Owners Club. SRH sponsors monthly Amateur Radio campouts, and has a web page as shown.

For the most complete mobile net list available, see the *Amateur Radio Mobile Communications Guide*, by Roger Krautkremer, KØYY (ex W6SOT), which got a thumbs-up review in October 1998 ***Worldradio***. Roger was active with our mobile clubs here in Sacramento, I'm guessing 20 years ago, before moving on. He has put a storehouse of useful mobile info into his book. His book is available from HRO stores, or by calling 800/444-8476.

From the mailbag

I sent Arlie Blankenship, NH6SO, in Washington, an email copy of the above list in response to his query to this column. A couple of months later he sent me the following: "Just returned from our trip in the RV. The frequencies you gave me worked perfectly. I tried to check in daily with the RV net on 7.2685 each day. They are a fun group. It was especially nice to keep abreast of the weather and road conditions on our route. It is a valuable service and the net controllers deserve a pat on the back for contributing their time and equipment.

"By the way, the small spiral backed booklet, *Amateur Radio Mobile Communications Guide* is one of the best I have read. We moved here four years ago, and I have asked what frequencies are popular. Just got a shrug. It is all in that little book."

Thanks, Arlie. I received this next message from Dennis Gregory, WU6X, with a great comparison between HF and 2-meter mobile:

"After over 20 years in the hobby, I finally achieved another milestone, installing an HF rig in my new RV (a Kenwood TS-130S and Hustler whip). Sure, I've worked 2M from time-to-time during the years, but it just doesn't compare with HF ... kind of like fishing in the ocean v.s. fishing in a lake! You never know what you will come up with from a CQ.

"The XYL and I just returned from our first extended trip in the RV (to Rapid City, SD, and back) during which I made many enjoyable contacts across six states. One of the most notable was an hour-long QSO with a Ham in Dana Point, CA, as we were crossing the great Salt Flats of Utah, while watching the most incredible lightning storm on the horizon the whole way. I finally QRT'd when common sense dictated turning the radio off was a much better idea than holding the QSO any longer (the XYL agreed!)."

Those reading this in January or February should note that it was warm weather when Dennis wrote that. Thanks, Dennis.

Speaking of February, let's mention Quartzfest '99, 01-08 February, an annual Amateur Radio campout during the Quartzsite AZ Swap Meet. About 65 Ham RV rigs are expected again at their dry camp south of Quartzsite. Lots of activities are planned. See the Cactus Country News web page listed, or write to Harvey Tetmeyer, K5LJM, 13848 Newcastle Drive, Sun City, AZ 85351.

Let's keep hearing from all you HF mobile operators out there. — *Les Cobb, W6TEE, can be reached at: 5000 North Avenue, Carmichael, CA 95608 or at: lcobb@ compuserve.com.*

Web pages of Interest

Les's Amateur Radio Page
http://home.pacbell.net/lcobb/
Has links to the following:
RVNET
www.dsport.com/rvnet/
Sam's Radio Hams
www.pobox.com/~valf
Cactus Country News
www.futureone.com/~harvey

AMSAT UK call for papers

The 14th AMSAT-UK Colloquium, SpaceComm '99, will be held at Surrey University in England from 23-25 July 1999. Amsat-UK is now inviting authors to submit papers about Amateur Radio space. Those selected for presentation will also be published in the Proceedings of this gathering. Submissions should be sent only to G3RWL. His email address is g3rwl@amsat.org. — *AMSAT-UK, Newsline*

Visit Your Local RADIO CLUB

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

ARIZONA

Arizona Repeater Association. P.O. Box 35758, Phoenix, AZ 85069-5758. Operates 20 VHF & UHF rptrs. in AZ. Meets 4th Thurs./monthly, 7:30 p.m., APS Shure Building, 2124 W. Cheryl, Phoenix, AZ. Info:www.goodnet.com/indirect/www/ara 12/99

Cochise Amateur Radio Assn., (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. K7RDG/R 146.76(-) rptr. PL162.2. 5/99

Old Pueblo Radio Club, (OPRC). P.O. Box 42601, Tucson, AZ 85733. Meets 2nd Wed./monthly, 7:15 p.m., Tucson Med. Cntr., Grant & Beverly St. in the AZ Rm. of the Volunteer's Bldg. (1st bldg. on the left going north off Grant). 2/99

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Dept. of Emergency Mgmt., 130 W. Congress. Net Thurs. 7:30 p.m. 146.82(-), 146.88(-), 147.08(+), 448.550(-) & 145.15 Packet. 3/99

CALIFORNIA

Amador County Amateur Radio Club. P.O. Box 1094, Pine Grove, CA 95665. Meets 1st Thurs./monthly, 7:30 p.m., Jackson Sr. Cntr., 229 New York Ranch Rd., Jackson, CA. Info: call 146.835(-). 3/99

Amateur Radio Club of Anderson, (ARCA). Meets 2nd Thurs./monthly, 7:30 p.m. Amer. Legion Post #746, 1709 Bruce Dr., Anderson, CA. Net every Tue., 7:30 p.m. on 146.64. http://www.snowcrest.net/bgorski/index.html 10/99

Beach Cities Wireless Society. P.O. Box 4016, San Clemente, CA 92674. Meets 2nd Thurs./monthly, 7:30 p.m., Ole Hansen Beach Club, 105 W. Avenida Pico, San Clemente. Rptr. 146.025(+) PL 110.9. 8/99

Coachella Valley ARC. Box 11092, Palm Desert, CA 92255-1092. Meets 2nd Wed./monthly, 6:30 p.m., Portola Com. Cntr., 45480 Portola, Palm Desert. Info: Bill Dews, (760) 346-8611. Net Thurs. 7 p.m. 146.025(+) PL 107.2. 5/99

Contra Costa Communications Club, Inc., WD6EZC/R. P.O. Box 20661, El Sobrante, CA 94820-0661. Meets 2nd Sun./monthly (except May & Dec.), 0630, Baker's Square Rest. in Richmond, CA. Info: E. Caine, KA6OFR, (707) 996-0962. 1/99

Downey Amateur Radio Club Inc., W6TOI. Meets 1st Thurs./monthly, 7:30 p.m., So. Middle School cafetorium,12500 S. Birchdale, Downey, CA. VHF net W6GNS rptr. 146.175(+) Thurs., 7:30 p.m. 5/99

Fresno Amateur Radio Club. Meets 2nd Fri./monthly, 7:30 p.m., Ernie Pyle School, 4140 N. Augusta, Fresno, CA. 146.94(-) 223.94(-). 11/99

Golden Triangle Amateur Radio Club. P.O. Box 1335, Wildomar, CA 92595. Meets 4th Mon./monthly, 7 p.m., Sharp Health Care, 25500 Med. Cntr. Dr., Murrieta, CA 92562. Rptr: KE6UES 146.805(-) PL 100. Info: Norb Dean, AD6F, (909) 767-0449. E-mail: norbjudy@pe.net 7/99

Livermore Amateur Radio Klub (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12(+). For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 846-6513. 1/99

Marin Amateur Radio Club (MARC). W6SG. Box 9456, San Rafael, CA 94912-9456. Meets 1st Fri./7:30 p.m., Kaiser Hosp., Bldg. 2, Terra Linda, CA. (except Dec.; Sun. a.m. Club at Alto Bldg., 27 Shell Rd.,Mill Valley. 9/99

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Lake View Cafe, 2099 E. Orangethorpe, Placentia, CA, at 91 Fwy/Lakeview. Info: Ray Davis, KD6FHN, (714) 551-1036 or (714) 551-2010. 3/99

Mount Diablo Amateur Radio Club. P.O. Box 23222, Pleasant Hill, CA 94523. Meets 3rd Fri./monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Lane, Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+) PL 100Hz. Info: (510) 932-6125. 8/99

Nevada County ARC. Meets 2nd Mon./monthly, 7 p.m., Salvation Army Bldg., 10725 Alta St., Grass Valley, CA. Net Tues. 7 p.m. 147.015. Contact Linda Johnson, KE6HWE, lindasue@mail.telis.org (530) 273-2008. 8/99

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress, Carmichael, CA. Nets 8 p.m. Tue., Wed.,Thur., 145.190(-) PL 162.2 and 224.400(-). For info contact: Bob, AC6HF, (916)966-3654. E-mail: ac6hf@juno.com or http://www.ns.net/~NHRC 3/99

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Orange County Red Cross, 601 N. Golden Circle, Santa Ana, CA. 146.550. Contact Bob Buss, KD6BWH, (714) 534-2995. 2/99

Poinsettia ARC. Meets 1st Thurs./monthly, 7:30 p.m., First Christian Church, Telegraph Road. & Teloma Drive, Ventura, CA. For info: George Myers, KA6WZR, (805) 644-1131. 4/99

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For infol: (916) 483-3293. 9/99

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. & Stockton Blvd., Sacramento, CA. Info net at noon on rptr. W6AK/R 146.91(-). Steve Cates, KC6TEV, (916) 391-7341 or Les Ballinger, WA6EQQ, (916) 393-4775. 2/00

Sacramento "Old Timers" Amateur Radio Society and Sacramento Valley Chapter #169 QCWA (Quarter Century Wireless Assn.). Meets 2nd Wed./monthly, 8 a.m., Lyon's Restaurant, El Camino Ave. & Watt Ave. For info contact Paul Wolf, W6RLP (916)489-8112. 12/99

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., Hewlett-Packard, Bldg., #48, 19483 Pruneridge Ave., Cupertino. Net all other Mon., 7:30 p.m. W6UU/R 146.385(+), 442.425(+) PL 107.2. 5/99

Sierra Foothills ARC. P.O. Box 1005, Newcastle, CA 95658. Meets 2nd Fri./monthly, 7:30 p.m., Auburn Library (Beecher Rm.), 350 Nevada St. Thurs. nets 7:30 p.m. 145.430(-) PL 94.8, Sun. net 7:30 p.m. 28.415. 3/99

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Memorial Hosp., 3330 Lomita Blvd., Torrance, CA. Talk-in on WB6MYD rpt. 244.38(-). Info: (310) 328-0817. 8/99

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8:00p.m., 50.150. FM Rpt. Net Thurs., 7:30 p.m., **52.86/52.36 tx. FM** Smplx, call freq. 50.300. Net Sun., 10 a.m. 50.40. 4/99

Southern Sierra ARS. Meets 2nd Thurs./monthly, 7 p.m., Veteran's Hall, 125 East F St., Tehachapi, CA. Contact: Caroline, KD6KMN, (805) 822-5995. 147.06(+), 224.42(-), 145.090(S) Packet. 1/00

Stanislaus Amateur Radio Assoc., Inc. (SARA). P.O. Box 4601, Modesto, CA 95352. Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus Co. Admin Bldg. 145.39(-) PL 136.5, 224.14, 440.225 PL 136.5. 3/99

This month ... Sierra Foothills Amateur Radio Club, from Newcastle, CA, are winners of an MFJ Antenna Analyzer to share with its members. The club's name was selected at random from our *"Visit Your Local Radio Club"* listing.

Tri-County Amateur Radio Assoc. P.O. Box 75, Claremont, CA 91711-0075. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA. 1/99

Trinity Country ARC. P.O. Box 2283, Weaverville, CA 96093. Meets 2nd Wed./monthly, County School Adm. Bldg. in Weaverville, 7:30 p.m., Rptrs: WA6BXN 146.73(-) PL 85.4, W6HOR 146.925(-) PL 85.4. 11/99

United Radio Amateur Club, K6AA. L.A. Maritime Museum, Berth 84, Foot of 6th St. San Pedro, CA 90731. Meets 3rd Fri./monthly (except Dec.), 7:00 p.m. Monitors 145.52 Simplex 10 a.m.—5 p.m. 8/99

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7:30 p.m. (Board mtg., 7 p.m.) Vaca Fire Dist. Stn.,Vine St. in Vacaville, CA. Rptr. WD6BUS 145.47(-) PL 127.3. Gerald Grossardt, (707) 447-0869. 5/99

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:00 p.m., Presidio Recreation Cntr., 11100 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-). 2/99

West Coast Amateur Radio Club, (WCARC). P.O. Box 2617, Costa Mesa, CA 92628. Meets 3rd Thurs./monthly, 7 p.m., Fountain Valley Sch. Dist. office, 17210 Oak St., Fountain Valley, CA. 145.440(-) PL 136.5. For info: Jane, KD6ODV, (714) 531-6707 12/99

Westside Amateur Radio Club. P.O. Box 11092, Marina del Rey, CA 90295. Meets 4th Tues./monthly, 7:30 p.m., West Dist. Red Cross Bldg., 11355 Ohio Ave., W. Los Angeles, CA (VA Cntr. grounds). Net every Tues., 8 p.m. 146.67(-) except mtg. night. Website: http://www.qsl.net/warc Voice mail: (310) 917-1100. 7/99

Willits Amateur Radio Society, (WARS). P.O. Box 73, Willits, CA 95490. Meets 4th Mon./monthly, 7 p.m., Brooktrails Fire Dept. 2 NW Willits http://www.zapcom.net/WARS Talk-in: 145.13(-), PL 103.5. 9/99

Yolo Amateur Radio Society. Meets 1st Tues./monthly, 7:30 p.m., Denny's Restaurant, 4120 Chiles Rd., Davis, CA. Contact Dave Nishikawa, KC6YFG, (916) 756-6375/Talk-in 144.430. 12/99

Yuba-Sutter Amateur Radio Club, (YSARC). P.O. Box 1169, Yuba City, CA 95992. Meets 2nd Wed./monthly, 7 p.m., The Mall at Yuba City, 1215 Colusa Ave., Yuba City. 2/99

COLORADO

Bicycle Mobile Hams of America. 46 states/6 nations membership. Annual Forum at Hamvention. Net: 14.253, 1st & 3rd Sun., 2000 UTC. Info, sample newsletter: SASE to BMHA, Box 4009-W, Boulder, CO 80306. 2/99

Bolder Amateur Radio Club (BARC). Meets 3rd Tues./monthly, 7:30 p.m., NIST Bldg., 325 So. Broadway, Rm 1107, Boulder, CO. Talk-in: 146.70(-) & 100Hz CTCSS. Info: (303) 380-6540, e-mail: BARC@pobox.com or www.thisistrue.com/barc.html 8/99

CONNECTICUT

Western CT. DX Club. Meets 1st Tues/monthly, 8 p.m., Brookfield Com. Cntr. (on Pocono Rd. across from Brookfield P.O.) Info: contact Victor at: victoras@EROLS.com 2/99

FLORIDA

Gulf Coast ARC. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., Marchman Tech. Ed. Cntr., 7825 Campus Dr., Bldg. C, Rm C122, New Port Richey. WA4GDN rptrs. 146.67(-) & 145.33(-), serving all of Pasco County. 11/99

Indian River ARC, Inc., (IRARC). P.O. Box 579, Cocoa, FL 32926-0579. Meets 1st Thurs./monthly, 7:30 p.m., Community Church of the Nazarene, 400 Crockett Blvd., Merritt Island, FL. 3/99

South Brevard Amateur Radio Club. P.O. Box 2205, Melbourne, FL 32902. Meets 1st Tue./monthly, 7 p.m., Public Library, 540 Fee Ave., Melbourne, FL.12/99

Vero Beach ARC, W4OT. P.O. Box 2082, Vero Beach, FL 32961. Meets 2nd Thurs./monthly, 7:30 p.m., Emerg. Mgmt., Indian River County Adm. Bldg., 1840 25th St. Net Mon., 7:30 p.m. 146.64. 2/99

GEORGIA

Cherokee Capital ARS. Meets 2nd Tue.monthly, 7 p.m., Ashworth Middle School, Calhoun, GA. 146.805(+). Info: Felton Floyd, AF4DN, (706) 629-0369. 12/99

Dalton Amateur Radio Club, Inc., (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4th Mon./monthly, 7:30 p.m., Magistrate Court Bldg., corner of Waugh St. & Thornton Ave., Dalton, GA. Info: Harold Jones, N4OTC, 706/673-2291. 4/99

Gwinnett Amateur Radio Society, (GARS). P.O. Box 88, Lilburn, GA 30048. Meets 3rd Thurs./monthly, 7:30 p.m., Gwinnett Central Baptist Church on Gwinnett Dr., Lawrenceville, GA. 147.075+ PL 82.5. Contact: Mike Swiderski, K4HBI, (770) 449-0369. 12/99

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets 2nd Sat./monthly, 2 p.m., Keaau Community Ctr., behind Fire Station on Old Volcano Rd., Keaau. Talk-in on 146.88(-). Lunch, 11 a.m. Fridays, Pizza Hut, Puainako Twn. Ctr. 7/99

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 146.80(-), 146.88,146.98(-), 146.94(-). Info: (808) 256-6001, WH6CZB. 12/99

Koolau Amateur Radio Club, (KARC). 45-145 Mikihilina St., Kaneohe, HI 96744. Meets 2nd Sat./monthly, 9:30 a.m., Hoomaluhia Botanical Garden., Kaneohe, HI. Info: (808) 235-3042. http://www.chem.hawaii.edu/karc/ 8/99

ILLINOIS

Chicago FM Club Inc., (CFMC). P.O. Box 1532, Evanston, IL 60204. 146.76(-) PL 107.2/224.10/224.18/443.75 PL 114.8. Ham help line: (773) 262-6773. Info net Tues., 9 p.m. on 146.76(-). Meets 3rd Wed./monthly, 8 p.m. 8/99

Dupage Amateur Radio Club. (DARC). P.O. Box 71, Clarendon Hills, IL 60514. Meets 4th Mon./monthly, 7:30 p.m., Holy Trinity Church, SE corner of Cass & Richmond, Westmont, IL. Net Sun., 9 p.m. on 145.25. W9DUP repeaters 145.25(-) 107.2PL, 442.55(+) PL 114.8, 224.68(-). Info: (630) 985-9256 **6/99**

Fox River Radio League. P.O. Box 673, Batavia, IL 60510-0673. Meets 2nd Tue./monthly, 7:30 p.m., Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL. 8/99

Hamfesters Radio Club, W9AA. P.O. Box 42792, Evergreen Park, IL 60805. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.65 MHz. Info: (312) 974-3291. 1/99

Peoria Area Amateur Radio Club, (PAARC). P.O. Box 3508, Peoria, IL 61612-3508. Meets 2nd Fri./monthly, Red Cross Chapter House, 311 W. John Gwynn Jr. Ave., Peoria, IL. Voice mail: (309) 692-3378. Rptrs: 147.075(+) & 146.85(-). 6/99

The Starved Rock Radio Club, W9MKS. P.O. Box 198, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.12(+). 1/99

Wheaton Community Radio Amateurs, (WCRA). P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Wheaton, IL. Rptrs: 145.39(-) (107.2), 224.14(-), 444.475(+) (114.8). Info: Ron Hensel, K9ZZE, (630) 365-0213,k9zze@aol.com 8/99

INDIANA

Land of Lakes ARC. Meets 4th Tues./monthly, 7 p.m., Steuben Co. Annex Bldg., Angola, IN. For info: Theresa J. Limestahl, KB9NNR, (219) 495-5403. Call-in 147.180 PL 131.8. E-mail: llarc-k9hd@yahoo.com 7/99

MASSACHUSETTS

Quannapowitt Radio Assoc., Inc. 6 Savin St., Burlington, MA 01803. Meets 3rd Thur./monthly, 7:00 p.m. at Wakefield Public Library, 345 Main St., Wakefield, MA, Sept. to May. Info: Jim Chamberlain, N1AKG, (781) 944-5098. 3/99

MICHIGAN

Adrian Amateur Radio Club, W8TQE. Box 26, Adrian, MI 49221. Meets 1st Fri./monthly, 7:30 p.m., Civil Air Patrol Bldg., Lenawee Co. Airport, Cadmus Rd., Adrian. ARES net Sun., 9 p.m. 145.37(-). Info: Mark Hinkleman, NU8Z, (517) 423-5906. 4/99

Genesee County Radio Club, Inc. Meets 3rd Tues./monthly, 7:30 p.m., Genesee Area Skill Center, Torrey Rd., Flint, MI. (810) 655-4360. 3/99

Hiawatha Amateur Radio Assoc. of Marquette Co. P.O. Box 1183, Marquette, MI 49855. Meets 1st Thurs./monthly, 7:30 p.m., 108 Stratofort, K.I. Sawyer AFB, MI. For info contact: Richard Schwenke, N8GBA, (906) 249-3837. 10/99

MINNESOTA

St. Cloud Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Radio Club Bldg., 401 4th St. N., Waite Park, MN 56387. Info: (320) 255-1410, 146.94 or 147.015 or www.wØsv.org/ 2/99

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., Am. Red Cross Bldg., Riverside Dr., Jackson, MS 39202. 11/99

MISSOURI

Macon County ARC. P.O. Box 13, Macon, MO 63552. Meets last Thur./monthly, 8 p.m., Macon R-I High Sch., rm.167. Net every Thurs. at 8:30 p.m. 146.805. E-mail: nøpr@onelist.com 12/99

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 2nd Sat./monthly, bkfst. mtg. 8 a.m., Country Inn, SE cor. W. Sunset, Valle Verde, Henderson NV. Club info: Jim Frye, NW7O, (702) 456-5396 or Bill Scarborough, WA6ASI, (702) 269-9551. 8/99

Sierra Intermountain Emergency Radio Assoc., (SIERA). Meets 2nd Tues./monthly, 7:30 p.m., Carson Valley United Methodist Church, 1375 Centerville Ln., Gardnerville, NV. Contact: George Uebele, WW7E, (702) 265-4278, 147.330 MHz. 1/00

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./monthly, 8:30 a.m., Bonanza Casino/Restaurant, 4720 N. Virginia, Reno. Info: (702) 356-8200. Call on 147.30(+) MHz. 5/99

NEW HAMPSHIRE

Great Bay Radio Association, W1FZ. P.O. Box 911, Dover, NH 03820. (603) 749-2970/332-9107. Meets 2nd Mon./monthly, 7 p.m., Rochester Community Ctr. Talk-in: 147.57. 1/99

Port City Amateur Radio Club, (PCARC), W1WQM. P.O. Box 1587, Portsmouth, NH 03802. Meets 1st Wed./monthly (Sept.-June), The Edgewood Ctr., 928 So. St., Portsmouth. Rptr. 146.805(-) PL 127.3, 110.9, 88.5. 10/99

NEW JERSEY

Bergen Amateur Radio Association, (BARA). P.O. Box 304, Hackensack, NJ 07601. Meets 1st Sun./monthly, New Milford Elks Lodge, Patrolman Ray Woods Dr., New Milford, NJ 07646. Nets: 28.350 Mon. 9 p.m., 146.79(-) 9 p.m. Wed. 6/99

South Jersey Radio Assoc., (SJRA), K2AA. Meets Jan.-Oct., 4th Wed./monthly, 7:30 p.m. (Nov.-Dec. 3rd Wed), Bloomfield Fire Hall in Pennsauken, NJ. Talk-in: 145.29(-) rptr. 8/99

NEW YORK

Amateur Radio Association of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Company, 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2SEX. 12/99

Genesee Radio Amateurs, (GRAM). N.Y.S. Civil Defense Ctr., State St., Batavia, NY 14020. Meets 3rd Fri./monthly, 7:30 p.m. 147.285(+) W2RCX. 1/99

Hall of Science Amateur Radio Club. P.O. Box 150131, Kew Gardens, NY 11415. Meets 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 7:30 p.m. Info: Voice mail (718) 760-2022. 2/99

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly, 7 p.m., Sardinia Town Hall, Savage Rd., Sardinia, NY. Net 9:15 a.m. Thurs. 3853 MHz. 3/99

Suffolk County Radio Club, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21(-) rpt. Info: W.S. Black, KB2YAP, (516) 289-5587. 4/99

NORTH CAROLINA

Cape Fear Amateur Radio Society. Meets 3rd Mon./monthly, 7:30 p.m., Methodist College, Fayetteville, NC. Talk-in 146.91/31. Info: Kelly Kanode, N4EWG, (910) 867-4300. 4/99

Mecklenburg Amateur Radio Society. Meets last Tues./monthly (except Dec.), 7:30 p.m., East Baptist Church, 6850 Monroe Rd., Charlotte, NC. Talk-in 146.94(-). Net 9 p.m. nightly. Contact: John Covington, W4CC, (704) 334-3900, e-mail: w4cc@w4bfb.org, website: http://www.w4bfb.org 12/99

Stanly County Amateur Radio Club. Stanfield, NC. Meets 4th Thurs./monthly, 7 p.m. Talk-in 146.985(-) for location. Wed. net 9 p.m. 146.985(-). Fri. tech net 9 p.m. 147.390(+). Phone: (704) 888-4815. 5/99

OHIO

Ashtabula County ARC. Ken Stenback, W8KS (964-7316). County Vo-Ed School, Jefferson, OH. Meets 3rd Tue./monthly, 7:30 p.m., County rptr., 146.715(-). 12/99

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 3/99

Lake Erie Amateur Radio Assoc., (LEARA). Meets at Dimitri's Rest., (Mid-Town Shopping Ctr.), Snow & Broadview Rd., Solon, OH, last Tues./monthly. Dinner at 6:30, mtg. at 7:30 p.m. (R.S.V.P. to Marv Grossman 440/349-8398 for dinner by 11 a.m. day of mtg.) 4/99

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697; (419) 243-3836. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. 147.270(+) Net every Sun. 8:30 p.m. 2/99

Van Wert Amateur Radio Club, Inc. P.O. Box 602, 1220 Lincoln Hwy., Van Wert, OH 45891. Meets 1st & 3rd Sat./monthly, 8 p.m. Call-in: 146.85(-). 2/99

Western Reserve Radio Assoc. P.O. Box 81252, Cleveland, OH 44181-0252. Meets 2nd Wed./monthly, 7:30 p.m., Jenkins Communications Cntr., Main St., Olmsted Falls, OH. Info: B. Beckman, N8LXY, Pres., 146.73(-), 444.900(+) MHz. 8/99

OREGON

Central Oregon Coast ARC. P.O. Box 254, Florence, OR 97439. Meets 2nd Sat./monthly, & every Wed./weekly, 9 a.m. for breakfast at Bliss' Route 101 restaurant at 12th St. & Hwy 101. Net Wed. 7 p.m., 146.80(-). Info: 997-2323 or 997-4074. 1/00

Central Oregon Radio Amateurs, (CORA). P.O. Box 723, Bend, OR 97709. Meets last Thurs./monthly, 7 p.m., Bend Sr. Ctr., 1036 NE 5th, Bend, OR. 147.06(+) MHz. Info: (541) 389-7194. 9/99

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thurs./monthly, 7 p.m., Keno Fire Stn. Rptr. 147.32(+) K7ENO. For info: Tom Hamilton, WD6EAW, Telephone/FAX: (541) 883-2736. wd6eaw@cdsnet.net 12/99

Umpqua Valley Amateur Radio Club, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Court House, Rm. 310, Roseburg, OR. Info: W6VDF/R 146.90(+) or (541) 673-2747. 6/99

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16003-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/R 147.36(+). Net 10:10 p.m. nightly. 12/99

Mercer County Amateur Radio Club, W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly, 7:30 p.m., Shenango Valley Med. Ctr, Farrell, PA. Net, Thurs. 9 p.m. on 145.35(-) W3LIF, Digi. 145.01. 3/99

TEXAS

Brownsville ARC (CHARRO). Meets 2nd Tue./monthly, 7:00 p.m., Confederate Air Force Hangar, Brownsville Airport in TX. Coffee mtg. Sat./weekly, 10 a.m., Days Inn, Hwy 83 & Price Rd. Talk-in on 147.040(+). 4/99

VIRGINIA

Mt. Vernon Amateur Radio Club, (MVARC). Meets 2nd Thur./monthly (except Dec.), 7:30 p.m., Mt. Vernon Governmental Cntr, 2511 Parkers Ln., Alexandria, VA. Contact: Bob, KT4KS, (703) 765-2313 or 146.655. 10/99

Southern Peninsula Amateur Radio Klub, W4QR (SPARK). Meets 1st Tue./monthly Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (757) 898-8031, W4RTZ. 2/99

Virginia Beach ARC. Meets 1st Thurs./monthly, 7:30 p.m., St. Andrews United Methodist Church, Tucson & Princess Anne Rds., Virginia Beach, VA 23462. 2/99

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m., Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82(-) (103.5 CTCSS) rptr. Doors open at 9:30 a.m. 5/99

WEST VIRGINIA

Jackson County Amateur Radio Club. Meets 1st Thurs./monthly, 7:30 p.m., Saint John Episcopal Church of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R. For info: D. Tennant, N8ZYB, Rt. 1, Box 188, Mt. Alto, WV 25264. 7/99

Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m.,The American Red Cross, 111 Veteran's Memorial Blvd., Huntington, WV. 5/99

WISCONSIN

Central Wisconsin Radio Amateurs, Ltd. Meets 2nd Wed./monthly, 7:30 p.m., UWSP Science Bldg., A107. Info: Al Mallek, N9WBS, 246 Georgia St. North, Stevens Point, WI 54481. Call in on 146.985 or 146.670 5/99

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

2 Meter portable Zigzag antenna

By Jay Jeffery, WV8R

A few years ago I needed a portable 2 meter antenna that I could fit in a briefcase and take along on Lrips, one that could be hung on a door or in a win dow. In order to be worthwhile, it had to be capable of doing a better job than a rubber duck or a telescoping antenna on my HT. At the time, there weren't any commercial ones available, so I decided to design one.

Beginning with a vertical half-wave dipole mounted on CPVC pipe, I tried bending the dipole sections into various v-shapes. The object was to bring the impedance down to 50 Ohms. The shape that resulted in an omnidirectional antenna with the correct impedence and reasonable gain turned out to be a zigzag. The shape also had the advantage of reducing the length of the antenna by a significant amount. This may be seen in Figure 1. Figure 2 shows how the antenna can be folded for carrying. It does indeed fit in a briefcase.

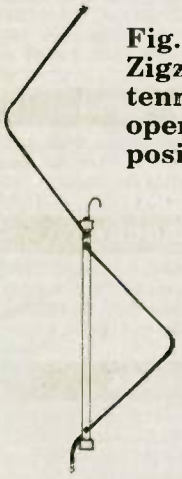


Fig. 1(left) Zigzag antenna in operating position.

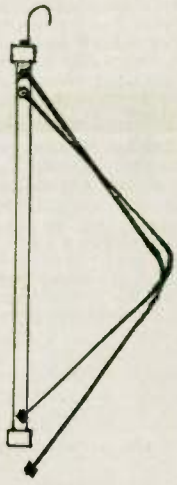


Fig. 2 (right) Zigzag folded for carrying.

The construction of the antenna is fairly simple. A 15 inch piece of CPVC pipe (5/8 inch o.d.) is used to mount the dipole sections and to contain the coax feed line. The pipe could be made shorter if your briefcase is smaller than mine. However, the coax should be 15 feet long. Details of the bolt and wingnut arrangement that holds the dipole sections are shown in Figure 3. Note the large holes drilled into the back of the pipe to facilitate mounting and connecting the bolts and coax.Some white plastic tape can be used to cover these holes after the connections are made. Rubber tips or something similar should be used on the ends of the dipole for eye safety.

Pipe caps serve to waterproof the connections. Also, the top cap can be used to mount a hook for hanging the antenna, and the bottom cap locks the coax in the side of the pipe.

The dipole sections can be made of thick copper wire, copper rods, or brass rods. The material should be sturdy enough to keep its shape when the antenna is folded and stuffed in a briefcase because the shape determines the impedance. The wire or rods should be at least one-eighth of an inch diameter. At one end of each section there should be an eye formed that will fit on the mounting bolts. Measuring from the end of the eye to the tip, the upper section should be 19.75 inches long and the lower section 19.25 inches long as shown in Figure 3.

Tuning the antenna is done in the following way. Bend the upper section to a 120 degree angle and the lower one to a 90 degree angle. Place them as shown in Figure 1. Make sure the bottom of the lower section is bent so that it is 2 inches away from the support pipe. With an SWR meter in the line, transmit briefly at low power on a clear frequency. If the SWR is low, you are done tuning. If not, decrease the angle of the upper section slightly and check again. If the SWR improves, bend a little more until it is good. But if decreasing the angle makes the SWR higher, try increasing the angle instead. Use the same procedures with the lower section. Make sure the ends of the sections are in line with the support pipe. By the way, a good antenna analyzer makes adjustment a lot easier.

Coax length, type, and quality can have a big influence on the impedence adjustment. For example, one particular zigzag I built had a 12 foot coax (RG58) and required 105 degrees on the top section and 70 degrees on the bottom section in order to have a 1 to 1 SWR. At any rate, experimenting with the shaping can be an interesting project, and once it is done for, say, 146.00 MHz, it will be good for the whole band and will only require readjustment if it is bent out of shape by accident.

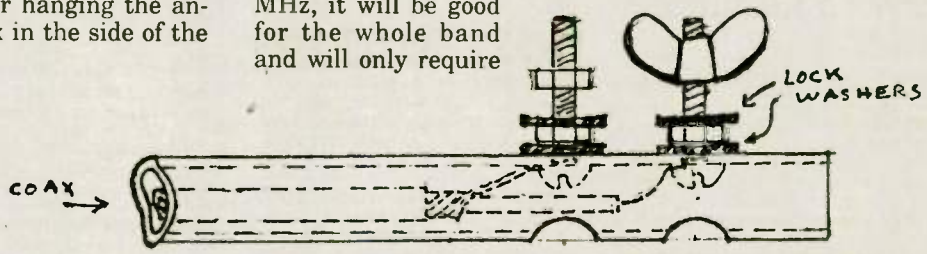


Fig. 3 Details of dipole connector

By substituting proportionally shorter lengths for the dipole sections, the antenna can be operated on other VHF and UHF bands. However, these higher frequencies are more difficult to tune, and the nature and length of the coax is more of a problem.

Incidentally, never touch the antenna during transmission. Like any antenna it is dangerous when it's radiating RF, especially if the power level is high.

Finally, once the antenna is tuned, it is reliable and very durable. I have used the same zigzag for a number of years and have never been gentle with it. Some of my friends have them and report the same experience. It's a handy gadget.

10-10 Election results

Chuck Imsande, W6YLJ
10-10 19636

The 10-10 Board of Directors have announced the 1999 Biennial Convention will be held in Oak Ridge, Tennessee, 10-13 June 1999. The Convention Chairman is Jim Whittlesey, KC4RHW, #57051. The Host Chapter is the Springbok Chapter and the Convention will be held at the Garden Plaza Hotel. Although the convention is still several months away, it's never too early to start planning that perfect vacation in the Great Smoky Mountains, the Cumberland Plateau, and the Knoxville-Oak Ridge-Gatlinburg-Sevierville-Pigeon Forge area. Among area attractions are the Atomic Museum, Ten-Tec, Dollywood, and the University of Tennessee. If you like nature, history, or fun, plan your 1999 vacation around the 10-10 Convention in Oak Ridge, Tennessee.

Pre-Registrations are now being accepted and a pre-registration form is available on the 10-10 Web Site. A pre-registration form and additional information is available by mail from Tom Henderson, K4CIH, #33233, 4901 15th Place East, Tuscaloosa, AL 35404-4522.

New Worked all Continents Manager

The Operations Committee has announced the appointment of Richard "Dick" Corlew, NC6V, #25057 as the new 10-10 Worked all Continents Manager. Dick is a long time 10-10 member and is the Certificate Manager (CM) for the Busy Bee Chapter. Send all Worked all Continents (WAC) applications to: Dick Corlew, NC6V, #25057, 3213 Carolyn Circle, Oceanside, CA 92054. An application form for the WAC Award is available from Dick at the above address for an SASE.

10-10 DX

Conditions on 10 Meters have improved all over the world as the solar flux climbs upwards. Recently our *10-10 International News* DX Editor, Mike Davidson, N5MT, #24949, found a new first time DX country, Eritrea, Africa, prefix E3. The first ever 10-10 activity from E3 was given out by Vance, N5VL, #63352 (ex W5IJU), Joe Owen, KO4RR, #46176, Larry Word, NF6S, #51807 and Elvira, IV3RSG, #54292. They were all a part of the WD4NGB DXpedition in November 1998. Eritrea continues to have a border problem with Ethiopia but tensions have subsided and Amateur Radio licenses are being issued. The group made a total of 35,412 contacts with 5894 on 10 Meters. Further information and logs can be checked at the web site: http://qsl.net/eritrea.

Mike advises that with Eritrea becoming a 10-10 Country, he now has a total of 291 countries that have transmitted 10-10 numbers. 10-10 is truly a worldwide organization!

Special Canadian Prefixes

Canadian amateurs were authorized to use the following special prefixes during the month of December 1998:

VE1-9 could use CG1-9
VA2-3 could use CF2-3
VO1-2 could use CJ1-2
VY1-2 could use CK1-2

If you worked any of these special prefixes during the month of December 1998, they will count as a new prefix for the 10-10 prefix award. Two very active 10-10 members, Garry Cameron, VE7ACM, #30939 and Janis Cameron, VE7AAP, #50407 were known as

New DX Members

10-10 continues to grow in the DX world. The following became 10-10 DX members during the month of Novembers 1998:

MØBPL, #70100; IZ8CCW #70101; DLØTEN, #70102; Francesco Fazio, IK8WEJ, #70103; Giuseppe Molinari, IZ8BGY, #70104; LU7HN, #70105; Andre Van Caenegem, ON4KVA, #70106; DL6EG, #70107; DFØGZ, #70108; Hans Geyskens, ON6ZK, #70109; DL2CHN, #70110; DH2RTW, #70111; Peter Staeheli, HB9CEX, #70112; Margarito Cruto, VE4MAR, #70113; PA3GXV, #70114; DKØDSW, #70115, and Larry Glaister, VE7IT, #70116.

We welcome these 17 new DX members into 10-10. As conditions continue to improve, watch for these new DX members and welcome them into 10-10.

10-10 Web Site

For you that have not visited the 10-10 web site, here is some additional information to that presented in the last column about our ever growing web site. First, to access the 10-10 web site, the address is: www.ten-ten.org. In ad-

dition to discussions relative to becoming a 10-10 member, there are a number of links to other Amateur Radio sites of interest to 10-10 members. Some of the other useful features of the 10-10 web are: On-Line Call Sign Look-up, 10-10 Number Look-up, World-Wide 10-Meter Beacons and FCC Database and Search Program. There is also a USA State-to-County Map that lists all counties in each state. This link is provided as a service of the Steel City Chapter of 10-10.

As a new member service, the 10-10 program to search either a 10-10 number by call or a call by 10-10 number is now provided at no charge on the web. This official 10-10 data base, known as XXIQ, was formerly only available by purchase from 10-10. It is now available as a member service at no charge as a download ZIP file.

If you have not visited the 10-10 web site, please do. The address again is: www.ten-ten.org.

10-10 Nets

Remember that 10-10 holds two daily "nets" at 1800Z. One net meets on 28.380 and the other meets on 28.800. With the improved conditions we are experiencing you should be able to hear most of these daily nets where ever you reside. The 10-10 nets meet six days a week, Monday through Saturday. Listen in on either 28.380 or 28.800 at 1800Z and check in if you can hear the net control stations. Non-members are welcome to check in and it is a great way to accumulate your ten 10-10 contacts to qualify for membership.

Information about 10-10

If you would like information about 10-10, and how you can become a member and receive your very own unique 10-10 number. Send $2.00 and an address label for the return of your information package to: Jeff Ritter, N5VAV, #59692, 10-10 Information Manager, 6959 Hovenkamp, Richland Hills, TX 76118. No SASE please as the information package requires a 9 x 12 envelope. You will receive a copy of the 14 page Prospective New Member Brochure which contains everything you want to know about the 10-10 organization, a listing of all 10-10 Chapters, their day, time, and frequency of net operation and an application form. Also enclosed will be a copy of the 8 page QSO Party Information Brochure and a copy of the latest issue of the *10-10 International News*, the 32 page 10-10 quarterly magazine.

If you have lost, or forgotten, your 10-10 number, send the same as above to Jeff and you will get the information package along with your original 10-10 number.

If your membership in 10-10 has expired and you would like to renew your dues, send your dues ($10.00/year or $25.00 for 3-years) to: 10-10 International Net, Inc., Attention: Dues Renewal, 643 N. 98th Street #142, Omaha, NE 68114-2332. You will become an "ACTIVE" member again and receive all of the benefits of 10-10 including the quarterly *10-10 International News*. Remember 10-10 numbers are issued for life and your originally issued number is always yours.

CW associations — is there one for you?

Nancy Kott, WZ8C

Do you feel a need to get together with kindred spirits who also enjoy CW, but your local clubs are mostly 2-meter or repeater oriented? Many of us, including myself, are in that situation. Luckily, there are National and International groups formed to bring CW aficionados together. Joining a CW oriented club can add a new dimension to your enjoyment of the hobby. Most of these clubs have nets, contests, certificates to earn and offer support for improving your code. Their club newsletters are a forum for sharing a wealth of information as well as a place to make new friends who share your passion for CW. This is particularly important nowadays when local Elmers can be difficult to find.

One CW Club near and dear to my heart is FISTS CW Club. Geo Longden, G3ZQS, founded FISTS in 1988 in Lancashire, England. I run the North American Chapter of FISTS. We have three basic goals: to encourage newcomers, encourage the use of Morse code on the amateur bands and to engender friendships among the membership. The FISTS mottoes are Accuracy Transcends Speed and When You've Worked a FISTS, You've Worked A Friend.

FISTS is unusual in that it is non-political and has a family-like feeling to it. One of the most popular features of FISTS is our "Code Buddy" program. The "Code Buddy" program matches experienced CW operators with those who want on-the-air code practice or just want someone to chat with on a regular basis. Awards for working different combinations of FISTS members give you something to work toward as well as encouragement to join in on the nets. FISTS also sponsors Sprints twice a year, leisurely operating events that give you a chance to meet many FISTS in a short period of time. We've also taken the Novice Round-Up under our wing since the ARRL dumped it a few years ago. There will be more about that at the end of this column.

I don't understand how people can say CW operators are a dying breed. My experience with FISTS paints another picture entirely. When I joined FISTS in 1990, I was assigned FISTS number 379. We are now up to FISTS numbers in the 5700+ range! Subscriptions to FISTS are $15 per year. If you would like information about FISTS, we have a web page at http://www.fists.org. You can also send an SASE to Joe Pardue, 29 Melrose Dr, Marrero, LA 70072 and he'll send you a brochure and application.

Another CW society I enjoy belonging to is the Society of Wireless Pioneers. The Society of Wireless Pioneers (SOWP) was founded in 1968 with the goal of uniting people with the common bond of having mastered the Morse code. Quoting from Waldo Boyd, the SOWP Executive Secretary, "The art and science of wireless communicating is changing more and more rapidly as each year comes into focus and disappears over the horizon. But in spite of the adoption of geopositioning satellites, burst transmissions at thousands of characters per second, and spread-spectrum techniques for making our communications confidential, CW is an art that will be with us for centuries to come. It is done with the minds and muscles of man, the only artifacts being the key and the ear and their meld with the mind.

"The SOWP is dedicated to the preservation of both the history and the art of CW communication, and of its offshoots. We collect and preserve the history and memorabilia of each advance in the art, but our hearts remain with Morse. We are content to know that one day someone's life may be in our hands and only our knowledge of Morse Code or its symbiotes will bring help to preserve that life."

SOWP sponsors many high speed code practice sessions. On Monday and Thursday at 0130Z, on 3523 and 7023 kHz, George Hart, W1NJM, sends at speeds from 20 to 65 wpm. Also on Monday, W. Conley Smith, K6DYX, has weekly practice on 7025 kHz at 0330Z at speeds from 20 to 40 wpm. Raymond V. Evans, K7HLR, conducts two practice schedules daily on 7058 kHz at 0000 UTC and 1400 UTC with speeds up to 40 wpm.

The SOWP is geared primarily toward professional telegraphers, but also welcomes members who are newcomers to the mode. Everyone deeply interested in Morse communication is welcome. The $15/year dues include a quarterly journal called *The World Wireless Beacon* which is a joy to read, not only for the informative content, but for the stories about the days when professional telegraphers were crucial to communications. For additional information contact SOWP Headquarters, PO Box 86, Geyserville, CA 95441 or e-mail Waldo T. Boyd, Exec. Sec. at k6dzy@netdex.com. An SASE would be appreciated.

These are just two of the many fine organizations available to CW buffs.

Don't let the lack of local CW operators in your area discourage you. Look beyond your own backyard. Morse code knows no boundaries — there is a whole world full of CW folks waiting to meet you on the air!

It's Novice Round-Up time! The ARRL dropped the Novice Round-Up a few years ago but FISTS CW Club picked it up and is keeping the tradition alive, with a few modifications. FISTS opened it up to include all Hams, as long as the contacts are made in the CW Novice portion of the bands.

If you're new to CW contesting and a little hesitant, this contest is for you! That's the whole purpose of the Novice Round-Up — to give those who are less experienced or slower in speed a friendly atmosphere in which to get their feet wet. Because it's in the Novice part of the band, you will find other like-minded amateurs just as nervous as you are, as well as old timers who get a kick from helping you on your way.

To find others participating in the Round-Up, call "CQ NR." The exchange is Your Call Sign, Name, RST, License Class and QTH. Novice/Tech contacts are worth five points. Non-Novice/Tech contacts are worth two points. Each different state, province or country you work is considered a multiplier.

To figure your score, count the number of Novice/Tech contacts you made and multiply by five. Count the number of Non-Novice/Tech contacts and multiply that number by two. Add these two sums together. Then count up the number of different states you worked and multiply that times your contact score total.

Certificates will go to the top scoring Novice/Tech and the top scoring non-Novice/Tech. These winners will also get a free one year membership in FISTS CW Club. Send in your logs and scoring summary sheet to NOVICE ROUND-UP, c/o Dennis Franklin, K6DF, 4658 Capitan Dr., Fremont, CA, 94536-5448, postmarked no later than 16 March 1999.

The Round-Up will start Friday 12 February at 1700 UTC to Monday 15 February 2400 UTC, so I hope to see you there!

I love to hear from you, so please feel free to drop me a line at Nancy Kott, PO Box 47, Hadley, MI 48440 or nancy@tir.com.

Lenore Jensen, W6NAZ, SK

Inside Amateur Radio

The following story has been excerpted from Inside Amateur Radio, *by the late Lenore Jensen, W6NAZ. The book can be purchased from Worldradio Books, P.O. Box 189490, Sacramento, CA 95818. Price is $9.00 plus $2.00 shipping and handling. CA residents please add 70¢ sales tax.*

Sierra Rescue

Even though they planned to hike to the 12,000-foot peak of a mountain out of Bishop, California, two amateurs insisted on taking their tiny hand-held transceivers. What better spot could a Ham find for transmitting? John Strain, KØHGW, and Bob Brydon, K6YC, planned not to use their rigs til they reached the top, to conserve battery power.

It was a crisp fall day when they started, perfect for ahike up the beautiful John Muir Trail which they would follow for several days. Camping out under stars in non-smoggy air is a joy only known to backpackers.

When they reached the 11,500-foot junction with the Bishop Pass Trail, they went on the air to check with friend Paula Dunla, WB6IWV, down to Bishop, to assure her all was well. It was a great vacation, and radio propagation was wonderful.

When time required them to start down, trail's end, they met a tearful young woman.

She explained that her father had collasped, apparently from altitude sickness and exhaustion. He was unable to continue. Would they take word down and try to send help?

It took about two seconds for the fellows to realize this was one for Amateur Radio. Paula happened to be monitoring and agreed to take immediate action. She phoned the local sheriff substation, then came back with questions. Bob let the young lady talk directly to Paula while the two men consulted their maps. They determined they were not far from a helipad near a closed ranger station.

Paula reported Bishop was in touch by phone with Fresno, in whose jurisdiction they happened to be. With relief, they learned that a helicopter from "Airlift for Life" could be on its way.

Within an hour they could hear a faraway motor. Straining to see, their hearts sank as the helo flew high above and disappeared in the distance, the pilot apparently unable to see the site.

With their trancievers, Bob and John immediately advised Paula of the disappointment; she again made phone calls. Eventually anouther craft was dispatched from near Bishop.

This time the pilot was able to spot the pad, and settled down neatly for a med-evacuation.

As the radio operators watched them leave, they gave rewarding pats to their rigs.

By the time the two reached the end of the trail, there was still sufficient battery power left to contact Paula's husband, Larry, WB6FZV, to request a lift back to Bishop by car. After walking sixty miles, it felt good to rode and to learn that the victim was feeling much better and sent his grateful thanks.

QRP ARCI's Net Loss

I was saddened to read recently on QRP-L, the Internet QRP mail group, of the apparent collapse of QRP Amateur Radio Club International's once sprawling QRP net system.

QRP ARCI net manager Danny Gingell, K3TKS, of Silver Spring, MD, confirmed the bad news. A lack of net control station volunteers and the popularity of the Internet seem to be the main factors in the system's demise.

In its heyday, QRP ARCI-sponsored nets were spread across the U.S. on a variety of bands and frequencies, boasting QRP check-ins from all areas of the country. It was a great way to keep in on-air touch with fellow QRPers, and constituted a fabulous weekly rig and antenna check-out.

The story across the rest of the QRP ARCI net system, however, is not so happy.

Here's how the line-up once read: TCN (Transcontinental Net) on 14.060 MHz at 2300Z Sundays; SEN (Southeastern Net) on 7.030 MHz at 0100Z Wednesdays. GSN (Gulf States Net) on 3.560 MHz at 0200Z Thursdays; GLN (Great Lakes Net) on 3.560 MHz at 0200Z Thursdays; NEN (New England Net) on 7.040 MHz at 1300Z Saturdays; WSN-80 (Western States Net, 80 Meters) on 3.558 MHz at 0400Z Thursdays; WSN-40 (Western States Net, 40 Meters) on 7.040 MHz at 1700Z Saturdays.

In appreciation of members' participation, QRP ARCI awarded certificates to low power operators with 25 check-ins, and offered endorsements for 50, 75, 100, 200 QNIs, and so on. The organization's *QRP Quarterly* magazine was filled with net news and check-in figures. It was great fun.

Now, only WSN-40 (the Western States Net on 40 Meters) is still active, according to Gingell, with veteran net control operators Keith Clark, W6SIY, of Ridgecrest, CA; and Tom Brown, W6JHQ, of Pinon Pines, CA, principally sharing call-up duties with a handful of assistants. WSN-40's continuing popularity is due in large part to their dedication. Week in and week out, it is not unusual to hear 20 or more check-ins to WSN-40 on a Saturday morning, with stations from up and down the Pacific coast, Idaho, Colorado, and into Mexico.

The story across the rest of the QRP ARCI net system, however, is not so happy. While some independent regional QRP groups are still convening nets, with the exception of WSN-40, QRP ARCI's net system is inactive.

Gingell, however, is not giving up hope for a comeback.

If you'd like to be involved in reviving QRP ARCI's net system, Gingell would like to hear from you. His mailing address is: 3052 Fairland Rd., Silver Spring, MD 20904-7117. Via e-mail: K3TKS@abs.net

Observations of a QRP contester

"After reading your (December '98) column in ***Worldradio*** about QRP contesting, I would like to pass along a couple of tips that have been used here at W3MWY," writes George Morgan from Baltimore, MD, who this month celebrates 25 years as a QRPer. "You may want to pass them along to your readers.

"Because I am foremost a WARC band (30 and 17 Meters) operator, my two antennas are cut for those bands and work quite well as the 145 DX QSLs I shipped out for the July through October period (1998) attest," Morgan said.

"For the contests, however, I found I can work both the 40 and 20-meter bands by using an MFJ-16010 random wire tuner. A PL-259 plug with a piece of wire soldered into the center pin on one end and an SO-234 socket with the center pin and body block shorted together on the other end allows me to use my coax-fed antenna without modification. This way, my 30-meter full wave antenna, up 50-feet, becomes an almost vertical wire that works quite well. It is my winter-time contesting antenna for 20 and 40 Meters.

"Lately, I used the same arrangement when operating portable from my back porch for ARRL Field Day, RAC, and QCWA contests with just a 50-foot piece of RG-58U in an oak tree nearby.

"During the RAC contest (01 July), I was able to work all the stations I heard with several Canadians and one Estonian station calling me after I signed with the one I had called.

"Also, much has been published about using a computer for contest logging. Here, the old Tandy SX-1000 probably won't support many of these programs, and the computer itself is not located near the amateur equipment.

"I bought a couple hundred 3X5-inch file cards and numbered them sequentially from 200 to 001. All of my contacts are logged on the cards using black for 40-meter QSOs and red for 20-meter ones. I also keep a regular dupe sheet.

"When the contest is over, I find I can create a chronological log, a formalized dupe sheet and a state/province/DXCC report by simply rearranging the cards as needed.

"I then prepare cards for the next contest by numbering backwards from the highest number card I had used to 001. I also seem to be the only member at the QCWA luncheons who isn't belly-aching about his hassle with the PC (computer)."

It's remarkable what a bit of skill, ingenuity and "three lil' ole watts" can do, isn't it?

Changes at QRP ARCI

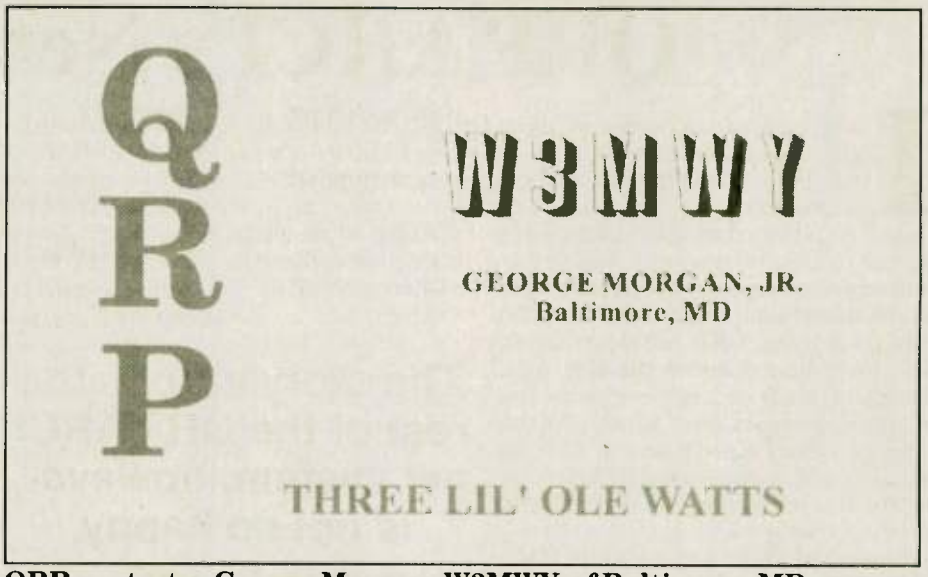
Mike Czuhajewski, WA8MCQ, of Severn, MD, has announced changes on the board of directors at QRP Amateur

Radio Club International.

Dave Johnson, WA4NID, of Durham, NC, has resigned his BoD seat to concentrate on duties as the organization's membership chairman and web master (www.qrparci.org). Filling Johnson's vacancy is Preston Douglas, WJ2V, of Lawrence, NY, who was selected by vote of the board.

Board member Byron Johnson, WA8LCZ, of Warren, MI, has been replaced by former *QRP Quarterly* editor Monte Stark, KU7Y, of New Washoe City, NV, who will serve on an iterim basis until a permanent member is named.

Other members of the QRP ARCI board include Hank Kohl, K8DD, of Port Huron, MI; Danny Gingell, K3TKS, Silver Spring, MD; Cam Bailey, KT3A, Mt. Wolf, PA; and Bob Gobrick, NØEB, of Lake Elmo, MN.



QRP contester George Morgan, W3MWY, of Baltimore, MD, waves the colors of QRP prominently on his QSL card. This month marks his 25th year as a low power enthusiast.

Need a QRP speaker?

Recently I received a query from a reader who was serving as activities chairman for his local radio club. "I'd like to get a program on QRP," he wrote. "Do you know anyone or any QRP club in (my area) I could call on to be a speaker?"

I was more than happy to put him in touch with QRPers in his region. Knowing how much QRPers enjoy telling others about their operations, it's not difficult to find low power enthusiasts eager to show off their gear, QSL collections, and to share the pleasures of QRP.

If you're in charge of your club's programs and find yourself in the same dilemma as this fellow, check out last month's listing of QRP organization web sites. It's a great place to start looking for speakers.

As you'll see, there are QRP clubs virtually everywhere, and these Internet sites are filled with names and addresses of people to contact.

Of course, if you're not able to access the Internet, or you're stumped even after going through the list, drop me a line and I'll do my best to get you in touch with a nearby QRPer.

Calling all QRP QSLs

There are few better ways to spread the word about QRP than on your QSL card. After all, imagine your card displayed on the wall of a radio amateur thousands of miles away. If the letters "QRP" play prominently in your card's design, you're passing along the message that low power operations are alive and well.

If you'd care to share your QSL's design with other ***Worldradio*** QRP column readers, please send one to me in an envelope via the U.S. Postal Service. From time-to-time we'll publish them for all to see.

— Richard Fisher, KI6SN, can be reached at: 1940 Wetherly Way, Riverside, CA 92506 or via e-mail: KI6SN@aol.com.

New birds...new videos

Hello again everyone! I hope that everyone had a wonderful holiday season, and that you are all looking forward to moving out of the winter doldrums and into spring. It's a bit hard for me to anticipate what kind of winter it is, since at the time of this writing in December, it is nearly 70 degrees here in Ohio, while it's snowing in Nevada — nutty, isn't it?

As many of you may know, since November 1991, Bill Tynan, W3XO, has been the President of AMSAT-NA. Just prior to the Vicksburg Annual Meeting he announced his intention to retire as President. Bill noted that Keith Baker, KB1SF, has been serving as Executive Vice-President for a number of years and is well acquainted with the challenges facing the organization. Bill indicated that he would recommend to the AMSAT-NA Board that Keith be named as his successor. The Board of Directors commended Bill for his outstanding accomplishments and many long years as President. In recognition of his unique qualifications and knowledge of the organization, it was unanimously agreed that Bill should become Chairman of the Board of Directors. He graciously accepted the Board's appointment to this new position. The Board then elected Keith as President. Congratulations Keith!

Satellite operators had a wonderful fall of '98, and as we go into 1999 we have many new birds at our disposal. As I reported in my last column, both TMSAT (Oscar 31) and TechSat1B (Oscar 32) were placed into orbit, and are functioning normally. On 24 October 1998, SEDSAT-1 was successfully launched, followed closely by PANSAT on 30 October and RS-18/Sputnik 41 on 10 November.

SEDSAT-1 is a satellite designed & built by students at the University of Alabama in Huntsville who are members of their chapter of SEDS, Students for the Exploration and Development of Space. There are SEDS chapters located at many colleges and universities around the world.

SEDSAT-1 includes Amateur Radio configurations for digital packet store-and-forward, an analog parrot repeater, and Mode A and L transponders. Unfortunately, efforts to uplink to SEDSAT-1 are continuing with little success. The satellite has developed a major power drain problem, indicating two primary systems, solar panels and batteries, are apparently not performing to specifications. Efforts to correct the negative power cycle problem will continue. For more information on SEDSAT-1 visit the satellite web site at the following URL: www.seds.org/sedsat.

PANSAT, the Petite Amateur Navy Satellite recently launched from the space shuttle Discovery (STS-95), is apparently alive and well as it continues to orbit the Earth. The 150-pound Amateur Radio satellite carries a spread spectrum communication package fabricated by student officers and faculty members at the Naval Postgraduate School.

This new 'bird' is unique in several ways. Satellite operators will connect to PANSAT's bulletin board system using a 9842-baud, simplex, direct sequence spread-spectrum mode. Also, unlike other amateur satellites, PANSAT does not have a beacon mode and the operating system is complex in that the same frequency is used for both uplink and downlink transmissions.

The PANSAT Team does not expect the satellite to be available to the Amateur Radio community for another few months. For more information, visit the official PANSAT web site at: http://www.sp.nps.navy.mil/pansat/.

A new "Sputnik," Sputnik 41/RS-18, was released during a spacewalk from MIR on 10 November 1998. This new satellite was the same size as its predecessor, and it carried a 150-200 mW transmitter that transmitted on 145.812 MHz (plus/minus 5 kHz and Doppler shift) for about 30 days. Many operators around the globe were successful in copying the satellite. This was not the spare model of Sputnik 40 that is still on board MIR. AMSAT-France hopes that there will be an opportunity to have it launched sometime in 1999.

A computer .wav file of the actual received signal can be found at the IK1SLD web site by pointing your web browser to: http://www.ik1sld.org/sputnik41.htm

If you were among the lucky ones who

copied the bird, Gerard, F6FAO, suggests the following address for RS-18 QSL requests: AMSAT-France

RS-18 QSL Manager
14 bis rue des Gourlis
92 500 Rueil-Malmaison

P3D underwent thermal-vacuum chamber testing in October, and passed with flying colors. Unfortunately, a verified launch opportunity still remains uncertain. Keep your fingers crossed for news of any upcoming possibilities.

The first module for the new International Space Station (ISS) was successfully launched on the morning of 20 November 1998. Zarya, which will provide the initial control and command capabilities for the space station, was functioning well after launch with the minor exception of one of six battery charging systems. Following this launch was the space shuttle Endeavor, carrying the Unity module in early December. Endeavor was also carrying spare battery replacement parts for the Zarya, in case they were needed.

The two ISS elements, Zarya and Unity, are now connected together, creating the foundation for the new station. More than 100 elements will be added over the next five years, requiring a total of 45 assembly flights using the shuttle and two types of Russian launchers.

Amateur Radio aboard ISS begins with final flight qualification of the ARISS interim station, which was expected to be completed in December. The station will allow the crew to operate on voice, packet and digital voice beacons at the beginning of station habitation in mid-1999.

On another note, the ARRL has announced another volume of available videos, with several of interest to satellite operators. Called *Amateur Radio Far Away*, Volume 12 includes programs that focus on Amateur Radio in space, such as:

** *Phase 3D Integration Lab.*

Take a close-up view of the satellite of the future, Phase 3D, described by the very folks who designed and assembled it. Scientists and engineers at the Phase 3D Integration Lab near Orlando, Florida, show all the ins and outs of testing the satellite in preparation for launch. Produced in 1996, the video is 25 minutes in length. (I'm especially proud of this piece since I edited it for AMSAT!) You may have seen it at Dayton in the Forums, or at an AMSAT presentation. It's a great tour of the satellite, and it shows how the alligator (for power hogs) will work, automatically notching out the offending operator.

** *JAS-1B/Fuji-2.*

The Japanese have been building Amateur Radio satellites for a long time. Here's a look at some of the history and background of Japan's Amateur Radio satellite program, including the popular FO-20 and FO-29 satellites, used by many amateurs. Produced in 1996, this video is 28 minutes in length.

** *SAREX at Center Street School in California.*

With the help of AMSAT, the ARRL and NASA, Gordon West, WB6NOA, describes a successful Space Amateur Radio EXperiment (SAREX) contact with shuttle mission STS-94 in July 1997. Produced in 1997, the video is 47 minutes in length.

Volume 12 — *Amateur Radio Far Away* (ARRL item number 6974) is available from the League for a nominal fee. To order or for more information, contact Margie Bourgoin, KC1DCO, in the ARRL Educational Activities Department at the following e-mail address: mbourgoin@arrl.org

I'm way over the usual limit for my column, so I'd better stop now. Please stay in touch either by e-mail or the Postal Service, and I'll do my best to field your questions. There's a lot happening in Amateur Space Communications — it's not just CW, FM and SSB anymore; give it a try! See you soon on the birds!— Terry Doudes, WB8CKI, can be reached at: 344 E. Fifth Ave., Lancaster, OH 43130 or via email at: wb8cki@amsatorg.

Carl Luetzelschwab, K9LA

PropLab Pro and SWARM

In my column last March, I talked about propagation predictions at high latitudes. I mentioned the *Proplab Pro* prediction software and the *SWARM* software available from the Solar Terrestrial Dispatch. The web site for the Solar Terrestrial Dispatch was one of the web sites listed in last month's column. For those without Internet access, this month's column is a review of those two software packages.

The first software package is *Proplab Pro*, and it is billed as an ionospheric laboratory for your personal computer. Its major claim to fame is the ability to accurately ray-trace signals through a realistic ionosphere in three dimensions. What's so important about three dimensions?

In the Antenna Compendium Volume 5 (ARRL, 1996), I wrote an article describing a simple ray-tracing program that was derived from a BASIC program written by Robert Brown, NM7M. But it is only good for two dimensions, as the only electron density profile used is along the great circle path between the selected transmitting and receiving points.

Here's one place where *Proplab Pro* shines. It allows ionospheric profiles to be built on both sides of the selected great circle path. This gives the ability to trace signals where horizontal gradients are present — this can result in non-great circle paths.

In addition, the ray-tracing engine in *Proplab Pro* can take into account the Earth's magnetic field. Since the Earth's magnetic field is responsible for generation of the extra-ordinary ray, ray-tracing of both the ordinary and extra-ordinary ray can be done. Finally, electron collisions can be taken into account to give an accurate signal strength prediction.

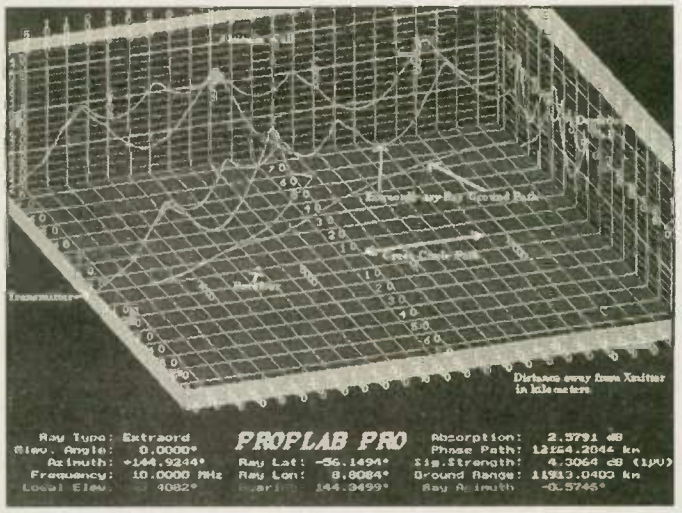


Figure 1. An example of a PropLab Pro 3D ray trace.

Thus, inclusion of ionospheric profiles on both sides of the selected path, inclusion of the Earth's magnetic field, and inclusion of electron collisions allows *Proplab Pro* to do what was said earlier — to accurately ray-trace signals through a realistic ionosphere in three dimensions.

Figure 1 shows the three dimensional output of a *Proplab Pro* ray trace (taken from web site number 11 in last month's column). In this figure, you are looking at the inside of an open box. The ray trace is presented in a rectangular coordinate grid. The horizontal axis is the distance along the great circle path. The vertical axis is the lateral distance from the great circle path.

The wall at the top of the figure is the altitude wall, showing how high into the ionosphere the ray goes. The wall at the right side of the figure is the deviation wall, showing how far off the great circle path the ray goes.

In the figure, the ordinary ray makes a single chordal hop to a distance of almost 7,000 km. It also is skewed off the great circle path by about 60 km after 7,000 km. This really isn't much, but it does show that a small horizontal gradient exists.

The extra-ordinary ray behaves even more radically. It experiences numerous chordal hops, and still hasn't reached ground after 12,000 km.

In addition to ray-tracing, *Proplab Pro* can generate cross-sections of the electron density profile along a path, a map of geomagnetic latitude (as opposed to the more common map of geographic latitude), maps of ionospheric parameters (hmF2, foE, foF2, etc), maps of real-time MUFs, and more.

In the March 1998 column, I mentioned *Proplab Pro* was going to have improvements to help it with high latitude predictions (and improvements in some other areas, too). At the time of this writing, this has not occurred yet. All I can say is to keep checking the web site for the release of the new version.

The second software package is *SWARM* - Solar Warning and Realtime Monitoring. It sports 48 types of audible alerts and warnings, a few of which are:

- solar x-ray flare alerts
- geomagnetic storm alerts
- energetic solar proton alerts
- energetic electron event alerts
- solar wind disturbance alerts
- interplanetary magnetic field disturbance alerts

SWARM will also display, plot, or printout many items. Here are some of the more common items.

It will plot or printout solar and near-Earth space environment conditions in

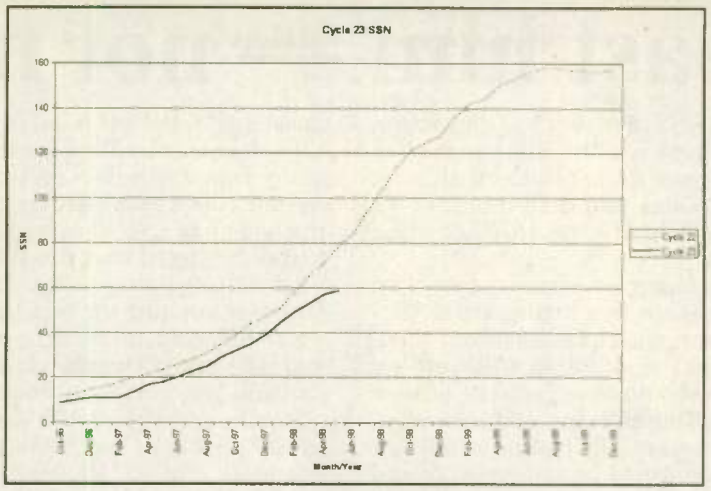
real-time. This includes 1 to 8 and .4 to 4 Angstrom x-rays, energetic solar protons from greater than 1MeV to greater than 100MeV, and energetic electrons from greater than .6MeV to greater than 4MeV.

It will display or printout detailed geomagnetic and ionospheric data. This includes k-indices, a-indices, and hourly range indices from over 20 magnetic observatories.

It will display or printout solar statistical information. This consists of solar flux measurements at nine frequencies (including the common 10.7 cm = 2800 MHz), the number of optical flares, the number of x-ray flares, the number of visible sunspot regions, the number of new sunspot regions, and more.

It will plot or printout near real-time (updated hourly) ionospheric MUF data, critical frequency data, M-factors, and periods of anomalous ionospheric phenomena.

SWARM will plot or printout a full-disk and gridded simulation of the sun with many superimposed features: sunspot regions, coronal holes, and plage regions (former sunspot regions that have decayed). It will also show locations, shapes or sizes, extents, and times of occurrence of many types of solar activity.



Wow. There certainly is a bunch of information in both software packages. You've probably correctly guessed these are not for the casual user. But if you're really into the science of propagation and/or solar science, contact the Solar Terrestrial Dispatch at PO Box 357, Stirling, Alberta TØK 2EØ, Canada or call 403/756-2380.

Two more items. First, included again this month is a plot of SSN showing the progress of Cycle 23 compared to Cycle 22. Have you been joining in on the fun on 10 Meters? Second, if you're interested in a propagation reflector, check out http://www.egroups.com/list/e-layer/. That's a historical listing of recent postings, including information on how to subscribe. As an incentive, NM7M is conducting propagation courses on that reflector. — *Ed. last month's column mistakenly identified K4UVT as Robert Rosenbaum. K4UVT is actually Bob Dorsey.*

More news . . .

Antennas in space

An Amateur Radio operator has helped to install a set of antennas in space that will change the face of radio communications.

Amateur radio operators have been erecting antennas since the earliest days of radio. So, perhaps it is apropos that it would be an Amateur Radio operator, putting up another set of antennas that would help to write a new chapter in space communications.

The Amateur Radio operator is Jerry Ross, N5SCW. He was part of the all-ham crew that flew mission STS-37 in the early 1990's. And now, Jerry is one of two astronauts who ventured out on a spacewalk on Wednesday 09 December 1998 to attach the antennas to the first United States section of the international space station.

This was the second of three excursions outside the shuttle Endeavor for Ross and James Newman in less than a week. They completed installing two 100-pound antennas on Unity at about the 3 1/2 hours point of a planned seven-hour spacewalk.

The antennas Ross and Newman installed outside of the Unity module are part of an elaborate communications system between Unity and NASA's Mission Control. Once activated, the system will provide a direct, virtually uninterrupted communication link between the two without having to rely on Russian ground stations for relay.

Rounding out the mission, Ross and Newman also took a third spacewalk and checked out the new space station. And typical of Amateur Radio operation, they kicked those stuck antennas — freeing them for future work when Russian spacecraft come in to dock.

All of this totalled seven spacewalks for N5SCW during his 18- year career as an astronaut, most spacewalks by any American.

An estimated forty-five shuttle flights will be needed to build the International Space Station. Amateur Radio will be operational from the ISS as soon as the first crews arrive to take up permanent residence. — *Newsline*

New York tower exemption win

New York's Peconic Amateur Radio Club rallied massive support from amateurs around Long Island to respond to the threat of a new tower ordinance.

The Southold Town Board had previously made it known that it intended to rewrite a local antenna laws to embrace all antenna structures including those used by radio amateurs. But this time the Hams had done their homework.

For example, prior to a 18 November 1998 meeting, Don Fisher, N2QHV, presented each Board member a copy of FCC preemption order PRB-1. He also gave them a statement from the local Amateur Radio community that voiced concern over being included in the rewrite.

As a result the Southold Town Board was favorably influenced to place a specific exemption in the law for Amateur Radio towers. Close to forty people participated in what some are calling a rather impressive march on Town Hall.

Hudson Loop, Newsline

Roast him — not me!

I'm sure that you read, in *QST*, a review by Dean Straw, N6BV, (who my spies tell me is a fine fellow indeed) of our book AERIALS III. I was quite pleased with most of the review. But then Dean launched into that we (Lil and I) should unmask and help edit the *ARRL Antenna Book*.

I think that ARRL/*QST* has bigger problems to face than our actual identity. In a recent issue, in a column titled "The Doctor Is In" the columnist answered a question about vertical antennas. The query posed the situation of having six radials and wondering if more should be added. The answer was to take a field strength reading and then add one radial. If the reading did not raise substantially (substantially not defined) then adding any more would be unnecessary and fruitless. A friend of mine said, "They must be out of their minds." I consulted a chart, which will be in a most illuminating book about antennas, AERIALS IV, which I am writing now, and saw that the increase of one radial would add exactly two millivolts to the radiation. We'll have more on that in time to come.

QST keeps running an ad for an antenna that is twelve feet tall and says that such is a five/eighths wave length antenna for 10-12-15M. Since a real 5/8 wave antenna for 10M is over 20 feet tall, how can this claim be allowed in the membership journal?

To quickly explain: 234/28MHz equals 8.357 ft. for 1/4 wave. Divide that in two and you have 4.178 ft. for a 1/8 wave. Multiply that by 5 and the answer is: 20.893 ft. for a 5/8 wave. So then what about 12 and 15M? Interesting, eh what?

For years now I've been saying that one of the most useful charts is in the *ARRL Handbook* but NOT in the *ARRL Antenna Book*. Strange, not? The chart shows the additional loss caused by SWR, at various SWRs, when compared to perfectly matched lines. Why this chart isn't in the *Antenna Book* is puzzling indeed.

We were also razzed for continuing to get after manufacturers for lying about their claims. In continuing with that logic should we speak to the police chief in our town and ask why they keep arresting criminals when it obviously is not stopping crime?

And then in the latest issue of *QCWA Journal* is (sadly) the following advertisement: "For Sale: Contest 12/17 rotatable dipole. Excellent gain....." Hmmmm, I thought contests were banned on the WARC bands and may I pose the question, "Excellent gain" in reference to what?

I've learned that I'm quite the subject of conversation among many Hams who, let's call it, "roast" me. But I never hear anyone talk about another chap who, in a series of license manuals has the following (among others) gems. In one instance he stated that you should never have more than one watt reflected power. How practical is that advice? Well, if you were running the legal limit, 1500W, and you had TWO watts reflected, and for the sake of this discussion we'll say you lost them both, your signal loss from perfection would be .006 dB. Yes, that's six-thousandths.

If you were running 100 Watts and lost two watts you would be .09 dB down. Yes, that's nine-hundredths, or just about one-tenth of a dB. Running 10 Watts and losing two watts would take you down 0.97 dB or nearly one dB. A QRPer running five watts and losing two of them would be down 2.2 dB or just at the point of being able to tell the slightest difference on a steady single tone signal.

Even if you should achieve the exactly perfect 50-ohm transmitter, 50-ohm feedline and 50-ohm antenna, moving up or down the band (from that magic spot) just a bit will change things and you will have (horrors!) more than one Watt reflected.

Now, will the Kurt kritics run off in a feeding frenzy on a new victim who made this statement? "A radiation resistance of 50 Ohms will make a perfect match to your coax feed line for maximum power transfer." That is in a book for prospective Advanced Class licensees, and sold in 8,000 stores.

Alas, in reality you could have a radiation resistance of 50.000000 Ohms and have a a real disaster antenna on your hands. It is the (neglected in the license manual) REACTANCE value that also figures into the picture. What the license manual writer has done, as so many others do (including manufacturers) is ball up radiation resistance and impedance.

Oh, boy! Did many get their tail feathers all atwitter when I said a few months ago: "SWR is a ratio of the forward power to the reflected power." (One person even said, "How can anyone afford to believe anything he says?" Well, did you stop believing, we'll call him Mr. Famous, after he told readers to put the end of a half-wave antenna directly into the coax jack of a transmitter?)

I was referencing that such was more valid than comparing matching impedances. Oh, did the howl go up. OK, here's

the way it works. First the ratio then the SWR.

1500/1=1.05:1
1000/1=1.07:1
100/1=1.22:1
10/1=1.92:1
5/1=2.62:1

One person wrote in to say that what I said wasn't right but it could be expressed that way. I say, if it can be expressed that way, it is right.

Another reader says he keeps writing in but we never print his answers to my errors. Sir, we don't because we don't wish to embarrass you in front of others. Your math is terrible. Stop counting on your fingers and buy a $3.95 calculator from the drug store.

OK, now let's play a little game. I could give a prize to the winner such as roundtrip airfare to Dayton. (There goes a social security check.) But I can't because maybe one of my critics would go find help from a high school teacher and put the right answer on a computer newsgroup and I'd have 500 right answers. So, there is officially NO prize whatsoever. However, I might (that is might) find something for the deserving. On a postcard only to: Kurt & Lil, c/o ***Worldradio***, 2120 28th St., Sacramento, CA 95818, USA, put the answer to the following. And mark on the card if you are a Kurt Pal or a Kurt Kritic.

Presented are the parameters of four antennas. The question is: What do all four antennas have in common? This is not a trick question with the answer being something like: They are all made out of aluminum, or something silly like that. This is serious science stuff.

Antenna 1. R 10.58 X +29.30
Antenna 2. R 14.75 X +46.06
Antenna 3. R 54.44 X +111.34
Antenna 4. R 242.88 X –134.87

So there it is. What do those four antennas have in common?

Oh, my critics! One is all hopping up and down because I said that what happens is that the positive reactance of an antenna comes down back to the tuner and is kicked back upstairs by the negative reactance of the tuner. He said, "Oh, does reactance propagate down a wire?" Sir, did you ever work in a lab where they used the expression, for example, "Looking into 5,000 Ohms?" Would you dash about going, "Does the gear have eyes to look into Ohms?"

During the mid-40s, the U. S. Army had a film showing how the vacuum tube worked. I still remember that film. Monkeys sat on the cathode throwing coconuts. Other monkeys, with catcher's mitts sat on the plate catching the coconuts (electrons). Then there were some other monkeys running venetian blinds (the grid). The more coconuts that got through, the higher was the reading on the ammeter connected to the plate. I know that you would have stood up in class and said, "Sir, there really aren't any monkeys inside of a tube!"

On a computer newsgroup one amateur was laughing about the claimed gains of a CB antenna and saying "Wow, a four-element beam with a gain of 15.5 dB." And the other replied, "That's even bigger than XXXX numbers." He named an Amateur Radio company that we often call the Granite Antenna company. I wonder if anyone from that company saw that exchange. Did it give them pause, and cause for concern?

(For many, it would be difficult in having vast knowledge and the ability to impart it to still remain humble. But Kurt does.)

Privacy test

The Communications Privacy Act of 1996 may be tested in a court of law following the arrest of a Los Angeles celebrity photographer on charges of illegally listening to a cellular phone call between actor Tom Cruise and his wife, Nicole Kidman, and selling details of the conversation to two tabloid magazines.

According to press reports, twenty-seven year old Eric Ford, of Studio City, California was arrested by FBI agents at his home on 12 December 1998, following a federal grand jury indictment on charges that Ford illegally intercepted a wireless communication between the two stars and disclosed its contents for financial gain.

Federal investigators claim that Ford used a modified scanner radio to illegally intercept a telephone conversation between Cruise and Kidman 5 February 1998. The indictment alleges that on 16 March 1998, he disclosed the contents to representatives of London-based tabloid *News of the World*. On June 12th, he ostensibly then revealed the same details to Globe Communications, which the government says published the material in its supermarket tabloid.

Ford, who is free on bond, is one of the first people to be charged with selling information gleaned from monitoring banned radio frequencies. If convicted, he could face a heavy fine and up to 15 years in federal prison.

Ford was released on ten thousand dollars bail pending the setting of a trial date.

Hobby communications observers are wondering what will happen if Hollywood decides to target scanners and scanner users in its fight to keep their private lives private. Some say that Hollywood has the power to do what politicians including Newt Gingrich could not do when a tape of his cellular phone conversation was made public. That being to make using a scanner for any reason into a no-no in the public eye. — *Newsline*

Dave Goodwin, VE2ZP/VE9CB

Contests and QSL Cards

If you like QSL cards, you'll love what contesting can do for your collection. Even a few hours spent in a contest will yield you a mailbox full of QSL cards, and your envelopes from the QSL bureau will come more frequently and be fatter. Why? I can think of three obvious reasons:

1. "A QSL is the final courtesy of a QSO" — A very old adage in this hobby, and one held fervently by many people. If you start participating in contests, you will make many more contacts than if you don't. A certain proportion of the people you work will always send you a card, no matter what the circumstance. More QSOs yields more QSL cards — a very simple equation.

2. Award Chasers — Contests are all about making lots of contacts in a short period of time. Beyond the keen competitors, there are many amateurs who take advantage of all the activity generated by contests to find the contacts they need to complete operating awards. You could well be someone's first contact with your state, county, call sign prefix or grid square, and that someone may want to get a card from you to complete his or her application for an award.

3. Pre-emptive QSLing — Many contesters find answering QSLs a time-consuming chore, something they do out of obligation rather than out of real interest. Now, many of the popular contest logging programs will convert your log data and reformat it to print on self-adhesive labels. These labels can be stuck to QSL cards and sent to the outgoing QSL bureau. Some people do this after each contest, and send every station they log a QSL card. In so doing, they can sit back, content in the knowledge that everyone who might conceivably want a QSL card from them has one on the way. Any cards that come in, they might say to themselves, have already been answered. Some of the cards that will fill your mailbox or bureau envelopes are the product of this "pre-emptive" QSLing.

So, what should you do to handle the flow? All the requests for QSL cards will have an impact on your free time, the resources you can devote to your hobby, and even your personal finances. QSLing can be an expensive proposition, especially if you do a lot of it.

Choose a strategy and stick to it

Here are a few options:

1. Don't QSL anyone. This is probably not a wise choice, especially if you want to be among the winners. Many people naturally expect you to respond to their requests for QSL cards. If you refuse to answer cards received from last year's contest, the people who worked you then may decide never to work you again. Many bad QSLers have been "blacklisted" by disappointed people they have previously worked. If you show up on too many blacklists, your future scores could suffer.

2. Rubber-stamp confirmation. I recall a few contesters and DX stations, fed up with the high cost of printing cards to reply to QSLs they didn't solicit, made up a rubber stamp with wording something like "QSO Confirmed" with their own call sign and signature. They would stamp all the cards they received, and send those same cards, now endorsed, back the way they came. While many award managers will accept these cards, you might well alienate the folks you work with this cheap little dodge, and you could well be blacklisted by them.

3. Pre-emptive QSLing. Sending cards to everyone you work immediately after a contest is the third most time-efficient strategy, provided you use a computer to log and generate labels, as described above. However, this strategy can be very costly. You will require many more QSL cards, adhesive labels, and lots of printer ribbons, ink or laser cartidges. You will certainly NOT want to send these cards direct. That would be insanely expensive. The bureau system is the way to go, so make sure you are a paid-up member of whatever organization can offer you an outgoing QSL bureau. In the case of U.S. amateurs, membership in the ARRL gives you access to a single address to which you can send almost all of your foreign-bound cards. This will generate more QSLs in return, however, and you will keep the volunteers at the incoming QSL bureau very busy.

Note: Even the best operators make logging errors. Some of your pre-emptively sent QSL cards will go to call signs that are not issued, or to someone other than those you did work. That means that some of the people you did work, but mis-logged, will miss out on receiving your card, because you will think they already have it.

4. Reply to direct cards only. Some people reason that if someone really cared about whether they got your card, they would send it direct, complete with a self-addressed envelope and return postage. If you choose to reply only to those cards from those people who met your criteria for being truly interested in a reply, you again run the risk of alienating folks.

5. 100% replies. This is probably the most principled way to handle cards. Even if you are not interested in receiving cards, if you take the time to reply to every card you receive, you will probably never be blacklisted by anyone. You will, however, have to spend a good deal of time poring over your logs, verifying that you have worked the stations who send you cards. Your QSL expenses will be fairly steep, but nowhere near as steep as if you QSL pre-emptively.

What kind of card is right?

Gee, that depends. Full-color QSL cards are beautiful, but expensive to print. I'd strongly advise you go with something cheap, simple and easy to complete and read. One color, one-sided, basic QSL cards can be very cheap, especially if you require a lot. If you are trying to make an impression, by all means go with the fancy card, but if you are just seeking a way to fulfill your obligations, simple is better and cheaper. If you use computer labels, stick them to the otherwise blank back

of the card. If you are filling them out with pen and ink, choose a layout through which you can navigate with ease.

CQ WW 160M SSB Contest

2200 UTC Friday 26 February to 1600 UTC Sunday 28 February 1998
(PST: 2p.m. Friday to 8a.m. Sunday)
(EST: 5p.m. Friday to 11a.m. Sunday)

The *CQ* WW 160M SSB Contest generates more SSB activity on 160M than any other event. It is very popular, but with that popularity comes a heavy price: crowding on the normally sedate 160M band becomes extreme.

Here in the Americas, 160M is only 200 kHz wide, but with the non-amateur services sharing the band, the top 100 kHz (1900-2000) is full of strange-sounding burbles and whoops. In practice, one hears very little in this top 100 kHz, and the contest normally confines itself to 1800-2000 kHz. There are no regulated sub-bands on 160M in the USA, and while good amateur practice dictates we keep our SSB above 1840 kHz, in the *CQ* WW 160M SSB contest, that practice falls by the wayside. The whole segment from 1800-1900 kHz fills with SSB activity, and the only CW activity you're likely to hear all weekend is W1AW with its bulletins and code practice, struggling vainly to be heard.

On other continents, 160M is a much smaller band. Japan has allocated only 5 kHz of 160M to its amateurs, and does not permit them to use SSB on this band, so they are cut out of this contest entirely. Some European countries allocate only 10 or 20 kHz of the band to their amateurs, and most are in the segment 1830-1850 kHz.

Now, let's remember what propagation is like on 160M. DX is certainly possible, but there is rarely anything like a 'skip zone' on 160M. You can always hear the folks with whom you're competing to work the DX, quite unlike 20M, where stations a few hundred kilometers away are usually weak or unreadable. To hear the DX, you may be jousting with huge signals from your neighbors. As well, noise levels are very high on 160M, and while signals are often quite strong, too, it may be hard to have a high enough signal-to-noise ratio to copy less strong signals.

So, let's review — this is a very popular contest, with thousands of participants. They are crammed into a very small chunk of spectrum, all using SSB, each signal occupying 3% of the spectrum used for the contest. Most DX stations have very restrictive spectrum allocations on the band. Signal-to-noise rations are poor. You can always hear your neighbors better than the DX.

Does this sound like a recipe for fun? Well, it may sound too arduous for words, but it really is great fun. Even low-power or QRP stations can get runs going on 160M, at the right time. It is possible to work DX, but it will be a real test of the signal-processing equipment in your head.

So, we now have a picture of 160M during the *CQ* WW 160M SSB contest. What does a typical QSO sound like?

Station 1: "CQ Contest, CQ Contest, Whiskey Two Echo November, Whickey Two Echo November, Contest"" (W2EN calls CQ very succinctly, and pauses to listen only a few seconds before calling CQ again.)

Station 2: "Victor Oscar One Mike Papa" (VO1MP replies by sending his call sign once.)

Station 1: "VO1MP Five Nine New Jersey" (W2EN sends VO1MP's call once, and Gus a signal report, the universal 59, and his state, which is New Jersey.)

Station 2: "Roger, Five Nine Newfoundland" (VO1MP replies with a signal report and his province, which in Newfoundland.)

Station 1:"Thank you, Whiskey Two Echo November" (Doug thanks Gus for the contact, and is standing by for other stations to call him. If he gets no response, he'll call CQ again.)

Stations in Canada and the USA send a signal report and their province, territory or state. Stations in other countries send a signal report and the name of their country. This corresponds to the multipliers used for scoring in this contest. The rules state that multipliers are Canadian provinces, U.S. states and DXCC countries. For reasons unknown, Labrador (VO2) counts as separate from the rest of Newfoundland (VO1), even though they together form one province, but that serves to add an extra bonus multiplier, if you can find a VO2.

The points-scoring system heavily rewards working DX. QSOs with your own country count 2 points, with other countries in your own continent 5 points, and with stations on other continents 10 points. If the multiplier incentive wasn't enough, the additional points you earn for working DX stations may keep you calling longer in the pileup.

While DXCC (working 100 countries) has not yet been worked in the *CQ* WW

Contest Calendar

Contest	Date/Time	Bands	QSO points	Multipliers	Exchange	Entry Categories	Logs
Vermont QSO Party (USA)	0000Z 6 Feb 2359Z 7 Feb	160-10M CW & SSB	1pt/QSO	Stns in VT work everyone, Others work VT stnts only VT counties, VT club stations. VT stations count VT, NH and ME counties, US states, Canadian provinces and territories, DXCC countries on each band. Bonus QSO points: QSOs with W1OFW 2,000; W1OFW/M 5,000.	RST QTH	Single op high power, Single op QRP Club	1 Mar KE1BV
New Hampshire QSO Party (USA)	0000Z 6 Feb 2359Z 7 Feb	160-2M CW, SSB & FM	1pt/QSO	Stns in NH work everyone, Others work NH stnts only New Hampshire couunties (10) NH stns. count NH counties, U.S. states, Canadian provinces & terrs +1 if you work any DX stations	RST QTH	Single tx: High Power, low power, QRP mutli-tx: High Power, low power, QRP 50MHz and above NH Club	1 Mar WB1ASL
Maine QSO Party (USA)	1300Z 6 Feb 0700Z 7 Feb	160M-70cm CW, SSB & FM	1pt/Fone QSO 2pt/CW QSO	x5 for QSOs with ME clubs Maine counties (16) ME stations count ME counties, U.S. states, Canadian provs. & territories, DXCC	RST QTH	Single op: High power, low power Multi-op Club QRP Mobile	30 days Portland AWA Box 1605 Portland ME 04104
Spanish RTTY	1600Z 6 Feb 1600Z 7 Feb	80-10M RTTY	1pt/NA 2pt/DX	x3 on 80, 40m Spanish Provinces (52), DXCC countries on each band EAs will send 2-letter prov. abbrv.	RST CQ Zone	Single Op: All bands, single band Multi-op, Single transmitter	9 Apr EA1MV
Delaware QSO Party (USA)	1700Z 6 Feb 0100Z 8 Feb 0500-1300 off time for all	160-10M all modes	1pt/Fone 2pt/CW, RTTY, digital	none	RST QTH	one category for all entrants Info by e-mail: n9gg@dxer.com	30 days FSARC Box 1050 Newark DE 19715 or e-mail to deqsoparty@fsarc.org
North American Sprint SSB (NCJ)	0000Z 7 Feb 0400Z 7 Feb	80-20M SSB	1pt/QSO	Canadian Provs/Terrs US States NorAm DXCC Countries	Ser# Name QTH	Single op all bands only Entrants may combine their scores to form a "team".	1mo. K7GM or e-mail to niswander@mail.ecu.edu
Freeze Your B___ Off QRP Field Day	1600Z 7 Feb 0400Z 8 Feb	80-10M CW & SSB	1pt/QSO	US States, Canadian Provinces and Territories, DXCC countries, plus special multipliers: x4 for Field-day-type location, x2 for alternative power, x2 for running less than 1w, x indoor temperature multiplier - x2 from 50-64F, x3 for 40-49F, x4 for 30-39F, x5 for 20-29F, x6 for below 20F	RST QTH Name Power indoor temp.	Single Op: home or field Multi-op: home or field Novice and Technician-class licensees	7 Mar AB7TT
HAL WW RTTY WPX	0000Z 13 Feb 2359Z 14 Feb	80-10M RTTY	1pt/QSO own country 2pt/QSO own continent 3pt/QSO other continent	x2 on 40, 80, 160m Total of prefixes worked, regardless of band	RST Ser#	Single Op All Bands: High power, Low Power (150w out) Single Op Single Band Multi-op: Single tx, Two tx, Multi-tx SWL All entrants may use DXCluster or other DX alert systems	17 Mar W6/GØAZT 1826 Van Ness San Pablo CA 94806 USA edlyn@global.california.com
PACC (Netherlands)	1200Z 13 Feb 1200Z 14Feb	160-10M CW & SSB	1pt/QSO Work Neth. only	Neth. provinces (12) on each band	RST Ser#	Single Op: Mixed mode, CW only, SSB only, QRP Multi-op: Single or Multi-tx	31 Mar PA3BFM
YLRL YL-OM Contest SSB	1400Z 13 Feb 0200Z 15 Feb	80-10M SSB	1pt/QSO	YLs work only OMs OMs work only YLs ARRL Sections, Canadian Provs & Terrs, DXCC countries worked on each band Total score x1.5 for low-power (200wPEPmax)	RS Ser# QTH	Single operator only	30 days KC4IYD
North American Sprint CW (NCJ)	0000Z 14 Feb 0400Z 14 Feb	80-20M CW	1pt/QSO	Canadian Provs/Terrs US States NorAm DXCC Countries	Ser# Name QTH	Single op all bands only Entrants may combine their scores to form a "team".	1mo. AG9A or e-mail to cwsprint@contesting.com
YL-ISSB QSO Party	0000Z 16 Feb 2359Z 17 Feb	160-10M SSB	6pt/QSO with DX member 3pt/QSO with NA member 1pt/QSO with non-member	U.S. States, Canadian Provs & Terrs, VK/ZL Call Areas, DXCC countries, both members of a DX/NA team, both members of a YL/OM team	RS QTH Name, ISSB number	Single Op DX/NA team YL/OM team	30 April N4KNF
ARRL DX CW	0000Z 20 Feb 2359Z 21 Feb	160-10M CW	3pt/QSO	Work stns outside Canada, USA only; DXCC on each band	RST QTH	Single Op: All bands, Single Band Assisted, Low power, QRP Multi-op: one, two or multi-tx	1mo ARRL
CQ 160m SSB	2200Z 26 Feb 1600Z 28 Feb	160M SSB	2pt/VE 5pt/NA 10pt/DX 5pt/Mar.Mob.	Canadian Call Areas, US States, other DXCC Countries.	RS QTH	Single Op Multi-op	1mo. K4JRB or CQ mag.
REF SSB	0600Z 27 Feb 1800Z 28 Feb	80-10M SSB	15pt/France+terrs 5pt/F.terrs in NA	Departments of France (96), F6REF/00 on each band	RS Ser#	Single op: All bands, single band Multi-op SWL	15 Apr BP 2129 37021 Tours Cedex

Contest Calendar

Contest	Date/Time	Bands	QSO points	Multipliers	Exchange	Entry Categories	Logs
North Carolina QSO Party	1200-2359Z 27th 1200-2359z 28th	160M-microwaves CW and Phone	1pt/Phone QSO 2pt/CW QSO 3pt/Mobile QSO 100pt/QSO with W4NC or K4EG	For stations outside N. Carolina: NC Counties NC stations: NC counties, US States, Canadian Provs & terrs, DXCC countries	RST Ser# QTH	Choose any two to make a category: Fixed Station; Mobile; HF Bands; VHF/UHF Bands, HF/VHF/UHF Bands, Club, Team, Single op, Multi-op, Novice, QRP (5w), In-state, Out-of-state	1 April K4EG
UBA CW (Belgium)	1300Z 27 Feb 1300Z 28 Feb	80-10M CW	10pt/ON 3pt/Eur. Union 1pt/other	ON Provs (8) + ON Prefixes + DXCC countries in European Union	RST Ser#	Single Op: All bands, Single band Multi-op, single tx SWL	30 days ON7LX
YLRL YL-OM Contest CW	1400Z 27 Feb 0200Z 1 Mar	80-10M CW	1pt/QSO	YLs work only OMs OMs work only YLs ARRL Sections, Canadian Provs & Territories, DXCC countries worked on each band Total score x1.5 for low-power (200wPEPmax)	RST Ser# QTH	Single operator only	30 days KC4IYD
Colorado QRP Club Winter QSO Party	2200Z 28 Feb 0400Z 1 Mar	160-10M CW and SSB	QSOs w/members: 6pt/CW QSO 3pt/ SSB QSO QSOs w/non-mbrs: 4pt/CW QSO 2pt/SSB QSO	US States, Canadian Provs & Terrs, DXCC countries MULTIPLIED by the number of first names worked, one per letter of the alphabet (26 max)	RST QTH, first name and CQRPC membership number or power output	Single Op Single Band Single Op All Bands Novice and Technician-class licensees	1 mo. KG0PP
ARRL DX SSB	0000Z 6 Mar 2359Z 7 Mar	160-10M SSB	3pt/QSO	Work stns outside Canada, US only DXCC on each band	RS QTH	Single Op: All bands, Single Band Assisted, Low power, QRP Multi-op: one, two or multi-tx	1mo. ARRL
CLARA and Family HF Contest	1700Z 9 Mar 1700Z 10 Mar 1700Z 16 Mar 1700Z 17 Mar 1pt/OM	80-10M CW 80-10M SSB	5pt/CLARA mem 3pt/YL 2pt/CLARA fam member	Canadian Provs, Terrs, Labrador + DXCC	Name QTH CLARA mbr?	Single op, all bands Trophy to high-scoring CLARA member, certificates to top family member, DX YL, OM All entrants are eligible for a prize draw	11 April VA3WX

Addresses: CQ — 25 Newbridge Road, Hicksville, NY 11801 USA; ARRL — 225 Main St, Newington, CT 06111 USA; Call sign — Callbook Address; Bands: The 30, 17 and 12M bands are never used in any contest. Official forms and complete rules may be available from me. Please send SASE for details.

160M SSB contest, WAS (worked all states) and even WAC (Worked All Continents) certainly has.

As for your log, official forms are available from *CQ* magazine for a self-addressed, stamped envelope. Computer logging is the way to go if you have it, and the popular CT, NA and TR-Log software handles this contest very well.

The *CQ* WW 160M SSB contest is a great event, and well worth exploring.

Other contests in February

February presents quite an array of big and small contests. The biggest event is the ARRL DX CW contest, and the CW ends of the bands will fill with DX looking to work only Canada and the USA. It's a great opportunity to find a few new ones for your DXCC or WAZ (Worked All Zones) awards.

There are also numerous state QSO Parties, including several near-identical events in New England on the first weekend. The first weekend of February also features the *National Contest Journal*'s unique Sprint contest, with the CW sprint following a week later. The popular Belgian and French contests share the last weekend of the month.

73, and good luck in the contests.— *Dave Goodwin, VE2ZP/VE9CB can be reached via e-mail: ve2zp@rac.ca; packet: VE2ZP@VE3XRV.#EON.ON.CAN.NOAM.*

ARRL comments in part 15 proceedings

The ARRL has filed comments with the FCC in two proceedings it says could lead to greater interference to amateurs.

In September, the FCC released a Notice of Proposed Rule Making in ET Docket 98-156, in response to a petition from Sierra Digital Communications Inc. The company wants to market point-to-point microwave devices. The ARRL already had commented on the Sierra Digital Petition for Rule Making. It called the FCC's proposed rules changes "entirely inappropriate for Part 15 unlicensed facilities."

The League said the Commission considered and denied a petition in 1983 to permit unlicensed, uncoordinated, point-to-point microwave operation in the 24-GHz band. The recent petition amounts to "the exact same proposal," the League said.

The League also commented in response to a Notice of Inquiry, in ET Docket 98-153, about whether the FCC should revise Part 15 to allow ultra-wideband (UWB) transmission systems. Such systems, operating in the VHF and UHF spectrum, include applications like radar, voice, data, and control communications devices. The League expressed concerns that Amateur Radio and home entertainment devices, including TV sets, could be subjected to interference from the Part 15 UWB devices.

The League proposed that the Commission ask manufacturers of UWB devices to develop and circulate technical standards "in support of a unified, comprehensive plan." The League offered its services to help determine proper technical regulations. — *ARRL Letter*

Hamfests — February

ARIZONA

West Valley ARC - auction 01 Feb. at St. Clement of Rome Catholic Church Social Hall, 15800 Del Webb Blvd., (1/2 mile south of Bell Rd.) Sun City at 7:00 p.m. Free admission. Club keeps 10% on sales. Talkin: 147.30+. For info: Ralph, WØDNO at 602/582-8208 or email: wØdno@worldnet.att.net.

ARKANSAS

Dixie Amateur Radio Group Hamfest 06 Feb. at Eugene Woods Civic Center, 212 West Polk, West Memphis, AR. Admission $5, 5 for $20. Tables $10, with power $20. VE tests, Army MARS meeting, door prizes. For info: Kellye Farris 432 Ross Ave. West Memphis, AR, 72301. Phone: 870/732-8724, fax: 870/732-5540, email: dixiefest@media-two.com, http://www.media-two.com/DARG.

GEORGIA

Dalton ARC Hamfest 27 Feb. North Georgia Fairgrounds, Dalton, GA. Setup 7:00 a.m. Open 8:00 a.m. VE tests, hourly prizes, grand prize drawing at 2:30 p.m. unlimited tailgating. Breakfast and lunch available on site. Talkin: 145.230-. For info: P.O. Box 143, Dalton, GA. 30722-0143. Phone: Harold, N4BD, 706/673-2291 (after 6:00 p.m.) or James, K4FLG, 706/278-0630 (after 6:00 p.m.)

ILLINOIS

Davenport ARC Hamfest/Computer show 14 Feb. at QCCA Expo Center, 2621 4th Ave. Rock Island, Il. Admission $5 in adv, $6 at the door (under 14 free), free parking, handicapped accessable. Indoor exhibits, food and door prizes. Talkin: 146.28+, 146.04+. For table reservation or info: SASE to Kent Williams, K9UQI, 4245 10th St. East Moline, IL. 61244-4154. Phone: 309/796-0718 (4-9 p.m.) fax: 309/796-0629, email: k9uqi@arcsupport.com.

MARYLAND

Maryland Mobileers ARC Hamfest 31 Jan. at Odenton Vol. Fire Dept. Hall, 1425 Annapolis Rd. (Rte 175, 9 mi. east of I-95). Indoor flea market (no tailgating), refreshments. VE testing (pre-registration only, call Jerry Gavin, NU3D, 410/761-1423). Talkin: 146.205+. For table reservation/info: Bill Hampton, N3WGM, 7245 Baltimore-Annapolis Blvd., Glen Burnie, MD. 21061. Phone: 410/766-2199, email: diamondb@space4less.com.

MASSACHUSSETTS

Algonquin ARC Flea Market 13 Feb. from 10 a.m.-2 p.m. at Marlborough Middle School. Admission $3. 6ft tables /10ft spaces $ 12 before 6, Feb. or $15 after that. Setup 8 a.m. For info: Ann Weldon, KA1PON before 9pm at 508/481-4988 or AARC, Box 258, Marlborough, MA 01752.

MICHIGAN

Livonia ARC Annual Swap'n Shop, 21 Feb., from 8 a.m.-3 p.m., at William M. Costick Activities Center, (26800 Eleven Mile Rd. (between Middlebelt and Inkster Roads) Farmington Hills, MI.) Talk-in on LARC Repeater 144.75/5.35 and 146.52 simplex. Reserved tables $16 plus adm. $5. Admission $5. For info send 4x9 SASE c/o Neil Coffin WA8GWL, Livonia ARC, P.O. Box 51532, Livonia, MI 48151-5532 or Club Phone 734/261-5486. Web page: www.larc.org Email: swap@larc.mi.org.

•

Hiawatha ARA Swap and Shop 13 Feb. 9 a.m.-3 p.m. at Negaunee Twonship Hall (42 M-35, Negaunee, MI). Admission $2, tables $6. For info: Bob Serfas, N8PKN, 908/226-9782 or John Veiht, N8RSE, 908/228-9417.

•

Cherryland ARC Swap-n-Shop 13 Feb. 8 a.m.-Noon at Immaculate Conception Middle School. VE tests. Talk-in: 146.86. For info: Joe, W8TVT, 616/947-8555 or Chuck, W8SGR, 619/946-5312.

NEW YORK

Long Island Mobile ARC Winter Hamfest 21 Feb. 8:30 a.m.-1:00 p.m. at Freeport Armory (63 Babylon Turnpike, Freeport, NY). Admission $6. Vendor spaces (in advance only) $25 with 6 ft. table and one admission. For info; Rich Selzer, N2WJL, hamfest@limarc.org or 516/520-9311.

•

ARA of Southern Tier Winterfest 20 Feb. 8 a.m.-3 p.m. at Elmire College Murray Athletic Center Domes (NYS Route 14, 5 mi north of Horseheads, NY). Talk-in 147.360+. VE exams at 9 a.m. Dealers and flea market. Admission $5 (10 and under, free) For info and table rental: Gary, N2OKU, 607/739-0134.

OHIO

Mansfield Mid-Winter Hamfest/Computer Show 14 Feb., open 7 a.m. at Richland County Fairground. Admission: $4/advanced (before 01 Feb.), $5/at door. Tables $10/advanced and $12/at door. Talk-in: call W8WE on 146.34/94. For info: Pat Ackerman, N8YOB, 63 N. Illinois Ave., Manfield, Ohio 44905, or phone 419/589-7133 after 2 p.m.

OREGON

Salem Repeater ASSN and the Oregon Coast Emergency Repeater, Inc. Salem Hamfair 20 Feb., 9 a.m., at Polk County Fairground in Rickreall, Oregon. Setup 6-9 p.m. Fri.

and 7 a.m. Sat. RV space available. Talk-in: 146.86 For info: Evan Burroughs, N7IFJ 503/585-5924 before 8 p.m. Email: n7ifj@eleport.com.

PENNSYLVANIA

Harrisburg Radio Amateur Club Hamfest, 13 Feb. at Oberlin Fire Co. Setup 6 a.m., open 8 a.m. Admission $2 (XYLs and harmonics free). Limited tailgating, $2. VE exams nearby at 9 a.m. For info: Bob Hanson, N3NLB, 2501 2nd St. Steelton, PA. 17113-3009, 717/939-4825. Email: n3njb@juno.com

VERMONT

Radio Amateurs of Northern Vermont, Northern Vermont Winter Hamfest & ARRL State Convention 27 Feb. 8 a.m.-3 p.m. at Milton High School (Rte 7 in Milton, 5 mi. north of I-89, exit 17). Flea market, forums, auction, dealers, book sales, exhibits, refreshments. VE tests at 9 a.m. & 2 p.m., Commercial tests at 2 p.m. Admission $3, under 18, free. Tables are free. Call for large setups. Talk-in: 145.15 repeater. For info: Mitchell Stern, W1SJ, 802/879-6589. Email: w1sj@vbimail.champlain.edu. Web page: http://www.ranv.together.com

VIRGINIA

Vienna Wireless Society Winterfest 28 Feb., 6 a.m. at the Northern Virginia Community College Gym. VE exams and Tailgating. Admission $5, XYLs free. $10 fee for tailgaters includes admission. Talk-in 146.31/91. For info: Jim Parsons, WA4LTO 703/392-0150. Email : k3mt@erols.com; Website: www.erols.com/k3mt/vws.

Watch tower lights

The FCC has issued an urgent warning regarding proper maintenance of lighting and marking of broadcast type towers. This includes Amateur Radio repeaters that utilize these sites.

An air ambulance helicopter almost hit an unlit tower in Texas during a nighttime rescue flight. The FCC says all tower users must make certain that all such structures meet the agency's lighting and marking regulations. As a result, The FCC has now warned all who own and use these antenna structures to comply strictly with all antenna tower lighting and marking rules. It notes that all users of a tower, not just the owner, are equally responsible for maintaining it. Those who do not follow these rules are subject to very heavy fines and other punitive measures — even if they are guest stations on the tower premises. — *FCC, Newsline*

New Products

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

Adonis USA desktop microphones.

The model AM-708E features a variable speech compressor, two microphone outputs for operating two different transceivers and a two position switch for choosing which transceiver the user wishes to use. It also features a highly-sensitive electret microphone element, frequency up/down controls, an output level control, an FM/SSB mode switch, VU meter, battery level tester and momentary and locking push-to-talk switches. The unit can be powered by either 2 AA batteries, or an optional DC power adapter (model PS-3), or can be powered by some two-way radios.

The model AM-7500E adds a 4 band graphic equalizer and 3 stage speech compressor to the same quality features as the AM-708. Both models feature a built in alarm to warn if the unit has been accidentally left in transmit (this function can be turned off). Each unit is constructed of anodized aluminum and has a flexible metal gooseneck microphone, and each unit can be connected to your radio by Adonis Adapter Cables (available separately).

The model AM708E retails for $219.95, and the model AM-7500E retails for $269.95. Each comes with a full one year warranty. For a free, full color catalog with all features and specifications, contact Adonis USA, P.O. Box 1124, Issaquah, WA. 98027, or call 425/558-9592, or FAX 425/558-9704. Email address is: info@rflimited.com, or see the website at www.rflimited.com.

Hamco's 1999 catalog

If you need stealth antennas for HF, VHF, or UHF. If you need high performance, low cost invisible antennas which can be used indoors or outdoors, then you need to look Hamco's new 1999 catalog of covert antennas! In it you will find a virtual plethora of clandestine antennas of many types including verticals, dipoles, quads, yagis, J-poles, etc.

Covenant resticted homeowners and apartment dwellers around the world are enjoying both DX and local communications using invisible Tape Tenna's.

Hamco's new catalog is free for the asking. It is packed with technical information about hidden antenna's and will be a great addition to yuor electronics libary. To obtain your free copy send $2 to cover shipping and handling to: FEICK, Ste f239193, 3590 Roundbottom Rd., Cincinnati, OH, 45244-3026

New products from MFJ

MFJ has two new products for the Amateur Radio operator. The MFJ-9410X is a 20-watt PEP USB transceiver for the 10-meter band. The new portable rig uses a single-conversion mixing format and a low noise heterodyne VFO for enhanced weak signal performance. It features a built-in 7-element lowpass filter to reduce interference at TV and FM broadcast frequencies. Excellent selectivity comes from a sharp 2.3 kHz SSB ladder filter.

Other features include a sharp HF crystal, IF bandpass filter, heavy duty speaker, analog mechanical S-meter, optional semi-break-in CW module, and easy-to-operate controls.

Low drain lets you operate from a 3-amp power supply or a 12 volt battery. This rig is built of premium-quality plate through PC board, quality components, brushed aluminum panel and vinyl-clad case, and will give you years of dependable service.

The MFJ-9410X retails for $259.95.

MFJ has introduced a new Communications Headphone perfect for Amateur Radio and shorwave radio listening. They're great for all modes — SSB, FM, AM, data and CW.

Superb padded headband and ear cushions make listening extremely comfortable. With a high performance 40 mm driver unit, SSB CW and other signals sound crystal clear! Each earphone has separate volume and bass controls. The MFJ-392 headphones handle 450 mW and has a frequency response of 100-24,000 Hz. The headset comes with 9-feet of cord, gold-plated plug and a free 1/4 inch phono adaptor.

The MFJ-392 headphones retail for $19.95.

Both of these products are covered by MFJ's famous *No Matter What* one year limited warranty. MFJ will repair or replace (at our option) your product for one complete year.

To order or for you nearest dealer, call 800/647-1800, FAX 601/323-6551, email: mfj@mfjenterprises.com or check the MFJ web site at: www.mfjenterprises.com.

VE Exams

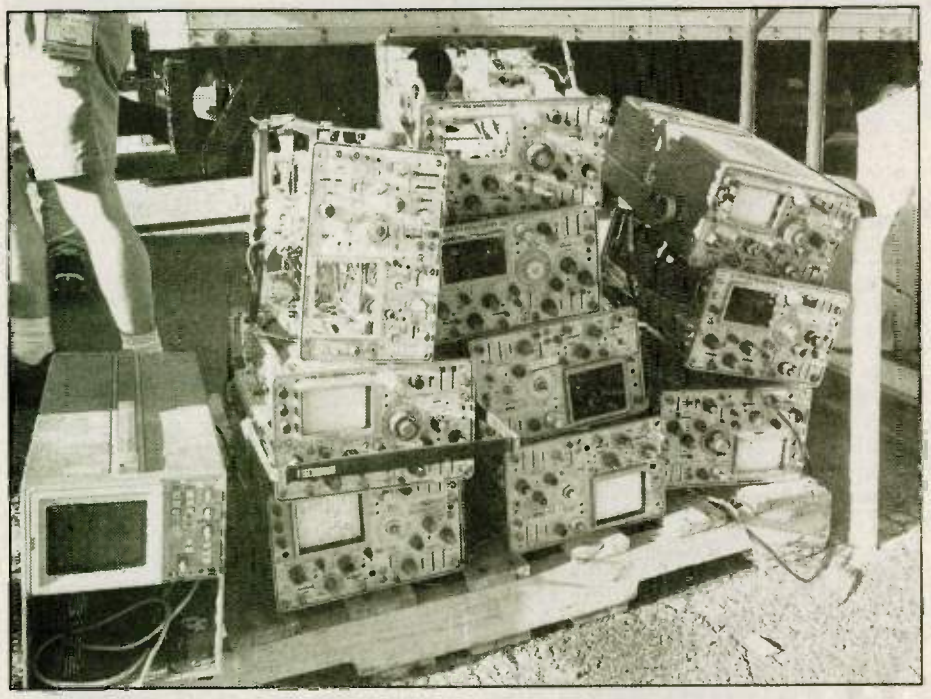
As a service to our readers, ***Worldradio*** presents a feature listing of those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is three months in advance. ***Worldradio***, 2120 28th St., Sacramento, CA 95818. Mark the envelope "VE Exams." List the location (City), any information examinees should have (advance registration, etc.) and the name and telephone number of a person to contact for further information. Examinees should bring their original license (along with a photo copy), two forms of identification (at least one photo ID), and required fee.

p/r pref=pre-register preferred but w/i OK **w/i**=walk-in only
p/r=pre-register only—no w/i **w/i pref.**=w/i preferred to p/r

State	City	Contact	Notes
Alabama			
2/02/99	Mobile	David, WA4VAC 205/649-5229	p/r pref
Arizona			
2/03/99	Quartzsite	Harvey, K5LJM 602/815-0762	w/i only
2/13/99	Tucson	Joe, K7OPX 520/886-7217	w/i only
Arkansas			
2/20/99	Gassville	Phil, AB5ZU 870/425-7406	p/r pref.
California			
2/25/99	Colton	Harold, AB6RN 909/825-7136	p/r pref.
2/06/99	Culver City	Clive, AA6TZ 310/827-2538	w/i pref.
2/21/99	Fresno	Charles, W6DPD 209/431-2038	w/i only
2/13/99	Harbor City	Elvin, N6DYZ 310/325-2965	p/r pref.
2/27/99	Lake Isabella	HOTLINE 760/379-2947	p/r pref.
2/20/99	Long Beach	Don, 562/420-9480	p/r pref.
2/27/99	Pomona	Carl, WJ6N 909/356-1919	p/r
2/10/99	Santa Ana	Red Cross 714/835-5381 x140	w/i
2/20/99	Stockton	Mark, W6DKI 209/465-7496	w/i
2/06/99	Visalia	Carl, AB6TL, 209/732-9652	p/r
Colorado			
	All Colorado	Exam recording 303/360-7293	
2/08/99	Boulder	W0DK 303/380-6540	w/i pref
2/13/99	CO Springs	Erik, KG0XE, 719/596-5345	w/i
Florida			
2/16/99	Middletown	Paul Lux, K1PL 860/635-1742	p/r pref.
2/13/99	W. Palm Beach	Steve, W2QX 561/585-8504	w/i
Idaho			
2/13/99	Boise	Lem, W7JMH 208/343-9153	w/i pref.
2/24/99	Grangeville	Larry AB7GY 208/983-2163	w/i pref.
Illinois			
Anytime	Burr Ridge	Deni, W9DS 630/986-0061	p/r
2/17/99	Chicago	Mike, KG9C 773/781-7171	w/i ok
2/13/99	Oak Forest	David, NF9N 708/448-0580	p/r pref.
2/20/99	Rockford	Rusty, WB9QYV 815/968-0080	w/i pref
Indiana			
2/06/99	Indianapolis	Ray, K1HG 317/788-7448	w/i pref
2/07/99	Terre Haute	Robert, KC9UU 812/235-9374	w/i

State	City	Contact	Notes
Massachusetts			
2/20/99	Melrose	Scott, WB1F 617/665-7654	w/i ok
New Jersey			
2/13/99	Cranford	24-hour hotline 973/377-4790	w/i pref.
New York			
2/07/99	Yonkers	Emily, AC2V 914/237-5589	w/i ok
Ohio			
2/06/99	Cincinnati	Herb, WA8PBW 513/891-7556	w/i pref
Oregon			
Tuesdays	Bend	Bill, K7ZM 541/389-6258	p/r only
2/20/99	Medford	Paul, K7VO 541/878-3433	w/i pref
Pennsylvania			
2/06/99	Erie	Norma, W3CG 814/665-9124	w/i only
2/04/99	Philadelphia	Dusty, ND3Q 215/879-0505,	w/i ok
2/22/99	Telford	Joe, W3PNL 215/723-6697	p/r pref
Puerto Rico			
2/27/99	San Juan	Victor, KP4PQ 787/789-4998	w/i
Rhode Island			
2/11/99	Providence	Judy, KC1RI 401/231-9156; Al, NN1U 401/454-6848	w/i pref.
South Dakota			
2/20/99	Rapid City	Frank, NUØF 605/348-6564	w/i ok
Texas			
2/20/99	Austin	Jim, AB5EK 512/327-6184	w/i pref.
2/09/99	Houston	Harold, ND5F 713/464-9044	p/r pref.
Vermont			
2/27/99	Essex Jct.	Mitch, W1SJ 802/879-6589	p/r pref.
Virginia			
2/13/99	Alexandria	John, WZ4A 703/971-3905	w/i
2/11/99	Chesapeake	Pat, AF4FR 421-9598	p/r
2/06/99	Portsmouth	Art, AA4AT 804/484-2857	p/r
West Virginia			
2/13/99	Huntington	Garry Ritchie 304/733-1300	p/r pref.

The Mart



Classified •Buy •Trade •Sell •Inform

The MART, ***Worldradio*** • 2120 28th St., Sacramento, CA 95818 • http://www.wr6wr.com/mart.html

MART deadline 15th of the month two months prior to issue date. Please include an address on all ads so prospective clients can contact you by mail, if they prefer. Commercial rate: 35¢/word, prepaid. Private rate: 20¢/word, prepaid. For credit card orders only: (VS, MC,AmEx) http://www.wr6wr.com/martplacead.html or Fax 916/457-7339 with card number, exp. date, name as it appears on card, and signature.

***WORLDRADIO* ON CASSETTES** for the blind. For information, contact TOM CARTEN, K1PZU, 123-Y King's College, Wilkes-Barre, PA 18711-0801 or e-mail: tfcarten@kings.edu. F399

FREE HAM GOSPEL TRACTS. SASE, KW3A, 265 West Ave., Springfield, PA 19064. 199-100

AUTO-CALL MAGAZINE, official journal of the Foundation For Amateur Radio, a federation of over 80 clubs in the greater Baltimore/Washington DC area. Great coverage of FCC, ARRL, VEC, Public Service and club activities in the area. A must for those even passing through the area. For a sample copy write FOUNDATION FOR AMATEUR RADIO, P.O. Box 7612, Falls Church, VA 22046-7612. F299

PERSONALIZED HOURLY HF SKYWAVE PREDICTIONS from your city or town: SKYCOM v2.0 for Windows 3.1 & 95. Includes complete mathematical description of theory ($19.95). DX window v2.0 floppy disk circular projection world radio map centered on your QTH shows sunrise-sunset gray line for any time of interest. Includes feature which displays any of 400 prefixes on world map instantly. For all Apple Macintosh machines ($24.95). Satellite Predictions MACSAT 3.1, $29.95; P/H $1.50 N. America; $4 International. SASE for more info: ATTN: DX; ENGINEERING SYSTEMS INC., P.O. Box 939, Vienna, VA 22183. F399

ELECTRON TUBES: Transmitting, receiving, military obsolete...all types. Large inventory. Fast delivery. DAILY ELECTRONICS, 10914 N.E. 39th St., Ste. B-6, Vancouver, WA 98682; 360/896-8856, 800/346-6667, fax 360/896-5476. 698-699

PERFECT HAM LOCATION, TOWER, ALL BAND QUAD. 9.4 acres. Ideal location for RV Park, investor or retired. Next to Columbia State Park, Columbia, CA, Sierra Foothills, 2000 feet elevation. Near Sonora, CA. Residence, out buildings, well, public water and sewer, $225,000. W6RWI, 4618 Crestridge Rd., Fair Oaks, CA 95628; 916/966-2244. 1298-299

HEAR WHAT YOU'VE BEEN MISSING! The PM-2000 Studio Headphone has separate woofers and tweeters that produce thundering bass and crisp treble. Great for communications, stereo Hi Fi, and multimedia. Full-sized, lightweight, and luxury padded throughout. Handsome grey/black styling. 9 1/2 foot cord with 1/8 and 1/4-inch gold stereo plugs. 30 day money-back guarantee. One year limited warranty. Cash price just $74 (postage included in continental U.S./check or M.O. recommended). KD1CW, President. STARLINE ELECTRONICS INTERNATIONAL (SEI), 70 Brooks Pond Road, Spencer, MA 01562-1006 U.S.A. Phone: 508/885-9825, fax: 508/885-3961; e-mail: starline@gis.net; internet: http://www.gis.net/~starline. 898-899

CHASSIS & CABINET KITS. SASE. K3IWK, 5120 Harmony Grove Rd., Dover, PA 17315. 298-299

FREE! HAM and IBM Shareware disk catalog. High quality, newer, virus free programs. Specify disk size. MOM 'N' POP'S SOFTWARE, P.O. Box 15003-HF, Springhill, FL 34609-0111; 352/688-9108; momnpop@gate.net. 1-599

EXPERT MILITARY CERTIFIABLE PRINTED CIRCUIT BOARD DESIGN and schematics by Tucson P.C.B. Fast and accurate work, guaranteed. R.F. circuits a specialty. Fifteen years experience. Small layouts accepted. Reasonable rates. Call for free technical evaluation and price quote. J.P. LESTRALE, HC2 Box 6872-102, Tucson, AZ 85735; 520/822-1712; e-mail: w2fgv@tcsn.uswest.net. 1198-299

QSL CARDS. Many styles, top quality. Order risk free. Plastic cardholders, T-shirts, personalized caps, mugs, shirts. Other Ham shack accessories. Free call, free samples. RUSPRINT, 12730 State Line Rd., Leawood, KS 66209; 800/962-5783, 913/491-6689, fax 913/491-3732. 1-499

WANTED FOR MUSEUM: Apple-1 and other pre-1980 micro-computers, also early-micro-computer journals, newsletters and advertising literature. KK4WW, P.O. Box 341, Floyd, VA 24091; 703/231-6478 or 703/763-2321. 298-399

CERTIFICATE FOR PROVEN TWO-WAY RADIO CONTACTS with amateurs in all 10 USA call areas. Award suitable to frame and proven achievements added on request. Send SASE to W6LS, 45527 3rd St. East, Lancaster, CA 93535-1802 to get data sheet. F399

WANTED: HAM EQUIPMENT AND RELATED ITEMS. Donate your excess gear or related items, new-old-in any condition-to the Radio Club of Junior High School 22, the Nation's only full time non-profit organization working since 1980 to get Ham Radio into schools around the country as a teaching tool using our EDUCOM - Education Thru Communication. Send your radio to school. Your donated material will be picked up anywhere or shipping arranged and this means a tax deduction to the full extent of the law for you as we are an IRS 501(c)(3) charity in our 18th year of service. It is always easier to donate and usually more financially rewarding, but most important your gift will mean a whole new world of educational opportunity for children nationwide. Radios you can write off, kids you can't. Make 1998 the year to help a child and yourself. Write, phone or fax the WB2JKJ "22 Crew" today: The RC of JHS 22, P.O. Box 1052, New York, NY 10002. 24 hours, call 516/674-4072; fax 516/674-9600; e-mail crew@wb2jkj.org; internet: www.wb2jkj.org. Join us on the WB2JKJ Classroom Net, 7.238 MHz. 1100-1230 UTC daily and 21.395 MHz. 1400 to 2000 UTC. Join us at the Miami Hamfest in February. 299

MARCO: MEDICAL AMATEUR RADIO COUNCIL, operates daily and Sunday nets. Medically-oriented amateurs (physicians, dentists, veterinarians, nurses, therapists, etc.) invited to join. For information write: MARCO, Box 73, Acme, PA 15610. 898-899

CHAVERIM-WESTERN USA AND MEXICO CHAPTER. Jewish amateurs and friends interested in our chapter of Chaverim, contact PAUL KANE, WA6WGP, 5401 Sadring, Woodland Hills, CA 91367; e-mail wa6wgp@aol.com. 1098-399

EDITING A CLUB PAPER? Need one for your club? Interested in Amateur Radio public relations? Need some help? Amateur Radio News Service would like to hear from you. For info write SUSAN BIGGS, 9708 Skillman #107, Dallas, TX 75243. F399

200+ ELECTRONIC PROJECTS. Build for pleasure or make 100% (or more) profits reselling printed plans. $1.00 (refundable) for catalog & dealer info. MATCO-C5, P.O. Box 509, Roseville, MI 48066-0509. 1098-1099

RADIO REPAIR! Reasonable charges. JIM, AB7DR. WARRC, 998 Whipple, Grayland, WA 98547-0697; 360/267-4011. 198-299

ASTRON – Power supply, brand new w/ warranty, RS-20M $99, RS-35M $145, RS-50M $209, RS-70M $249. Call for other models. AVENTRADE, 4518 Temple City Blvd., Temple City, CA 91780; 626/286-0118; aj547@lafn.org. 1198-399

HAM RADIO REPAIR. Quality workmanship. All makes and models. Fast turnaround. AFFORDABLE ELECTRONIC REPAIR, 7110 E. Thomas Rd., Scottsdale, AZ 85251; 602/945-3908. 1298-599

FOR SALE: CQ/Ham Radio/QST/73 magazines and binders. SASE brings data sheet. W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802. F00

QSL SAMPLES — 50¢ SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239. 898-899

RF TRANSISTORS & TUBES. MRF247, MRF317, MRF454, MRF422, MRF151G, SAV7, SAV17, 2SC1944, 2SC1947, 2SC2904, 2SC2879, 2SC313, Tubes: 3-500ZG, 572B, 4CX250B, 4-400C, resistors, capacitors & more. WESTGATE, 478 Westgate Drive, Edison, NJ 08820; 800/213-4563. 1-699

E-MAIL FOR THE SUPER-LIST of Amateur parts & stuff, <K7FF@inreach.com>. DEREK, 5191 Rimwood, Fair Oaks, CA 95628. 1-499

MEASURE FIELD STRENGTH/RF EXPOSURE using your digital volt meter. Club Discounts! Ten dollars postpaid. Send payment to: HIGH TECH ANTENNA, 7507 Ledgewood Dr., Fenton, MI 48430-9925. 1-499

SPECIALIZED RADIO REPAIR: We have 19 years full-time experience repairing only Kenwood, ICOM, Yaesu, Atlas, Azden equipment, including lighting-damage repair. Optimized alignments, enhancements, modifications (including installed narrow crystal filters) available. INTERNATIONAL RADIO, 1118 Raymond Ave., Ft. Pierce, FL 34950; 561/489-6302, e-mail: INTLRADIO@JUNO.COM. 299

100 QSL CARDS $8.50 postpaid. Stamp for sample. We print mini cards too. ARTIST, P.O. Box 148652, Nashville, TN 37214. 299

SLOW SCAN TV. HamComm Decoder decodes SSTV, Fax, CW and more. Send $29.95 plus $3.00 S&H to: RAA, Box 1164, Radcliff, KY 40159; *http://www.radioamateur.com.* 1-299

R-390 /R-390A /CV-591A SALES & SERVICE. Module repair to complete remanufacture info - SASE. RICK MISH, P.O. Box 80041, Toledo, OH 43608; telefax 419/255-6220, 9-9 E.S.T. 1-599

FOR SALE: Perfect replica Atwater Kent Type 2A Twin crystal detector $95. Includes shipping by certified mail. ROLAND V. MATSON, P.O. Box 956, Lake Panasoffkee, FL 33538. 299

1999 CALLBOOK CD-ROM: $39.95. QRZ! (v.12) $16.95. W.R.A.D. $16.95. Postpaid. DUANE HEISE, AA6EE, 16832 Whirlwind/W2, Ramona, CA 92065; *aa6ee@amsat.org, http://www.radiodan.com/aa6ee/.* 299

You too can advertise your product or items for sale here in The MART!

Kenwood emergency gear

With the number of disasters that seem to require Amateur Radio communications growing, Kenwood Communications has announced the availability of what it calls a portable emergency radio communications kit. The kit features a dual-band base station radio packed with a compact switching type power supply and a magnetic mount antenna. Also included are one or more Kenwood dual band hand helds plus a waist pack accessory belt. It contains a spare ni-cad battery, an Alkaline battery case, matching speaker-mic, an earphone and a cigarette lighter power adapter. All of this gear is compatible with its VCH1 visual communicator. The system is also APRS compatible when used in conjunction with a GPS receiver.

Kenwood says the idea is to have all the basic gear needed to handle any emergency available in one place so amateurs don't have to hunt for batteries and other accessories when a real emergency takes place. For this reason, all equipment in its kit is housed in a single, rugged air shippable case.

Pricing depends on the exact equipment that a group might need. For more information contact Paul Middelton, KD6NUH, at Kenwood Communications: 310/639-4200 or paulem@ix.netcom.com. — *Kenwood, Newsline*

ADVERTISERS' INDEX

WORLDRADIO

•**AERIALS**, *by Kurt N. Sterba & Lil Paddle*

Back by popular demand, the original collection of antenna columns from the early years with Sterba and Paddle. 2nd printing. 112 pp. $11.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $.85 tax.

•**AERIALS II**, *by Kurt N. Sterba & Lil Paddle*

AERIALS II has been reprinted and is once again available! Kurt N. Sterba, along with his soulmate, Lil Paddle, take on the world of antennas in order to make sure that "Truth, Justice, and the Db claims, shall be correct, and maximum power with lowest SWR shall be available for all" rings out across the Amateur Radio world. 80 pp. $10.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $.78 tax.

•**AERIALS III**, *by Kurt N. Sterba & Lil Paddle*

Once again the wise words of our advocates for truthfulness in dB claims illuminate our minds. This is Kurt and Lil's latest collection of antenna insights. 160 pp. $14.00 + $2.00 s/h ($4.00 for non-US ZIP air delivery.) CA residents add $1.09 tax.

•**NEAR VERTICAL INCIDENCE SKYWAVE COMMUNICATIONS — THEORY, TECHNIQUES AND VALIDATION,**
by LTC David M. Fielder & MAJ Edward Farmer, AA6ZM, P.E.

A compilation of previously published articles regarding NVIS propagation and communication, a mode which allows medium and high frequency radio waves to "leap tall mountains with a single bound," enabling continuous, dependable coverage of areas of operation spanning several hundred miles. 144 pp., over 100 illustrative figures & tables. $14.00 + $2.00 shipping and handling. ($4.00 for non-US ZIP air delivery.) CA residents add $1.09 tax.

•**SIX METERS, A GUIDE TO THE MAGIC BAND, REVISED,** *by Ken Neubeck, WB2AMU*

A labor of love by the author, the book provides comprehensive information on Six Meter equipment and modes. A little history of the Golden Age of Six Meters is provided along with some explanations for the causes of various forms of propagation. 96 pp. $12.00 + $2.00 shipping and handling. ($4.00 for non-US ZIP air delivery.) CA residents add $.93 tax.

•**THE LITTLE PISTOL'S GUIDE TO HF PROPAGATION,**
by Robert R. Brown, NM7M

Explains the intricacies of HF propagation so that average/low-power operators can more efficiently take advantage of ionospheric conditions to make those rare DX contacts. 128 pp., 85 figures. $10.00 + $2.00 shipping and handling. ($4.00 for non-US ZIP air delivery.) CA residents add $.78 tax.

•**EVERYTHING YOU FORGOT TO ASK ABOUT HF MOBILEERING,**
by Don Johnson, W6AAQ

This long-anticipated update on mobile antennas is packed with tips garnered from amateurs all over the country who have found a better way to adapt their mobile antenna installation to their specific needs. 64 pp., many photos and figures. $8.00 + $2.00 s/h. ($4.00 for non-US Zip air delivery.) CA residents add $.62 tax.

•**INSIDE AMATEUR RADIO**, *by Lenore Jensen, W6NAZ*

Interviews with the people who make Amateur Radio the engaging hobby that it is. A collection of short stories and anecdotes detailing courageous rescues, hilarious situations and heart-warming tales, as told by the hams who made them happen, through the "pen" of someone who truly knew what it was about "inside Amateur Radio." A must for every ham shack coffee table. 93 pp. $9.00 + $2.00 shipping and handling. ($4.00 for non-US ZIP air delivery.) CA residents add $.70 tax.

•**WHEN THE BIG ONE HITS,** *A Survival Guide for Amateur Radio Operators,*
by Jerry Boyd, KG6LF & Jay Boyd, KN6BP

Tells Amateur Radio operators what to do to prepare for survival, safety of families and loved ones, and perform disaster communications duties efficiently in the face of disaster. 56 pp. $7.50 + $2.00 s/h. ($4.00 for non-US ZIP air delivery.) CA residents add $.58 tax.

•**BEST OF BEASLEY**, *by Robert Beasley, K6BJH*

"Oh, to see ourselves as others see us..." A wacky view of Amateur Radio through the eyes of a very clever cartoonist. Great gift for a fellow amateur. 112 pp. $8.00 + $2.00 shipping and handling. ($4.00 for non-US ZIP air delivery.) CA residents add $.62 tax.

BOOKS, etc.

•What does a well-dressed Amateur Radio Operator wear when drinking out of a ***WORLDRADIO*** mug? Why, this classy ***WORLDRADIO*** cap, of course! Durable navy blue poplin with light blue imprint. $7.00+$2.00 s/h. CA residents add $.54 tax.

•Guaranteed to make your beverage taste better! Cobalt blue 11-oz. ceramic mug with light blue imprint. $7.00+$3.00 s/h. CA residents add $.54 tax.

Would you like speedy, personal attention?
Call WORLDRADIO — 916/457-3655

••••••••••••••••••Send your order to••••••••••••••••••

WORLDRADIO BOOKS • P.O. Box 189490 • Sacramento, CA 95818

Send me the following items:

QTY	TITLE	PRICE	TOTAL
____	AERIALS	$11.00	_____
____	AERIALS II	$10.00	_____
____	AERIALS III	$14.00	_____
____	BIG ONE...	$ 7.50	_____
____	SIX METERS...	$12.00	_____
____	BEST OF BEASLEY	$ 8.00	_____
____	INSIDE AMATEUR RADIO	$ 9.00	_____
____	LITTLE PISTOL	$10.00	_____
____	NVIS COMM.	$14.00	_____
____	EVERYTHING YOU FORGOT TO ASK...	$ 8.00	_____
____	***WORLDRADIO*** MUGS	$ 7.00	_____
____	***WORLDRADIO*** CAPS	$ 7.00	_____
	SUBTOTAL		_____
	CA residents add 7.75% sales tax		_____
	S&H charges: $2.00 for the first book to an address, & $1.00/book for additional books. $3.00 mug, $2.00 cap.		_____
	TOTAL PRICE		_____

❒ Check or money order enclosed for $_____

❒ Charge my credit card:
❒ VISA ❒ MasterCard ❒ American Express

Account Number Expiration Date

Signature

Name & call (please print)

Address

City/State/ZIP

Visit us on the web at: www.wr6wr.com

ARRL files "restructuring" comments with FCC

The ARRL has filed formal comments in response to the FCC's proposed streamlining of the Amateur Radio rules. The League delivered its comments to the FCC 01 December 1998, the final day for comments in the FCC's Notice of Proposed Rulemaking in WT Docket 98-143.

The League's filing promotes the ARRL Board of Directors' restructuring positions, adopted last July and fine-tuned at a special meeting in October. It also takes the FCC to task on a few points. The ARRL said the FCC's NPRM failed to contain "a comprehensive license restructuring proposal or even an overall review of license restructuring" and generally "missed the mark."

The League called on the FCC to adopt the ARRL Board's restructuring plans as the centerpiece of its streamlining efforts. Among other things, the League plan calls for eliminating the Novice and Techician Plus licenses to reduce the number of license classes from six to four. The ARRL plan automatically upgrades current Novice and Tech Plus licensees to General. The General license would become the entry-level ticket to HF. Existing Novice and Tech Plus HF CW bands would be "refarmed" to provide additional phone spectrum for General, Advanced, and Extra class licensees.

The FCC also proposed a four-tier license structure, eliminating the Novice ticket and melding existing Technician and Tech Plus licensees into a common database while allowing current Novices and Tech Pluses to retain their current operating privileges. The ARRL said the FCC was on "the right track" in proposing to eliminate the Novice ticket. But the League said its "instant upgrade" plan for Novice and Tech Plus operators is a better approach because it permits "refarming" the underutilized Novice HF subbands. The League called refarming "critical to any comprehensive license restructuring proposal."

The FCC's NPRM sought comments on the issue of Morse code testing and requirements but offered no specific proposals. The ARRL called for a reduction in the number of Morse code examination tiers from three to two, 5 and 12 wpm, and changes in the written examinations to make them more relevant and with greater emphasis on current operating practices and newer digital technologies. The League also recommended that the number of written exam questions "increase incrementally" for all license classes above Technician.

The League said that Morse code should not be overemphasized in the licensing process, but should be continued as a licensing requirement above the entry level. It has proposed that General class applicants pass a 5 wpm code test, while Advanced and Extra applicants pass the 12 wpm code test. Subsequent to release of its original restructuring plan, the ARRL Board also decided to ask the FCC to permit Technician operators to use Morse code on the General class HF CW segments without passing a specific code examination.

The ARRL said acknowledged abuses of the CW disability exemption process were an enforcement, not a testing, issue. For those claiming a disability waiver for the higher-speed CW test, the League urged testing accommodations as a preferable alternative. The League also urged an end to multiple-choice CW exams and rules specifying that a passing grade for a Morse examination be either 70 percent correct answers to 10 fill-in questions or one minute out of five of solid copy.

The ARRL's comments stressed the value of increasing participation in the hobby and making it available to more people. "By increased participation, Amateur Radio can provide even more service to the U.S. than it does currently, with a simpler licensing structure," the League asserted.

A complete copy of the ARRL's comments in WT Docket 98-143 is available on ARRLWeb at http://www.arrl.org/news/restructuring/. — *ARRL Letter*

Worldradio

(USPS 947000)
P.O. Box 189490
Sacramento, CA 95818-9490

POSTMASTER: Send this page (NOT A COPY — THAT'S WASTEFUL!) with changes of address to above. (Please include mailing label intact. Please do not obliterate ANY information on the mailing label.)

Periodicals Postage Paid
Sacramento, CA
and additional
mailing offices