Worldradio

Year 24, Issue 11 May 1995 • $1.25

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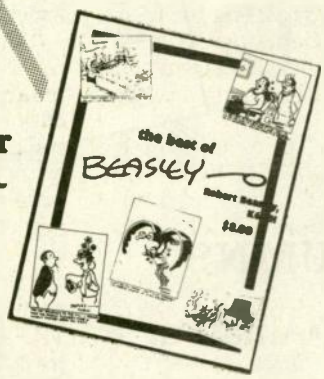

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Amateurs to share 219 MHz

The FCC has released a Report and Order in ET Docket No. 93-40, allocating the 219 to 220 MHz band on a secondary basis to the Amateur Service for point-to-point fixed digital message forwarding systems. The allocation had been requested by the ARRL as partial compensation for the loss of the 220 to 222 MHz band.

When the new rules take effect, on a date that has not yet been announced, Technician and higher class amateur licensees will be permitted to use digital emissions of up to 100 kHz bandwidth and no more than 50 watts PEP output. The primary occupant of the band is the Automated Maritime Telecommunications Systems (AMTS). To protect the primary occupant, the ARRL has been designated as the national contact point for all amateur operations in the 219 to 220 MHz band and is responsible for maintaining a database of all amateur operations in the band. All amateur stations must notify the ARRL at least 30 days prior to initiation of operations in the 219 to 220 MHz band. Amateur stations within 50 miles of an AMTS coast station must obtain the written approval of the AMTS licensee prior to operating. Amateur stations within 398 miles of an AMTS coast station must notify the AMTS licensee in writing at least 30 days prior to initiation of operations. The ARRL will assist amateurs in fulfilling these requirements. Amateur stations operating in the 219 to 220 MHz band are not permitted to interfere with, nor are they protected from interference by, primary service operations in and adjacent to the band.

The FCC action climaxes almost six years of effort by the ARRL. —*ARRL Bulletin*

AO-10 back on the air

AMSAT OSCAR-10 is back on the air. According to AMSAT North America president Bill Tynan, W3XO. AO-10 was heard at his QTH for the first time in several months.

Bill says that he was tuning around, listening for the shuttle and happened to hear a full quieting carrier with considerable QSB on 145.81. Switching to sideband, Bill noted that it was a continuous carrier with no modulation that reminded him of AO-10.

Tuning up the band, Bill heard a sideband QSO with strong signals. Checking Instantrack, he found that AO-10 was indeed in view. It was over the southern Pacific in the late stage of the orbit, but still in daylight.

Bill set up for the AO-10 uplink band where he received strong return signals. At 05:15 UTC, he had a nice QSO with VE7AHX and another at 05:22 with KC6EIJ.

FCC delays vanity call reissuance

The vanity call sign program, which was to have gone into into effect on March 24, will be delayed because the new Federal Communication Commission application form (Form 610-V) will not be available until after May 1.

Beginning May 1st, FCC Form 610-V may be requested by calling the FCC Forms Distribution Center at 800/418-3676. Telephone requests for a form will *not* be filled if the call is made prior to May 1.

As an alternative, prior to May 1, send an SASE to the ARRL VEC with "Form 610-V request" on the outer envelope. The application will be sent to you as soon as it's available.

Once the application form has been received, do not send it in until the FCC announces the date it will be ready to accept the forms for "Gate One" applicants — those applying for a previously held call sign or the call sign of a deceased relative.

•

In a related story, the *ARRL Bulletin* reports that the League has requested the FCC to require applicants for "gates" subsequent to Gate One to specify call sign choices in the call sign region of their current mailing address.

Reinforced by the comments of a number of amateurs, the League believes that the history of call sign regions and the nature of Amateur Radio communication indicate that call sign regions should be retained for vanity call sign applicants.

"Amateurs are in general most supportive of the use of call signs as a quick means of determining the general location of a station," the League said.

Because some call sign regions would have fewer available call signs than others, allowing an "open field" would deplete the call sign pools in some regions, ultimately depriving some applicants who want a call sign in their own region the opportunity to obtain one. The ARRL cited in particular the limited call sign banks in Puerto Rico (KP4), Alaska (KL7), and Hawaii (KH6), as examples.

The ARRL said that otherwise it fully supports the Commission's "vanity" call sign proposal, and that it believes sufficient time is available to consider the League's proposed change before the FCC is ready to open Gate Two, the first that would be affected.

Rubber checks

A ham radio con man appears to be at work in the Midwest hamfest circuit. A number of exhibitors at a recent Missouri show were duped out of new equipment paid for with bad checks.

The person passing the bad paper claims the identity of Frank J. Margita of Topeka Kansas. The real Frank J. Margita passed away in Florida in 1992. The con man is described as 40 to 50 years old, six feet tall and weighing about 200 pounds. Witnesses say he has a beard, and is very knowledgeable about ham radio. He may claim that he recently passed an Amateur Radio test and is awaiting his call sign.

Among the items that the phony Frank J. Margita paid for with rubber checks was a new Yaesu FT-890 HF transceiver, bearing the serial number 211200762.

If anyone tries to sell you this radio or a new Midland 2 Meter HT at a bargain price, please contact Detective Bill Fisher of the Saint Joseph Police Department at 501 Farron Street, Saint Joseph, MO 64501.

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— *Worldradio* NEWSFRONT —

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Alert system NPR

The ARRL has filed comments on FCC notices of proposed rule making concerning a proposed new Emergency Alert System in FO Dockets 91-302 and 91-171. The League says that the EAS proposal signals the Commission's intention to integrate broadcast alerting concepts into local and regional emergency response plans, and said that the Amateur Service is a logical partner in providing emergency information to the public.

ARRL asserts that Amateur Radio has a long history of providing emergency communications through the Radio Amateur Civil Emergency Service and the Amateur Radio Emergency Service. The national society says while the Commission proposal cites hams as an auxiliary entity in emergency communication operations, the reality is that the Amateur Service is a principal provider of communication during disaster relief and other emergencies.

The League believes that Amateur Radio must be considered an available resource at all levels of EAS organization. It cites its memoranda of understanding with the American Red Cross, the Salvation Army, the Federal Emergency Management Agency, the National Communications System, the Associated Public Safety Communications Officers, and the National Weather Service.

The League suggests that EAS participants should be a part of overall emergency planning, not just emergency communication planning. It urges the total integration of Amateur Radio and other radio services into the overall planning.

New Spanish radio club in Chicago

Chicago has a new Spanish-speaking Amateur Radio club. KB9ISW reports that the Asociación Iberoamericana de Radio Aficionados now has a weekly information net on Saturdays on 14.240 MHz at 1900 UTC, and everyone is welcome. The primary net control operators are Dom Garcia, KE9PR, Del Hernandez, KF9YF, Saul Pardo, KF9WT, and Gustavo Navarrete, AA9CT.

If you are planning a trip to Chicago, the group also sponsors a local daily net on VHF on 146.46 simplex at 0200 UTC. They also plan to put up the first Spanish language UHF repeater in the Chicago area on the 444.825 and 449.825 channel pair. The access tone will be 114.8 hertz.

Computer superhacker indicted

Computer superhacker Kevin David Mitnick, N6NHG, has been indicted on 23 counts of computer access fraud. On Thursday, March 9th, federal authorities in Raleigh, North Carolina charged the California ham with one count of illegally possessing equipment capable of making illegal devices, one count of possessing unauthorized access devices and 21 counts of using a counterfeit access device.

Authorities say that by using his knowledge of computers and his ability to manipulate cellular telephones, Mitnick is believed to have stolen 20,000 credit card numbers from one computer network and burrowed into other secret, on-line systems.

The March 9th indictment only covers Mitnick's alleged activities during his 10-day stay in Raleigh. Whether Mitnick will be tried in Raleigh still has not been announced. In addition to the North Carolina criminal allegations, N6NHG also faces a state warrant in California for parole violation and possibly other charges in Colorado and several other states.

As previously reported, Mitnick was captured with the help of a San Diego computer security expert. He faces a maximum of 20 years in prison on each of the 23 charges in this first federal indictment.

Mitnick also could wind up as one of the wealthiest people in jail. In true Hollywood fashion, producers are lined up in front of his cell door eager to make Mitnick next year's media superhero.

AMSAT Editor retires

John Hansen, WAØPTV, is retiring as the volunteer editor of *AMSAT Journal*. Hansen says that work pressures are forcing him to step down but indicates a willingness to continue to write the "Heard on the Downlink" column.

Because of Hansen's imminent departure, AMSAT is looking for someone with experience in the publication field to take on the job of rounding up articles, screening and editing them while meeting a set deadline.

Anyone desiring to volunteer to fill this vital role in the AMSAT organization, please contact Bill Tynan via the Internet to w3xo@AMSAT.org

Revillagigedo Correction

Frank R. Smith, AHØW/OH2LVG was listed as the author of last month's story on the rescue of the Revillagigedo DXpeditioners. While Mr. Smith contributed facts for the article, other persons involved in the rescue did so as well. We apologize for any error. WR

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Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality to this avocation. You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio. ***Worldradio*** is an independent magazine not affiliated with any other firm, group or organization. Its pages are open to all.

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PUBLISHER'S MICROPHONE

It was one hundred years ago, (1895 to be exact) that G. Marconi made his first public demonstration (in Italy) of "wireless" which led to the eventual founding of the QSL card printing business.

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•Nancy Alkire, KJ7AT, Ocean Shores, WA

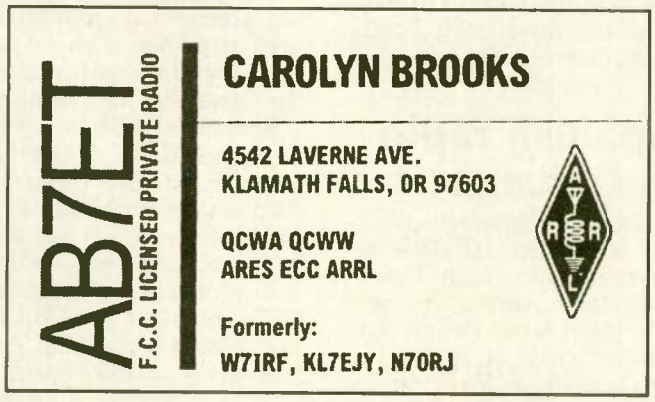
•Robert Sutera, (No call yet) La Palma, CA, a gift from Mom and Dad.

•

In a previous column it was mentioned that while describing the potential resource of Amateur Radio to public service agencies that "ham radio" (while a term near and dear to our hearts) might be misinterpreted. Even "amateur" can have a poor connotation. After all, non-professional pilots are not called "amateur" pilots but instead "private" pilots. Do we deserve any less dignity than other avocations?

In response Carolyn Brooks, AB7ET, Klamath Falls, OR wrote: "I would agree that "ham" and "amateur" are not really proper words to describe an FCC Licensed Radio Operator. Enclosed is my card. It has caused some comment, and we hope it will prompt more people as to how we can improve our public image.

"I worked hard for my license and I'm proud of my accomplishment. You're right — it's time to add some class to our image."



Reproduced here is her business-sized card. Note the "F.C.C. Licensed Private Radio," and since we are regulated by the FCC Private Radio Bureau, it is truly fitting.

•

Daniel Ford, WA2YNE, Phoenix,Arizona, and Commander of the Maricopa County Sheriff's Office Communications Posse wrote that "Here in Phoenix we are fortunate to have a Sheriff who recognizes the benefits that "ham" radio may bring to the community .....

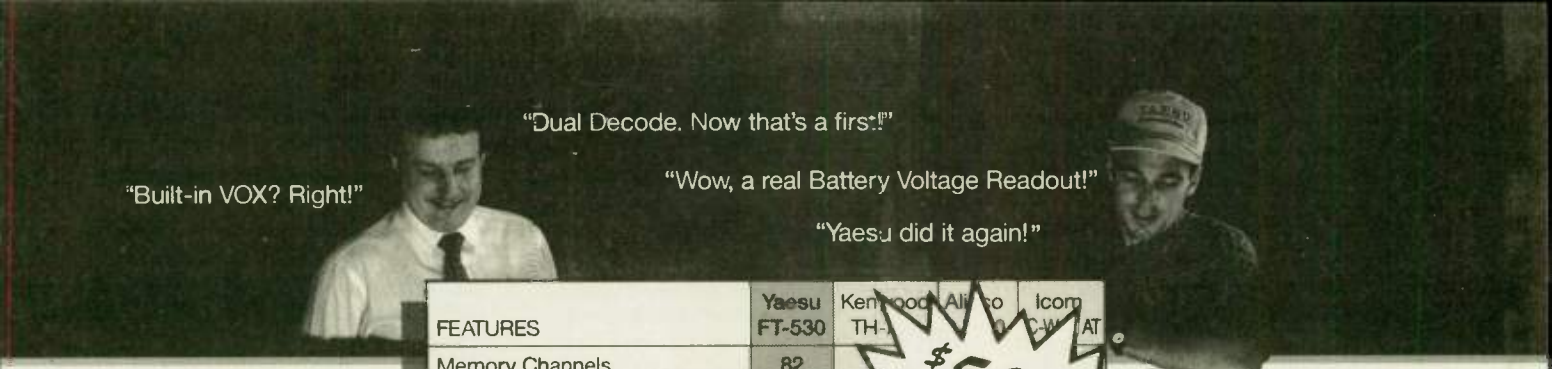
Some agencies may be turned off by the term "ham" but not 'Sheriff Joe.' He recognizes a valuable resource when he sees one."

Yes, quite true, I'm sure. And it helps, that for many years in that particular city that there was for many years a very high-profile US Senator who is an Amateur Radio operator. Other locales are not so fortunate.

There are a great many people who have absolutely no idea that such a thing as the Amateur Radio Service even exists, and there are those who think they have heard of such a thing but call it by the name of another radio service.

Some work needs to be done out there.

—Armond, N6WR



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Who do CC&Rs really benefit?

Steve Katz, WB2WIK/6

"Covenants, Conditions and Restrictions: CC&Rs." Brrr. The very sound of it sends chills up my spine and makes me want to grab the throat of whoever dreamed up this crazy idea.

CC&Rs, unheard of in most parts less than half a century ago and still unfamiliar to those living in rural areas, are the bane of a ham radio operator's existence. They regulate how we live and what we can do with our own properties. They are irritating and ridiculous. Who, then, can they possibly benefit?

Builders and developers, that's who. When land developers apply for the enormous construction loans they usually require for major projects, they must draw up a carefully laid plan called a prospectus detailing exactly what they intend to do with the money they borrow and how they intend to pay it back. A similar set of documents, usually minus the financial terms, is also presented to the city, township or municipality for approval by their zoning board, planning board or whatever regulatory agency is responsible for allowing land development within their borders. While lenders are mostly interested in the validity of the project to assure the loans will be paid back, city planners are more interested in assuring its taxpayers and voters their lives will not be impacted in a negative manner by the planned construction. Developers must provide for streets, utilities, traffic flow, sewage disposal — sometimes even upgrading the community's school system, police and fire departments to accommodate the increased population their development will create.

One way developers can convince both their lenders and the community that their proposed construction will be successful and not detrimental to the existing population is to include CC&Rs in their development prospectus. CC&Rs create the powerful need for "conformance;" that is, all construction within the planned development will conform to certain standards which are enforced by the covenants, conditions and restrictions outlined and agreed to by prospective homeowners. Housing will be of "conforming" construction; painted in "conforming" colors; be surrounded by "conforming" fences or walls; be built on "conforming" lots, and so forth. The price to pay for all this conformance is having to live with those lousy CC&Rs.

Zap! Welcome to the land of the non-living, CC&Rville.

Industry buzzwords include phrases like, "Planned Community," or better yet, "Master Planned Community." (The latter must be a community planned by a Master.) If you're a ham, or a free-thinker, or a creative landscaper, or a non-conformist, think twice, and then think again, about buying into such a community. Most planned communities have a Homeowner's Association and a Board of Directors. Usually these people are unpaid non-professionals and their services are worth precisely what they cost. Those who tend to volunteer for these positions often have nothing else to do and can be a real pain in the neck for everyone else.

I've heard it said (only by realtors and other selling agents) that CC&Rs "improve resale value." Balderdash! Don't be taken in by this one. My home is in a subdivision having no restrictions of any kind and is one of the most valuable properties in the area; homes here resell for far more money than those in nearby subdivisions having CC&Rs. Adjacent to mine is a vacant property (still undeveloped), about seven acres, having an estimated land-only value over three million dollars. A few of us in the neighborhood got together to try to buy that property, to assure it would remain undeveloped, but were discouraged by the high assessed value. When we inquired why this undeveloped property was so valuable, the owner's agent replied, "It's one of the few properties around without any restrictions imposed on it — of *course* it's worth more!" I see the point, and you should, too. (By the way, if you want to see the property I'm describing, get a videotape of the movie "Poltergeist II." All the outdoor scenes were filmed right here, on this lot adjacent to mine. My house, and those of a few neighbors, is in many scenes as well.)

Since it is obvious that CC&Rs benefit only builders and land developers, and nobody's ever seen a shred of evidence they benefit anyone else, why not get rid of them? Difficult to do, once they're in place. The CC&Rs become an addendum to the deed on the property, and are legally binding unless formally overturned. CC&Rs must, by law, be revealed in full to prospective homebuyers prior to transfer of title, but often the buyers are so busy they fail to read these lengthy documents until it is much too late — after the title transfer is recorded. Zap! Welcome to the land of the non-living, CC&Rville.

What can we, the Amateur Radio community, do? We can surely boycott all properties having any CC&Rs by simply not buying them. This removes about 600,000 prospective homeowners from the quantity of potentially qualified buyers. We can tell the realtors we're working with that we don't want to even look at any properties having CC&Rs. And if a realtor shows us one, we can stop using him or her immediately, and explain why. When visiting new Planned Communities or any new development, we can advise whomever is showing us the properties that we don't want to waste any time even looking at CC&R properties. If they proclaim, "But this is a new development — of course there are CC&Rs," we can simply say, "No, thanks" and look elsewhere. It would pay to tell them exactly why we're not interested, and tell them they lost a sale purely because of the restrictions imposed.

You may think that 600,000 potential buyers isn't very many. It *is* many, especially in the "down" real estate market in most parts of the country. If every one of us went out tomorrow looking at properties, whether we're really interested in buying right now or not, and told whomever we spoke with that CC&Rs are definitely "out," you'd be surprised how loud our voices would be. There is strength in numbers, and our numbers are pretty large. We may not eliminate CC&Rs altogether, everywhere, but if we eliminate even a few this would be a phenomenon that would benefit Amateur Radio for many years to come. **WR**

—*Photos by Richard Siff, WA4BUE*

Melody Siff, KE4ACK, working at WFOS-FM (left). Below, Melody puts a tower together for the "Ack Shack" (center) during the JOTA.

CW Melody

Meet Melody Siff, KE4ACK, of Chesapeake, Virginia. Melody, 15, is an Advanced Class licensee who attends Deep Creek High School in Chesapeake. She earned her first Amateur Radio license at age 12.

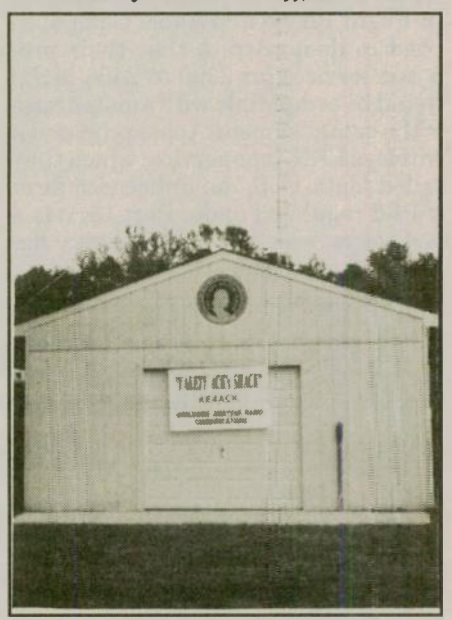
The Chesapeake school system owns and operates WFOS FM, a 15,500 watt station on 88.7 MHz, where Melody is a student engineer and announcer, so she holds the necessary FCC commercial license, too.

Last September, Melody set up an Amateur Radio display and message center at the Colonial Coast Girl Scout Expo in Portsmouth, Virginia, where she handled more than 130 messages.

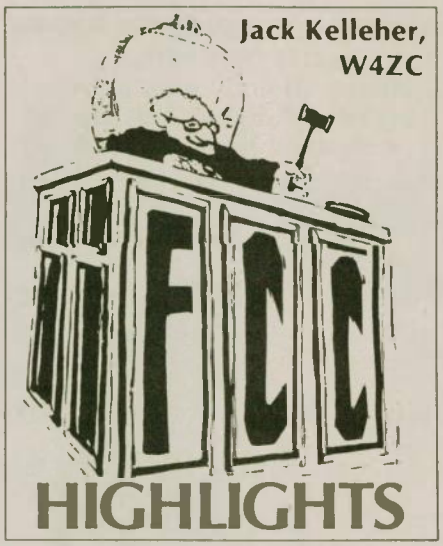
On October 15 and 16, Scouting's Jamboree on the Air (JOTA) was held. KE4ACK was set up in Chesapeake's Izaak Walton League Park. Some fifty scouts visited the "ACK Shack" and were able to participate in the event.

Having understanding parents helps when young people have an avid interest in a hobby. Since Melody's father, Richard Siff, is also WA4BUE, that helps as well.The Virginia Beach Amateur Radio Youth Group, where most of Melody's youthful hams friends are found, presently numbers about 20 members.

Working with a beam on 10-,12-, 15-,and 20-Meters and a dipole for 40, Melody admits to a big preference in Amateur Radio; 15 CW— 21.145 MHz,



to be exact. Since she is still trying to complete WAS, all stations in KH6, KL7, the Dakotas and all other states known to be hard to work from the East Coast, take note. Do listen for KE4ACK. She needs those contacts and QSLs. **WR**



Preferred calls

This subject continues to be the dominant topic of conversation while we are waiting for the deadline date or dates — March 24 was the effective date for the amended rules on this matter, and indications are that the actual kickoff date may be in early April. We will keep you informed of further developments.

Amateurs get 2400 MHz primary status!

The old saying that every cloud has a silver lining certainly applies to the outcome of action on reallocation of 50 MHz of spectrum in the 2.5 GHz region. The following is drawn from the February 13th issue of the *ARRL Letter*.

The FCC has reallocated 50 MHz of spectrum, including 2390 to 2400 and 2402 to 2417 MHz, from government to nongovernment use. The Commission made available, in ET Docket 94-32, 2390 to 2400 MHz for use by unlicensed Personal Communications Services (PCS), and provided for continued use of 2402 to 2417 MHz by traditional unlicensed "Part 15" electronic devices. The unlicensed PCS devices, which include wireless networking and data transfer devices, will be governed by the same rules that that apply ro PCS devices operating in the 1910 to 1920 MHz band. (The remainder of the 50 MHz 4660 to 4685 MHz, was allocated to fixed and mobile services, an allocation not directly affecting amateurs.)

At the same time the FCC elevated the status of the Amateur Radio service from secondary to primary in these band segments. This means that amateurs will not have to protect any other users of these frequencies from interference; and that amateur stations in these bands are entitled to protection against interference.

The FCC said it believes that these allocations will provide for the continued development and implementation of a new generation of advanced communication devices and services, including a new "on ramp" to the information superhighway.

Many groups bid for 2390 to 2400 MHz, and a few sought allocations at 2402 to 2417 MHz. Only two bidders, In-Flight Phone and Apple Computer, tried to demonstrate that their proposed services (at 2390 to 2400 MHz) would be compatible with amateur use of the same segment. Apple proposed a wireless LAN-type service, which they called "data-PCS," an unlicensed form of PCS regulated under Part 15. It is a low power, wide bandwidth digital device authorization.

These changes apply only to the domestic table of allocations. In the international table for region 2, amateurs remain a secondary allocation.

Spectrum use above 40 GHz

The ARRL has filed comments on the FCC's announced intention to permit use of radio frequencies above 40 GHz for new applications.

ET Docket 94-124 proposes to make available a total of 16 GHz between 47.2 and 153 GHz, for commercial use on a shared basis with existing and future government users, and 2 GHz, from 40.5 to 42.5 GHz, for non-government users.

The purpose of the proposal is to create opportunities for short-distance wireless radio systems which in the past have had available only coaxial and fiber optic cable. Such sysems could support many short-range applications that require large bandwidth and high data transfer rates.

In addition, the Commission wishes to provide for vehicular field disturbance sensor systems at 76-77 GHz as part of the Intelligent Vehicle Highway Systems (IVHS) currently being developed by automotive manufacturers. IVHS seeks to reduce congestion and improve vehicle safety by plugging drivers and smart cars into an interactive highway. Americans consume $100 billion annually in wasted time and fuel sitting in traffic. Smart cruise (radar assisted) controls could keep traffic moving smoothly and curtail rear end collisions.

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of the first of March 1995.

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

Radio District	Group A Am Extra	Group B Advanced	Group C Tech./Gen.	Group D Novice
Ø	AAØWM	KGØUD		KBØRFW
1	AA1MK	KD1ZZ	N1UKU	KB1BOC
2	AA2WK	KG2BJ		KB2TTD
3	AA3KJ	KE3RS	N3UPB	KB3BGN
4	AE4EC	KS4QB		KE4WEV
5	AC5AZ	KK5LJ		KC5MXP
6	AC6KX	KO6QY		KE6RKO
7	AB7IK	KJ7KR		KC7JFS
8	AA8SN	KG8PM		KB8YBA
9	AA9OA	KG9AS		KB9JLU
N. Mariana Is.	KHØQ		KHØDT	
Guam	WH2L	AH2CZ	KH2NC	
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6NY		WH6CSX
Amer. Samoa	AH8M	AH8AH	KH8CG	WH8ABB
Alaska		AL7PY		WL7CLA
Virgin Is.	WP2Q	KP2CD	NP2IA	WP2AHV
Puerto Rico		KP4YW		WP4MWU

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

The ARRL said that the amateur service has pioneered certain consumer uses of high-rate wireless interconnected packetized computer systems, especially wireless access to information systems, and recognizes the undeveloped potential which cannot be realized by coaxial and fiber optic cable systems alone. Use of the millimeter-wave bands for vehicular applications, especially anti-collision radar and similar applications, is also in the public interest.

The League pointed out that amateurs have, for years, been allocated numerous segments above 40 GHz for experimentation — 47.0 to 47.2 GHz, 75.5 to 81.0, 119.98 to 120.02, 142 to 149, 241 to 250, and all frequencies above 300 GHz. The ARRL said that the amateur service is most interested in protecting future use of the 4 mm (75.5 to 81.0 GHz) allocation, and in avoiding undesirable sharing partners. (note: The amateur service enjoys Primary status in 47-47.2, 75.5-76, 142-144, and 248-250 GHz. The balance of the aforementioned allocations to the amateur service are secondary).

The ARRL took issue with a 1993 General Motors Research Corporation petition (RM-8308) that contended that the 76-77 GHz band is not currently used by amateur operators. ARRL said that amateur use of the 76-77 GHz band may not be significant at the present time, but that the band has potential for amateur short-range, high-speed data communications in the future. The League feels strongly that the FCC should not make any allocation decision based on assumptions about the current level of amateur use of the 4 mm band.

As long as the FCC proposes no change in the allocations or service rules for the Amateur Service at 76-77 GHz; and provided that there is no change proposed whatsoever for the 75.5-76 and 77-81 GHz segments, the League does not oppose the proposed use of the 76-77 GHz band for Intelligent Vehicle Highway Systems radars.

FCC proposes Legislative and internal changes.

On February 1 the FCC released a special report to the Commissioners and the Congress that documents the Commission's attempt to "reinvent" itself. Titled "Creating a Federal Communications Commission for the Information Age," the document reviews the many recent structural changes to the FCC and proposes new legislation intended to streamline agency activities.

The report points out the new customer service standards at the FCC's Gettysburg address. Phone calls are supposed to receive a response within one business day; callers are not to be transferred more than twice, or (sic) the staff will obtain the answer at the second transfer and call back; it will provide status information on license applications and try to resolve errors in applications by telephone.

Another improvement is the FCC's proposal to eliminate entirely the process of certifying personal computers for market. Under the current system, manufacturers of PCs must submit example products and voluminous paperwork to the FCC laboratory. The process is said to cost the industry $250 million annually. In the new process, manufacturers will pay independent labs to test their products and will retain the test records. The FCC will make no more grants of certification to computers if the proposal is adopted.

For some of the changes, Congress must amend the Communications Act. For example, the FCC asked the Congress for permission to auction more spectrum in more radio services. Currently the FCC is allowed only to auction licenses in services that charge fees to the public.

Another FCC proposal would eliminate conflict-of-interest provisions for publishers to broaden the category of those authorized to administer Amateur Radio Service examinations, and eliminate burdensome record maintenance and annual financial certification requirements.

Another proposal is the FCC's request to Congress for the power to eliminate licensing in the Personal Radio services - namely the GMRS (General Mobile Radio Service) as the only such service to which such legislation would apply, and the proposed Family Radio Service that aims to use the GMRS spectrum.

Among changes that would not require Congressional action are these:

- Allow radio amateurs to change mailing addresses by letter or e-mail;
- Make the effective date of FCC actions the date the item is released to the Internet;
- Extend the term of experimental licenses from one to three years;
- Privatize the process of coordinating frequencies for HF broadcast stations;
- Relax the requirement for spread spectrum transmitters to reduce transmit power when using a directional antenna. WR

'Ham Radio and more' Anniversary

The "Ham Radio and More Show," a nationally syndicated broadcast radio program, celebrated its fourth anniversary on April 23rd. The show's host and creator, Len Winkler, KB7LPW, conveyed his thanks to each and every listener. "When the show premiered on the air in Phoenix, I was told that it would never last," he said.

The program began as a one-hour broadcast. Last March, the list of affiliate stations broadcasting the now two-hour length format grew to 30 stations airing the program live.

For more information on the show, or to find out how to get the show aired in your community, write Ham Radio and More," 4800 North Central, Phoenix, Arizona 85012. Mark the envelope "attention: Len Winkler, KB7LPW." WR

Going mobile

Phil Salas, AD5X

In this final installment of our 3-part series, some specific mobile antennas are discussed.

Fiberglass monobanders

The most popular are the Hamstick series of antennas sold by numerous companies. These consist of two sections: a lower 3.5 foot 3/8 inch diameter fiberglass rod helically wound and center loaded, and the top stainless steel 3.5 foot whip. These antennas are sold for each band and cost around $20 each. They are light weight and require no spring or guys. I have personally used these on 40, 20, 17, 15, and 12 Meters.

I purchased the 40, 20, and 15 Meter Hamsticks and used shorter top whips (1/8" steel or brass from your local hardware store) to resonate the 20 Meter Hamstick on 17 Meters, and the 15 Meter Hamstick on 12 Meters. This lets me operate five bands with three antennas. I marked a single stainless steel whip (as supplied with each Hamstick) with a permanent marking pen for 40, 20, and 15 Meters. Then I have separate shorter whips for 17 and 12 Meters. The Hamsticks come with #6 setscrews for attaching the upper whips to the lower sections. I replaced these with #6 thumbscrews for easy installation, tuning and break down.

Finally, I also use quick disconnects on each Hamstick base so I can quickly change antennas. These antennas are easily matched to 50 ohms. For 40, 20, and 17 Meters, you need to use a base matching capacitor. For 40 Meters you need a 560 pf silver mica capacitor. For 20 and 17 Meters I found that a 150 pf silver mica capacitor worked fine for both bands. To attach the capacitors, I soldered them into a PL-259. At the base of the antenna, I use a UHF "T" to join the short cable from the antenna mount to the longer cable from the radio. The PL-259 with the matching capacitor just screws onto the "T." I didn't need a base matching capacitor for 15 and 12 Meters. My 2:1 VSWR bandwidths with these Hamstick antennas are 50 kHz on 40 Meters, and full phone band on 20, 17, 15, and 12 Meters.

Other single band antennas

The Hustler series of antennas are also very popular. These consist of a common base section and top loading coil/whips for each band of interest. Hustler makes standard 300 watt resonators and legal limit "Super Resonators." It is interesting that the "Super Resonators" have a broader 2:1 SWR bandwidth than the standard resonators (40 Meters : 50-80 kHz "Super" vs. 40-50 kHz "Standard"). Hmmm — remember my discussion of Q, efficiency, and losses last time? While you can get by without guying, the Hustlers have significantly more wind resistance over the Hamsticks so it wouldn't be a bad idea to add some support to these antennas. Guying can be a simple piece of nylon fishing line attached between the mast and your car.

Multiband antennas

A popular multiband antenna is the Outbacker series of antennas. With these, you must get out of your car to change bands (by changing the "wander lead" tap). The Outbackers are pricey — around $250 — but they are light and don't require any guying. The Outbackers claim a pretty broad bandwidth (over 100 kHz on 40 Meters). This implies that the efficiency of the Outbacker is pretty low. Now for the guyed antennas: Hustler sells an adapter kit that lets you use a common mast with three resonators on top. This gives you three band operation without having to get out of the car. There are other similar types of multiband antennas, again available through some of the previously listed companies.

One of the most popular multiband antennas is the Bugcatcher (Carolina Bugcatcher and Texas Bugcatcher). The Texas Bugcatcher covers 80-10 Meters, and the Carolina Bugcatcher covers 40-10 Meters. The Bugcatchers have a large air-wound center loading coil and seem to be about the highest performing mobile antennas.

If you buy the Texas Bugcatcher, don't buy the capacity hat they show in their pictures unless you really need to shorten your antenna (shorter antenna = lower radiation resistance). A capacity hat should be placed at the TOP of the antenna to increase antenna-to-ground capacitance. If it is placed over the center loading coil as shown in the Texas Bugcatcher advertisements, the capacity hat will increase the hat-to-coil capacitance. This adds to the coil distributed capacitance and lowers the coil self-resonant frequency, which increases the resistive part of the coil impedance thereby lowering coil Q. Again, with the Bugcatchers you must get out of your car to change bands (or frequencies within bands on 80 and 40 Meters). Incidentally, I have tried the Carolina Bugcatcher on my car. On 40 Meters, it has a 2:1 operating bandwidth of 30 kHz. The 40 Meter Hamstick has a 2:1 SWR bandwidth of 50 kHz. So which is the better (more efficient) antenna? You should be able to answer this question by now! Incidentally, the Carolina Bugcatcher uses a light fiberglass bottom section and you don't really need to guy it.

Continuously tunable antennas

I really only know of three at this time. The first is the Webster Bandspanner (sometimes available on the used market since they are no longer made). The second is the SuperSpanner made by the same folks originally involved in the Webster Bandspanner. With these antennas, you need to get out of your car to slide the whip in and out of the coil in the mast to change frequencies and bands. The end of the whip inside the coil has a spring that shorts out coil turns. The SuperSpanner sells for $187 from Allenteck, 647 Arata Lane, Windsor, CA 95492; 707/838-7678.

The ultimate continuously tunable antenna (in my opinion) is called a Big DK3 designed by Don Johnson W6AAQ. The Big DK3 can be tuned from the driver's seat! It uses a cordless screwdriver in the antenna mast to slide the center loading coil in and out of the mast. You can either build your own Big DK3 for about $70 (assuming you purchase the loading coil — less if you make your own loading coil), or purchase one fully built from Don Johnson ($132 latest price I have — does not include top whip). Also, a commercial version of this antenna is available from High Sierra Antennas (P.O. Box 2389, Nevada City, CA 95959; 916/273-3415) for $289 + S/H.

I built my own Big DK3 after ordering the loading coil from Don Johnson for $30. You can order the plans from Don Johnson for $5 (Box 595, Esparto, CA 95627-0595), or get the plans out of his book *40+5 Years of HF*

Mobileering available from **Worldradio Books**, P.O. Box 189490, Sacramento, CA 95818 — $14.95 + $2 S/H). Building the antenna is not very difficult. It took me one weekend. You can get all the parts from your local hardware store except for the aluminum tubing (which you can get from Texas Towers). This antenna definitely requires guying though really no more than the multiband Hustlers or Texas Bug-catcher.

I've spent more time trying to mount this on my GEO than I spent building the antenna. And it is some antenna! It can be tuned from the driver's seat by listening for noise peaks on 80 and 40 Meters. On the higher bands you really need to look at SWR or output power as you tune it since it is more difficult to discern a peak in the receiver noise. You can also build a gadget called a TENNAMATIC which will tune the antenna automatically for you as you transmit. You can order a TENNAMATIC kit from A&A Engineering (714/952-2114) for $60 or build one on a piece of breadboard for about $20 (plans in *40+5 Years of HF Mobileering*).

Finally, I highly recommend two books for your bookshelf: Don Johnson's *40+5 Years Of HF Mobileering* (Worldradio Books), and Walt Max-well's *Reflections* (ARRL).

Summary

Operating HF mobile is lots of fun. I especially recommend it if you have a reasonably long drive to work, as well as for long road trips. It is really not for normal day-in day-out city driving as there is much more to operating HF mobile than staying on your standard repeater frequency.

References:

1.) Walt Maxwell, *Reflections*, ARRL.

2.) *The ARRL Antenna Book*, 16th Edition, Chapter 16.

3.) Bruce Brown, Optimum Design Of Short Coil-Loaded High Frequency Mobile Antennas, *The ARRL Antenna Compendium* Volume 1.

4.) J.S. Belrose, *Short Antennas For Mobile Operation*, *QST* September 1953.

5.) Don Johnson, *40+5 Years Of HF Mobileering*, **Worldradio** Books. **WR**

Ham walks around the world

George Pataki,WB2AQC

The Romanian traveler Stefan Leca, YO8RCW, is touring the world on foot. He left Romania on August 17, 1992, and walked across 24 countries: LZ, TA, YK, JY, SU, HZ, 9K, A9, A6, A4, VU, 9N, S2, HS, BY, VS6, BV, JA, 9M2, 9V, YB, VK and K, wearing out 106 pair of shoes. On route, Stefan used 16 different call signs such as TAØRCW, JYØRCW, A45RCW, 7Z1RCW, 9K2RCW, A92/YO8RCW, A6RCW, A45RCW, AP2/YO8RCW, S21P, HSØRCW, BV2IA/YO8RCW, 9M2RCW, YB/YO8RCW, VK2LSR, and KE6MFX.

Stefan was received by King Hussein of Jordan, JY1; Sultan Qaboos of Oman, A45AA; Prince Talal bin Abdulaziz of Saudi Arabia, HZ1TA; Prince Titiphan of Thailand, HS1LY; Ministers, Ambassadors, ordinary folk and most of all by ham operators.

Interviewed by scores of reporters he talked about the goal: Peace and love around the world.

After arriving to the US he walked from California to New York City where he was received by the Romanian diplomatic corps, by dignitaries of the United Nations. Stefan also visited the former Romanian radio operator George Pataki, WB2AQC (not the New York Governor).

YO8RCW is continuing the journey for peace, flying to France, then walking across several more countries. The entire trip will last about three years.

Stefan Leca, YO8RCW, visits Washington, D.C.

NiCds: Memory myth

Dean Manley, KH6B

For decades manufacturers and end users of NiCd batteries have apparently labored under a misconception: that a NiCd cell "remembers" the amount of discharge when it is recharged and gives up only that amount even when called on to deliver full capacity.

According to Bruce Essig of Gates Energy Products in Gainsville, Florida, recent tests show that the phenomenon is virtually nonexistent.

Gates, which manufacturers 80 percent of the batteries used by satellite missions, tested cells from two manufacturers. Both were cycled first at zero discharge, then at 25% discharge, and finally at complete discharge. After 500 cycles, no significant difference was noted in rechargeability among the samples.

In fact those that were totally discharged (to 1 volt per cell) as well as those that were continuously overcharged actually showed slightly greater capacity than those charged by normal standards.

A typical NiCd battery is useful for at least 500 full charge/discharge cycles over a period of several years. Appliances which remain plugged into their chargers unused for periods of 50 days or more, experience a 0.15 volt depression when finally used giving the impression of a partial discharge. After they are fully discharged to 1 volt per cell, they bounce back to their rated capacity upon recharge.

The misconception regarding these batteries was based on one observation of a single battery in a lunar NASA mission. —Big Island ARC *Bulletin*

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AEA FAX III is easy to use right out of the box. Simply plug in the demodulator (shown here), install the software, and you're ready to receive highly detailed images. Tuning the signal is easy, AEA FAX III has an on-screen tuning indicator to help you keep the signal coming in clearly.

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Wintertime on the Magic Band

A summary of activity from October 1994 through February 1995.

Ken Neubeck, WB2AMU

Six-Meter activity took its usual nose dive in the months of September and October. However, there were a few sporadic-E openings that kept things interesting. Of particular note was the sporadic-E opening that occurred over the East Coast of the US during the second day of the September VHF contest, on the evening of September 12th. I entered in the "rover" category for this particular contest and the previous day saw no unusual activity while driving through grid squares FN22, FN21 and FN31. After operating in FN30 on Long Island the next morning, the band got pretty noisy and not much else. However, sometimes this high noise may indicate that good things are yet to come. At 6 p.m. local time, the band opened up from the East Coast and all hell broke loose for the next 90 minutes. However, after this nice opening, the band was quiet at many locations for the next six weeks.

A number of veteran 6 Meter operators were pointing out that the signs were there for a pretty decent winter season for sporadic-E activity. There were a higher number of openings which occurred early in November in comparison to the previous two or three Novembers which held out hope that December might be a terrific month.

There was some significant meteor scatter activity reported during the winter months. The Geminid meteor showers apparently peaked on the evening of December 13th. From my QTH in Long Island, I was able to copy about six different call signs from Virginia, Florida, Indiana and North Carolina even though I was not able to complete any QSOs. Tom Hark, KB8TAG, from West Virginia was able to complete three QSOs via meteor scatter that evening. It actually seems like the Geminids were more intense than the Perseids in August for this year of 1994.

Overall, from my QTH in Long Island (FN30), it appeared that there was just as much meteor scatter activity as there were sporadic-E openings. Sporadic-E activity for December in this area never did reach the levels heard in the previous year. However, other locations in the country reported excellent conditions.

Six Meter veteran, Tom Glaze, KC4SUS, reported nine sporadic-E openings during December with a double-hop opening to California during the middle of December. He has noted a slight increase in activity over December of the previous year.

January saw a few decent openings in this area that were sprinkled throughout the month. I caught a decent one on the morning of the 7th and worked a couple of stations in the Ohio area. My friend Al Smith, K2BPQ, caught a second opening later that same day and worked seven stations from the midwest area, working into Missouri, Indiana, Arkansas and Kentucky using low power. Tom, KC4SUS, heard a number of openings during January, primarily to the south where he could copy the V44K beacon and occasionally the YV1AB beacon.

The January VHF contest saw marginal conditions with some spotty sporadic-E activity showing up late Sunday morning. Al, K2BPQ (FN30) and Frank Etzier, N8WXQ (FN31), heard Florida and a C6 station during the opening but were not able to work them. I myself went "rover" with modest success on Saturday, but virtually none on Sunday due to poor band conditions. This report ends with no observations during the first two weeks of February in this neck of the woods. Until the summer sporadic-E season picks up in late April, all we can hope for is a couple of aurora openings and maybe a surprise sporadic-E opening. Otherwise, it is a good time of the year to catch up on some projects. I am currently working on a low-power Six-Meter beacon to be located in FN30.

Good public relations

Though the following story is not directly related to 6 Meters, I am relating it in order to show how ham radio is respected by members of the law enforcement community. For the VHF contest, I usually go up to a hill known as Bald Hill, located in Farmingville, Long Island. This hill is the highest on the island, and it allows excellent line-of-sight communications for 2 and 6M. It is also the home of a Vietnam Veterans' Memorial and has north and south parking lots where one can set up antennas. Unfortunately, over the past year or two, the parking areas have become a site for criminal activity.

While I was operating in the VHF contest using my two-element 6M Yagi, I observed a police sweep of all of the cars in the parking lot by plainclothes police officers. An officer finally reached me and told me that a police sweep was in progress and that obviously I was using the park for legitimate reasons. They had arrested three people that day and were in a major operation to clean up the park. He told me I could stay and that if anyone asked, to tell them I was providing communications for the police. Needless to say, I was soon the only car in the entire parking lot (except for the unmarked police cars passing through). I was very thankful that I had some obvious-looking antennas that marked me as a legitimate user of the park.

Hearing from you

From mail that I have received over the past six months, along with some of the new call signs I have been copying on the air, it is apparent that there has been moderate growth on the Magic Band. In fact, it may be the only band that is seeing any kind of growth at all in the hobby at this time. This is surprising given that we are in the downside of the sunspot cycle and many DX operators (who only work F2 activity on HF and Six) have gone into hibernation. It appears that the word is getting out about the band and its capabilities, in particular, sporadic-E and aurora propagation. The influx of newcomers to the band is from two sources: No-code Technicians and higher-class licensees who are tired of the rat race on the HF bands. No-code Technicians may be getting bored with 2M FM and looking for something different, while a number of the latter sources are pleasantly surprised at how nice people are on 6M and how easy it is to make friends. I have found it very difficult to get back into the chaos of some of the HF bands after spending much of the last five years on 6M.

From talks that I have given to radio clubs in the area over the past six months, it seems that many people are

interested in getting on 6M. It may take a while to get used to the general quiet of the band but it is a relief from the cacophony of the HF bands and 2M. I would encourage all regular 6M operators to become ambassadors for the band and tell other hams about it.

The lull in the off-season of sporadic-E during the months of February and March is an excellent time for various projects. I used this time to build and launch an automatic beacon for 50.063 MHz which I hope will be on 24 hours by the spring. This will be a low-power beacon on the order of one or two watts output and the message is my call sign along with the grid identifier of FN30. My grid square is one of several that have no beacon coverage on 6M at present. I am hoping that more beacons will come on the air throughout the country so that 6M operators will be able to spot sporadic-E openings quickly.

Hams should be encouraged to call CQ or QRZ on the band at different times during the day in order to drum up some activity. While there are notable organizations such as SMIRK which are dedicated to the band, it should be pointed out that it is up to the individual ham to take matters into his own hands and talk on the band once in a while. It may take a while, but sooner or later, you will work some stations during the course of a year. Newcomers to the band should be aware that it takes no special equipment to work other stations via sporadic-E skip. I am looking forward to working all of you on the band and hope to get some reports from you for the upcoming summer months.

Ken, WB2AMU, has recently written a book published by Worldradio Books *called,* **Six Meters, A Guide to the Magic Band** *and it provides a complete look on this incredible band. It costs $12 plus $2 shipping and handling (California residents—please add $.98 sales tax) and can be ordered from:* Worldradio Books, P.O. Box 189490, Sacramento, CA 95818. **WR**

Cycles/Second vs. Hertz, revisited

Robert J. Smith, N2EPR

I found the item "Cycle vs. hertz," by Jack Carr, NV9S, in ***Worldradio*** (Feb. '95, p.7) to be amusing, but at the same time it reignited embers of annoyance that I feel over the replacement of "cycles per second" by "hertz." It's not so much that I'm an old-timer who dislikes change, and I certainly do feel that Heinrich Hertz should be honored for his transmission of radio waves (as should be Dr. Mahlon Loomis – look him up.) What disturbs me is that by the dropping of "cycles per second," the international scientific community inadvertently frustrated the application of a very valuable error-detecting tool, namely the "dimensional equation," to calculations having to do with periodically-varying quantities such as alternating current. For those not familiar with the concept of dimensional equations, it just means that when you substitute numbers into a mathematical formula and add, subtract, multiply, etc. the numbers, then you also write down the unit of dimension corresponding to each number you use, and add, subtract, multiply, etc., the dimensions also. When you are finished, the dimension that remains should be the dimension that you desire to correspond with the number in your solution. If it isn't, you have made an error. It's really very simple and easier demonstrated than talked about.

For example, suppose you have traveled on a highway for 3.5 hours and have gone 175 miles. You would like to know what was your average speed. *You think* the formula you should use is *Speed = Distance / Time,* or $s = d/t$. So, at the same time you write: s = 175 /3.5 = 50 you would also write: speed = mile/hour and this assures you that your answer, 50, represents miles per hour. If you had erroneously multiplied distance by time, your final unit of dimension would have been "mile-hour," which would not make a lot of sense here, and would have tipped you off to go back and check your math.

Now let's look at an example where cycles/second is involved, and where using dimensions can be enlightening as well as being a safeguard against error. A formula that's probably learned at some time by everyone in radio says that the wavelength of a radio wave multiplied by its frequency is equal to the speed of light, or $\lambda F = c$. By rearranging this equation, we obtain the formula for finding the wavelength when the frequency is known:

$\lambda = c / F$

If we apply dimensions to this formula, we find:

wavelength = (meter/second) / (cycle/second)

If we now multiply the numerator and denominator* of this by second, we end up with *meter/cycle.* This is enlightening, because although the wavelength of a wave is usually given in just meters, wavelength is *really* a measure of length per cycle, so "meters per cycle" is the more correct term.

By solving the original formula for frequency, we obtain $F = c/\lambda$. The *period* of a wave, τ, the length of time it takes the wave to go through one cycle, is equal to $1/F$, so: $\tau = 1/F = \lambda / c$.

If we do a "dimensional analysis" of, we obtain:

(meter/cycle) / (meter/second) = second/cycle and "seconds per cycle" certainly is more descriptive of the wave's period than just plain "seconds" would be. These little insights do not come easily, if at all, when using "Hertz."

I hope that these examples can get across to you why I am in agreement with L.A. Moxon, G6XN, who said: "By international ruling the descriptive term 'cycle per second' has been replaced by 'hertz,' thereby commemorating the pioneer work of one of the founders of modern communication by making it more difficult to explain." **

*I hesitate to say "cancel" the common quantity in the numerator and denominator. My 12th grade math teacher, Harold Butterworth, used to assert that there was no such mathematical operation as "cancel." He would, however, allow us to "lecnac" (that's "cancel" spelled backwards) these common terms, thereby forcing us to keep in mind what we were actually doing. After 37 years of doing mathematics, I still cringe when I inadvertently "cancel" something in a fraction.

** Moxon, L.A., *HF Antennas For All Locations,* Radio Society of Great Britain, 1984, p. 8. **WR**

OFF THE AIR

Original call

As usual I enjoyed reading my copy of ***Worldradio***.

I am very anxious to find out when and if the FCC will take applications for the so-called vanity calls so I pay particular attention to your coverage of the FCC proceedings.

I am hopeful that under this new procedure I will be able to get my old original call W1HQW back if, as the holder of an Advanced ticket I will be entitled to it.

BILL BOWMAN, KA1PAG
South Yarmouth, Massachusetts

Editor's note: You will be entitled to apply for your former 1 x 3 call sign.

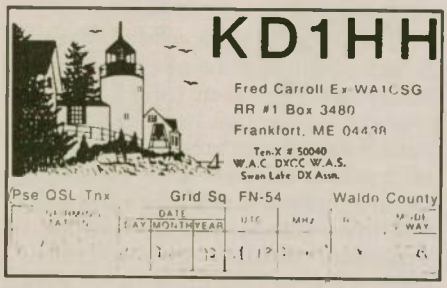
Replacement QSLs

I am enclosing a copy of the QSL card of a fellow radio amateur.

He is a member of my local 10-10 "MAINE-iac Chapter." Recently, while he was away his house burned and he lost everything but his tower, which was about all one can see still standing!

I thought it would be a nice idea for anyone who ever worked Fred under his present call KD1HH, or under his previous call WA1CSG, and has his QSL, to send him a replacement.

I'm sure this is not first of importance to him now but it is something which would be easy for us to do. Then when he takes up hamming again he will have some familiar cards on hand.



As you can see by his QSL he held WAC, DXCC and WAS. For DXCC I believe he had some unsubmitted QSLs and so to any DX who recently exchanged cards with KD1HH, I'm sure that replacements for these would be most appreciated.

SAM BEVERAGE, W1MPG
North Haven, Maine

Polyestermite

Many years ago I owned and actively sailed a cruising sloop. At that time I subscribed to several related periodicals. One magazine included in an April issue a scholarly article on the so-called "polyestermite"...an organism it said attacked fiberglass hulls just as teredo worms devoured wood boats. The piece appeared in an April issue and was, of course, an April Fools hoax recognized as such by those with knowledge and experience.

I recalled the "polyestermite" when I read your April article "Additional radio spectrum" by Dick Sisson, W5ONL.

With a wink and a smirk.

JAY REISMAN, KB6IZ
Marina Del Rey, California

Did you know?

Bob Brown, KB8X

...There are 22 countries throughout the world where local standard time varies by one-half to three-quarters of an hour. The United States has standardized time in 1 hour increments. Imagine the time keeping task in some of these countries where it changes 30 to 45 minutes.

—Marion ARC *Newsletter*

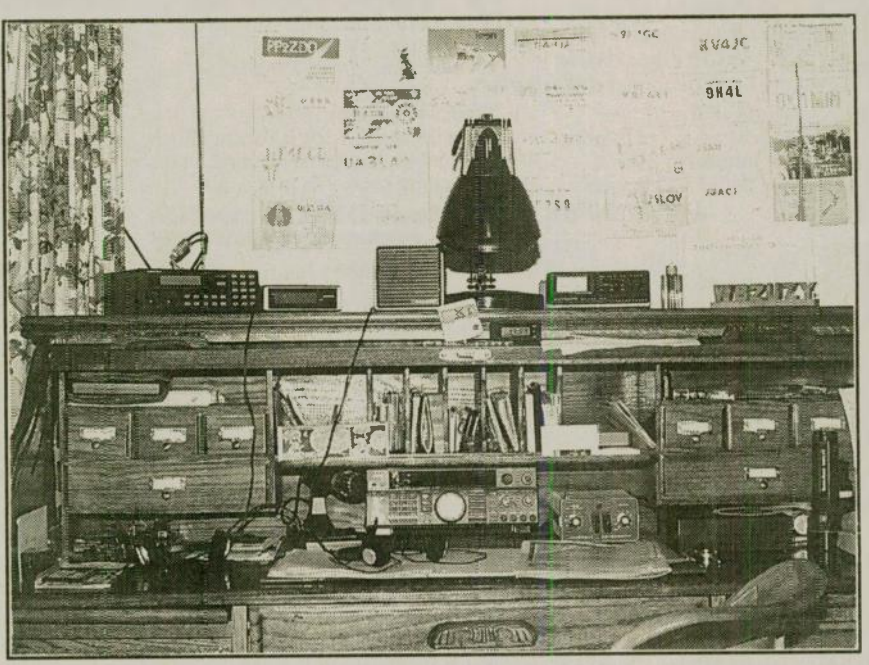
And...

A ¼ inch square silicon computer chip has the capacity of the original ENIAC computer, which took up an entire city block. —*SPARC Gap, NJ*

STATION APPEARANCE

Cliff Venie, WB2UZY

*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.*



Enclosed is a picture of my station now. I used to have several set-ups. Now I have just what I need.

After a heart attack in 1961, I had to do something to keep busy, so a couple of friends and I decided to take up ham radio.

All of us passed our Novice exams and we certainly were happy.

I spent the next four years on 15 Meters CW. I worked about 230 countries. Some of the cards on wall behind the desk are from 1978. I am now 77 and still do some CW but copy in longhand now instead of printing. Keeps me busy.

I live in an apartment complex; 650 apartments, four to a building. My antennas: X beam up 25 feet, just above the eaves which can't be seen from the street; GAP DX VI 5-band vertical about 10 feet from ground in the middle of a tree. For 40 through 80 Meters: 40 is dipole, 80 is an inverted "V" using one coax for both. I use headphones most of the time so I don't bother "the better half." I have a switch-on speaker to use when company wants to listen.

Equipment pictured: Top, (left to right); Radio Shack scanner, clock, speaker for radio with on/off switch, Radio Shack SWR watt meter, WB2UZY sign, 2 pair of headsets on desk, MC-60 mike, TS-450 SAT, Heathkit keyer (15 years old), rotor box for X beam.

Fifteen years ago I had open heart surgery; and again 5 years ago. I'm doing just fine now and still climb trees to work on my antennas. I hope the bands improve soon, meanwhile I'll be on CW and SSB. **WR**

Amateur "Hi"

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

A man without a key

John W. Slavik, WB8YTQ

This is a true story that happened to me during Field Day in the early 1980s. We were operating in the 6 Meter tent around 2 a.m. Sunday morning. The band was very quiet and almost completely "talked out."

A W2 club station was spotted operating CW in the SSB section, by another operator. Because no one had planned to operate CW on 6M, I ran off quickly to five other operating tents. I came back out of breath with 2 CW keys, but neither would fit the 6M transceiver CW jack.

After all this effort, I was not going to let this contact get away! Out of complete desperation I picked up the microphone and called the W2 station using verbal "dit dah dah, dit dit dah dah dah," in a straight monotone voice at about 10 wpm. I let up on the microphone and heard no reply. Being persistent I repeated my transmission and again waited. Finally, after at least one minute, they came back using CW and completed the exchange. I thanked them for the contact, good luck in the contest and signed, using verbal CW.

I had a difficult time transmitting in this mode, due to our 6M operators rolling around on the ground laughing, and at least three bystanders from other tents, in hysterical laughter!

Ten years later, I told this story to a small group of friends from New York at a hamfest. One ham jumped up and said "was that you?" he exclaimed, "I was the 6M CW operator that night!" After we all laughed for several minutes, he then asked, "Do you know why there was a long pause before we came back to you?" He replied, "We were all too busy trying to pick our laughing bodies up off the ground and gather as many operators as we could to hear this!" **WR**

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. . . Read your antenna SWR from 1.8 to 170 MHz continuously . . . built-in 10 digit LCD frequency counter. . . smooth vernier tuning . . .

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MFJ-209, $109.95, same as MFJ-259 less frequency counter and *RF Resistance Meter*™

See *free* MFJ catalog for complete line of MFJ SWR Analyzers™.

MFJ-949E 300 W Tuner

MFJ-949E **$139.95** **World's** most popular antenna tuner covers 1.8-30 MHz, has lighted *peak/* average Cross Needle SWR/ wattmeter, 4:1 balun for balanced lines and *full size* 300 watt dummy load.

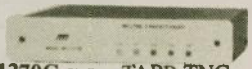
Versatile 8 position antenna switch lets you *pre-tune* MFJ-949E into dummy load to minimize QRM.

Custom inductor switch was carefully engineered to withstand extreme voltages and currents.

Cabinet is chemically etched to MFJ's bond tough *baked-on* paint.

VHF/HF Packet TNCs

MFJ-1270C **$119.95**



MFJ-1270C *super* TAPR TNC clone has a world wide reputation as *the most reliable packet TNC in the world* -- many work 24 hours a day for years without a single failure!

Fully TAPR TNC-2 compatible, VHF *and* HF operation, *free* AC power supply, new *enchanced* mailbox expandable to 512K with auto/reverse mail forwarding, WeFAX mode lets you print weather maps, optional plug-in 2400/9600 baud modems, KISS interface, MFJ Host mode.

MFJ TNC/Mic Switch

MFJ-1272B **$34.95**

Switch between your TNC or microphone by pushing a button!

Just plug pre-wired cables into your rig's mic connector and TNC.

Plug-in jumpers let you use nearly any rig with 8 pin mic connector.

MFJ-1272B, $34.95 /MFJ/TAPR TNC2 clones; **MFJ-1272BX**/PK-232; **MFJ-1272BYV**/KAM VHF/KPC3; **MFJ-1272BYH**/KAM HF Port; **MFJ-1272BZ**/PK-88, $34.95 each. *For 8 pin RJ45 modular phone jack replace B with M in model number above.*

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MFJ-8100K **$59.95***kit*
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Build this *regenerative* shortwave receiver *kit* and listen to shortwave signals from all over the world with just a 10 foot wire antenna.

Has RF stage, vernier reduction drive, smooth regeneration, five bands.

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Use this MFJ-1278B, your transceiver and computer to transmit and receive digital communications! You'll discover a whole new world of ham radio and communicate in ways you never knew existed on our ham bands.

The *world class* MFJ-1278B Multi-Mode and MultiCom™ software is packed with features *no other* multi-mode gives you.

You get *10 digital modes* . . . Packet, AMTOR, PACTOR (at no extra cost), RTTY, ASCII, Navtex, Color SSTV, 16 Gray Level FAX, CW and Memory Keyer plus an *enchanced* 32K Mailbox.

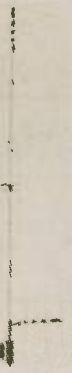
You'll have fun joining worldwide *packet* networks and exchanging *color SSTV* pictures with your buddies around the world. You'll marvel at *full color FAX* news photos as they come to life on your screen. You'll see weather changes on highy detailed *weather maps* in all 16 gray levels. You'll eavesdrop on late breaking news as it happens on *RTTY*. You'll enjoy error free HF QSOs on *PACTOR* and *AMTOR* and receiving packet mail in an *enchanced 32K mailbox*. Want to copy some *CW*? Just watch your screen.

MFJ-1289, $59.95, MultiCom™ software and cables.

MFJ *halfwave vertical* Antenna

6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed!

MFJ-1796 **$199.95**



Operate 6 bands -- 40, 20, 15, 10, 6 and 2 Meters --with this MFJ-1796 *ground independent* halfwave vertical antenna! No radials or ground ever needed!

It's only 12 feet high and has a *tiny* 24 inch footprint! You can mount it anywhere from ground level to the top of a tower -- on apartments, condos, small lots, even on motorhomes. Perfect for vacations, field day, DX- pedition, camping.

Frequency selection is fully automatic -- all you do is transmit. Its *low angle of radiation* really reachs out and brings in DX. Omni-directional. 1500 watts PEP.

Efficient *end loading*, no lossy traps. *Entire length* is always radiating. *Full size* halfwave on 2 and 6 Meters. High power *air-wound* choke balun eliminates feedline radiation. Adjusting one band has minimum effect on other bands. Add $20 s/h.

Easy to assemble -- you'll have it on the air in an afternoon.

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Two *massive* 250 pf transmitting variable capacitors can handle *amps* of RF current and *6000* RF volts. Logging scales.

Precision ball bearing roller inductor, three digit turns counter and spinner knob give you exact inductance control for minimum SWR.

Lighted *peak*/average Cross-Needle SWR/Wattmeter has 200/2000 watt ranges. Super heavy duty *current* balun has two giant 2½ inch powder iron toroid cores wound with *Teflon®* wire.

Six position *ceramic* antenna switch has extra large contacts. Flip stand, dummy load, one year *unconditional* guarantee, aluminum cabinet, tough *baked-on* paint, locking compound on nuts/bolts, handles 3 KW PEP, 10½x4½x15 in. Meter lamp needs 12 volts. Add $13 s/h.

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Tiny 36 inch diameter high efficiency loop antenna covers 10-30 MHz *continuously* with low SWR. Handles 150 watts.

Ideal for home installations where space is limited-- apartments, condos, small lots. Take on trips.

All welded construction.

Remote control has *Automatic Band Selection*™, Cross-Needle SWR/ Wattmeter. No control cable needed. Use batteries or 110 VAC. Add$20 s/h.

No ground or tuner needed.

MFJ-1782, $269.95, like MFJ-1786 but remote control has only slow/fast tune buttons.

Dual Band Mobile Ant.

Mobile Antenna for 144/440 MHz

MFJ-1724B **$14.95**

MFJ *dual band* magnet mount mobile antenna for 144/440 MHz has 19 inch stainless steel radiator, low SWR. For mobile rigs with SO-239 UHF connector *and* handie-talkies with *included* BNC adapter.

5/8 Wave Mobile Ant.

MFJ-1728/B **$24.95**

Maximum Gain™ 5/8 Wave 2 Meter *magnet mount* mobile antenna has stainless steel radiator, 12 ft coax, low SWR. UHF mobile (MFJ-1728) or BNC handie-talkie (MFJ-1728B) connector.

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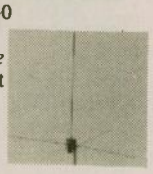
MFJ-1750 **$19.95** gets you a 2 Meter 5/8 wave ground plane *home station* antenna! You get the highest gain of any single element antenna, shunt fed matching, ceramic insulators. **MFJ-1752, $19.95,** for 220 MHz.



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Here's a Compact *Speaker/Mic that fits comfortably in your hand and has a* full size *speaker for crystal clear audio.*

No need to remove your handheld from your belt to talk or monitor calls. Clip it near your ears so you can easily hear every call with the volume turned down.

First-rate electret mic element and full size speaker gives superb audio on transmit *and* recieve. Earphone jack, PTT, lightweight retractable cord. Gray. 1¼x2x3 in.

MFJ-284 fits Icom and Yaesu. **MFJ-286** fits Kenwood.

MFJ-284 or MFJ-286
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These tiny MFJ Speaker/Mics are so small and so lightweight you'll forget they're there – until you get a call.

Excellent audio from electret mic element and speaker. Has swiveling lapel /pocket clip. PTT button with transmit LED, earphone jack, lightweight retractable cord. Available with L or regular connector. *Tiny* 2x1¼x¼ in.

Order MFJ-285/MFJ-285L for ICOM, Yaesu, Alinco; **MFJ-287/MFJ- 287L** for Kenwood; **MFJ-283** for split plug Alinco. **MFJ-285W** for IC-W2A.

MFJ-283, MFJ-285, MFJ-285L, MFJ-285W, MFJ-287 or MFJ-287L
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L Connector also available - order L model.

MFJ Artificial RF Ground

MFJ-931
$79.95

Creates artifical RF ground that eliminates or reduces RF hot spots, RF feedback, TVI/RFI, weak signals caused by poor RF grounding.

Greatly improves your signal if you're using a random wire or longwire antenna with an ineffective ground.

Electrically places a far away RF ground directly at your rig by tuning out reactance of connecting wire.

20 Meter CW Transceiver

MFJ-9020
$179.95

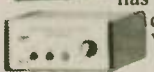
Throw this *tiny* MFJ 20 Meter CW Transceiver in a corner of your briefcase and enjoy DXing and ragchewing wherever you go. You get a high performance superhet receiver, crystal filter, RIT, AGC, vernier tuning, sidetone, speaker, up to 5 watts output, semi/full break-in, much more. *Free* manual. See *free* MFJ catalog for 40, 30, 17, 15 Meter versions, keyer, audio filter, power pack, tuner, antennas.

Super *Active* Antenna

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

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz - 30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and aux. or active antenna. 6x3x5 in. Remote has 54 inch whip, 50 ft. coax. 3x2x4 in. 12 VDC or 110 VAC with MFJ-1312, $12.95.



$129.95 MFJ-1024

Cross-Needle SWR Meter

MFJ-815B
$69.95

Peak/ average Cross-Needle SWR/ Wattmeter. Shows SWR, forward/ reflected power in 2000/500 & 200/50 watt ranges. 1.8-60 MHz.

Mechanical zero. SO-239 connectors. Lamp uses 12 VDC or 110 VAC with MFJ-1312, $12.95.

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MFJ Coax Antenna Switches

$34.95 MFJ-1701

$21.95 MFJ-1702B

$59.95 MFJ-1704

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

MFJ-1701, $34.95. 6 position antenna switch. SO-239 connectors. 50-75 ohm loads. 2 KW PEP, 1 KW CW. 10x3x1½ in. DC-60 MHz.

MFJ-1702B, $21.95. 2 positions plus new Center Ground. 2.5 KW PEP, 1 KW CW. Insertion loss below .2 dB. 50 dB isolation at 450 MHz. 50 ohm. 3x2x2 in. *MFJ-1702BN, $31.95, N connectors, DC-1.1 GHz.*

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Dry Dummy Loads for HF/VHF/UHF

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

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$59.95 MFJ-264

MFJ-260B, $29.95. VHF/ HF. Air cooled, non-inductive 50 ohm resistor. SO-239 connector. 300 Watts for 30 seconds, derating curve. SWR less than 1.3:1 to 30 MHz, 1.5:1 to 150 MHz. 2½x2½x7 in. *MFJ-260BN, $34.95, N connectors.*

MFJ-264 $59.95 Versatile UHF/VHF/HF 1.5 KW load. Low SWR to 650 MHz, usable to 750 MHz. 100 watts/10 minutes, 1500 watts/10 seconds. SWR is 1.1:1 to 30 MHz, below 1.3:1 to 650 MHz. 3x3x7 in. *MFJ-264N, $69.95, N connector. MFJ-5803, $4.95. 3 ft. coax/ PL-259.*

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Suppress TVI, RFI, telephone and other interference by reducing unwanted harmonics going to your antenna. 9 poles, MFJ's exclusive *Teflon® Dielectric Technology™* capacitors, hi-Q inductors, ground plane shielding, RF tight cabinet gives excellent TVI/ RFI protection. Full legal power 1.8-30 MHz. Mounting tabs.

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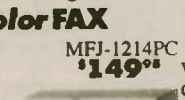
Use your computer and transceiver to receive, display and transmit *brilliant full color* news photos and incredible WeFAX weather maps with all 16 gray levels. Also receive/transmit RTTY, ASCII and CW.



MFJ-1214PC
$149.95

Animate weather maps. Display 10 global pictures simultaneously. Zoom any part of picture or map. Manager lists over 900 FAX stations. Automatic picture capture and save.

MFJ Iambic Paddles

MFJ Deluxe Iambic Paddles feature a full range of adjustments in tension and contact spacing, self-adjusting nylon and steel needle bearings, contact points that almost never need cleaning, precision machined frame and non-skid feet on heavy chrome base. For all electronic CW keyers.

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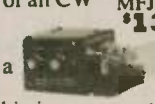
$49.95

MFJ/Bencher Keyer

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



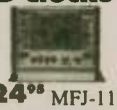
MFJ-422B
$134.95

Iambic keying, speed (8-50 wpm), weight, tone, volume controls. Automatic keyer or semi-automatic ("bug")/tune mode. RF proof. 4⅛x2⅜x5½ in.

MFJ-422BX, $79.95, keyer only for mounting on your Bencher paddle.

12/24 Hour LCD Clocks

$19.95 MFJ-108B

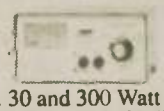


$24.95 MFJ-112

MFJ-108B dual clock has separate UTC and local time displays. Huge 5/8 inch LCD digits are easy-to -see. Brushed aluminum frame.

MFJ-112 shows hour/minute/ second, day, month, date, year at any QTH on *world map*. 12 or 24 hour display. Daylight saving time feature.

VHF SWR/Wattmeter



MFJ-812B
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Covers 2 Meters and 220 MHz. 30 and 300 Watt scales. Relative field strength 1-250 MHz, SWR above 14 MHz. 4½x2¼x3 in.

Code Practice Oscillator

MFJ-557
$24.95

MFJ-557 Deluxe Code Practice Oscillator has a Morse key and oscillator unit mounted together on a heavy steel base so it stays put on your table. Portable. 9-volt battery or 110 VAC with MFJ-1305, $12.95.

Earphone jack for private practice, tone and volume controls for a wide range of sound. Speaker. Adjustable key. Can be hooked to transmitter. Sturdy. 8½x2¼x3¾ in.

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Use your rig's 12 VDC power supply to power two HF/VHF rigs and six or more accessories with this MFJ *high current* multiple DC outlet.

2 pairs of 30 amp 5-way binding posts separately fused for rigs. 6 switched, fused pairs for accessories. DC voltmeter, "on" LED, RF bypassed, 6 ft. of 8 guage power cable. See *free* MFJ catalog for more DC outlets.

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SPECIAL EVENTS

BOC Challenge

The Charleston Amateur Radio Society will operate WA4USN, 20 May 1200Z to 2300Z to commemorate the conclusion of the BOC Challenge 1994-95, a single-handed around the world yacht race. Frequencies will be: 7.250, 14.045, 14.250, 21.045, 21.250, and the Novice CW portion of 40 Meter band. All frequencies + or- 5 for QRM. For QSL, send QSL and SASE to Sheila Frank KC4UDD, 614 Longstreet Circle, Summerville, SC 29483.

Wildlife Festival

The Clare County ARES/RACES group will operate AA8KP, 27 and 28 May to commemorate the (11th) Wildlife Festival of Clare County. Operation will be in the lower portion of the General bands 15-80 and Novice 10 Meter voice. Time will be 12:00pm Z to 00Z. For certificate, send QSL and a 9 x 12 SASE to: Clare County EC., P.O.Box 262 Farwell, MI 48622-0262.

Victory 1945

The Charleston Amateur Radio Society will operate WA4USN, 6 May 1300Z to 2400Z and 7 May 1300Z to 2000Z, from the aircraft carrier USS Yorktown, to commemorate Victory 1945. Frequencies will be: 7.250, 14.045, 14.250, 21.045, 21.250, Novice CW portion of 40 Meter Band. For QSL, send QSL and SASE to Sheila Frank, KC4UDD, 614 Longstreet Circle, Summerville, SC 29483.

CCC commemoration

The Citrus Belt Amateur Radio Club of San Bernardino, California, plans to operate W6JBT, 20 May 1700Z to 21 May 1700Z to commemorate the Civilian Conservation Corps activity in the San Bernardino National Forest 62 years ago. W6JBT will operate in the General portion of the 80 to 15 Meter phone, Novice 10 Meter phone subbands and 2Meter packet. For certificate send QSL and 9 x 12 inch SASE to W6JBT, P.O. Box 3788, San Bernardino, CA 92413.

Civil War battle

The Mt. Vernon ARC will operate NJ4F, 6 May to commemorate the 132nd anniversary of the Civil War Battle of Chancellorsville. This will be from the sight of "no man's land" on the original battlefield. Operation will be in the General portion of the 40 and 20 Meter phone bands. For certificate send QSL and SASE to MVARC, PO BOX 7234, Alexandria, VA. 22307.

Morse Event

The Poughkeepsie ARC will operate W2CVT, 27 and 28 May from 1200 to 2000Z at the home of Samuel F.B. Morse, Locust Grove, on 3.703, 7.103, 10.103, 14.250, and 145.75 (K2EK DX cluster). For certificate and QSL send a 9 x 12 SASE to Don Stein, W2PTF, 3 Little Road, Wappingers Falls, NY 12590-3649.

Tulip Time

The Holland ARC will operate K8OAA, 7 May through 21 May to celebrate Tulip Time. Operation will be in the lower portion of the General 20 and 15 Meter subbands and 28.400. For certificate, send QSL with call signs worked and a 9 x 12 SASE to Barbara Siebelink, N8NXA, 6418 Otis Rd., Saugatuck, MI 49453.

50th Anniversary of VE day

Special event station KM6TN/NJVT will operate 8 May, 000Z to 2359Z on the USS Pampanito, a World War II Balao class submarine, now a National Historic Landmark, permanently moored in San Francisco, California. This will commemorate the 50th anniversary of VE day. NJVT was the radio call assigned to the *Pampanito* during the years of active service with the United States Navy. Personalized certificates will be sent to all confirmed contacts. Operations will be conducted in the lower portion of the General class phone bands. The radio crew of the Pampanito will appreciate receiving QSL cards. Mailing instructions will accompany your certificate. Good luck and 73.

4th Anniversary of FAIRS

The Foundation for Amateur International Radio Service (FAIRS) will operate KK4WW, US5WE, UA4LCQ, 8R1WD and S21AM in their own countries 6 May, 1400Z to 9 May 1400Z to celebrate the 4th anniversary of FAIRS. General portion of 40, 20, and 15 Meters. For certificate send QSL and 9 x 12 inch SASE envelope to FAIRS, P.O. Box 341, Floyd VA 24091.

Naval Undersea Museum

The North Kitsap ARC will operate WO7B, 6 May, 1600Z to 2400Z, to commemorate the opening of the Mines and Torpedoes exhibit at the Naval Undersea Museum. Operation will be on the lower end of the 40, 20, 15, and 10 Meter bands. For QSL, send QSL and SASE to Robert J. Tomas, N7KTP, 38119 Vista Key Dr. NE, Hansville, WA 98340.

Marconi Memorial

The OCEAN-MONMOUTH ARC will operate N2KUU, 27 May 1600Z to 28 May 1600Z to commemorate the Marconi Memorial tower site. CW will be up 10 kHz from bottom of Novice subbands and 10.145, 14.045, 18.080 MHz and bottom of General 80-15 and Novice 10 Meter phone subbands. For certificate send 9 x 12 SASE (or $1 US) to N2KUU at his callbook address.

Playdays Festival

The Monterey Park ARC will operate K6GIP, 20 May, 1600-2300Z, during the annual Playdays Festival celebrating the 79th birthday of the City of Monterey Park. Listen near 3.985, 7.285, 14.285, 21.385, or 28.385 SSB. Local talk-in will be on 144.350 FM simplex. For certificate, send QSL and a 9 x 12 SASE to Monterey Park ARC, P.O. Box 403, Monterey Park, CA 91754.

Armed Forces Day celebrations

The United States Coast Guard Amateur Radio Club will operate KL7HKX, on 20 May 1995. Operations will be in the General class bands. Look for operators on the 20 Meter band on 14.260 (IOTA frequency). Contact constitutes a QSO under several categories:

1. Islands on the air - IOTA NA-19.
2. 10-10 International number (club number).
3. 3rd Judicial District contact for counties award.
4. Military contact—United States Coast Guard base.

For Coast Guard Amateur Radio club QSL card, send an SASE to: US Coast Guard ARC, KL7HKX, P.O. Box 190421 USCG, Kodiak, AK 99619-0421.

•

The DuPage ARC will operate W9DUP, 20 May, 1600-2300Z from the First Division Museum at Cantigny, Wheaton, Illinois. SSB 7.250, 14.290, 28.400 and 145.25. Repeater:

Military stations will transmit on the below listed frequencies and announce the specific amateur band/frequency range being monitored. Where emission is listed as "various" in the below table, the military station will frequently announce what mode is being used and monitored for. *The CW broadcast will be transmitted at 25 wpm beginning at 0230Z. **Digital broadcasts will be by RTTY (100 wpm, 170 Hz shift) at 0330Z, packet at 0430Z, and AMTOR at 0530Z.

Station	Frequency	Emission
AAE: Army HF/MARS	4030.5	LSB
Radio Station	7358.5	RTTY**/CW*/LSB
Fort Sam Houston, TX	13994.5	USB
	20941.5	CW*
	27992.5	USB
AAH: Army HF/MARS	4021.5	Various
Radio Station	6988.0	RTTY**/CW*/Various
Fort Lewis, WA	7312.5	Various
	10151.5	RTTY**/CW*
	14488.5	RTTY**/CW*/USB
	18212.5	RTTY**/CW*/USB
	20975.0	USB
AAR: Army MARS	4033.5	LSB
Radio Facility	6911.5	Various
Fort Bragg, NC	7309.5	CW*/Digital**
	20105.5	USB
	27810.0	USB
AAZ: Army MARS	4036.5	LSB
HQ Station	6908.0	CW*
Fort Huachuca, AZ	7422.5	LSB
	13965.0	USB
	21825.5	CW*
	27790.0	USB
AEUI: Army Corps of	4920.0	LSB
Engineers Vessel	9810.0	LSB
Memphis, TN	15314.0	USB
AIR: Air Force MARS	4025.0	LSB
Radio Station,	7315.0	LSB
Andrews AFB, MD	13997.0	RTTY**/CW*
	14408.0	USB
	14440.0	USB
AIR-1: Air Force CW	6995.5	CW*
Net Mgr., San Francisco, CA		
AIR 1, 2, 3, 4	6995.5	CW*
AIR 5, 6, 7, 8	6896.0	CW*
AIR 9	13986.5	RTTY**/Digital**
MET: Marine Corps	7375.0	Various
MARS Station	14480.0	Various
MCAS El Toro, CA	24805.0	Various
MHK: Marine Corps	7301.5	Various
MARS Station	14820.0	RTTY**/Various
Kaneohe Bay, HI		
MPN: Marine Corps	4008.5	Various
MARS Station	7382.5	Various
Camp Pendleton, CA	14465.0	Various
	20937.5	Various
NAV: Navy/Marine Corps	4040.0	Various
MARS HQ	7365.0	Various
Cheltenham, MD	10259.5	RTTY**/CW*/Digital**
	14393.0	USB
	20625.0	Various
NBL: Submarine Base	6835.0	Various
New London Groton, CT	14385.0	RTTY**/CW**/Various
	20375.0	Various
NMN: Coast Guard ,	6970.0	RTTY**/Various
Radio Station	14468.5	Various
Portsmouth, VA	24783.0	Various
WAR: Army MARS Station,	4018.5	LSB
Fort Detrick, MD	6998.5	CW*
	7361.5	Various
	13992.5	CW*
	14403.5	USB
	20995.5	USB

7.040 CW. For certificate send QSL and SASE to Jack Carr, NV9S, DARC, P.O. Box 71, Clarendon Hills, IL 60514.

The annual **Armed Forces Day Communications Test** is set for Saturday, 20 May 1995 and marks the 46th anniversary of this event which emphasizes a continuing climate of mutual assistance and warm esteem between the military and Amateur Radio communities. The traditional military-to-amateur crossband operation and broadcast of the Secretary of Defense message are the featured highlights and include operations in CW, SSB, RTTY, and digital modes.

These tests give both Amateur Radio operators and short wave listeners (SWLs) the opportunity to demonstrate their individual technical skills. Special commemorative QSLs will be awarded to those Amateur Radio operators achieving a two-way radio contact with any of the participating military radio stations. Interception of these contacts by SWLs will not be acknowledged by QSL; however, anyone who receives and accurately copies the Armed Forces Day CW, RTTY, or digital mode message from the Secretary of Defense can qualify to receive a special commemorative certificate from the Secretary.

Submission of test entries

Transcriptions of the RTTY, CW, and digital modes receiving tests should be submitted "as received." No attempt should be made to correct possible transmission errors. The time, frequency, and call sign of the military station copied as well as the name, call sign and address of the individual submitting the entry must be indicated on the page containing the test message. Entries must be postmarked no later than 31 May 1995 and submitted to the respective military commands as follows:

Station copied: AIR; AIR-1, 2, 3, 4, 5, 6, 7, 8, 9
Address:
USAF MARS
Armed Forces Day Celebration
789CS/SCMZ Alabama Ave. Ste. 3
Andrews AFB, Washington, DC 20331-6345

Station copied: AAE, AAH, AAR, AAZ, AEUI, WAR
Address:
Armed Forces Day Test
Commander, USAISC
ATTN: ASOP-HF
Fort Huachuca, AZ 85613-5000

Station copied: MET, MHK MPN, NAV, NBL, NMN
Address:
Armed Forces Day
Navy-Marine Corps MARS
Bldg 13, 9190 Comm-O Road
NCD Cheltenham
Washington, DC 20397-5161

Crossband contacts

The military-to-amateur crossband operations will be conducted for the twenty-four hour period commencing 21/1300Z. Note: some military stations may not operate the entire twenty-four hour period depending on propagation, signal paths, and station parameters.

Receiving test

The CW, RTTY, and digital modes broadcasts will be special Armed Forces Day messages from the Secretary of Defense to any Amateur Radio operator or SWL desiring to participate. A ten-minute tuning call will precede each transmission. The receiving tests will be run as indicated in the chart above.

Product Review

Jade Pole 6-Meter Antenna

Ken Neubeck, WB2AMU

After spending a few years on 6 Meters, a number of the Magic Band veterans told me about a popular antenna that was used during the 1960s known as a "J" antenna. The J antenna is essentially three-quarter-wavelength antenna that is fed a half wave from the top with the quarter wave section acting like radial or a matching stub. It is essentially a half-wave vertical that has a theoretical gain of 5db over a quarter-wave vertical. It also has another advantage over a quarter-wave vertical in that no radial elements are required which can be quite a help for those with space restrictions. One of the new companies that offers products for the hobby is Jade Products. They have taken a clever approach in the J antenna design and construction.

Jade Products sent me their version of the J antenna, known as the Jade Pole for evaluation and review for ***Worldradio***. Along with the antenna, I received a number of supporting instruction sheets to aid in my evaluation. Professionally, I am a reliability engineer, and I have the chance to subject products to various types of environmental testing. In this vein, I arranged a series of performance tests to measure the field performance of the Jade Pole. For me, important features in an antenna are light weight, durability, portability, matching and overall performance.

The Jade Pole that was sent to me was cut for 51 MHz with a bandwidth of plus or minus 1.8 MHz that would allow me to operate in the SSB portion of the band as well as the FM calling frequency of 52.525. The antenna is made of twin lead and was encased in PVC material that came in three separate sections that were easy to thread together. This is an excellent feature that allows easy transport of the antenna to other locations. The antenna was rugged when put together and the attaching clamps (called the Plastic Clix clamps) had a positive locking feature when attached to its one inch diameter mast setup. The weight of the 6-Meter Jade Pole installation is ten pounds.

Jade Products addresses the issue of potential tuning changes caused by the PVC material by the use of foam inserts that hold the twin lead antenna in place inside the PVC tubing, preventing it from touching the PVC walls. In addition, the PVC material used in the Jade Pole is UV protected which will help increase its life expectancy during outdoor use. Detailed installation instructions provided with the Jade Pole addressed every aspect of installation and left no question unanswered. The company was very responsive in answering some additional technical questions that I had.

I received the Jade Pole for review during the winter sporadic-E season. Unfortunately, there were not as many openings as I had hoped in order to get signal reports. However, I ran a number of performance tests where I used the antenna in a portable configuration in which I mounted it to a short 1" pipe that was mounted in a heavy duty base. I compared the Jade Pole to a quarter-wave vertical with four radials with both antennas set at the same height and found through a series of test QSOs with my father, Ray, W2ZUN that as a minimum, the Jade Pole had generally one full S unit gain over the quarter-wave vertical. This follows the theory, as well as the claims by Jade Products.

I would recommend that if one mounts the PVC-encased Jade Pole version for 6 Meters, that a strong outside mounting wall is chosen as the site for mounting the antenna. In addition, if mounting it to a metal pole, I would recommend at least three clamps be used in order to secure the ten pound installation properly against wind. I also think that the Jade Pole would be an ideal antenna for a 50-MHz beacon, as it is omni-directional and has a modest gain over the halos and verticals that have been traditionally used for beacons.

The 6-Meter Jade Pole antenna is reasonably priced at under $40 for the entire antenna installation which includes the twin lead antenna, PVC encasement, coax connector and attaching wall clamps. Shipping is $7. Attaching mast clamps are additional at $5 for two. The 2-Meter Jade Pole antenna version is priced for less than $30.

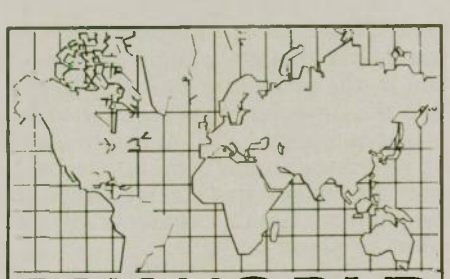
I am encouraged by the innovative approach that the people at Jade Products are taking with our hobby. They are a new company based in New Hampshire and their motto is, "Putting the Amateur back into Radio." Jade Products' address is P.O. Box 368, E. Hamsted, NH 03826. They can be reached by FAX at 603/329-4499 or voice at 603/329-6995. Orders, 1-800/523-3776.

Based on the quality workmanship and the detailed instructions of their Jade Pole antenna, I would recommend this antenna for VHF operators. I will also look forward to future products that this company puts out. WR

It's been how long?

The original transistor radio, the TR-1, developed by Regency, was announced on October 18, 1954. It went on sale during the Christmas rush for $49.95. It is a collector's item today: A green one can bring as much as $600.00; red, gray, ivory and black ones worth about $250.00. The radio could fit in the pocket of an expensive dress shirt, but not the pockets on most shirts at the time. All four transistors in the rig were made by Texas Instruments.

—York Radio Club, *Circuitboard*



DX WORLD

John F.W. Minke III, N6JM
P.O. Box 310 Carmichael, CA 95609-0310

W-100-N

Congratulations to the following DXers for completing the necessary requirements for ***Worldradio's*** Worked 100 Nations Award:

488. N2AUK Stuart P. Haimes
489. WA3GFM Albert Belardia—All 20M SSB
490. N2SU Robert S.Antoniuk—All 40M CW

Mauritius (3B8)

Seewoosankar Mandary, 3B8CF, continues to be a major source for those who need Mauritius, mostly on CW. Look for Jacky on 80 Meters between 3.504 and 3.507 MHz around 1430 UTC, 40M on 7.027 MHz at 0300 UTC, 30M near 10.114 MHz at 0300 UTC, and 17M between 18.081 and 18.084 MHz after 1500 UTC. Jacky gave me my 80M contact 10 years ago and continues to be active on that band after all these years.

Other activity from Mauritius Island (AF-049) includes the following spots reported during the first two months of 1995:

3B8FG	7.006MHz	0215 UTC
3B8FG	10.107MHz	0230 UTC
3B8GE	14.010MHz	1830 UTC
3B8DB	14.020MHz	1615 UTC
3B8GD	14.195MHz	1930 UTC
3B8FG	18.085MHz	1330 UTC
3B8DB	21.033MHz	1100 UTC
3B8DB	28.016MHz	1200 UTC
3B8FQ	28.491MHz	1100 UTC

Andorra (C3)

The DX Bulletin and others reported that DXers in Andorra would be signing with the C37 prefix during the month of March in commemoration of the 15th anniversary of their national Amateur Radio society, URA. Suffixes will remain the same.

Twenty years ago or more Andorra was very rare. I once worked them (or thought I did) when the PX prefix was still being used. Over the years more and more activity has been heard from this one.

Reports from at least four stations have been seen and recently and are as follows:

C31LD	3.795 MHz	2200 UTC
C31SD	3.800 MHz	2300 UTC
C31LD	7.061 MHz	0040 UTC
C31LL	14.004 MHz	1400 UTC

Unfortunately, those 75M times are of little value to the DXer residing on the west coast with the sun still well up in the sky.

Philippines (DU)

Tom Bevenheim, SMØCNS/DU7, prefers CW, continues to hand out contacts on the lower bands. Look for Tom near 1.827, 3.507 and 7.007 MHz between 1300 and 2300 UTC. For IOTA island hunters Tom is on Cebu Island (OC-129). Tom was reported on 1.824 MHz at 1430 UTC on January 17th and 7.003 MHz at 1400 UTC on 22 Feb. He was also active in the ARRL DX Competition in February.

Robin U. Go, DU9RG, is another active station in the Philippine Islands, operating from Cotabata City on Mindanao Island (OC-130) and has been very active on 75M. Look for Robin between 3.792 and 3.795 MHz between 1200 and 1400 UTC. In January Robin had been signing with 4E9RG.

On 20M CW, there were a couple of reports. DU1KK had been reported near 14.022 MHz at 0030 on February 11th with DU2/NK2U and DU3/W4NXE on 14.011 MHz at 0100 UTC and 14.032 MHz at 2330 UTC, respectively. DU3/W4NXE was active during the recent CW segment of the annual ARRL DX Competition; I worked him on 15M. Contacts with any of these calls count for the Luzon Group, OC-042. Also reported from the Luzon group was DU1SAN, who was found on 14.226 MHz at 1515 UTC on February 21st.

San Andreas Island (HKØ)

A few years back Francisco, HKØBKX, was a major source for a contact with San Andreas Island. HJØVGJ has been a major source for a new one from San Andreas recently. Look for this one on 80M near 3.519 MHz after 0300 UTC, 40M near 7.010 MHz after 0330 UTC, 30M on 10.119 MHz at 2230 UTC, and on 15M near 21.026 MHz after 2100 UTC.

HKØER has been another active station, with this one reported according to the following spots:

04 Feb	18.071 MHz	1730 UTC
06 Feb	21.007 MHz	1600 UTC
10 Feb	3.506 MHz	0130 UTC
10 Feb	7.005 MHz	0200 UTC
13 Feb	14.002 MHz	0000 UTC
15 Feb	10.108 MHz	0215 UTC

Four other calls were noted from San Andreas Island in January and February:

HKØERN	14.010 MHz	2130 UTC
HKØHEU	21.292 MHz	1345 UTC
HKØPPY	14.240 MHz	2330 UTC
HKØTCN	18.127 MHz	1330 UTC

For IOTA hunters this one counts as NA-033.

Greenland (OX)

Greenland is an easy one to work. The problem is finding one. On 80M, OX3XO has been on often, usually near 3.501 to 3.515 MHz after 1030 UTC. Then on SSB OX3KQ has been worked near 3.799 MHz around 2100 UTC by the Europeans.

Other activity from Greenland includes the following:

OX3CS	18.085 MHz	2015 UTC
OX3KV	14.007 MHz	1600 UTC
OX3NYB	21.265 MHz	1900 UTC
OX3NUK	21.242 MHz	1915 UTC
OX3SA	14.005 MHz	1645 UTC

Dodecanese (SV5)

Need Rhodes for DXCC? Look for SV5TS on 75M between 3.788 and 3.791 MHz after 0100 UTC. This one has also been reported on 15M after 1400 UTC. Try 21.252 to 21.285 MHz.

There was also a report of an SV5TH on 1.828 MHz at 0200 UTC January 28th. This was a CW contact and perhaps the call should have read SV5TS.

Congo (TN)

The rumor that some German operators would be activating Congo became a reality. According to *QRZ DX* the operators included: Holgert, DL7VTM; Birgit, DL7VTZ; Tom, DL7UTM; Falk, DL7UTA; and Fritz, DL7VRO. The calls used were TN4U on CW and TN2M on SSB. The first couple of days much excitement was on the bands. And, of course, this attracted the usual number of lids! They operated all bands through February 9th.

Apparently, the problem was they

were given a license to operate for only 14 days. Upon arrival they were delayed for 10 days, leaving only 4 days to setup and operate. They did manage to collect some 13,100 contacts on all bands, RTTY and the satellites.

Heard Island (VKØ)

Tony De Prato, WA4JQS, informs *QRZ DX* about the planning of a future DXpedition to Heard Island. Included with the group is Eddy DeYoung, VK3EET. Future information of this South Sandwich Island DX Group function will be released as we receive it.

Andaman Islands (VU)

There is an active station signing VU2JPS from the Andaman Islands, but on 40M SSB only. Look for this one on 7.060 MHz around 0200 and 0730 UTC.

Afghanistan (YA)

DX News Sheet notes that YA/PA3BTQ is with the Red Cross and plans activity on all bands. As of this writing he only has verbal permission to operate and is trying to obtain a written license. He probably will finish his assignment by the end of April.

Syria (YK)

YK1AO has been very active on 75M. Look for this one 3.793 to 3.800 MHz after 0400 UTC. He has been worked by many Europeans around 1700 to 1900 UTC. For a CW contact with YK1AO try 7.004 to 7.007 MHz after 1500 UTC.

Two other calls were heard recently by DXers in eastern Canada. YK1SC was on 7.001 MHz around 2030 UTC with YKØA on 14.025 MHz at 1500 UTC. The call YKØA was used by a recent DXpedition. That operation terminated on November 29, 1994, by order of the Syrian government. Unless, the report of YKØA is from that period, this would probably be our friend Slim.

IOTA

Those of you who are active in RSGB's IOTA program will be pleased to know that now there is available a computer program for updating your records. Called "IOTA Members Program," it is available for a mere fee of $8.00 from your IOTA checkpoint.

When you receive the disk from your checkpoint it will have your latest record in the IOTA program which is to be loaded on the hard drive of your IBM compatible PC. When you are ready to submit your next application or update, you simply copy your updated records to the disk and submit it along with the necessary QSL cards, plus the required fee.

There is a 20 percent reduction on certificate and administration fees if you use this disk (Official IOTA Application Disk).

Do not update any records while your disk is being processed at your checkpoint. When you receive your disk back from your checkpoint and reload into the computer program on your hard drive, all records will be overwritten with your updated records at your checkpoint. After the data has been loaded you may then begin entering new data as those QSL cards arrive.

The program is quite useful for keeping your IOTA records and only takes up about 325K bytes on your hard drive.

This year's IOTA convention will be sponsored by the Associazione Radioamatori Italiani (ARI) and held in Bologna from October 13 to 15 during the 100th anniversary of the discovery of radio by Marconi. More information should soon be coming.

Here is our monthly selection of what appeared on the bands during the month of February:

AS-018	Sakhalin Island	RAØFA	18 Feb
AS-022	Medvezh'i Island	RKØQXY	11 Feb
AS-076	Shikoku Island	JH5FXP	18 Feb
AS-078	Hokkaido Island	JA8RWU	18 Feb
AS-103	P'eng-Hu Island	BV9AAA	09 Feb
EU-141	Vardo Island	LA5SJA	11 Feb
EU-169	Sazan Island	ZAØB	09 Feb
NA-006	Victoria Island	VE8KM	18 Feb
NA-036	Vancouver Island	VE7GDJ	05 Feb
NA-061	Kaien Island	VE7GKH	18 Feb
NA-140	Kent Island	W3YN	13 Feb
OC-074	Enderby Island	ZL9GD	02 Feb
OC-129	Cebu Island	SMØCNS/DU7	19 Feb
OC-130	Mindinao Island	DU9RG	11 Feb
OC-168	Russell Islands	H44MS	09 Feb
SA-058	Farallon Island	4M5I	02 Feb
SA-064	Las Huichas Isl.	CE7AOY	05 Feb
SA-067	La Cotorra Island	4M8I	11 Feb

Many IOTA islands were in the recent ARRL DX Competition. I checked the *Callbook*™ on one of these and discovered the station was on an IOTA island I still need. Let's hope he did indeed operate from there.

The annual IOTA Contest will be held this summer, 1200 UTC 29 July to 1200 UTC 30 July. Both CW and SSB will count this year. I sure wish the RSGB would use the standard contest times of 48 hours as most other contests do.

If you are considering a DXpedition to an IOTA island for the contest, start planning now. And, it is a wise idea to head to an island that already has a reference number assigned to it. If it is desired to activate an all-time new one, you should arrange to begin the operation in the preceding 24 hours to enable the new reference number to be issued before the start of the contest. No reference number will be assigned after the contest has started. Without the reference number, contacts will not count as island contacts.

John Reisenauer, NL7TB, informs me that he will, along with N6IV and KF6XC, activate the Barren Islands this July 3 to 6. The Barren Islands are located some 60 miles from Homer, Alaska, in Kennedy Entrance to the Gulf of Alaska from the Cook Inlet. They will operate from Ushagat Island. The Barren Islands have yet to be activated and have no IOTA reference number.

They will depart from Juneau and in addition, they plan to operate for 30 hours starting June 30th from Jacquot Island in the Yukon Territory, signing VY1ISL or VY1TB. The island will not count for IOTA, but will be good for the Canadian Islands Award. Where is Jacquot Island?

As for the Canadian Islands Award program, please send a request to Garry Hammond, VE3XN, for the rules and a list of islands. Be sure to include an s.a.e. and funds for postage.

Serbian Republic (X5)

Richard Kovich, KD4YOT, writes on the subject of the Bosnian Serbs. He writes: "For those who have had QSOs with X5 and wondered where it is and who they are, this prefix is being used at present by hams who are located in Republika Srpska (Serbian Republic) which seceded from Bosnia-Herzegovina in 1991. They are often referred to as Bosnian Serbs and should not be confused with the Republic of Serbia which is an integral part of Yugoslavia. The ITU thus far has not recognized X5 and probably will be unable to do so until the civil war ends and the status of the Bosnian Serbs is resolved. In the meantime hams in areas under Bosian Serb control are using X5 and giving QSL routings.

"It is my understanding from Yugoslav hams that one can send QSL cards to X5s via the Yugoslav Radio Amateur Society, P.O. Box 48, 11000 Belgrad, YUGOSLAVIA. I have had QSOs with them and they all have been in Serbo-Croatia. All of the QTHs sent to me are in Bosnian Serb controlled areas such as Banja Luka, Ilidza, etc. I plan to save any X5 QSL cards I receive in the event of retroactivity. Who knows what will occur after civil war comes to an end."

That T93A/4U

Early in the month of February the

call T93A/4U showed on 40M and attracted a crowd. I worked him and when entered in the LogPlus! computer program, bells rang indicating Syria. This didn't jibe. It appears that this one was an operation from Haiti. As for the validity of this one, I don't know for sure. If it was a legal operation, why didn't he sign with HH/T93A?

DXAC matters

The DX Advisory Committee (DXAC) voted 8 to 7 to reject a petition to add Pratas Island to the DXCC Countries List. This decision was based on Point 2(a), separation by water. Some of those voting against cited concerns over the possibility of intervening rocks. Others cited what they perceived as disputed ownership of the island.

DXCC desk

The DXCC Desk reports that at the end of January the number of unprocessed applications was 178, which included a total of 17,510 QSL cards to be checked. During that month 434 applications were received for endorsements and new awards. This amounts to some 36,903 QSL cards.

Future deleted countries

The DX Bulletin reports that legislation has been introduced to consolidate many of the scattered U.S. possessions in the Pacific under the State of Hawaii. This includes Baker and Howland, Palmyra, Kingman Reef, Johnston, and Midway. Chod says that the logical consequence would be the deletion of Midway, Kure, and Kingman Reef.

According to the *National Geographic Atlas,* Kure Island is part of the State of Hawaii. Midway is administered by the U.S. Navy.

Northwest DX Convention

The Pacific Northwest DX Convention will be in the Seattle area this summer. This year the annual event will be hosted by the Western Washington DX Club the weekend of July 21-23. I do not know where it will be exactly, but it will be in western Washington someplace. Joe Gregory, W7QN, is the Convention Chairman. If you plan to be in the area this summer be sure to stop by and visit the suffering sevens.

Other DX events

The International DX Convention at Visalia and Hamvention are back-to-back this year, with the California bash coming first on April 21 to 23, followed by Dayton the following weekend. It probably is too late to reserve for Visalia, but there may still be room for the Dayton DX Dinner sponsored by the Southwest Ohio DXAssociation on Friday evening, April 28th. This late in the game, you should contact Steve Bolia, N8BJQ, at (513) 429-9954.

DX Prediction — May 1995

Maximum usable frequency from West Coast, Central US and East Coast *(courtesy of Engineering Systems Incorporated, 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. Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in parentheses for poor. UTC in hours.

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(13)*	*17	*15	*(11)*	*17
12	*(17)*	*13	*13	*(14)*	*(15)*
14	*(20)*	*16	13	17	20
16	*(22)*	15	*(12)*	19	24
18	24	*(13)*	*(12)*	18	27
20	24	17	23	16	28
22	20	21	28	13	*27
24	*(17)*	23	29	*(11)*	22
2	*(15)*	*24	29	*(10)*	*19
4	*15	*24	28	*15	*16
6	19	*22	24	16	*14
8	*(16)*	*20	*17	13	*13

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(16)*	13	*16	12	*13
10	*(19)*	11	14	*(12)*	*14
12	24	*14	13	16	18
14	27	17	*(12)*	18	22
16	29	15	*(12)*	19	*25
18	*29	*(13)*	*(12)*	18	*27
20	24	*(18)*	23	17	*29
22	20	20	27	*(14)*	*28
24	17	20	29	12	*23
2	*15	19	29	*10	*19
4	*15	*(17)*	28	*15	*16
6	20	16	24	15	*15

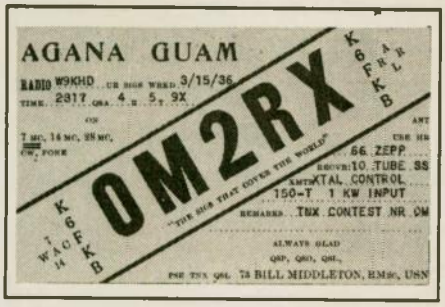
EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	17	13	*19*	*(11)*	*14
9	*(18)*	*(11)*	15	14	*15
11	23	*14	14	17	17
13	26	16	*(13)*	*18	22
15	28	*(13)*	*(12)*	*19	*25
17	28	*(10)*	*(12)*	*19	*27
19	*26	*(13)*	*(17)*	18	*28
21	21	*(16)*	26	16	*28
23	18	*(18)*	28	14	*26
1	*16	19	29	*11	*21
3	*13	*(17)*	29	*14	*18
5	18	16	24	*13	*16

Antique QSL department

Do you think that OM2RX is a confirmation for a contact with Slovakia in 1936? No, this one was for a contact with Bill Middleton, signing with that call from Agana, Guam. This old QSL was submitted by Dewitt Jones, W4BAA, who was signing with his original call of W9KHD that year. Dewitt also commented that he was running 1 kilowatt and very few had that kind of power in those days. The final tube was a 150T.

I have shown cards with this unusual prefix from Guam several times in past issues. The prefix is a carry-over from the days when there were no official prefixes. DXers assigned these prefixes with some logic in mind. In this case the "O" for Oceania, and the "M" for the Mariana Islands. When prefixes were eventually allocated in the late 1920s there still was some logic in them such as those for Germany (D), Great Britain (G), and Italy (I). You question



the "D" for Germany? The correct name, of course, is Deutschland!

The second QSL is also submitted by Dewitt when he worked ZC6AQ of Palestine back in 1938. The operator was K.J. Cook, whose home call was G2KK. This was a 20 Meter CW contact.

Dewitt has been continuously active all these years. Many of you may recognize W4BAA as the North American representative to the RSGB IOTA Programme.

QSL routes

The following QSL routes are correct to the best of our knowledge, but cannot be guaranteed. Please report any discrepancies.

7X5JF—Moktar Bensain, P.O. Box 2, Alger Gare, ALGERIA
A92Q —John S. Redd, P.O. Box 116, Manama, BAHRAIN
CE7LHG—P.O. Box 2000, Punta Arenas, Patagonia, CHILE
CL7BC—P.O. Box 5410, Camaguey 3, CUBA
DL8FCU—Alex Sudermann, MarkerBreite 24, D-34497 Korbach, GERMANY
EL2NE—P.O. Box 2751, Monrovia, LIBERIA
FJ/OZ7SM—Herb Asmussen, Park Farm, Gorcott Hill, Beoley B98 9EN, ENGLAND
HP1/DL8SEP—Max, P.O. Box 6-7413, El Dorado, PANAMA
HS7AS—P.O. Box 7, Suphanburi 72140, THAILAND
J20UFT—Patrick LaBeaume, 38 Chemin du Plateau, 67500 Hagueneau, FRANCE
KC0PA/S0—Tim Hardy, 137 Kelli Circle, Byron, GA 31008
OD5RZ—P.O. Box 18 130, Bucharest 71500, ROMANIA
SM0CNS/DU7—Thomas Bevenheim, Villa Sea Q, Ronda, Cebu Island 6034, PHILIPPINES
SU1SK—Said Kamel, P.O. Box 62, Shobra Alkima, 13411 Cairo, EGYPT
XF0C —Hector Espinosa F., P.O. Box 231, Colima 28000, MEXICO
ZD7HI—P.O. Box 140, ST HELENA ISLAND, South Atlantic

NOTE:

1. Please QSL to this manager via the bureau only - do not QSL direct.

Many thanks to the following contributors: KB2HAA, KD4YOT, W7KCN, NL7TB, Northern Arizona DX Association (W7YS), Salt City DX Association (KB2G), The American Radio Relay League (K5FUV), *The Ohio/Penn DX PacketCluster* (KB8NW), *Amateur Radio Action* (VK9NS), The Canadian Amateur Radio Magazine (VE3JLP), *Long Skip* (VA3JS), *The Low Band Monitor* (K0CS), *Inside DX* (N2AU), *DX News Sheet* (G4DYO), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

Despite the poor propagation, participation in the ARRL DX Competition in February was rewarding. I made some effort to spend more time on the radio rather than in the sack. As a result, I picked up three new ones on 80M; C5, J7, and VS6. I was using only an inverted vee and running a mere 100 watts. I even worked a JA6UBK on that band who claimed to be running only 5 watts. Therefore, any of you who think that 5BDXCC is impossible to obtain, it's not so. It just takes some effort and less time with DX nets. Now, if I can just stay up all night. 73 (Yawn)! de John, N6JM. **WR**

QSL routes

1B1A	UA6PZ	CS3T	CT3FT	P4/KA3DBN	KA3DBN	VP2EWW	AA7VB
3D2RW	ZL1AMO	CT6ARU	CT1ENQ	P4/N4BWS	WB4CKO	VP2MBO	W9PTO
3D2SH	JA1JQY	CZ7COP	VO1COP	P40R	K4UEE	VP2MDY	NW8F
3DA0CA	W4DR	D68UY	DK7UY (Note 1)	P49V	AI6V	VP2MFM	WD4KXB
4E9RG	DU9RG	DP1KGI	DD6UAB	PI50NWG	PA0LVB	VP2MFP	WD9DZV
4J50M	UD6DJ	EA8EA	OH2MM	PJ2MI	K2PEQ	VP2MR	N6DXD
4K6DFT	UA9AB	ED2URD	EA2URD	PJ7/K7CI	W7MAP	VP5PP	K0PP
4L4KW/MM	UF6FKW	ED3REC	EA3ESZ	PJ7/KA3DBN	KA3DBN	VP8CEO	KL7H/6
4L7Z	RB4JF	ED7ICC	EA7BB	PJ7VP	WE1HBB	VP8CGE	WA3YVN
4M5I	I2CBM	EI7M	EI6HB	PR7ZAI	F5KPG	VP8CID	WA3YVN
4O4C	YU1FW	EO2CWO	IK2QPR	PR7ZAJ	F5KPG	VP9DX	WB2YQH
4S7JRG	DF5JR	ET1WK	LX1UN	PR7ZAK	F5KPG	VQ9CH	N3CHN
4U0ITU	ON5NT	ET3YU	YU1FW	RK2FWA	DK4VW	VR2KF	JH1OGX
5H/9Q5MRC	G3MRC	EU6MM	IK2QPR	RL0	IK2QPR	VP8CGE	WV9F/6Y5
5H3JB	NK2T	EW6WW	IK2QPR	RW2F	DK4VW	XE1/AA6RX	JJ1NYH
5M5I	I2CBM	EX8MF	IK2QPR	S01M	EA7EL	XE2DV	XE1MD
5N0PYL	F2YT	FJ/N9SW	N9SW	S79UAA	DL6UAA	XF3/XE3RKK	W7ZR
5N5AQC	JA5AQC	FO0TAT	JL4UBZ	SM7/YO9FVU	SM7AIO	XQ6PV	KN6OU
5X1MW	KB4EKY	FO0TST	JK4VSE	ST0K	WB2RAJ	XQ8ABF	CE6PV
6Y5KT	6Y5CE	FO0TSU	JK6SKS	ST2/G4OJW	W7KCN	XT2BW	CE8ABF
7J1ATX	OH1TX	HG5M	HA5KEH	ST2AA	WB2RAJ	XU95HA	WB2YQH
7Z1IS	SM0OFG	HP1XXZ	KD5JZ	T93A/4U	9A2AJ	XU9HA	HA0HW
7Z70TY	YU7AM	HS7CDI	7L1MFS	T93M	K2PF	XW/JA2BOD	HA0HW
8P6QY	KU9C	II2R	IK2QPR	T94DD	K2PF	XW1BOD	JA2BOD
8P9CW	WB8FLO	IL3/IK2NCJ	IK2NCJ	T94KM	HA0HW	XW2A	JA2BOD
8P9NX	W0SA	IR0C	IK0AZG	T94QE	DL3KAX	XW2B	JA2EZD
8P9Z	K4BAI	IU9V	IT9VDQ	TL8LD	SM4DDS	XX9TYD	JA2BOD
9G1SD	WA0UOX	J28FD	F5LBM	TM0RAD	F6KNN	YA/PA3BTQ	K8PYD
9M2XC	JA2DLM	J37ZY	NS8G	TM5LC	F5GSD	YA6AC	PA3BTQ
9M6NA	JE1JKL	J55UAB	F6FNU	TN2M	DL7VRO	YB6AVE/1	RW6AC
9Q5FH	EA1DOD	J67AK	NP2EG	TN4U	DL7VRO	YJ0AXC	DJ5CQ
9Q5KM	ON6KM	J69KZ	K1EA	TT8AB	IK3NAA	YM0I/P	JE1DXC
9Q5MRC	G3MRC	J73LC	KE2BA	TU5DR	F5RUG	YT1AT	SP8BIA
9Q5TT	ON5NT	J75A	N6ZS	TU5EV	W3HCW	YT1DO	DL1II
9V1ZW	JR1NHD	J89VX	G4WVX	UA0QJG/0	UA1AGC	YV5/N2AUK	DL1II
9X/SM5DIC	SM0BFJ	KC4USF	KA1RPA	UL0OB	IK2QPR	Z37FAD	N2LDV
9X5EE	PA3DLM	KC6AS	JA3JM	US0GA	AA4US	ZA0B	YU5FAD
A51/JH1AJT	JH1AJT	KC6CW	JA2NQG	V29J	VE3HO	ZD8WD	HB9BGN
AA5K/AH0	JA3JM	KC6IY	JF6BCC	V29NR	YU1NR	ZD8Z	G4RWD
AH0W	KE7LZ	KC6KK	JL7CHC	V31DX	AA6BB	ZD9BVZ	VE3HO
AP2N	AP5MNN	KC6WW	JA2NQG	V31EV	NS0B	ZF1DX	W4FRU
AP5UF	N7EPD	KH0/KH2GR	JF6BCC	V31GG	WA2LYS	ZF2AB	W8BLA
BV9AAA	BV2KI	KH0O	JH6EYL	V5/DL7UTR	DL7UUO	ZF2CF	WA3EOP
C2/W9GW	W9GW	KH2GR	JF6BCC	V5/DL7UUO	DL7UUO	ZF2RF	N6RPL
C56/VE3JLP	VE3JLP	KP2A	W3HNK	V63BQ	JK2BQG	ZF2RO	K4UVT
C6AHE	K3TLX	L3HL	LU3HL	V63EU	JA2EU	ZF2UO	JH1ROJ
C6AHG	WB4FLB	L7Y	LU1YY	V63WW	JA2NCQ	ZF2VZ	N9JCL
CE0ZAM	CE3ESS	LP3C	LU3CF	V73I	V73AX	ZK1KH	N1MFW
CN2GB	EA9KB	LX4A	LX1NO	V73SK	JL7CHC	ZK1UVO	ZL2HU
CN8TM	JR2ITB	N0AX/KH6	N0AX	VK4SID	AA8JK	ZK1VDX	DL3BUM
CO2HR	HI3JH	N2MZH/VP9	N2MZH	VK9CI	JA1SDV	ZK1VTK	DL3BUM
CO2MA	HI3JH	OH0KDY	OH6EI	VK9CR	DJ5CQ	ZK3MM	DL3BUM
CQ4I	CT4IN	OH1KAG/TF	OH3NE	VK9XY	DJ5CQ	ZL7ZB	JE6IBJ
CQ6DQM	CT1YCH	OM0AA	OM3CVN	VP2E/WJ2O	WJ2O	ZL9GD	DJ4ZB
		OX3KQ	OZ1LUN	VP2EBN	KA3DBN	ZP5XYE	ZL4MV
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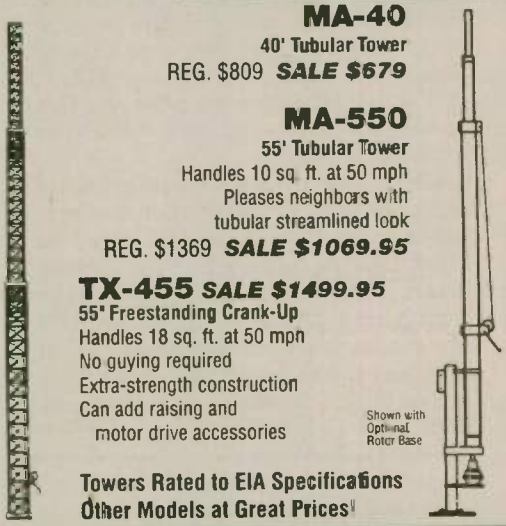

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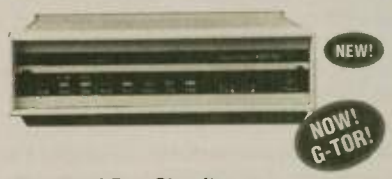

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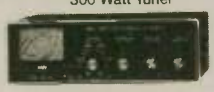

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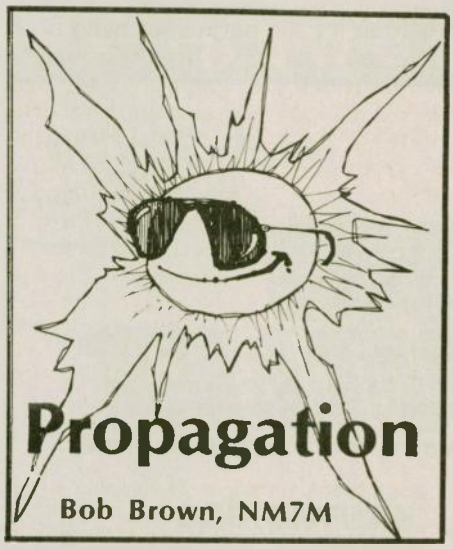


Propagation

Bob Brown, NM7M

On this occasion, I want to tell you a radio story with an interesting end to it. But you'll have to bear with me. First, comes the story; you'll have to wait for the ending.

Now I have been known to look back in time, asking questions as to whether ionospheric disturbances might have affected the battles in WWII and even whether my childhood dream of a contact with AC4YN could have come true. I hate to say it but the first matter had a greater chance of happening than my working AC4YN. Indeed, a major naval battle was fought in the Barents Sea at the time of the first known solar proton events, February 28 and March 7, 1942. But with radio silence being the order of the day during WWII, those two major solar proton events came and went without any noticeable effect on communications or the War. As for my working AC4YN, that proved to be out of the question, just another childhood fantasy. (The January '95 issue of ***Worldradio*** gives an account of the grim details.)

At the present time, I'm now dealing with other heroic times, even earlier, and am looking into the radio aspects of Arctic and Antarctic expeditions. The Arctic expeditions of Americans, led by Admiral Donald B. MacMillan, are a case in point as they were first instances which involved operations with amateurs right here in the USA. And thereby hangs a tale.

The radio operator for Admiral MacMillan's 1925 voyage to the northern part of Greenland on the "Bowdoin" (WNP) was a fellow named John L. Reinartz. You can read about the Bowdoin's radio set-up in the July '25 issue of *QST*, even see a picture of Reinartz in the August '25 issue of *QST*. But those articles were after the fact as the Bowdoin went to sea back on June 20, 1925.

Given that, what's so interesting about John L. Reinartz? For openers, his call was 1QP-1XAM and with two other amateurs, 8AB in Nice, France and F. H. Schnell at 1MO, they had the first trans-Atlantic QSOs on 100 Meters back on November 27, 1923! You can read about all that in the marvelous book, *200 Meters and Down*, by Clinton B. DeSoto that's published by the ARRL. Anyway, things have never been the same since then, believe me!

You might ask why I'm excited at this late date and writing an article about one particular fellow of the three? That's a good question; the other two gentlemen deserve some attention in their own right but not at this particular moment. Okay, moving ahead, the reason is something that Reinartz wrote in the April '25 *QST* on "The Reflection of Short Waves."

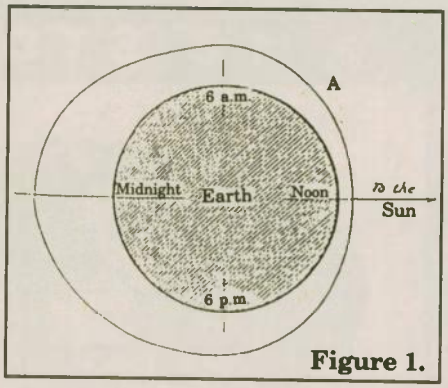


Figure 1.

In some ways, that article was a "bombshell," even making the Technical Editor of *QST* remark that some of Reinartz's conclusions in the article "may deserve further investigation." Indeed, they were investigated independently and proved to be right, as shown in a scientific publication in just the next few months. But what did Reinartz come up with in his article about "The Reflection of Short Waves" or, as we now call it, ionospheric propagation? Let's start with what he said and then cast it in more modern terms. Then I think you'll see why I was so taken by the article.

Reinartz began his article by citing Heaviside's idea that the earth was surrounded by a conducting, reflecting shell at high altitudes. Then he went on to say "Nearer the earth is more air which is a conductor during the daytime and an insulator at night. The reason for this change is that the sun's rays ionize the air in the daytime. This amounts to an extension downward of the reflecting shell, therefore the reflector is always nearer the earth's surface on the sunny side of the earth."

Those remarks are "pure Heaviside"

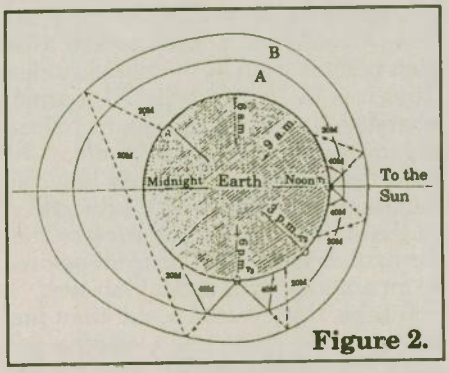


Figure 2.

and the reflection of radio waves was deemed to be the way signals were able to go beyond the horizon of the curved earth, diffraction and other ideas having failed as an explanation. On that basis, Reinartz's first figure, shown in Figure 1, gives representation of the Heaviside reflecting shell and how it varies with location around the earth, i.e., with local time or longitude and latitude.

Now mirrors do not show any dispersion, i.e., they do not reflect waves differently according to wavelength. Thus, the angle for a wave reflection by a mirror is the same for all wavelengths and that's one of the reasons why mirrors are used so extensively in astronomical telescopes. And you know that from times when you look at yourself in a good front-surface mirror, there being but one image of you and not one for each color of you or your attire.

If Heaviside's idea of a reflecting shell (note the singular) were correct, then radio propagation would be the same for all wavelengths. But that was contrary to Reinartz's experience. Thus, operating on the newly established bands, both 40 and 20 Meters, SWL reports showed his 20 Meter signals went further for a given time of day than 40 Meter signals. Is this starting to sound familiar?

On that basis, Reinartz revised the Heaviside model to have a reflecting shell (A) for 40 Meter signals as well as a higher one (B) for 20 Meter signals, shown in Figure 2. While it is hard to read, even requiring a magnifying glass with the original, the smaller hops off the inner reflecting shell are for 40 Meter signals and the larger ones off the outer shell are for 20 Meter signals. Looking at the differences in hop length for a given radiation angle, Reinartz could understand the SWL reports of his signals. Anyway, the Heaviside shell now has some vertical extent and becomes the something different, the Heaviside layer.

When published in 1925, it was "News", the idea that all wavelengths were not reflected from the same height and the idea that shorter waves penetrated further into the Heaviside layer amounted to heresy. In fact, the Technical Editor of *QST*, while not striking out those remarks, said "The thought that high-frequency wave motion will penetrate the Heaviside layer to a greater elevation than longer waves is rather in opposition to our generally accepted beliefs of such matters and may deserve further investigation."

Actually the matter was under "further investigation" at the very time, and Breit and Tuve at the Department of Terrestrial Magnetism of the Carnegie Institution of Washington were able to "sound" the upper atmosphere by sending 4.21 MHz pulses upward and listening for their echoes. And they heard the echoes in July 19 '25, using their time of flight, up and down again, to measure the height of the "reflecting layer." And with better pulse techniques and other frequencies, they found several ionized layers from 85 to 225 km in height, changing in height during the course of a day. So Reinartz was right!

But now I want to enter this discussion as a "Monday Morning Quarterback" (MMQB), adding some comments 70 years after the fact. So first, let me say that Reinartz's April '25 article was largely of a qualitative nature. Thus, the only numbers in it were related to RF wavelengths, 40 Meters and 20 Meters, and times of day but no mention was made of the height(s) of the Heaviside layer. But there should have been as Reinartz showed paths in his second figure, our Figure 2. In addition, and I didn't mention it earlier, he also used a launch angle of 45 degrees and added "there are things which make one suspect that is the most effective reflecting angle." (It's not clear from his article where that value came from but by modern standards, it would be considered either poor or extreme for the purpose at hand.)

To continue, from his SWL reports for paths and that angle shown in Figure 2, he could have come up with estimates of the heights of the Heaviside layer for both 40 Meter and 20 Meter reflections. The calculations would have been easy, within the reach of any high school trigonometry student, and certainly wouldn't require the use of a computer, just some trig tables and logarithms. Maybe Reinartz made the calculations, maybe he didn't.

While those heights were not in his article, I have to think he would have come up with values much larger than

Breit and Tuve did with their pulsed RF sounder. For example, using that 45 degree angle, a transcontinental hop would have required the reflecting region to be at an altitude of 3,500 km, a magnitude even higher than shown in Figure 2. That might have concerned him, perhaps not; it would have depended on the background knowledge that he brought to the problem. So now the question comes up as to what general information might have been available to him at the time, about the upper atmosphere and going up toward the Heaviside layer?

If you look into it, there wasn't much known about the region up there, just what could be obtained from observations at ground-level. Probably the closest that science came to the Heaviside layer without the aid of radio waves was with the triangulation studies of upper atmosphere phenomena. There, people at two ends of a long baseline trained theodolites on prominent features of auroral displays, then coordinated their observations by telephone, or did the same with the motions of distinct cloud formations, say nacreous or noctilucent clouds seen at high latitudes. The Norwegian auroral work was particularly good, showing that auroral displays were up in the region above 100 km altitude. And some of those clouds were found as far up as 80 km.

By looking at the spectra of auroral displays, it was clear that auroral regions around 100 km altitude contained the same types of molecules as at ground level, nitrogen and oxygen. But there was one puzzle, the common green color in aurora, at 5577 Angstroms, could not be duplicated in laboratory studies. That green color was even seen in the spectra of nebulae and was considered to be the radiation from a mysterious chemical element, Nebulium, not found here on earth.

But all good mysteries are solved sooner or later and so two Canadian scientists found that the 5577 Angstrom color didn't come from something exotic out of another world, but rather something as simple as atomic oxygen. The problem in solving the mystery was in getting gas pressures low enough in the oxygen source to reproduce conditions at auroral altitudes. That mystery was solved around 1930, well after Reinartz wrote the article that took a different view of the Heaviside layer.

So Reinartz didn't know then that a "different view" should have been taken with regard to the chemical composition of the atmosphere in going up toward the Heaviside layer. At best, the only quantitative information on the upper atmosphere, at least to heights of phenomena, came from auroral studies. The question then rises as to how much higher, if any, was the Heaviside layer. The 45 degree angle that Reinartz used would have placed it very high, indeed. But the idea of ground reflections and hops were not in his paper; with multiple hops to reach the same distance, the height required of the reflecting layer would have decreased. And lower radiation angles would have done the same thing.

That green color was even seen in the spectra of nebulae and was considered to be the radiation from a mysterious chemical element, Nebulium, not found here on earth.

Now the question is whether anyone else at the time held any other "different views," either from experimental or theoretical considerations. In that regard, the scientific literature of the period shows that "different views" were emerging. For example, in the U.K., W.R. Eccles proposed the presence of both a highly conducting Heaviside layer which "long electric waves" could not penetrate and a region of ionization at middle altitudes. That was in 1912 but Sir J.J. Larmor abandoned the idea of a sharp reflecting layer and in 1924, he formulated a mathematical theory which involved bending or refraction of "electric rays" in that ionized region, much like that for light rays. In fact, he even pointed to an analogy with optical mirages.

But his theory used a "different medium" made up of free electrons and positive ions instead neutral atoms and molecules, as in an optical dielectric. And it was quantitative, as you'd expect of a theorist, even involving heights, electron and ion densities, as well as a refractive index which varied with height. But in application, its main focus was on wavelengths in common use a the time, 1,000 Meters, or a frequency of 300 kHz. So it was a low-frequency (LF) theory, not one for high-frequencies like those used by Reinartz. However, it seemed capable of having those LF waves go around the curved earth at an altitude below 1,000 km just by refraction, with only a small electron density required. With more results from ionospheric sounding, the theory was improved in the next few years to the point where it could deal with the higher frequency signals used by Reinartz and the influence of the earth's field was also added by Sir Edward Appleton, getting the modern theory of ionospheric radio underway.

So that was the situation in the summer of '25, Reinartz was on the Bowdoin up in Arctic waters, Breit and Tuve working toward improving their radio sounding technique, the Norwegians getting ready for another winter's auroral observation program and the "different views" of a theoretical nature being discussed in both radio and scientific circles. But Reinartz was having problems of his own, getting traffic through to the expedition's sponsors, The National Geographic Society.

The plan was for the Bowdoin (WNP) to use the US Naval Station in Washington, DC for their communications but when that proved to be difficult, Amateur Radio was relied on, mainly through 9CXX, a 15-year-old boy in Cedar Rapids, Iowa. So the lad spent a good part of the summer of '25 handling traffic for the Bowdoin, taking it to the local telegraph office for forwarding to the National Geographic Society's office. He became something of a local celebrity and when interviewed by the Cedar Rapids *Gazette*, he said he hoped to realize "great radio ambitions, by and by." Maybe you've heard of him; his name was Art Collins. WR

Capacitor tester using the LM555 and your frequency counter

John Bell, N6ZJB

This simple circuit can test the value of small capacitors in the range of 1pF to 10000pF (.01mF).

The circuit is simply an Astable multivibrator (oscillator) using a LM555 timer IC with the capacitor that's being tested as the timing capacitance. The output frequency of this circuit is related to the value of the capacitor that is being tested.

I used an LM7805 5-volt regulator to improve the accuracy but you could get away with just a 9-volt alkaline battery.

The on/off switch is a momentary switch so I won't forget to turn it off. With the regulator, the circuit draws 11.5 mA. If you use a 9 volt alkaline battery and it takes 5 seconds to test a capacitor, you could test 60 capacitors a day for a year before the battery would die.

When you build the circuit in Figure 1, make the "HOT" test lead as short (one inch is good) as possible to reduce the stray capacitance.

The formula to figure out the capacitance of the capacitor you are testing will be like mine except for the differences in your IC and stray capacitance.

Here is how to find the values for your formula. After building the circuit and connecting your frequency counter, connect a 1000pF capacitor to the test leads. This 1000pF should be a silver mica type, as accurate as you can get. Press the "on" switch and read the frequency. On my circuit I read 714 Hz.

The basic formula is:

Capacitance in pF = (714Hz x 1000pF)/ frequency

CpF = 714000/f

This formula works well except for the stray capacitance. Now here is what you do. Remove the 1000pF capacitor and measure the frequency with no capacitor. On my circuit I measured 77,200 Hz. By using the basic formula, I obtained the stray capacitance of 9.248704pF.

Stray CpF = 714000/77200

So now the final formula is the basic formula minus the stray capacitance:

CpF = (714000/Frequency) - 9.248704

Your formula will be close to mine, but not the exact figure.

Here are my test results.

Capacitor	Frequency	Calculated
0 pF	77200 Hz	0.000000 pF
22 pF 5%	22100 Hz	23.05898 pF
56 pF 5%	10687 Hz	57.56143 pF
112 pF 5%	5757 Hz	114.7742 pF
1000 pF 5%	714 Hz	990.7513 pF
1500 pF 10%	476 Hz	1490.751 pF

Output voltage is .64V P to P

Current drain is 11.5mA

9V alkaline battery is 360 mAh

You can make the formula a little more accurate by adding the stray capacitance to the 1000 pF:

1009.248704 pF x 714Hz = 720603

CpF = (720603/Frequency)-9.248704

This formula is about 1% better. You can do better if you want to spend the time.

This circuit is good for small capacitors that are less than .01mF (10000pF). I also found the accuracy to be better than 3%. It's simple and runs a long time on a 9 volt battery. All the parts are available from Radio Shack. You can build it in one of Radio Shack's plastic boxes and put a stick-on label on the box with the formula.

John Bell manufactures repeater controllers and data acquisition boards for the IBM-type computers. He also holds an Advanced Class Amateur license (N6ZJB) and a General Radiotelephone commercial license. John can be contacted at 1381 Saratoga St., Minden, NV 89423; 702/267-2704. **WR**

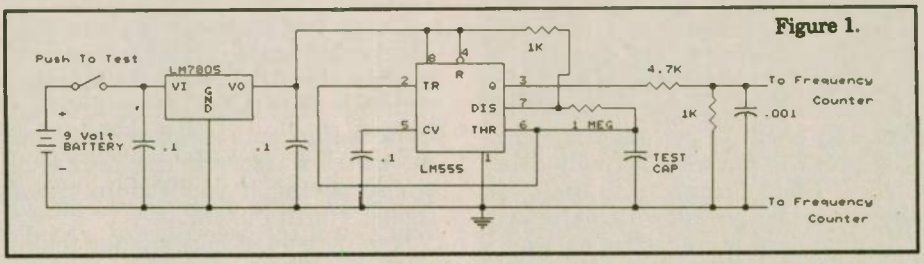


Figure 1.

I recently received a QSL card from Craig Bledsoe, K4TXK/KL7, who lives way up north in Eagle River, Alaska. Here's what Craig said: "I tried sending 10 packet messages to you last fall (two while aeronautical mobile), but I guess you never received them, so here's a postcard to let you know that I tried. 73, Craig."

I never did receive any messages from Craig during my ten message experiment. I got a pile of messages from all over the USA, and as I reported before, only about 10 percent of the messages sent to me were actually delivered. If I add Craig's 10 to the total, the percentage goes down a bit further.

Craig's card stated that he was a member of the FEDEX Amateur Radio Club, so I suspect that he is a pilot for Federal Express. The fact that he tried to send me two messages from an aeronautical mobile platform might be another hint. I sent Craig a letter telling him to try again if he ever flies over Fargo. My BBS is open to anyone, although I only get personal mail and AMSAT bulletins on it these days. Our club station is the main packet BBS for our area nowadays; mine serves as a standby.

Old time RTTY stuff

Another interesting letter came from Dick Bendicksen, N7ZL and ex-W7LPM, of Seattle, Washington. Dick sent selected photographs and a brochure telling about the Vintage Telephone Equipment Museum which is operated by the Charles B. Hopkins Chapter #30 of the Telephone Pioneers of America.

Two years ago I served as president of the Cass County Historical Society here in Fargo. We operate a collection of 42 antique buildings and museums called Bonanzaville near West Fargo. If you travel on Interstate 94 you can find Bonanzaville at exit 343 in North Dakota.

One of our buildings is also a telephone museum, and it is also operated by a chapter of the Telephone Pioneers. Although after looking at the brochure from Seattle, ours is rather small, but nevertheless it's worth spending some time viewing if you should travel though North Dakota.

Here is part of Dick's letter telling about the Seattle museum:

"Just pulled my March issue of ***Worldradio*** out of the mail box and the first thing that caught my eye was RTTY and 1953. 1953 was my first year on RTTY also. Luckily, I was able to obtain a model 26, so I didn't have the problems with distributors and model 12s and 21s etc.

"Retired from Ma Bell thirteen years ago, and have been very active in the construction of the museum here in Seattle. We have been at it for about seven years now and have filled up around 12,000 square feet with equipment. It's located on two floors of one of the old central offices at 7000 East Marginal Way South, Seattle, WA 98108.

"My contribution has been the restoring of Teletype and telegraph equipment, including test boards. I also work on the early video gear and equipment associated with the radio network distribution of older days.

"Having some early issues of *RTTY Magazine*, I found your call in March, 1953 (Vol. 1, No. 3) under "Stations Heard or Worked" by Frank White W3PYW. His first weekend shows W4FJ, W2PAT, W2NSG, W3LMC, W2JAV (he now lives in the Seattle area) W8RMH, W8DLT, W3ERS, W1BGW, W4SFQ, W3LCW, W2PAU, W3PYW, W3ODF, W4ØLL, W9TCJ, WØLHS, K2WAN, W4ACV, W3PKF, W3RUA and W2TLY receive only.

"In Volume 1 No. 5, under the active low frequency stations, is 'WØLHS of Fargo running a 32V2 and a Model 12.'

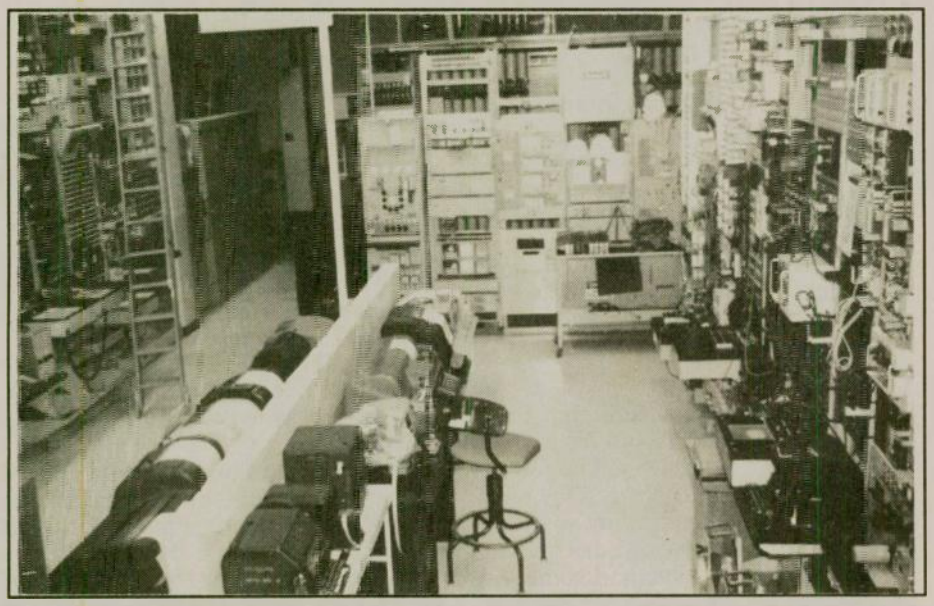
"Also you mentioned old "Beep," Boyd Phelps, WØBP. I was probably Beep's last QSO. I had just arrived home in the wee hours of the morning after working the evening shift when I had a nice QSO with Beep. He was down in Mexico using the call XEØBP. Beep left that very morning on an auto trip north, during which he was killed in an auto accident. I received a letter and XEØBP QSL card from Erosa, XE1BI, confirming that final contact.

"I dropped out of RTTY around 1969 after several years of acting as a NAVMARS gateway station handling RTTY traffic from Danang for the northwestern USA, Western Canada and Alaska. I guess it was plain old burnout, and eight hours a day on the Teletype testboard didn't help either.

"In our museum, all the Teletypes are running except the 21A and the 12. I have the 12 keyboard working, but I still have to tackle the printing unit. The 21A is not in very good shape, so I don't know if it's worth the effort.

"Our visitors find the older printers very interesting. We've copied vintage news to tape so we can play it back at the terrific speed of 60 wpm. It's odd that we have every type of Teletype transmission measuring gear that the Teletype Corporation built, but we can't find anything from the earlier days of Data sets.

"Thanks to hams who never throw anything away, or we wouldn't have anything older than the model 28s. When the old timers found we wanted the gear for our museum, there was no



Part of the display area in the Vintage Telephone Equipment Museum in Seattle, Washington. On the left is the collection of Teletype machines and allied tape equipment.

problem getting them to release it.

"We also have a display of older ham equipment collected from members of the Western Washington chapter of the Telephone Pioneers. It consists mainly of homebrew gear from the 1930s and '40s, with a few pieces of commercial stuff like National SW-3 and HRO receivers. We hope to get a working ham station on the air one of these days.

"At the present time the museum is open only on Tuesdays, or on request by visiting groups. It is probably the best display of switching equipment of any museum in the country.

"There is a working panel system from one of the first three offices in Seattle to provide dial service in 1923. We also have some equipment off the battleship *California*.

"It's a fun place to visit because I believe we have just about everything that was associated with the telephone industry: switchboards, telephones, telephone poles with about everything that ever hung on one. And, of course, we have masses of old books, pictures and records. Look us up when you come to the Seattle area.

"Like most hams, I don't build much anymore, but I find the variety of subjects in ***Worldradio*** very interesting. I have been very active on the OSCAR satellites for seventeen years. I started on Oscar 6 and have been a member of AMSAT since 1977."

The telephone museum in North Dakota's Bonanzaville is smaller than the Seattle exhibit, but it is much the same. It is always interesting to go through it and see how much we have progressed in the last century. Electronics and radio have really progressed! In my lifetime we've gone a very long way.

The year I was born, for example, my grandfather and his farm neighbors installed the first country telephone line in his western North Dakota county. It was a party line with coded rings that signaled the called party to answer the phone. Grandpa's ring was one long and two short. If I remember correctly, a long continuous ring was a panic signal and every farmer should answer the call. The long ring might signal a prairie fire or some other disaster, so it was a paramount call for everyone to answer.

That party line was installed only 79 years ago; the same year grandpa also installed a Delco light plant on his farm. Prior to that, kerosene lamps provided lighting when the sun went down. The Delco plant was powered by a stationary gasoline engine which turned a generator which supplied juice to the bank of lead-acid batteries that provided the 32 volts for lighting purposes.

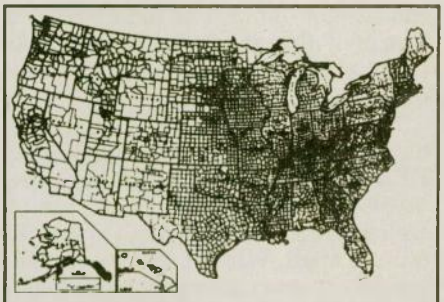
Grandpa's barn was also wired, but the distance between the barn and the batteries located in the farm house was so great that the voltage drop caused the 32-volt light bulbs to be very dim. The men always carried kerosene lanterns when they went to milk the cows on winter mornings.

The Rural Electric Administration didn't get around to bringing 120 volt REA power to my grandfather's area until after World War II, so the old Delco plant did yeoman service for quite a spell. When I was a kid and I visited my grandparents on their farm, I couldn't figure out why they didn't have electric toasters and other appliances like we did in the city. Now I know it was because of 32 volts direct current.

EAVESDROPPINGS

I SUPPOSE YOU COULD LOAD A COLLINS TRANSMITTER'S OUTPUT INTO A WET 2X4 AND IT WOULDN'T COMPLAIN. . . I HOPE TO GET TO TALK TO YOU AGAIN BEFORE FIVE YEARS GO BY. . .THE TROUBLE WITH SNOW IS THAT IT MAKES DRIVING DIFFICULT AND IT DOESN'T HELP MY CHIPPING AND PUTTING EITHER. . .THE STAGE HANDS AT THE THEATER USED TO TALK ABOUT NOTHING BUT OVERTIME AND WOMEN — NOW IT'S NOTHING BUT COMPUTER JARGON. . .I WONDER WHAT BBS HE CHECKED INTO BECAUSE I LOST THAT FACT WHEN I CLEARED OFF MY DESK. . .A FOLLOW SPOT IS WHEN YOU HAVE 11 SPOTLIGHTS COVERING AN ICE SKATER RACING AROUND THE RINK AND THE 12TH SPOTLIGHT IS TRYING TO CATCH UP. . .REMEMBER THE GOOD OLD DAYS WHEN THERE WAS AN RTTY CHANNEL ON 20 METERS THAT WAS NOTHING BUT TELETYPE PICTURES?. . . THEY DON'T MAKE SOLDER JOINTS LIKE THEY USED TO YEARS AGO. . . I NEED A QSL FROM YOUR STATE WHATEVER IT IS BECAUSE I'M NEW AT THIS HOBBY. . .WHAT FREQUENCY DO YOU GUYS FREQUENTLY FREQUENT?

Thanks to KA1RFD, N5NPR, K5KKO, WCØM, NØBCW and WØML for help with this column. If you wish to communicate with me, write: Bill Snyder, WØLHS, 1514 South 12th Street, Fargo, ND 58103-4134. My packet address is WØLHS @ WØLHS.#SEND.ND.USA.NA on your local BBS station. Just put in a message and let the system do the work. 73 de Bill. DIT DIT. WR



County Hunter

Ace Jansen, N3AHA
42857 Hollywood Park Place • Ashburn, VA 22011
e-mail or internet: sjansen@aol.com

Howdy county fans! For New Years' resolutions I gave you a list of mobile tricks — are you using them? Every once in awhile, I'll do the #1 mobile trick—shift with my left hand! In March, I gave you some lessons learned from my theft loss and asked you to learn from my mistakes, but did I learn from my mistakes? Here's my score card:

1) Don't leave an unusual antenna on you car!

FAIL! Still leave it on most times, but take it off if I plan to park for an extended period and leave the radio in the car.

2) Install your radios with quick release mounting kits!

PASS! I installed my Yaesu 900 with a mobile mounting kit. I take the radio out of the car every evening.

3) Park in your garage!

FAIL ! The garage is just too darn messy, besides I'm moving!

4) Install a car alarm!

FAIL! Still haven't done this one, but maybe someday.

5) Pay for insurance and don't worry about it!

PASS and FAIL! I pay for insurance still, but now I worry more!

Looks like I score 1 1/2 on my recommendations. I hope you can follow some of these recommendations and avoid getting ripped off.

Yaesu 900

I also mentioned last time that I replaced my Kenwood TS440/AT with a Yaesu 900AT. Here's what I've found in the few weeks of operating my new rig; the bands are dead...okay, so that's not dependent on which radio I have. Seriously, it works! I've had some intermittence with the microphone, but I think that's from dropping the mic on concrete. The keyer works very nicely; I'm using a Bencher paddle. The display is easy to read even in direct sunlight. But I do have one gripe so far; I'm having problems with the antenna tuner. With my Kenwood, I could resonate on the low end of CW and still use a tuner at the high end of phone on 20 Meters. Now, with the Yaesu, I'm still resonant at the low end of 20 CW, but unfortunately, the Yaesu tuner works sometimes and other times claims there's too much SWR (high SWR) and shuts down. That leaves me unable to transmit on 20 SSB. My way around that, is to resonate my antenna in the middle of the band, and hope the tuner will work on both band edges.

USA-CA Rules clarification

Those of you collecting QSL cards for the USA-Counties Award maybe happy with the following rules clarification. the USA-CA rules state, "Any QSL card found to be altered in any way disqualifies the applicant." Many county hunters with altered cards have not used these cards to qualify for the USA-CA program out of fear they would be disqualified. Bill Nash, WØOWY, recently had a talk with the USA-CA Award Custodian, Norm Van Raay, WA3RTY, and Norm issued the following rules clarification.

"In an effort to qualify one condition of the USA-CA Rules and Program, the following statement is made with that intent.

"Alterations to the extent necessary by a person signing a QSL or reply card or similar confirmation of county contacts for purposes of the USA-CA award may be acceptable under the following conditions:

1. The alteration (or completion of a blank space) is made only by the person that will sign the card.

2. The alteration will be shown by a strike out of the previously entered data and the new data penciled in immediately adjacent to the stricken out data. The new data is to be written so as to clearly indicate that the new data replaces the stricken out data.

3. The change thus made shall be accompanied by the initials of the person making the change placed immediately adjacent to the changed data.

"Any alteration or other change not made in this manner and consistent with the rules and conditions of the USA-CA award program shall disqualify the applicant."

Looks like I've been doing my fellow county hunters a disservice by penciling in the correct county on the mobile reply cards without initialing the cards. I'll start now! Here's a warning to mobile ops signing MRCs; make sure if you make a change to the MRC, you follow the rules above.

Mailbag

I received a note from QRPer Hollis Button, WF6U, recently. Hollis told me he was planning to homebrew a 40 Meter QRP rig, feeding a dipole cut for 40 Meters. He told me he plans to head up to the counties in the Sierras (CA) with low ham population. He was hoping to put out some CQs and work some of the county hunters and thought a call from a rare county would net some contacts (even with only 1 watt!). Hollis' 4 crystal rig will cover 7.018-7.024, 7.024-7.030, 7.030-7.040, and 7.110-7.115. Hollis wanted some advice.

Well Hollis, I certainly applaud your enthusiasm and desire to give it your best shot. First off, I'm not a QRPer, so I don't have much experience there. Using 1 watt on 40 Meters will limit your contacts you might otherwise have on 20 or 15 Meters with more power. You might try 7.035 MHz — the unofficial CW county hunter frequency. Sometimes the CHers on 20 Meters will move to 7.035 MHz. As far as finding county hunters, they're everywhere and you may find some eager to work you in those counties. Your best shot though is the California QSO Party in October. During that weekend, everyone is looking for you. The drawback, of course, is the level of noise and traffic during a contest. You will have more takers early in the morning or late at night as that's the best time for propagation on 40 Meters. I wish you the best of luck and thanks for trying to help the county hunters!

40+5 Years of HF Mobileering

I'm beginning to review a copy of Don Johnson, W6AAQ's, book, *40+5 Years of HF Mobileering*.

Looks like a lot of good information and historical data on HF mobileering. I'll give you more information and my opinions of the book in May.

The book is available from Worldradio Books, Box 189490, Sacramento, CA 95818 for $14.95 plus $2.00 S&H charges plus $1.16 CA tax (if applicable). See order blank in ***Worldradio*** for ordering information.

On a similar topic, I'd like to hear what you think of your mobile antenna or antennas you've used. If you use an antenna — different than a Hustler resonator — please let me know what you think of its performance. I'm particularly interested if you've used one of the following: 1) AXM Enterprises' Mobile Mark HW-3 multiband antenna, 2) GLA's bugcatcher, 3) TJ Antenna Company's Broadbander BB3, and 4) High Sierra Antennas' HS-101. The latter two look similar to one another and an antenna previewed in the above-mentioned book. The Broadbander BB3 operates from 3-30 MHz and the High Sierra Antennas' HS-101 operates from 3.5-30 MHz. They both require a remote tuning device, but the idea of driving down a freeway at 65 mph and having the ability to change bands (all bands) on the fly is wonderful.

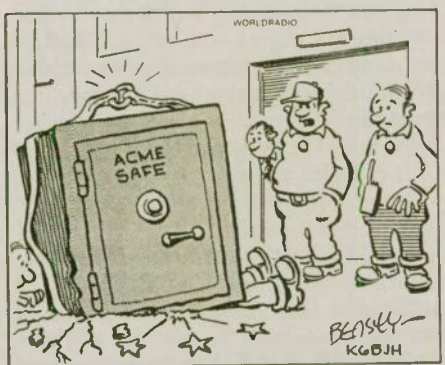
I'm serious; I'd like to hear from you and your success with HF mobile antennas. I saw a posting on the Internet DX reflector from someone looking for the "best" vertical. He got so many replies he had to write a summary. If you're on the Internet, send me your mobile HF antenna story via sjansen@aol.com.

CONGRATS!

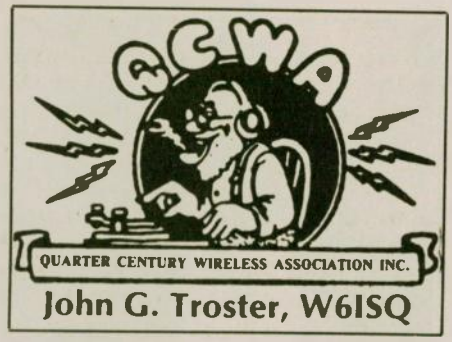
Congrats to my fellow ***Worldradio*** columnist (QCWA) and friend, Jack Troster, W6ISQ, who qualified for USA-CA #859 dated 2-28-95. Jack took a few years and contacted all counties on CW, and almost all with mobile stations. I was happy to sign his *CQ Magazine* USACA record book with another fellow CW county hunter Jim Maxwell, W6CF. Oddly enough, Jim and Jack were my sponsors when I joined the Northern California DX Club (NCDXC) back in 1989. We county hunters stick together. Congratulations Jack! Yippee! You're next Jim!

Until July, happy trails to you! See you on 14.336 and 14.056 MHz. **WR**

Carlie Ann Jansen, first harmonic of N3AHA and XYL Ann, asleep at the switch.



OL' ED WAS ABOUT TO WRITE A PRODUCT REVIEW ON THAT NEW SHOCK RESISTANT HANDHELD RADIO HE'S CARRYIN'---WONDER IF IT PASSED



John G. Troster, W6ISQ

QCWA CW QSO Party

Glad to hear so many of you out there slugging away on 'Morris Code' in the QSO Party. Lots of familiar calls, wish all 10,000 QCWA members had been on. I was pleased to swap numbers with Dave, KØERM, who recently gave me my last county, number 3076, in the County Hunters CW program on 14.056 kHz. Only took me eight-and-a-half years! More of you ought to check into that CW net. It's cool enjoyment and a good geography lesson to boot. QCWAer W9MYY is a regular mobiler on the net.

DOGs Distinguished Old Goats

Here are a few more calls of the many Distinguished Old Goats who have bombarded Genial GM Jim, W7LVN, at HQ demanding info about how to become One Of Us, the Proud, the Many, the Elite, the QCWA. There are WØWWZ, K4QV, W6SBY, K1CT, K5MVR, W7KVT, WØUVV, NØAFR. Some of these gentlemen sent in their requests a long time ago, but having been waylaid in my duties as scribe, I'm just now publishing the good news.

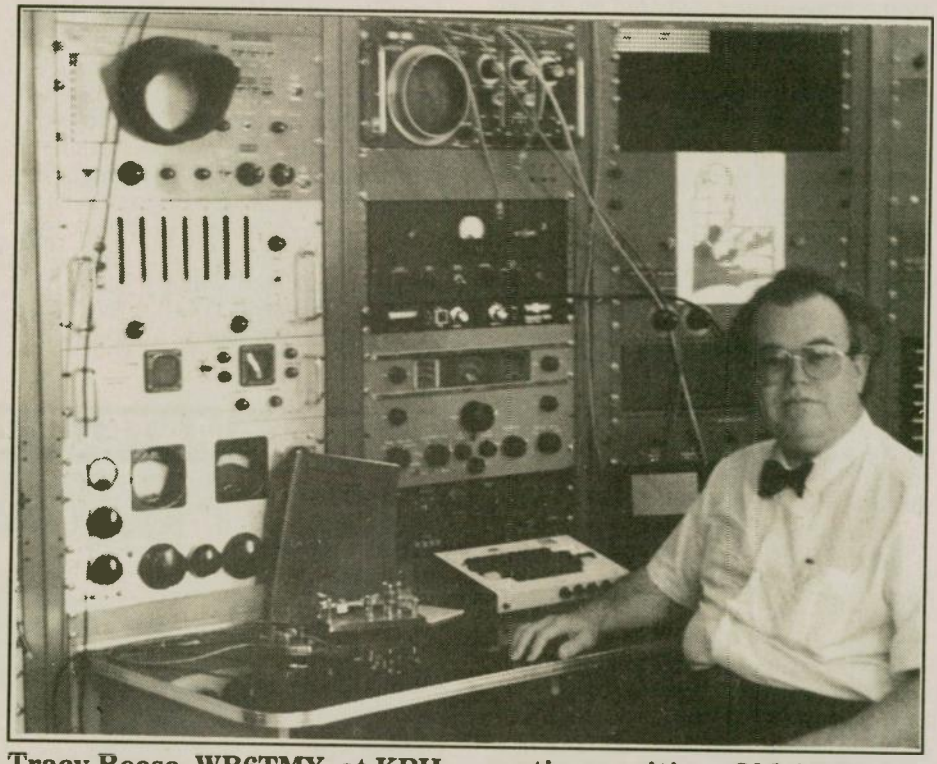
QCWA is privileged to have so many DOGs who have been operating a *lawwwng* time. Jan, BJ's associate up at HQ, sent me a list of 165 QCWA members who have held a license 70 years and another list of members who have been licensed 75 years! Wish we could print these calls here all at once (space y'know) ..... waallll, maybe we can run a few calls at a time as sort of an Honor Roll of DOGs.

1938 Logbook, courtesy of One of Us

After all these years, a "friend" is back: the old time, spiral bound, red ARRL log book, the kind you used in the '30s, with 37 lines to the page. And why were there 37 lines per page? Not only back, but available. Here's the scoop. Tracy Reese, WB6TMY, (QCWA of course), rediscovered a copy of this old logbook, and liked it so much he wrote to and received from ARRL, permission to reproduce it, which he did at his own expense. He made a few copies, sent one to GM Jim Walsh, W7LVN at QCWA HQ. Jim liked what he saw and figured QCWA fellas and gals would love them. So Jim cleared with Tracy to print a first batch of 200 for sale. Tracy donated the idea, and the logs are offered at a few farthings over cost to all who want them—for old time's sake.

You can buy one of these long-out-of-print-logs for six bucks from QCWA HQ, 159 E. 16th Ave, Eugene, OR, 97401. Note: original ARRL price was three for a dollar! Don't have to be a QCWA member to get one, the offer is open to all. Only difference between the new log and the old one is that this new one has a plastic spiral binder while the old one was metallic. Cover and pages are true replicas.

Tracy is following a long tradition of wireless telegraphers, and he likes to relate the story of his station's predecessors. Station KPH, was founded by DeForest Wireless Telegraph Company in 1904 as station "PH" in the Palace Hotel in San Francisco. In '06 the station was moved to the Union Trust Building by the new owners, Occidental and Oriental Wireless Telegraph Co. You remember 1906 — the San Francisco earthquake which destroyed both previous station locations. After the quake, PH was moved to Russian Hill, but there was a problem. Local citizens complained of the unbearable noise of the straight spark and that induction noise was received in the telephones, destroying conversation.



Tracy Reese, WB6TMY, at KPH operating position. Old ARRL log book is his reproduction.
—photo by WB6TMY

Tracy has a particularly interesting job, one little thought about in this fast-expanding electronic age of satellites and raging SITOR, AMTOR and all the other TORs. Tracy handles ship-to-shore HF bands CW traffic at station KPH in Bolinas, California, just north of San Francisco.

When I called him at KPH, I was told he was "on the key." Sure enough, he was transmitting CW traffic using a bug, at about 15 wpm, to a ship at sea. Exact copy is mandatory in this commercial business. Receiving the general gist of the message is not acceptable. So, keep the speed down. No glitches, no mispellings...exact. Ditto receiving.

The early operators at "PH" pioneered the use of a station log book. In their spare time they wrote down what was happening at the station and at the same time, composed some notable poetry also preserved in the log. For example:

The night was dark,
That static as bad,
The power went off,
GEE, — I was glad.

In 1912, the Marconi Company, which owned Cape Cod Radio "CC," purchased the station, and Marconi himself lived near the site for a while. After World War I, the newly formed Radio Corporation of America took over

Tracy at home station. Equipment shown: (L-R) Leo Myerson's Globe Chief and SX-42.

and moved the station north to a transmitting site at Bolinas and a receiving site at Marshall, which was later moved 17 miles further north to Point Reyes. During the next 30 years the station became one of the best known ship-to-shore stations on the West Coast.

KPH is now owned by MCI International. Anyone wishing more information about historic KPH, and how it works, call toll free 800/556-1443.

You will receive a free FAX description of the station and services. The voice on the 800 number is Tracy's.

Tracy took the long way around to KPH. He was born in Burbank, California and moved to Big Bear in the mountains east of Los Angeles, at an early age. In high school, with the help of Zane Mills, WB6FLN, he got the call WN6KXH, and went on the air with a Johnson Ranger and a 240-foot Windom antenna. Then off to Arizona State University as a broadcast major and speech minor. A ten-year coast-to-coast odyssey followed, with Tracy working at nine different small radio stations as disc jockey, chief engineer, whatever was needed, even five months as general manager at a station in New Hampshire.

Early on, Tracy decided he wanted to stay in broadcasting; so he set about acquiring FCC Commercial licenses: First Class Phone in 1967, Amateur Extra in 1974, Second Class Telegraph in 1974, First Class Telegraph and Radar Endorsement in 1977. The code we use as amateurs is the International Morse code. Tracy also copies the original Morse code, the land line telegraph, which uses the different length of dashes and adds spaces to some letters. For that he uses a sideswiper. How many of you readers are still adept at that Morse? It used to be printed in the handbooks, but not anymore.

Tracy works principally at the Bolinas transmitting site but goes to Point Reyes as needed. The equipment at Bolinas consists of 23 Henry 5 kW transmitters working into various big beam arrays. Operators at KPH may also receive and key the transmitters by land line at their sister station WCC on Cape Cod, MA! Essentially they can work the world from the KPH location using frequencies on 4, 8, 12, 16, 22 MHz.

The receiving station monitors 500 kHz for emergency traffic and also uses this frequency for traffic. When contact is made, KPH will QSY with the caller to 426 kHz, or the other listed frequencies, to handle traffic. A few years ago the Coast Guard discontinued monitoring this SOS frequency because ships were supposed to get modern and install automatic satellite equipment, etc., etc. However, it is a fair guess that there still may be 5000 ships out there which don't have all that neat new equipment and still rely on the manly and womanly art of CW to conduct their business, including sending SOS if they have to! By 1999, it is decreed worldwide, that all ships must carry satellite as well as HF capability communications equipment, which will probably be SITOR. The good old CW key will be optional. How many ships do you think will carry that CW key?

You might think that after working CW all day, with a smattering of RTTY operation, that Tracy would opt for a little SSB phone. Ho ho ho, not at all. At home he stays on CW with an SX-42 receiver and a Globe Chief transmitter driving a pair of 811s at 200 watts feeding a 135-foot center-fed Zepp. Look closely at the photo here. You can recognize that Globe Chief exciter as one of Leo Meyerson's, WØGFQ, World Radio Laboratory's rigs from the 1950s! Tracy says it is the best exciter he's ever had. He is also a true believer in crystal control and has about 100 crystals on hand. In the evening you can catch him chatting on the air, using Leo's transmitter on the Novice bands which he likes, mostly on 3.712, with some activity on 7.137 MHz.

You'll also find Tracy active in the annual Marconi Day celebration every April 22. Look for him on the frequencies mentioned above; amateur frequencies, that is! Tracy's friend and fellow operator at KPH, Bill Melony, W6HTG, passed away in 1993 and Tracy inherited all his old logs. That's where Tracy first saw those red-covered ARRL logs and decided to resurrect them. You know the rest of the story, and we hope you all will want to add this bit of nostalgia to your home station. Remember, you can get one from QCWA HQ while they last—six bucks. Thank you, Tracy.

73 + 25, Jack, W6ISQ WR

Search And Rescue Communications

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

No matter how well prepared you are, you're going to come across something unexpected. With this piece of earth shattering enlightenment, I'm still confused as to why more groups do not critique their activities.

During a computer seminar concerning legal issues, one presenter (a high profile attorney) told everyone: "Never admit you were wrong!" He repeated it several times. Although his lecture discussed reasons you should avoid blame, several of us wondered if this is one reason we have so many attorneys.

All kidding aside, aren't mistakes what trigger the learning process? I've been putting the finishing touches on a computer SAR program since 1978 (when it was done on a Radio Shack Model I). Each time I send it to someone to play with, they discover a mistake. So I delve back into the source code and fix the error. Along the way I cannot resist tinkering with the program, yet again, to make it better.

You guessed it, another mistake or two is found and the process continues. Someday all the bugs will be worked out and I can start on another one. But then again, maybe this will never be finished. I like the bugs. They cause me to learn something new and improve the program. Should I admit error in my program? The legal seminar speaker would probably advise me against it, but the truth is, I have made mistakes. The key, in my mind, is to learn from them and not run from them.

A critique is the most helpful way I know of to learn by mistakes. One good source of critiques is the National Transportation Safety Board. This federal agency is charged with investigation of transportation accidents. They check out plane crashes, train crashes, highway crashes, bus crashes, pipeline accidents, boat accidents, to name a few.

NTSB Reports

When the NTSB is finished with its investigation they publish a report. These reports can be found at libraries and other public places and you can subscribe to them as well. They are full of mistakes — things that people did to either kill themselves, injure themselves or do the same to others. Often the NTSB will publish a special investigation report that summarizes a bunch of related "mistakes," such as flying under the influence of alcohol or how to improve flight attendant training.

The NTSB is not a regulatory agency. They simply investigate and recommend corrective actions. For aircraft accidents the NTSB might make recommendations to the FAA for regulatory action, to manufacturers for engineering changes or to an airline for policy changes. The recommendations can be adopted, modified or ignored.

What's great about these reports is the vicarious learning you can accomplish — one can imagine themselves in a similar situation and "learn" what not to do. A critique is much the same, it's a way to learn without making the same mistake.

I was talking to a group about some early fun I had providing communications out of an American Motors Gremlin. (For you youngsters, it is a very tiny two-door car.) I described how my wiring skills were not very refined and one night smoke began pouring from the dash. After yanking out a lot of wires, the fire danger passed, but the car (and radios) were out of commission for a while.

We all had a good chuckle at my expense, but one new communicator sat and we chatted for some time. He had just wired his car (and shack) and made some of the same mistakes I had, like leaving out fuses and using small gauge wire in power leads. Because of my critique, he might have kept his car operational or perhaps avoided injury had a similar fire happened to him while driving.

Critiques are good. Critiques are healthy. Critiques are not an admission of guilt. I know some reader with a legal diploma is going to take me to task for this, but I'll stand my ground simply from the basis of ethics. If a mistake happens, one should be willing to admit the error and let others learn. If we have a solid training program and have people following procedure, we need to know if there are flaws in the training or the procedure — and make corrections.

Tools for Teaching

There is nothing as effective in teaching as telling a story. Your critiques are stories of what your group did and how they did it. A new member could page through your critique book and discover how you operate, who has certain skills and the type of responses she/he might encounter. Communications leaders can review observations from the other side of the antenna (the field team) and understand how to make her/his efforts more effective. We get tunnel vision when our perspective is only the radio room or the cockpit. We need to understand how we fit into the response team and how our actions increased or hindered rescue efforts.

I love reading newsletters and stories of emergency missions. I put myself into the story and ask myself how I would have done as a participant in the response. When I read about ground rescue efforts, I pay attention to how equipment is used and whether or not the use is safe. Despite many years of search and rescue work, I have not had much cave rescue experience or mine rescue experience — yet I can learn some basics by observing and reading.

During a night helicopter landing, it was a critique that came to mind that reminded us to turn off our headlights as the chopper began kicking up snow. We do this to prevent whiteout conditions for the chopper pilot. Pilots say that your amber parking lights are best for night vision reference as the white lights only make the snow "whiter." I asked the chopper pilot, after he'd landed, if what we did worked, and he was appreciative of what we did.

I've mentioned sources of good stories (critiques) in past columns and will add a couple more to the list. The first is *RESCUE* magazine. It's published bimonthly and you can get information from Jems Communications, PO Box 469010, Escondido, CA 92046. The cost is $14.95 for a one year subscription. You'll enjoy reading through it!

Another bimonthly magazine is *9-1-1 Magazine*. This one often has communications-related articles and gives you good insight in to public safety issues. The latest issue covers communications centers and computer-aided dispatching. A subscription card in the magazine says $16.95 will bring you this magazine for a year. Contact them at PO

Box 11788, Santa Ana, CA 92711-9937.

I would also recommend you contact the National Association for Search and Rescue and get their latest bookstore catalog. You might want to order the NASAR Conference Proceedings for 1994; I highly recomend it! Each year NASAR holds a conference where other emergency responders offer seminars in a wide variety of areas. Most presenters are volunteers and share their expertise. If you cannot make it to the conference, the next best thing is the conference report. You'll find NASAR at PO Box 3709, Fairfax, VA 22038.

Shift Change

How do you handle events that span many hours or days? Is your "shift change" simply that of moving someone into the hot seat or have you considered a more orderly change over? I've been called to missions where the search coordinator left "several hours ago" and "you're in charge." It leaves one in an awkward position of not knowing what happened and having no clear vision of how to proceed with the mission — and it wastes time.

Shift change, for any position, should include some overlap to bring the fresh help up to speed. Even if you think your role in the mission is one of un-importance, don't assume a shift change briefing is a waste of time. It is important that information is exchanged and the new person knows what has happened and what is expected.

Many years ago as a police dispatcher, the shift change involved reading over the radio log, a verbal summary of what happened during the shift, an initial on any new memos or bulletins and a run down of who was on the air. The shift didn't end until the new shift was briefed.

As you develop expertise in responding to public service events, refine your shift-change procedures. This should be an ongoing consideration, for as volunteers we don't know how long someone can stay. Our shift changes might be every 90 minutes or every four hours. You want to be able to quickly update your replacement and give her/him the information needed to continue the assignment.

If you consider what you're doing from the "other side," you want to make your shift change invisible. In public safety, the challenge is to appear to the officer that only the voice changed. There was no time when calls went unanswered, no on-the-air inquiry as to where officers were and no quiz sounding responses that indicate the new shift is clueless.

As communications people (or even SAR coordinators) our role is to keep the effort going efficiently, effectively and professionally. If the mayor is watching or listening, there should be no indication anything less than volunteer professionals are at work. If the search pilot reports in, the communicator should not be surprised someone was flying.

Plan your shift change from the moment you start. Be ready to pass the baton and not delay the race!

Other radio resources

Almost 25 years ago, I helped charter a REACT team in Wyoming. (It was team number 2139 and I was KCU 2188 in those days!) These are Radio Emergency Associated Communications Teams that primarily use Citizens Band radio and General Mobile Radio Service frequencies. One of their goals is to monitor the CB emergency channel (nine) and render assistance.

Steve Gobat (KA3PDQ) has been encouraging Amateur Radio operators and REACT members to join forces and help each other. As a REACT committee chairperson, he has been encouraging members to seek Amateur Radio licenses and seeking licensed Amateur Radio operators to join REACT.

Before you send me irritating comments, listen to 40 Meters. There are days that the Amateur Radio frequencies sound like the nursery at the local church. REACT has done a great deal of good and survived for many years. Other groups (ALERT comes to mind) have come and gone but a large number of faithful REACTers have kept the candle burning.

Some of my early public service missions happened with only CB radio support. CB groups continue to provide many hours of public service and are to be commended. Yes, there were some bad years and some bad apples. Yes, the service is pretty much unregulated and someone might utter offensive words from time to time.

This still is no reason to fault a group that promotes good operating procedures and encourages involvement in support of public service events, and has done so for over a decade! There is nothing that says a communications team cannot use CB frequencies and cooperate with REACT groups. There is nothing wrong with interacting and sharing expertise. My experience with REACT has been very positive over many years.

I have not yet written Steve but I applaud his efforts. If you are interested in REACT and possible Amateur Radio involvement, contact him at 1160 Old Trail Rd., Etters, PA 17319. By the way, REACT has several training courses available that include GMRS and monitoring skills. You might find them valuable as your group explores training ideas. I highly recommend the use of GMRS frequencies as just one more way to increase professionalism. I'll comment more on GMRS in future columns.

Remember, it's not the frequency used or the license held that determines YOUR on-the-air behavior. These are simply tools in preparing an effective communications support platform for an emergency response. Explore ways to make the best use of different radio service frequencies. Keep it legal, keep it safe, listen more than you talk, and enjoy serving others.

Until next month, keep your SWR down and your coax dry (especially you folks in California who are getting drenched.) Best wishes from Salt Lake City! WR

Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

The Broadway musical "Camelot" extols the "merry month of May." For many Army MARS members, May is a very busy month — merry, perhaps, but busy.

May opens with the In Progress Review (I.P.R.) conference at Dayton. It is at the meetings held during this conference that the entire foundation for Army MARS operations is established, often for many years to come. The focus of this year's I.P.R. will be to write the final DA PAM 25-MARS document which will become the working Army MARS Field Manual. This manual will replace the current FM 11-490-7 issued 21 July 1986. With all the new technologies and advances in the program, an updated manual is sorely needed. At this writing, of course, the conference has not yet convened. A full report on the MARS activities at Dayton and at the I.P.R. will be given at a later date.

May is also the month in which Armed Forces Day is celebrated by MARS members and the Amateur Radio community. For these two groups and for every person in this country, Armed Forces Day is far more than honoring all the fine men and women who serve and who have served in the armed forces of the United States. It is also an opportunity for radio operators all over the country to practice operating techniques that could make the difference between disaster and success during emergencies. Crossband techniques between military frequencies and the amateur frequencies are not generally used in normal operations. They could be critical in a variety of emergency support roles and, thus, are important to be practiced on this one day which honors our military personnel.

Army MARS will be scoring another "first" with this Armed Forces Day. Last year it was the participation of the Information Systems Command station AAA9ISC. This year, Army MARS will have the first military afloat station from any service participating in the Armed Forces Day program.

The Memphis District of the Corps of Engineers has the responsibility of keeping a 355-mile navigable channel open on the Mississippi River from Cairo, Illinois to Rosedale, Mississippi. Part of the mechanism for accomplishing this mission is the Motor Vessel (MV) *Mississippi*, a 241-foot, twin-diesel powered towboat. It has a beam of 58' and a height from the water line to the pilot house of 52'.

This current *Mississippi* is the fifth ship to bear this name. The first *Mississippi* was a steamer built for the Mississippi River Commission in 1882 and served until 1919. The second one was also a steamer, built in 1899 and served from 1920 until 1926. The cabin of this vessel was transferred to a new hull in 1927 and served as the third *Mississippi* until 1961.

The fourth *Mississippi* was the first diesel-powered "Motor Vessel" to carry the name for the Corps. This vessel served until 1993. Today's *Mississippi* is the fifth vessel to carry the name and has been newly placed into service with the Corps of Engineers.

The Army call sign for the radio station on board is AEUI. We in Army MARS look forward to this floating station to be working with us, and we with them. Most certainly, this asset is one that will be very valuable for emergencies which arise involving the lower Mississippi River which it serves.

We as well as the Amateur community, look forward to working this afloat station on Armed Forces Day. Welcome aboard Corps of Engineers. (Note: see more information on this special event, page 20).

"ARMY MARS ON-LINE"...This is the title of a report that went into Army MARS headquarters for review of a new program being used by Army MARS. The key question in serving the public has always been, "How does a non-radio member of the community find a MARS member?" Regulations impede disclosure about specific MARS members in terms of identification and location. Therefore, the key to reaching potential users of MARS services is to be as visible as possible.

The newest medium of visibility for Army MARS is to go on the electronic services and invite our potential users to use e-mail in order to initiate MARSgrams and to acquire information. The specific service on which to find Army MARS is the Military City On-Line (MCO) feature of America Online (AOL). Chief Army MARS Robert Sutton was a most valuable advisor with the negotiations with the MCO executives.

A person does not have to be an AOL subscriber in order to use our services or to gain information. For either purpose, contact: lorimatt@aol.com.

To send a MARSgram, either the sender or the recipient must be active duty military or government assigned personnel. We need the complete name of the sender and a means by which to contact the sender. We need the complete name and address of the recipient. A telephone number is most desirable if the recipient is in the United States. The message may be no longer than 35 words and may not be of a business nature or the initial notification of a death.

Send the message to lorimatt @aol.com.

The MARSgrams received will be placed into the Army MARS Message Traffic System immediately upon receipt. The return messages will travel through the normal MARS and be relayed to and delivered by the MARS members in the area local to the original sender. Thus the regular traffic system should be augmented by the use of this new medium of visibility.

With visibility being the key to the future of Army MARS, the additional visibility and capability via e-mail are most exciting and certainly cost effective. The expansion of the emergency capabilities for Army MARS via e-mail has already proved itself. Better services for our users is the key.

Chief Sutton is most excited about the use of this new medium. It shows the spirit of Army MARS...the spirit of always moving forward. His full support is a valuable asset to us all.

Army MARS continues proud, professional, and ready. WR

You know you are really hooked on Amateur Radio when all of your VISA and MasterCharge reports list "Ham Radio Outlet" as the prime source of charges.
—*Western ARC, Cerritos, CA*

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.

ALASKA

South Central Radio Club. 8023 E. 11th Ct., Anchorage, AK. Meets 2nd Fri./monthly, 7 p.m., UAA Business Ed. Bldg., Rm. 220. KL7CC, (907) 338-0662 for info. Club rptr: KL7CC/R 146.97(-) PL 103.5 Hz.

ARIZONA

Arizona Repeater Association. P.O. Box 35758, Phoenix, AZ 85069-5758. Operates 15 VHF & UHF rptrs. in AZ. Meets 4th Thurs./monthly, 7:30 p.m., 1515 E. Osborne, Phoenix. Info: (602) 631-4879.

Central Arizona DX Assoc., (CADXA). Meets 1st Thurs./monthly, 7 p.m., Salt River Project Pera Club, 1/2 mi. West of 68th & Continental Dr., Scottsdale, AZ. Rptr. K5VT 147.32(+). Packet Cluster nodes (S): 145.09, 144.93, 145.03. Info: (800) 283-4319 or (602) 876-2718.

Cochise Amateur Radio Assn., (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.76(-) rptr.

Scottsdale Amateur Club. Meets 1st Wed./monthly, 7:00 p.m., Scottsdale Sr. Cntr., 7375 E. 2nd St., Scottsdale, AZ. Net Tues., 7 p.m., 147.18(+) rptr. Info: Barbara Myers, KB7UKD, (602) 837-6492.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.82(-), 146.88(-), 147.08(+), 448.550(-) & 145.15 Packet.

CALIFORNIA

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

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.

Amateur Radio Club of El Cajon, WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. 224.08(-). PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info: (619) 697-2700.

Contra Costa Communications Club, Inc., WD6EZC/R. P.O. Box 20661, El Sobrante, CA 94803-0661. Meets 2nd Sun./monthly (except May & Dec.), 7 a.m., Baker's Square Restaurant in Richmond, CA. Info: Ed Caine, KA6OFR, (707) 996-0962.

Downey Amateur Radio Club Inc., W6TOI. Meets 1st Thurs./monthly, 7:30 p.m., So. Middle Sch. cafetorium, 12500 S. Birchdale, Downey, CA. (Summer exception: contact Doug, N6WZI, (310) 929-1441). VHF net W6GNS rptr. 146.175(+) Thurs., 7:30 p.m.

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 8 p.m.-10 p.m., West Co Times Bldg., 4301 Lakeside Dr., Richmond, CA 94806. Info: Rachel Lewellen KB6LHR, (510) 233-5034.

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

Fullerton Radio Club, Inc., W6ULI. P.O. Box 545, Fullerton, CA 92632. Meets: 3rd Wed./monthly, 7:30 p.m., Sr. Citizens Ctr., 340 W. Commonwealth, Fullerton. Net ea. Tue., 8 p.m. 147.975(-). Info: Bob Hastings, K6PHE (714) 990-9203.

Gabilan Amateur Radio Club, (GARC). P.O. Box 2178, Gilroy, CA 95021-2178. Meets odd months, 2nd Thurs., 7:30 p.m., Wheeler Manor Hosp. Rec. Rm., corner of Sixth & Carmel St., Gilroy and even months for brkfst., 3rd Sat., 8:30 a.m. (408) 623-2462.

Golden Empire Amateur Radio Society, (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, rptr. 146.85(-). Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Rm. 110B, Chico.

Golden Triangle ARC, (GTARC). Meets 4th Mon./monthly, 7:30 p.m., Sharp Health Care Activities Rm., 25500 Med. Ctr. Dr., Murrieta, CA 92562.

Lake County Amateur Radio Society, (LCARS). Meets last Thurs./monthly at either Red Cross HQ, Clearlake, or the Nice Community Clubhouse, Nice, CA, 7 p.m. Net Mon., 7 p.m. 146.775(-) for info.

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) 447-3815.

Manteca Amateur Radio Club (MARC). P.O. Box 545, Manteca, CA 95336. Meets 1st Thurs./monthly, #1 Firehouse, 7 p.m. Talk-in on club rptr. 146.985(-) PL 100Hz. Info: (209) 823-3611.

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

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Denny's Restaurant, 22611 Oakcrest Cr., Yorba Linda, CA at Weir Canyon, off the 91 Fwy. Info: Ray Davis, KD6FHN, (714) 551-2010 or (714) 551-1036.

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

North Shores ARC. Meets 1st Tues./monthly, 7:30 p.m., So. Clairemont Rec. Cntr., 3605 Clairemont Dr., San Diego, CA. Info: (619) 224-1294.

Palos Verdes ARC. Meets 3rd Wed./monthly, 7:30 p.m., Community Rm., "Shops at Palos Verdes," 550 Deep Valley Dr., Rolling Hills Estates, CA. Info. Ms. Marti Brutcher, N6XDS, (310) 376-1861 or (310) 377-6342. Rptr. 145.38(-) PL 100.

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 info contact Lyle, AA6DJ, (916) 483-3293.

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. & Stockton Blvd., Sacramento, CA. Info net every noon on rptr. W6AK/R 146.91(-). Steve Cates, KC6TEV, (916) 391-7341 or Gary E. Bryant KB6KZZ, (916) 646-1171.

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, 1000 Howe Ave. For info contact Paul Wolf, W6RLP (916) 331-1830.

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., United Way, 1922 The Alameda, San Jose. Net all other Mon., 7:30 p.m. W6UU/R 146.385(+), 442.425(+) PL 107.2.

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

Sierra Foothills ARC. P.O. 3262, Auburn, CA 95604. Meets 2nd Fri./monthly, 7:30 p.m., Firehouse, 226 Sacramento St. Auburn. 10m, Wed. 7:30 p.m., 28.415, 2/220m, Thurs. 7:30 p.m., 145.430(-) (PL 94.8) & 223.86(-).

So. Sierra ARS. Meets 2nd Thurs./monthly, 7 p.m., Veteran's Mem. Hall, 125 East F St., Tehachapi, CA. Contact: C. Parsons, KD6KMN, (805) 822-5995. 147.06/224.42.

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.

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

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).

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

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.

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7 p.m., Vaca Fire Dist. Stn., Vine St. in Vacaville, CA. Rptr. WD6BUS 145.47(-) PL 127.3. Dan Bissell (707) 446-7411.

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:30 p.m., Victor Valley Museum, 11873 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), info net Sun. 7 p.m. 146.94(-).

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. 145.440(-) PL 136.5. For info: Joe, KA6LPZ, (714) 963-4426.

Westside Amateur Radio Club. P.O. Box 11092, Marina del Rey, CA 90295. Meets 3rd Thurs./monthly, 7:30 p.m., Red Cross Bldg., 1450 11th St., Santa Monica, CA. Net every Tues., 8 p.m., 146.67(-). Voice mail: (310) 917-1100.

Willits Amateur Radio Society, (WARS). P.O. Box 73, Willits, CA 95490. Meets 4th Mon./monthly, 7 p.m., Brooktrails Fire Dept. (northwest of Willits). Talk-in: 145.13(-), PL 103.5.

Yolo Amateur Radio Society. Meets 1st Tues./monthly, 7:30 p.m., Training Rm. of the Davis PD, 226 F St., Davis, CA. Contact Dave Nishikawa, KC6YFG, (916) 756-6375/Talk-in 144.430.

Yuba-Sutter Amateur Radio Club, (YSARC). P.O. Box 1169, Yuba City, CA 95991. Meets 2nd Tue./monthly, 7:30 p.m., Yuba City Police Bldg., 1545 Poole Blvd., Yuba City.

CONNECTICUT

Tri-City Amateur Radio Club. P.O. Box 686, Groton, CT 06340-0686. Meets 2nd Tue./monthly, 7 p.m., St. Lukes Lutheran Church of Gales Ferry on Rt. 12. Info: Bob, KA1BB, (203) 739-8016.

FLORIDA

Indian River ARC, Inc., (IRARC). 597 Capri Rd., Cocoa Beach, FL 32931-3011. Meets 1st Thurs./monthly, 7:30 p.m., Community Church of the Nazarene, 400 Crockett Blvd., Merritt Island, FL.

Port St. Lucie ARA. Meets 1st Fri./monthly, 7:30 p.m., St. Andrews Church, Prima Vista Blvd., Port St. Lucie, FL. Contact: Wes Sammis, W2YRW, (407) 878-4739. Call in 146.955(-).

Saint Petersburg Amateur Radio Club. Meets 1st Fri./monthly, 7:30 p.m., Red Cross Bldg., 818 Fourth St. North, St. Petersburg, FL. Nightly nets 6:30 p.m., 147.06(+), 224.66(-). Rptrs. 147.06(+), 224.66(-), 444.475(+). Info: R. Russell, N4ZMQ, (813) 896-2518.

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.

Suncoast Amateur Radio Club. P.O. Box 1992, New Port Richey, FL 34656-1992. Meets 2nd Mon./monthly, 7:30 p.m., First Lutheran Church, corner of Polk & Delaware, New Port Richey, FL. Sponsor of WC2G/rptr. on 145.35(-), serving west Pasco County.

Vero Beach ARC, W4OT. P.O. Box 2082, Vero Beach, FL 32961. Meets 2nd Thurs./monthly, 8 p.m., Emerg. Mgmt., Indian River County Adm. Bldg., 1840 25th St. Net Mon., 7:30 p.m. 146.64.

GEORGIA

Dalton Amateur Radio Club, Inc., (DARC). 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.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets 2nd Tue./monthly, 7 p.m., Army Reserve Armory, 470 Lanikaula St., Hilo. Talk-in on 146.88(-).

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, 146.96(-), 146.94(-). Info: (808) 595-6245.

IDAHO

Idaho Society Radio Amateurs. Boise Chapter 146.94. Meets 3rd Tues./monthly, Borah H.S., 7 p.m. Rptr. at 8000'. Membership welcome. 146.94(-).

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: (312) 262-6773. Info net Tues., 9 p.m. on 146.76(-). Meets 3rd Wed./monthly, 8 p.m.

Chicago Suburban Radio Assn., (CSRA). P.O. Box 88, Lyons, IL 60534. Meets 3rd Tues./monthly, 7 p.m., Mid City Nat'l Bank, 7222 W. Cermak Rd., N. Riverside, IL.

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(+) (114.8PL), 224.68(-).

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.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.07. Info: (312) 974-3291.

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. Info: (309) 685-6698. Rptrs: 146.85(-) & 147.075(+).

Schaumburg ARC, (SARC). Meets: 3rd Thurs./monthly, 7:30 p.m., Schaumburg Park Dist. Community Rec. Ctr. at Bode & Springinsguth Rds. Schaumburg, IL. Net 145.23(-), 9 p.m. Thurs. Info: (708) 213-0910.

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(+).

Wheaton Community Radio Amateurs, (WCRA). P.O. Box QSL, Wheaton, IL 60189. Meets 7:30 p.m., 1st Fri./monthly, College of DuPage, Glen Ellyn, IL. Nets Sun. & Tue. 8 p.m., 145.39(+) MHz. 440 MHz net on Tues., 8:30 p.m. on 444.475(+) MHz. RTTY Net Sun. 9:30 p.m. 145.31(-).

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

IOWA

Sooland Amateur Radio Assoc., (SARA). Meets 3rd Tues./monthly, 7:30 p.m., American Red Cross Bldg., 1512 Pierce St., Sioux City, IA. Contact: Glenn Holder, KØTFT. (712) 239-1749. Call-in 146.97(-)

MAINE

Androscoggin Amateur Radio Club. Meets 1st Wed./monthly, 7:00 p.m., Auburn Police Station, 1 Minot Ave., Auburn, ME.

MASSACHUSETTS

Quannapowitt Radio Assoc., Inc. 6 Savin St., Burlington, MA 01803. Meets 4th Fr./monthly, 8:00 p.m., (May & Nov. meets 3rd Fr.), at Lynnfield-Wakefield Methodist Church, Wakefield. Info: Jim Chamberlain, N1AKG, (617) 944-5098.

Wellesley Amateur Radio Soc., & Babson Wireless Club. Meets 1st & 3rd Thurs./monthly, 7:30 p.m., Gerber Hall, Babson College Forest St., Wellesley, MA (Sept.- June) Talk-in 147.03(+). Info: J. Driscoll, NV1T, (617)444-2686.

MICHIGAN

Adrian Amateur Radio Club, W8TQE. Box 26, Adrian, MI 49221. Meets 1st Fri./monthly, 8 p.m., Blue Flame Rm., Citizens Gas., N. Winter St. ARES net Sun., 9 p.m. 145.37(-). Info: Tom Parsons, N8QEW, (517) 263-5568.

Chelsea Amateur Radio Club, Inc. Meets 4th Tue./monthly, 7 p.m., Society Bank, 1478 Chelsea-Manchester Rd., Chelsea, MI 48118.

Edison Radio Amateurs Assoc. Meets 2nd Fri./monthly (Sept.-June), 7 p.m., Edison Wayne/Monroe Div. HQ, 8001 Haggerty, Belleville, MI (So. of Ecorse Rd.). Net each Thurs., 9 p.m. on 145.33(-) and 442.80(+) rptrs.

Genesee County Radio Club, Inc. Meets 3rd Tues./monthly, 7:30 p.m., Genesse Area Skill Center, Torrey Rd., Flint, MI. (810) 634-6077.

Hazel Park Amateur Radio Club. Hoover Elementary School-Hazel Park, P.O. Box 368, Hazel Park, MI 48030. Meets 2nd Wed./monthly, 7:30 p.m. Sept. thru May. 146.64(-) Call-in. W8JXU Club Call. Net Sun., 9 p.m., 146.64(-).

Hiawatha Amateur Radio Club (HARA) Meets 1st Thurs./monthly, 7:30 p.m., at Trinity Lutheran Church in Ishpeming, MI (even no. mos.) and at Jacobetti Veterans Facility in Marquette, MI (odd no. mos.). Sun. net 7:30 p.m. on 146.76. Info: Richard, N8GBA, (906) 249-3837.

Utica Shelby Emergency Communications Assoc., (USECA). P.O. Box 1222, Sterling Hgts., MI 48311-1222. Meets 2nd Tue./monthly, (Sept.-June), Donald Bemis Jr. High Sch., 12500 Nineteen Mile Rd., Sterling Hgts, MI (between Schoennher & Clinton River Rds.) Talk-in on 147.18(+) 100Hz PL. 24-hr. hot line: (313) 268-6730.

MISSISSIPPI

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

MISSOURI

Central Missouri Radio Assoc. P.O. Box 28954, Kansas City, MO 65202. Meets 2nd Tues./monthly, 7 p.m., Boone Electric Coop, 1413 Rangeline Rd., Columbia, MO. Talk-in 146.76(-).

Lebanon Amateur Radio Klub, Inc. P.O. Box 2034, Lebanon, MO 65536-2034. Meets 1st Mon./monthly, 7 p.m., Bell Restaurant, City Rt. 66 East Lebanon. Call in 146.700(-).

PHD Amateur Radio Assn., Inc. P.O. Box 28954, Kansas City, MO 64188. Meets last Tue./monthly, 7 p.m., Gladstone Comm. Bldg. (816) 781-7313, Volunteer Examiner Coordinator.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m., Cioppino's Restaurant (between Vegas Valley Dr. & Desert Inn), 3125 S. Nellis Blvd., Las Vegas, NV. Net Mon. 7:30 p.m., 145.39(-) Rptr. on Black Mountain. Club info: Jim Frye, NW70, (702) 456-5396.

Sierra Intermountain Emergency Radio Assoc., (SIERA). Meets 2nd Tues./monthly, 7:30 p.m., Douglas County Lib., Minden. Contact: George Uebele, WW7E, (702) 265-4278, 147.330.

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./monthly, 9 a.m., Penny's Kountry Kitchen, 337 E. Plumb Ln., Reno. Info: (702) 356-8200. Call in on 147.30(+) MHz.

NEW HAMPSHIRE

Great Bay Radio Assn., WB1CAG. P.O. Box 911, Dover, NH 03820. (603) 755-2600/335-6643. Meets 2nd Sun./monthly, 7 p.m., Rochester Fire Dept. Training Rm. Talk-in: 147.57.

NEW JERSEY

10-70 Repeater Assn., Inc. 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs.: 146.70(-), 224.84(-), 444.15(+).

Bergen Amateur Radio Assoc., (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., 144.40 9 p.m. Wed.

Cape May County Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Human Resource Bldg., Rts. #9 & #47 in Rio Grande, NJ. Talk-in on 146.61(-). Weekly net, 8 p.m. every Thurs. except 3rd.

South Jersey Radio Assoc., (SJRA). Pennsauken Sr. Hi Sch. at Hylton Rd. & Remmington Ave., Pennsauken, NJ 08109. Meets Jan.-Oct., 4th Wed./monthly, 7:30 p.m. (Nov.-Dec. 3rd Wed.). Talk-in: 145.29(-) rptr. Club call K2AA.

NEW MEXICO

Albuquerque Amateur Radio Club. P.O. Box 11853, Albuquerque, NM 87192. Meets 1st Sat./monthly, 7:30 a.m., Golden Corral Restaurant, 8505 Montgomery NE.

NEW YORK

Amateur Radio Assoc. 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 Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2PVL.

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.

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 7:30 p.m. Info: Charlie, WA2JUJ, (516) 420-0046.

Orleans County Amateur Radio Club, (WA2DQL). Meets at Emergency Management Office, West County House Rd., Albion, NY 14411, 2nd Mon./monthly, 7:30 p.m. 145.27(-) — WA2DQL.

PROS, Pioneer Radio Operators Society. Meets 1st Wed./monthly (except July/Aug.), 7 p.m., Sardinia Town Hall, Savage Rd., Sardinia, NY. Net 9 a.m. Thurs. 3853 kHz.

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

Suffolk County Radio Club, (SCRC). Meets 3rd Tues./monthly, 8 p.m., Bohemia Rec. Ctr., Ruzicka Way, Bohemia, NY. Talk-in: 145.21(-) rpt. Morten Eriksen, KA2UIU, (516) 929-6911.

Westchester Amateur Radio Assoc., (WARA). Meets 1st Thurs./monthly, 7:30 p.m., Scarsdale Town Hall, Scarsdale, NY 10583. All invited. Info: Dan Grabel, N2FLR, Pres. (914) 723-8625.

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains, NY. Contact WB2VUK (914) 631-7424 or WECA INFO LINE (914) 962-9666 for details. Talk-in WB2ZII/R 147.06(+) PL 114.8/2A.

Yonkers Amateur Radio Club, (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.865(-), 440.15(+).

NORTH CAROLINA

Cabarrus Amateur Radio Society, (CARS). Meets 3rd Mon./monthly, 7 p.m., Forest Hills United Methodist Church in Concord, NC. Net on Mon., 9 p.m., 146.65(-).

North Carolina Alligator Group, (NAGs). Meets Mondays, 28.350 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240. "The Alligators" — all mouth, no ears.

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

OHIO

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

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 146.85(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS.

Firelands Area Rptr. Assn., (FARA). Meets 4th Tue./monthly, 7 p.m., Ohio Veterans Home, Sandusky, OH. WB8LLY rptr. 146.805(-). Net Sundays, 8 p.m. Info: FARA, P.O. Box 442, Huron, OH 44839.

Greater Cincinnati Amateur Radio Assn., (GCARA). Meets 4th Wed./monthly, 7:45 p.m., Cincinnati Museum of Nat. History, 1720 Gilbert Ave. Amateur Radio Station W8DZ. Info: WA8STX or (513) 563-7373.

Lancaster & Fairfield County ARC. Meets 1st Thurs./monthly, 7:30 p.m., American Red Cross, 121 W. Mulberry St., Lancaster, OH 43130. Info net Mondays, 8 p.m., K8QIK/R 147.63(-) rptr.

Sandusky Valley Amateur Radio Club. Meets 1st Sat./monthly, 9 a.m., Sheriffs Bldg. in the D.S.A. office, 2323 Country Side Dr., Fremont, OH.

Toledo Mobile Radio Association. P.O. Box 273, Toledo, OH 43697. Meets 2nd Wed./monthly, 7:30 p.m., Luke's Barn, Lucas County Rec. Ctr., 2901 Key St., Maumee, OH. Contact: Brian, WD8MXR, 385-5624.

Triple States Radio Amateur Club. Meets Wed./weekly on 28.48 at 8:30 p.m., 7260 at 9 p.m. and Sun. 4 p.m. on 7240. Rptrs. 146.91(-), 146.715(-). P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

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

OREGON

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. Net Sun. 7:30 p.m. 147.06(+) MHz. Info: (503) 385-1156.

Keno Amateur Radio Club. P.O. Box 653, Keno, OR 97627. Meets 3rd Thurs./monthly, 7 p.m., Keno Fire Stn. Rptr. 147.32(+) W7UFM. Info: Tom Hamilton, WD6EAW, (503) 883-2736.

Oregon Coast Emergency Rptr., Inc. P.O. Box 254, Florence, OR 97439. Meets 3rd Sat./monthly, 9 a.m. for brkfst. Net, Wed. 7 p.m., 146.80(-). Info: 997-2323 or 997-3081.

Umpqua Valley Amateur Radio Club, Inc. P.O. Box 925, Roseburg, OR 97470. Meets 3rd Thurs./monthly, 7:30 p.m., Douglas County Courthouse, Rm. 311, Douglas St., Roseburg, OR. Info: W5PII/R 146.90(-) or (503) 673-1310.

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16001-1787. 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.

Fort Venango Mike & Key Club. Meets 2nd Tues./monthly, 7:30 p.m., Vo-Tech, Oil City, PA. 145.230, 145.190, 147.120, 444.125.

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.

Mid-Atlantic ARC. Box 352, Villanova, PA 19085. Meets 3rd Thurs./monthly, 8:00 p.m., Radnor Mem. Libraray, Wayne, PA. Call Bob Haase, W3SA, (610) 293-1919. 147.06(+) WB3JOE pt.bbs.

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Neshaminy-Warwick Presbyterian Church, Warminster, PA. Net on 147.69(-), 147.09(+), Wed. 8:30 p.m. and 28.450 Sun. 9 p.m.

TEXAS

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

VIRGINIA

Southern Peninsula Amateur Radio Klub, (SPARK). Meets 1st & 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (804) 898-8031, W4RTZ

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

WASHINGTON

The Inland Northwest Hamfest Assoc. (Club). Meets 2nd Tues./monthly, 7 p.m., St. Ann Parish Hall, E. 2120 First Ave., Spokane, WA. Info: KJ7BB, (509) 534-8443.

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(-) rptr. Doors open at 9:30 a.m.

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St. Ravenswood, WV 26164. Meets 1st Thurs./monthly, 7:30 p.m., United Nat'l Bank of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R.

WYOMING

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

The Youth Forum

Sammy Garrett, AAØCR
#8 Willow Ct., Florissant, MO 63031

Young Ham of the Year Award Update

As reported in a previous edition of the "Youth Forum," the honor formerly known as the "*Westlink Report* Young Ham of the Year Award" has undergone some recent changes. The award, which was conceived nearly ten years ago by ***Worldradio*** columnist and *Newsline* producer, Bill Pasternak, WA6ITF, will now be administered by *Newsline*. Yaesu, USA has announced that it will continue to provide corporate sponsorship for the award.

Two other major changes were also announced recently concerning this prestigious honor. According to Publisher Richard Ross, K2MGA, *CQ Magazine* will be joining Yaesu in providing sponsorship for the program because "(the award) is something very worthwhile for the future of the Amateur Radio service." *Newsline* has also announced that beginning this year, the Huntsville Hamfest will become the permanent home for the presentation of the Young Ham of the Year Award.

The Young Ham of the Year Award is presented annually to a young amateur who has "used Amateur Radio to significantly benefit the Amateur Radio service, the communication art or their nation/community." In order to be eligible for this award, an amateur must also hold at least a valid US Technician (at least "no-code" Technician) class license, reside within the continental United States, and be 18-years-old or younger. All candidates for this award must also be nominated using an official nomination form. All nominations must be submitted by *June 30, 1995*. Nomination forms may be requested along with a self-addressed stamped envelope at the following address: 1995 Young Ham of the Year Award/*Newsline*, 28197 Robin Avenue, Saugus, California 91350. Nomination applications are also available via the following electronic sources: America Online: BILLWA6ITF, GEnie: B.PASTERNAK and on the Internet at billwa6itf@aol.com.

The Young Ham of the Year Award was created nearly ten years ago. From the time of the first award in 1986, the presentation committee has sought to recognize deserving young amateurs who made significant contributions to the Amateur service and who were able to act as role models for their peers and as ambassadors for the Amateur service. A single winner is selected each year by a distinguished panel of representatives of the Amateur Radio community. Previous recipients of the Young Ham of the Year Award include Shaun Alan Wakefield, WK5P (1986); David Rosenman, KA9PMK (1987); Jonathan Binstock, NK3D (1988); Erin McGinnis, KAØNTE (1989); Mary Alestra, KB2IGG (1990); Sammy Garrett, AAØCR (1991); Angie Fischer; KBØHXY (1992); Kevin Boudreaux, N5XMH (1993); and Allison Zettworth, KD4CKP (1994).

While the entire process and some of the previous recipients may seem a bit intimidating, don't assume that the odds are necessarily against you. The nomination process and selection criteria shouldn't scare you off. Nominations of any and all qualified young amateurs are most welcome and encouraged. The 1995 Young Ham of the Year Award will be presented August 19, 1995, at the Huntsville Hamfest in Huntsville, Alabama during the grand banquet.

This convention is one of the largest gatherings of its kind, attracting 7000 attendees to the Von Braun Convention Center. The hamfest includes several forums and numerous manufacturers and vendors will be on hand showcasing the latest products. Incidentally, the Huntsville Hamfest is also one of the most well organized, enjoyable, and just plain friendly conventions in the country. The 1995 young Ham of the Year will receive an all-expense paid trip to Huntsville courtesy of Yaesu, USA not to mention other possible "surprises." While in Huntsville the recipient will also be an official guest of the Huntsville Hamfest and receive a V.I.P. tour of the NASA Spacecamp and Marshall Spaceflight Center, compliments of *CQ Magazine*.

Field day reminder

Don't forget that the annual ARRL Field Day is coming up! Field Day will be June 24-25, this year. It allows hams across the US and Canada to test their emergency preparedness and operating skills—all while having a great time.

Field Day is an especially good time to introduce newcomers to Amateur Radio. Young people are often attracted to Field Day sites due to local media coverage or school publicity. So, make sure your club has lots of young hams available to recruit new amateurs and answer questions from folks of all ages. Better yet, encourage your Field Day operation to provide special events or third person operating opportunities for unlicensed young people. Above all, have fun and bring your friends and show the adults how it's done!

More information about Field Day and the official rules and regulations may be found in *QST Magazine*.

Jamboree on the air (JOTA)

In an upcoming issue of the "Youth Forum," I'd like to feature Jamboree on the Air (an event held each October bringing together scouting and Amateur Radio) activities to coincide with the 1995 event. Your input, pictures, anecdotes, suggestions and special event announcements concerning JOTA are needed and will be most appreciated!

I realize this announcement may seem a bit premature, but in order to make this column timely, I need your information early! If you wish for materials to be returned, please include an SASE. In order to make it into the appropriate issue, I must have all materials no later than *June 1, 1995*. Please contact me via my home address, #8 Willow Ct., Florissant, MO 63031.

Once again, I'll be spending most of my summer working as a camp staff member in the Greater St. Louis Area Council, Boy Scouts of America's summer camp system. I will be taking HF equipment to camp with me and I would especially like to arrange contacts with other young amateurs, particularly those operating from other summer camps. Please contact me by June 1st, 1995 if you are interested in arranging a schedule. As always, thanks for reading and see you on the bands. AAØCR.

Special thanks to Bill Pasternak, WA6ITF, for providing much of the information concerning the Young Ham of the Year Award. WR

TRAFFIC

Geri Sweeney, N4GHI

Traveling traffic handlers

Who has not considered traveling about in an RV — enjoying a home away from home? Ah, the carefree life of following the sun; or doing whatever your fancy aspires. In January, I drove Coast to Coast to visit various relatives. We took the Southern route to San Diego and were not surprised by all the RV Parks in Arizona and California. It did seem novel to continue seeing so many RVs on the trip home via Colorado and the northern route. I cannot forget the image of a hill overlooking the Colorado River (in Laughlin, Nevada), containing hundreds of RVs — every shape and model. The bottom line: This would be a perfect place to acquire traffic originations.

Out of the many RVs we observed on the trip, surely some must have had amateur radios aboard. What an enjoyable and gratifying way to join two modes of life. Why not offer to send radio messages for your fellow travelers? How?

1) Post a sign, such as, 'Can send free, brief, radio message anywhere for you. Ask me'.

2) If you will be in a park for some period of time, let the office know. They may want to print a flyer. One station in Florida (at a camp ground) sends numerous messages back and forth to Canada throughout the winter.

3) Put a box, with directions, in the office; and, check it once a day.

4) Use RV (and/or ARP) newsletters and journals to present a short series of articles on how Amateur Radio operators send traffic, how to recognize an amateur (antenna, license plate, sign), what types of messages can be sent (short and not commercial), etc? Occasional follow-up articles could be submitted as interesting circumstances transpire.

5) A traffic table/booth, sponsored by an RV or radio journal, could be placed at the winter RV show/swap meet in Quartzsite, AZ.

6) ARRL might want to create a special mobile patch to identify traveling traffic handlers.

Is there an RV net, similar to the Waterway Net for boats? Sending messages for fellow travelers would be an excellent step in furthering fellowship and Amateur Radio. It would also be helpful to be able to receive messages. Receiving presents a more complex problem. A net would serve as a focus not only to help receive traffic, but should be very helpful to the participating amateurs to get the latest breaking information on conditions at different parks, routes, weather, radios, etc.

Those traveling in RVs may be on limited funds, as well as without easy access to phones. Being able to send such messages as: 'See you next week (or date)', or, 'All is well here in ___', would be of great benefit to fellow travelers. Radio messages could take the place of postcards.

The traveling traffic handler would need an 'ARRL Net Directory' to find an appropriate net for sending the collected traffic. The usual aids (such as a list of phone area codes and zips by states /Rand McNally Zip Code Finder) that are used at home would come in handy. A suitcase packet station could be employed. A local ham, WB4KSG, takes his along on all trips and sends regular updates to many of us back home. Monthly traffic activity report could be submitted to the STM of the state where the radio is licensed.

If there are any RV amateurs out there who happen to read this column, please send your comments. Has anyone tried it? Did it work? If you are interested in trying it and need any help and/or guidance, let me know. What a wonderful opportunity.

2 Meter traffic nets

While Virginia's 5 HF traffic nets (messages and operators) have remained fairly constant over the past five years, 2 Meter nets have shown steady increases in handlers and traffic. The net manager can make a huge difference. Managers who participate, encourage stations to send monthly reports and present training offer striking examples of leadership. Having just received one of Virginia's 2 Meter nets, (STARES - South Tidewater ARES, in Virginia Beach) monthly reports, it's easy to be proud of the net manager, KD4JMA. In January, 194 pieces of traffic were passed. That's over 6 per session. There were 863 check-ins. That's about 28 stations per night. The ORS list grows as KEs are often added. Thus I offer STARES as one shining example of a fine 2 Meter net, and encourage anyone to send me the name of another. Let's give some recognition where it is due.

Net managers

We might wish to recognize fine net managers on HF, as well. What makes a good net manager? To begin with — participation. You can't hope to know what's happening, if you aren't there. Liaison assignments must be kept filled. We occasionally have blanks, but folks stop coming to nets when they know the NCS and/or liaison are always missing. If the net manager has asked everyone on the net to do it, and they have all refused, at least he has tried. Running a net is a lot of work. The net manager may have to nag some NCSs to turn in their reports so that the monthly net report can be submitted on time. Hopefully most net managers are using a computer program to manage their data. If not, it's even more time-consuming to prepare the necessary report (QNI, QND, QTC — and perhaps QNS if the STM publishes a Section newsletter). Let me know the net and call of any manager you care to nominate for recognition here in the ***Worldradio*** traffic column. Be sure and say why.

SSB tip

When speaking words, don't overemphasize the vowels. Some lend themselves (long vowels) to this, such as: *roooooooad.* This actually distorts the word. Read in short phrases (a few words), so that the receive station can hear the context. After a short pause, read another phrase. Don't anticipate what you think the receive station may need to have spelled. If they ask you to spell (phonetically) Tim, don't assume propagation is awful and spell it several times. Tim, Jim, Kim (and many other common words), all sound alike.

What's happening?

The SM/SEC of British Columbia, Canada, is VE7FB. Ernie says that they have two long-running nets (beginning before WWII). The BCEN (3.652 MHz), is part of the NTS and meets RN7 twice nightly. It averages 1,199 monthly checkins. The phone net (BCPSN - Public Service Net) covers Alberta and BC and handles phone patches as well as traffic. It averages 4,750 monthly checkins. While Ernie is on packet, he doesn't feel that much traffic is using this mode in his area.

Ernie states that when CRRL became RAC, *QST* stopped publishing Canadian reports, so he no longer sends them to *QST*. He is delighted that Canadians now have one radio organization (RAC) and feels that the people at HQ are good, though working with very limited revenue. He has been the SM for thirty-five consecutive years and CRRL once informed him that he was the longest living SCM in ARRL. He has enjoyed his role in traffic-handling greatly. I thank Ernie for his letter on updating us on what's happening in Western Canada. **WR**

FM & REPEATERS REPEATERS REPEATERS REPEATERS REPEATERS

BILL PASTERNAK, WA6ITF

Coordination comes on-line

By now, most of you are probably aware that lots of hams are splitting their time between their radios and their computers. Some are combining the two and becoming involved in packet while many like your's truly use the phone lines and modems to "tele-compute." Most radio amateurs with computers know of Ham/Net on Compuserve because it has been around the longest and the "radio.rec" newsgroups on the Internet because they are the largest daily interchange of ham radio data in the world.

But there are hobby radio BBSs on other services including Delphi, Prodigy, GEnie (the capital GE in GEnie denotes its being owned by General Electric) and America Online. Both offer the "average ham" a relatively inexpensive way of entering the world of ham radio "tele-computing."

I received a note in my AoL mailbox from Jeff Towle, WA4EGT. Jeff is the Database Manager for TASMA: Southern California's "Two Meter Area Spectrum Management Association. This as you already know is the group that coordinates repeaters and other modes on the 2 Meter band in Southern California. The crux of Jeff's note was that TASMA has taken as a bold step in the area of Amateur Radio frequency coordination by being the first "council" to go on-line with America Online.

To start the new e-mail access to TASMA, Jeff has posted a message under the topic of "Packet and Ham Radio" and has created a topic called TASMA SOCAL GATEWAY. He has also posted a message indicating a way to send mail to various officers and committees in TASMA. If the initial outing is a success, Jeff says that TASMA will probably post some files and take questions for repeater owners, etc.

So, how about the rest of the nation's frequency coordination councils? There are at least fifty-two more of you out there along with the two "Super-Coordinators" MACC and SERA? Why not join in this data-exchange experiment?

To join America Online simply call the service at 1-800-827-6364 ask for extension 6285 (the operator who handles ham radio and other communications related areas) and say that you want a trial membership. When the software kit arrives, install it as per the instructions, dial a number provided in the sign-up kit and, after you complete your on-line registration, use the keyword "ham" or "ham radio" to find the AoL ham radio BBS. Once there look for the topic "TASMA SOCAL GATEWAY" for postings.

That's where you will find TASMA and, hopefully soon, many others involved in the world of FM and repeaters "on-line."

Great moments from Packet

While I am not a packet radio operator, over the past several months I have come to know several of the leaders in the local packet radio community. One of these is Mike Curtis, WD6EHR, who, in my opinion is among the most forward looking hams in today's world of Amateur Radio. He is very concerned about there being room for all modes to co-exist on our various VHF and UHF bands.

Mike is more than just a critic of the situation. He is constantly coming up with unique proposals aimed at more efficient utilization of what spectrum we radio amateurs now posess. And while his view is that of Southern California, his ideas easily span the continent. Recently, Mike released and posted a short paper dealing with the use of valuable repeater bandspace by close and private repeaters. Like many of his suggestions, this one is unique in that it uses technology rather than politics to better utilize our VHF and UHF bands. He calls it a "Win-Win Solution" and we present it to you for consideration and comment:

A win-win solution

"We keep hearing about the "frequency shortage" on VHF/UHF in Southern California (ed note: and elsewhere) Amateur Radio. From a hilltop that covers the greater portion of Southern California, at 5 p.m. (the busiest time for repeaters), I can tune across the 2 Meter band and find perhaps 15% of the repeater channels in use! On 70 cm, it's much less! Yet we "have no available channels" on these bands.

"That's right — because repeaters are granted exclusive rights to frequencies 24 hours a day, even though they're used only part of the time. When the repeaters are not being used, the channel is still held as a possession of the repeater "owner."

"Why do we have to have one repeater per channel pair? What do you do when using your HF rig on 20 Meters? You look for an unused frequency. On 2 Meter simplex, what do you do when 146.52 is busy? You simply QSY to a channel that's not busy. Can you imagine the havoc if each individual user insisted on an assigned channel like repeaters do? Ridiculous, you say? And you're absolutely correct! Yet that's what we've been doing with repeaters, just because they're machines. Why can't repeaters also "look" for an unused channel pair and QSY there? This would permit more repeaters and use fewer frequencies!

"In days gone by, the technology re-

quired to permit repeaters to search for open channels was simply not available. We used vacuum tubes back then, and didn't have microprocessors and computers. This is not the case today. Cheap technology is available to implement a trunked repeater scheme, where a group of repeaters would share a smaller group of frequencies. When a user brings up a particular machine on a common calling channel, it searches for an available pair, and sets up operation there. If "his" repeater has already been assigned a frequency, he is automatically switched there if he has a trunking transceiver. If he has an "old fashioned" rig, he is told what channel to switch to by a voice synthesizer. Should all pairs be busy, a busy signal is returned, and the users repeater is queued up for the next available slot. With sensible coordination, this will be a rare occurrence.

"To use this automatically would require a trunking transceiver. However, if the trunk group had a common calling channel and returned the available frequency audibly, users with non-trunking rigs could simply QSY to the available channel.

"Some repeaters are unused for weeks on end. Many of these could be trunked with absolutely no adverse affect. By doing this, we would free up a LOT of badly needed spectrum, for simplex, packet, video modes, experimentation, etc. This would also silence much of the criticism of closed/private machines in areas where spectrum is scarce. This is one of those all too rare "win-win" situations!"

Feedback to Mike Curtis can go to his *Callbook™* address or to WD6EHR@K6VE.SOCAL.NOAM on packet.

From the mailbag

Excerpts from Bob Agans, WA3EPA:

"I have read two of your recent columns in ***Worldradio*** with great interest.

"I have been watching 2 Meters change since my first ticket in 1956. We built our first FM repeater in 1978 and it just might be the first coordinated and functional one on 145.350 in the "subband" as it was called then....

"Our habit is to open access around 7 a.m. when one of the control operators commands it open, then turn it to CTCSS/DTMF access. At around 10-11 p.m., we close it down. During the day it will be commanded closed if we are interfered with by another system. We are not a closed system and advertise our CTCSS frequency in the ARRL *Repeater Directory*.

"The repeater business, and the no-code Tech combination have resulted in conduct that we find quite annoying and I believe some methods need to be developed to address it."

"Often, a newcomer will access our repeater and immediately ask "where is the repeater?" Now, I don't know about anyone else but my habit has always been to look up a frequency and find out where/who the repeater is, etc, before transmitting. Apparently they don't realize what a stupid question this is.

"I know I am bringing up two or three repeaters at the same time, but oh well!" To me this is an admission of deliberate interference....

"Obviously my upbringing dictates a repeater is a "community repeater." It is hard to believe how many operators are trying to work 'DX' on a repeater frequency. When we are in CTCSS for access, operators around us can take advantage of openings and not even know we are here unless someone accesses us with CTCSS. This really gives a problem when an HT operator is trying to get in our repeater and another is trying to work 'DX' with a 45 watt base and a gain antenna.

"We use Morse ID, running 941 Hz at 10 WPM. It's amazing that 99% of the newcomers never put together the repeater ID, my call sign (which is the same) and the repeater directory listing the ID. Possible solutions? It seems to me since repeaters have grown to be a significant portion of hamming, the FCC should be dealing with the subject in the testing procedure starting with the Novice and no-code Tech. Why shouldn't there be operating procedures and especially etiquette instructions for new operators so that they know what is acceptable behavior and what good conduct consists of? Somewhat like what we had to go through for our commercial ticket regarding operating procedures.

"I would appreciate your thoughts on my ideas for possible solutions to this growing lack of courtesy on our repeater frequencies.

These are some of Bob's thoughts and gripes. Do you have any solutions to the problems he outlines? Do you have any problems of your own? This is an interactive column. Lets hear from you!

Disjointed

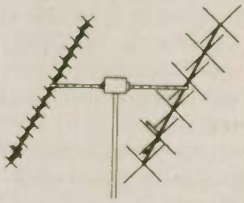
Final note. If this month's column seems a bit disjointed it is because my *Leading Edge* and I have both been ill. With viruses. In my case it was the one that makes you feel miserable for about a week. In the case of the computer it was the one that reads "ERROR: Boot Sector Missing on Drive C:" and hit at midnight EST on March 6th. Yes, you guessed it: the Michelangelo Virus.

I'm still not sure how it got into the computer, but using a set of disk utilities and a virus scan program, the C drive was not a total loss. And I am one of those who believes in daily backing up of my hard drive. Little was lost other than time, but if I ever get my hands around the neck of that (expletive deleted) who wrote and distributed the Michelangelo Virus.... Never mind!

de WA6ITF

(FM and Repeater column author Bill Pasternak WA6ITF receives mail at 28197 Robin Avenue, Saugus Ca. 91350. His 24 hour/day voice and fax line is (805) 296-7180. He can also be reached by electronic mail on the following services to the mailboxes: (GEnie) B.Pasternak; (Internet) b.pasternak@genie.geis.com; (America Online) BILLWA6ITF; (MCI Electronic Mail) 324-1437.) **WR**

AMATEUR SATELLITES



WB8CKI
Terry Douds
344 E. Fifth Avenue · Lancaster, OH · 43130

Now that you are considering operation on the satellites, you should do an inventory of your shack to see what you need to obtain to work the birds.

As we noted last month, some sort of computer is usually needed to determine when the bird is in view of your station. Many hams are combining their hamming and computing these days, so this may not be an issue. Software is available for most any of the popular (still used) computers, from the venerable C-64 or the TRS-80 Models 3, and 4 to all current versions of PCs and Macs.

Next, look at your current rigs and antennas — can they be used? If you have a modern HF rig with two VFOs that can split across bands, RS-12/13 can be worked with a 15 Meter uplink and 10 Meter downlink. If you have a dual-band FM rig (or separate 2 and 440 rigs) and omnidirectional antennas, you can operate on Amrad-Oscar 27 — it works like an orbiting repeater! Additionally, you can probably exchange reports with the Russian Space Station, MIR.

Add a standard 1200 baud packet TNC, and you can download signals from Dove, or DO-17. Add a 9600 baud TNC and either separate FM rigs or a dual band FM rig properly modified for 9600 baud (or a 9600 baud-ready radio) and you're on your way to the High speed PACSATS, UO-22, KO-23 and KO-25.

The usual next step is to decide what other directions you would like to go. Most Satops next move would be a multimode 2 Meter rig, which would allow you to work the Mode A satellites, RS-10/11 and RS-15. Mode A means that they have 2 Meter uplinks and 10 Meter downlinks. With an additional device known as a PSK (phase-shift keying) modem, you could utilize the 1200 baud PACSATS, UO-11, UO-14, AO-16, and LO-19. This gets a bit tricky, because you send 2 Meter FM signals up to the bird, and receive 436 MHz PSK on SSB — a bit strange! (but it works well!). It's not something you can do with a garden variety dual-band rig. At this point, we begin to get a bit more specialized in the gear we need to obtain.

For the Mode B birds (Oscar's 10 and 13), you have to start a wish list. Most hams do not have the "pieces and parts" needed to start working on Oscar 10 and Oscar 13, so you make up a list and collect the parts as you can. It took me about 15 months to collect my Mode B station once I made the commitment to pursue it.

Mode B requires multimode operation on both 435 MHz (uplink) and 145 MHz (downlink). It usually requires some sort of steerable antennas, either regular linear Yagis or specialized antennas called crossed Yagis, which exhibit circular polarization. Since the satellite spins in orbit, its antennas change in relative position and polarity. By using circular polarization, we have a better chance of staying in the satellite more consistently. Due to the frequencies involved, antenna size is relatively small.

Next, you add rotors. Notice the emphasis on the plural "rotors." You need an azimuth rotor (a "regular" rotor) and an elevation (up/down) rotor, which allows you to point up at the satellite. You can buy individual rotors, or several manufacturers make combination AZ/EL rotors.

The other part needed for Mode B operation is a 2 Meter preamplifier — ideally a mast-mounted one at the antenna (though some do get by with one in the shack — your author included!). Once all these pieces are together, Oscar 10 and Oscar 13, the "DX" satellites, could be in your future.

For the quick overview, this covers what you would need to get involved in satellite operation. As you can see, it can be done in a building-block approach, and can be picked up over time. I began my work by purchasing a new 2 Meter multimode rig when I started, but I just missed out on getting a used one by a couple of days. Used 2 Meter multimodes usually run in the $250-$450 range. 430 MHz multimodes are a bit harder to find, but if you look hard enough (try Satops in your areas!) they will run about the same — I got my Icom 490A for $250 — a great buy! All of the parts can be picked up used, but you may need some patience! A good rule of thumb for Mode B operation is that it will cost about the same as an HF station would. However, if you do it in a building block approach as I've outlined here, you spread your costs out over time, and get to operate on other satellites as you move up. And since a great number of you reading this probably have relatively new HF rigs, you

probably have a satellite station you didn't even know you had!

One of the best ways to become more familiar with the satellites is to locate a Satop in your own area and enlist him/her as an Elmer (teacher). If you're not sure who they might be, you can probably ask around at your local club meetings or on your local repeaters. However, there are a number of texts and newsletters available to help your understanding of these wonderful devices. First, consider membership in AMSAT-NA, the Radio Amateur Satellite Corporation.

Membership runs $30 per year, and upon signing up there are usually certain bonuses that you can obtain, such as operating aids, software, or various texts, especially for beginners. Membership in AMSAT helps in a number of ways — most notably in helping to get new birds in the air!

We will be sending up a new satellite in 1996 that will be the largest one ever sent up by the amateur service. This bird, known as Phase-3D, is currently being assembled at the Orlando, FL International Airport, and is truly an international project. Transmitter and receivers have been designed and constructed by individuals throughout the world, including members of AMSAT-UK (England), AMSAT-DL (Germany), AMSAT-UA (Russia), and other Satops in Finland, South Africa, Belgium, and many other places. The Japanese are working on imaging systems and cameras to be placed on board as well. The satellite will operate on all usable amateur satellite service frequencies from 10 Meters up to 10 GHz! It will be quite a satellite, and will nave an output that is nearly 10 times as strong as Oscar 13 is now! It will be placed in a Molniya orbit, and will be higher at apogee than either of our current DX satellites. However, this does not happen for free. In fact, the US share of the building and launch costs will run about 1.5 million dollars. Total costs will be in excess of $4.5 million. The bird will be launched by the European Space Agency from Kourou, French Guyana in April, 1996. A big part of your dues will go to help fund the project, and you will also receive the *AMSAT Journal* as well, which is very good reading.

Another source of good satellite information is R. Myers Communications, in Fountain Hills, AZ. Bob, W1XT, has a monthly newsletter called Satellite Operator, and a bi-weekly known as Oscar Satellite Report (OSR). Both of these publications complement one another and are worth having. They also offer many beginners books, and additionally they have some hardware (TNCs, antennas, automatic rotor control devices, and many other things). You can contact them at P.O. Box 17108, Fountain Hills, AZ 85269-7108.

The ARRL also has publications available, beginning with the Bible of the Satop, The *Satellite Experimenter's Handbook*. This book contains a thorough history of the amateur satellite service, beginning with its formation in 1960 as Project Oscar, through future plans that stretch into the next century. It also explains, in detail, orbit mechanics and other delightful topics that are fun to learn about. It is money well spent.

That's about it for this month — if you have any questions, please drop me a line! 73, Terry WR

Sock it to your HT

Frank Wyatt, N6FWE

To reduce wear and tear on your handie-talkie, keep it in an old woolen sock. If you have several HTs, use a different colored sock for each. Double the sock back over itself to increase protection.—San Lorenzo Valley Repeater Club *Downlink*.

OLD-TIME RADIO

How I got "scammed" into ham radio

George W. Folta, W7KEG

It was the spring of 1932 in the Land of the Midnight Sun. I lived in Juneau. There weren't many "hams" in the Territory of Alaska. In those days all the people living in Alaska couldn't fill up all the seats at any Superbowl. But somehow Dean Williams got interested in Amateur Radio, and since he and I were close friends, I too, became interested.

Dean introduced me to Lyle Johnson, K7BHR. I was fascinated as Lyle copied world news on his "mill." I was intrigued by his ability to converse with hams as far away as California. (In those days a long distance call to the "Lower 48" usually involved a lengthy wait). I marveled at the flashing tubes and the meters' needles whipping back and forth. I was surrounded by magic; I was hooked. All I had to do was learn the code and some theory, but that was hard to do because I was now a bigshot high school freshman and I had discovered those lively creatures that roamed the halls, girls.

Nevertheless I had become hooked. I lived close to the Alaska Communications System station in Juneau, and I figured if I could practice copying their transmissions learning code should become less tedious than using a buzzer. I needed a receiver, but my dad wouldn't "spring" for an SW-3. To this day I would like to have an SW-3.

Williams to the rescue. He agreed that learning the code was not dull if I could listen to the various commercial stations around southwestern Alaska, and lucky me, he said that his friend Leonard Lowell had just lost interest in ham radio and had a simple but adequate receiver that he might be persuaded to sell. I remember that at the time I was surprised to know that Leonard had an interest in radio, but I didn't question Williams; I wanted that receiver!

Some weeks thereafter I was sitting at Leonard's house in front of this mysterious dark brown box made of polished wood with a black Bakelite front supporting a couple of tuning dials and a jack for earphones. On the back were two connections for lead-ins from the ground and antenna. These lead-ins came in through a nearby window. A peek inside the box revealed a variable condenser and a variable inductor with many connections to wires running every which way. I was impressed.

Leonard then left the room explaining that he had to do an errand for his mother and that he would be back soon. It was then that Williams told me that he had used all his persuasive powers to get Leonard to sell. I thought I was really lucky. Little did I know! We proceeded; Williams picked up one earphone, and I the other. Williams started tuning and, voilà! There was a nice clear CW transmission. "That's Sitka," Williams explained after listening for a few minutes. Continuing to tune we came upon another CW signal; "That's Ketchikan; this is a really good receiver." I was delighted and shelled out the money I had saved by bagging cookies at a grocery store. A couple of bucks in those days was a lot of money.

I unhooked the lead-ins and proceeded home, but not before persuading Leonard to throw in the earphones. I was proud of my bargaining powers, figuring, "I sure got the best out of this deal!" Little did I know.

At that time I was living on the edge of a steep canyon overlooking Gold Creek, where Joe Juneau, many years before, had found some nuggets. For several weeks I struggled using various ingenious tricks and expletives to string a long wire antenna across the canyon.

At last the big day came; I hooked the lead-ins to my receiver, plugged in the phones and slowly tuned the con-

denser dial fully one way and back; the same for the variable inductor. Nary a signal; just a "hum," similar to that heard when one holds a conch seashell up to an ear.

Oh well, Williams had told me that the radio stations have their quiet periods. So, faithfully, for several days I sat at that box slowly, slowly tuning. Still just "humm." Where did that come from?

Exasperated, I called Dean Williams. He came over, looked over my hook-up, and said it appeared okay. He further explained that the "hum" I heard was the local station hum, that the transmitter was turned on but that the stations had nothing to transmit.

"What about Sitka and Ketchikan?" I asked, as I began to smell something fishy. "Well," said Dean Williams, "I think there are too many trees around here."

"Well, the downstairs broadcast receiver gets music from the States," I replied indignantly.

"Ah, but that is long-wave reception," he replied knowingly, "and you are receiving short-waves; the many trees cause the waves to cancel out, I believe." Well, I thought to myself, he could be right. There are no trees around Leonard Lowell's or Lyle Johnson's. (I didn't realize it, but it was getting pretty deep where we were standing).

Shortly afterwards I went away for two years and during that time William got his ticket, K7ELM. I came back for my senior year in high school. In the interim I had joined a radio club, and I was ready to take my exam. Williams gave me the test for a class "C" license. I passed and received the call K7FRN, a dandy CW call.

Subsequently I moved away, went into the US Navy, WWII came, and finally, in 1972, I moved to the state of Washington for good. By this time Dean Williams' call was KL7GI, and on moving to Seattle I received the call W7KEG.

Now, nearly every weekend, when the Heavens permit, you can hear us on the B.D. Stewart net (in memory of W7KRP), joshing back and forth, and I won't let him forget his shady past. Why shady? Because in 1932, those lead-ins from the ground and antenna connectors on the little black box in Leonard Lowell's house actually ran up the outside of the house to an upstairs room, and there they hooked into a code oscillator. When Leonard excused himself, he went up there and sent the dots and dashes that "hooked" me.

It was 50 years later that Dean Williams told me the truth; but as shady as he was, he turned out to be a fairly respectable senior citizen (largely because of the influence of his lovely XYL), and it was he who got me started in this wonderful hobby for which I am eternally grateful.

For his 77th birthday I'm sending him a video tape of a black box with "station hum" as background music. WR

ARARM

The Association of Radio Amateurs of the Republic of Mexico (ARARM) welcomes hams worldwide to its 35th annual convention, to be held in Guadalajara, Mexico, 27-30 July 1995.

The convention will be held at the Hotel Malibu, one of Guadalajara's 4-star resort convention centers. Rooms at the hotel will be available for approximately US$ 36.00 per night. The convention will offer many forums many subjects. Families are welcome and there will be a cultural program for interested spouses.

Additional information via Frank R. Smith, AHØW/OH2LVG at the Consulate of Finland, 5933 West Grovers Avenue, Glendale, Arizona 85308-1101. Telephone 602/876-2718. WR

'Classic' QRP

Unlike many commercially-produced QRP kits, the Oak Hills Research Classic carries all the earmarks of a low power transceiver designed by a QRPer for QRPers.

Consider the evidence:

- This dual band CW rig covers 100 kHz of 40 and 20 Meters, by far the most popular bands for QRP CW operation.
- It has a superhet receiver with enough audio to nearly fill Yankee Stadium — nicely negating the oft-heard lament that low power transceivers "just don't have enough audio for comfortable listening."
- The Classic puts out four watts of cleanly sculpted CW on both 40 and 20. But a rear panel adjustment allows the operator to power-down to milliwatt levels in just seconds with the simple twist of a potentiometer.
- It's a complex circuit that is nicely split onto three printed circuit boards, giving the builder a "three kits in one" feeling, and establishing ready rest stops to counteract builder's fatigue.
- The rig is rugged enough for portable operation, and — for its capabilities — isn't gluttonous when it comes to battery power needs.

In addition, the Classic has provisions for an optional keyer. Audio level, RIT, band switching, keyer speed and operate/tune functions are adjusted from the rig's handsome front panel.

A keyer bypass jack allows operators who prefer to use a bug or straight key to plug-in and pound brass.

Components for the Classic are carried on three double-sided, plated-through circuit boards. One houses the oscillator, another the receiver and the third the transmitter and T/R circuitry. The optional keyer is on a fourth board.

Kit parts are parceled into units for each board. And, as is the history of Oak Hills Research under owner/rig designer Dick Witzke, KE8KL, the components, boards and enclosure are absolutely first class. Every one of the hundreds of parts was accounted for, and the 30+ page instruction manual nicely covers the requisite "Three Cs": Clear. Concise. Complete.

The boards are silk screened with outlines of every component. The manual also includes large parts diagrams, in addition to the Classic's schematics. This redundancy system allows the builder an easy check for construction errors.

If you're in a hurry to grab a kit, whip it together and get on the air, the Classic is not your ticket. A rig giving this transceiver's performance takes much more than a simple PC board and a handful of components. With the Classic there are literally hundreds of board and chassis parts, but they are meted out in manageable bites.

It took hours here at KI6SN to bring the Classic to life. But the quality of the parts and documentation make this a truly enjoyable transceiver to build.

Inside the enclosure is a single conversion superhet receiver featuring high side local oscillator injection on both 40 and 20 Meters. The receiver chain includes an RF preamp, diode ring mixer and automatic gain control (AGC). There's also a four-pole crystal filter, a four-pole audio filter and RIT covering 1 kHz above and below the VFO frequency. A post-IF amplifier gives the Classic its audio punch.

The capacitor-tuned VFO smoothly covers 100 kHz of each band with the help of an 8:1 vernier dial. The Classic features full QSK, and its sidetone volume is adjustable.

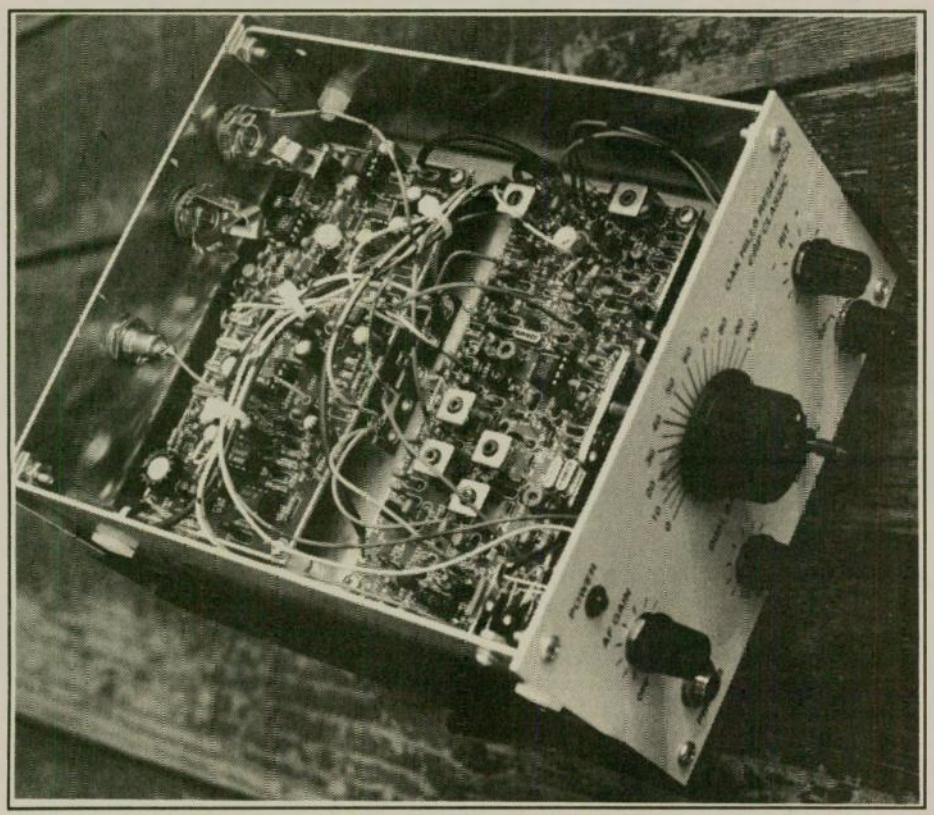
Four watts output comes cooly, compliments of a 2SC2075 final, with a rugged 2N3866 driver just ahead of it. A board-mounted 100 ohm potentiometer, whose shaft protrudes through the Classic's back panel, provides the operator with the option of powering the rig to milliwatt output.

While I wouldn't recommend the Classic as a first-time project, it is certainly within the capability of the new builder. Toroids are pre-wound, and parts are clearly marked for identification. There is some dressing of coaxial cable required, but getting this rig put together takes little more than patience, persistence and a methodical attack of the Classic's boards.

Where things can get complicated is in the alignment procedure. If your shack is not outfitted with the recommended 25 MHz oscillocope, 25 MHz frequency counter, voltmeter, QRP wattmeter, QRP dummy load and a well-regulated power supply delivering 1.5 amps at 12 volts, don't be discouraged. Oak Hills will align your Classic for an additional $50. That's the route I chose, and I'm glad I did. The radio returned from the company sounding crisp, clear and honed to perfection.

It would be unfair to describe the Classic as a backpacker's rig. While it is certainly portable, it's not the size rig you'd want taking up space in your knapsack. The rig's enclosure measures about 4¼" high, 6½" inches wide and 7½" inches deep. On the other hand, as a fixed station transceiver, you're not going to lose it in the shuffle at your operating position.

I use a small crystal oscillator in my shack to "spot" the QRP frequencies on various bands. Tuning the Classic for the first time to find that tone gave me an early, and somewhat painful taste



The Oak Hills Research 'Classic' QRP dual band CW transceiver.

of this rig's awesome audio power. I had the gain wide open, and tuning to 7.040 MHz — with test oscillator running and earphones firmly in place — nearly broke my eardrums.

That's a good thing — just a bit of an unsettling (and painful) way to find out.

A good weekend workout proved on both 40 and 20 Meters that the Classic has a clean, beautiful-sounding note, and that the VFO is like the Rock of Gibraltar. The receiver's bandwidth — 800 Hz — is narrow enough to make this rig a contender in QRM-laden parts of the bands.

The cream-colored front and back panels are nicely lettered and beautifully framed by the Classic's flat black top and bottom covers. This is a rig you can rightfully call "homebrew," but it will fit in nicely in appearance with the most spit-and-polished ready-made transceiver.

From here in Southern California, several Sunday afternoon QSOs were made on 20 Meters on the crowded 14.060 MHz QRP hangout. Reports ranged from 469 to 589 from stations in the midwest and east.

In about an hour on 40 Meters in late afternoon, contacts were made in five states. Again, the reports were of stellar keying, tone and note. Answering a CQ from veteran Denver QRPer Larry Feick, NFØZ, resulted in a solid QRP-QRP QSO lasting about an half-hour, with Colorado QRP Club President Rich High, WØHEP, on the side. It was a great way to smoke test the newly-finished transceiver.

The rig's price tag: $219.95. The optional keyer is $39.95.

If 40 and 20 Meters satisfy your QRPing needs, the Classic is worth serious consideration.

For more information about the Classic, or to order a catalog featuring the complete Oak Hills Research product line, write to the company at 20879 Madison St., Big Rapids, MI, 49307. Telephone: 616/796-0920.

Reach us on-line

Comments, questions and suggestions for ***Worldradio's*** QRP column are always appreciated. Now, in addition to the US mail, you're welcome to keep in touch via e-mail through America Online or the Internet. Write: KI6SN@aol.com.

Catalog of the month

MCM Electronics, a Centerville, Ohio, parts house, offers a free catalog stocked with thousands of capacitors, diodes, resistors, potentiometers and semiconductors. It's made-to-order for QRP builders and browsers. In addition to small parts, the company offers a full line of test equipment, technical aids, connectors, reference materials and audio components. There is a $20 minimum order. For a catalog or more information, call toll free: 800/543-4330. The mailing address is: MCM Electronics, 650 Congress Park Dr., Centerville, OH 45459-4072. **WR**

Worldwide DX CONTESTING

John Attaway K4IIF/ZF2JI

P.O. Box 205 • Winter Haven, FL 33882

Paolo, I2UIY/N7PMC, has been Contest Manager for the A.R.I. High Frequency Contest since 1989. He is one of Italy's top contesters using the call sign IQ2A. He writes a monthly column for the national radio magazine *Radio Rivista*, and headed the Italian National team in Seattle for the first World Radiosport Team Championship in 1990.

May is the last month of the Spring DX Contest season and features the A.R.I. (Italian) HF Contest, the CQ-M (Russian) International Contest and the CQ WPX CW Contest. The following calendar and mini-rules give you the basic information to jump in and make a few contacts.

ARI Italian, SSB & CW contest

Time: 2000 UTC 6 May to 2000 UTC 7 May.

Exchange: W/K send RS(T) + 3 digit QSO number. I stations send RS(T) + province abbreviation.

CQ-M (Russian), CW, SSB & Mixed contest

Time: 2100 UTC 13 May to 2100 UTC 14 May.

Exchange: RST + 3 digit QSO number.

CQ WPX CW contest

Time: 0000 UTC 27 May to 2400 UTC 28 May.

Exchange: RST + 3 digit QSO number.

Results of the 1993 R.S.G.B. 21/28 MHz SSB contest

Due to poor conditions and a change in date, participation was much lower than usual. There were only 4 entries from North America with the following scores: K1BV — 1,188; N2LQQ — 624; W2GTN — 468; and NØOCT — 350. The top 5 scores from the U.K. were: G3NLY — 200,208; G4BWP — 198,849; G3NAS — 158,304; G4DVW —93,996; and G4PKP — 87,975.

Overseas Section		U.K. Section	
1. N4AR	38,295	1. GØIVZ	467,280
2. EA6ZY	33,150	2. G4ØDV	383,600
3. HA8FK	25,530	3. G4HEJ	342,472
4. DA1ET	18,000	4. G3UFY	282,740
5. VK6VZ	16,910	5. G3IGW	218,560
6. HA8RC	14,430	6. GØJNZ	189,286
7. SP8YAQ	13,870	7. G2QT	188,937
8. SQ6J	12,008	8. G3SJJ	154,296
9. JA6GCE	11,660	9. G3VYI	145,962
10. DL5KUD	11,470	10. G4ERW	139,417

Results Of The 1994 R.S.G.B. 7 MHz Contest

Thanks to Dave, G4BUO, here are the results of the contest which took place in February 1994. Congratulations to Bill Maxson, N4AR, for his top score worldwide in the Overseas section and to J. P. Fisher, GØIVZ, for his top score in the U.K. section. The following are the 10 high scores in each section:

Contesting from other countries

Hong Kong

VS6WO writes: To obtain a VS6 license, one should apply in person on arrival. Bring your original license and passport with you to the Maritime Services subsection, office of the Telecommunications Authority, 25/F., Wu Chung House, 213 Queen's Road East, Wanchai, Hong Kong. Tel. 961-6672, Fax 803-5113. Application hours are 9:00 a.m. to 12:30 p.m. and 2:00 p.m. to 4:00 p.m. He indicated that deposits on equipment are not required, but it would be helpful to have an import permit. Hotels in Hong Kong are not situ-

ated for contest-type operation.

Further questions may be directed to the Hong Kong Amateur Radio Transmitting Society, GPO Box 541, Hong Kong.

St. Pierre & Miquelon Islands

David, KA1NCN, suggests the Motel Rhodes as a possible site. They book through SPM Tours, c/o Elizabeth Adams, 38 Geer Street, St. Johns, Newfoundland A1C 2JS Canada; Tel: 709/722-3892, Fax 709/722-9243. He recommends registering your equipment with US Customs to allay any suspicions that you will sell your equipment to an FP amateur.

A personal note from K4IIF

My first article, entitled "Diary of a DXpedition - VP2VD" was written in 1965. Since that time, I have written for various publications including *CQ Magazine,* the *National Contest Journal* and ***Worldradio.*** After 30 years, I have decided to "hang it up" and do a little more contesting and DXing, be a reader instead of a writer. I have enjoyed the comments of my readers and your interest in sharing information with other contesters. I hope to meet more of you on the bands and at meetings in the future.

73, John **WR**

When we are flat on our back we can always look up and check the antenna

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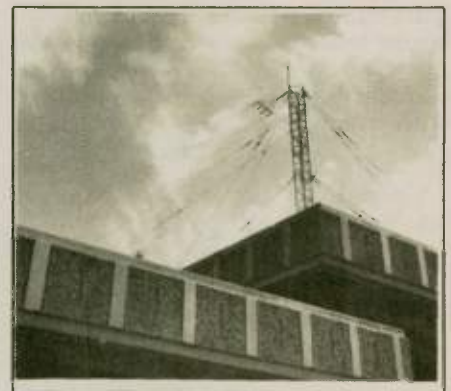

AERIALS

Kurt N. Sterba

Your humble scribe has been accused of being repetitive. Yes, over a period of more than a full decade, my song may often rondo, and that is because the effluent (against which I fight) is being recycled.

One long-lived ham journal, let's call them "5NN" (actually it is a magazine which I enjoy reading, particularly about the latest DXpeditions to Hitareef Island, but I do wish they would mail out their certificates) has earned a Kurt kick in the pants.

In an article the antenna tuner was called "an SWR disguiser." Pray tell, just what is the "disguise?" Is it a beard? Sunglasses? A fake nose?

This is, of course, in the same league (A League Of Their Own?) as the old bromide "Fools the transmitter." That is, "fools" in a similar manner to the Shell Game or the Pigeon Drop or a Ponzi Scheme. This does presuppose, of course, that the transmitter can reason, has feelings, and can be "fooled."

I will leave it to others to decide if the transmitter being "fooled" is more in the emotional state of an animal or a human.

All of this "disguising" and "fooling" gibberish is having a calamitous effect on usually sensible people. One letter writer, after three brilliant paragraphs, lapsed into a whirling dirvish look at science in that he believed that when a transformer is plugged into a 117V outlet and the 9V output goes into the CD player, "in a sense, the CD player is fooled into thinking the 117V power source source is really 9V."

The truly remarkable thing about all of this is that a voltmeter would also be "fooled" into believing that nine volts existed at the terminal. Both digital and analog meters alike would be taken in by the spell woven by the shaman-like transformer. Who knows what evil lurks in the heart of transformers?

This witchraft even extends to devices which would normally use, say, 117V to operate and when fed this ersatz 9V instead just fail to operate properly.

Even the hardy souls who check for the force level present at voltage terminals by wetting the tips of the first and second fingers and applying them to the pins would be "fooled" also.

Should you find yourself in conversation with a stranger somewhere who mentions that he is an electrical engineer and you should say to him, as a letter writer wrote, "Isn't impedance transformation really a form of 'fooling'?" Kindly do us all a favor and do NOT identify yourself as a ham. There is, of course, the possibility that said engineer is a real diplomat and quickly thinking says, "Hmmm, you could look at it that way." The engineer will have a funny story to tell back at the shop. He will also repeat that old admonition, "Don't talk to strangers."

Let us, for a moment, return to the continuing saga of those who think I am a mean-spirited person for nagging at certain antenna manufacturers. The question is: have Kurt's Kritics gone after "Uncle Wayne" for allowing into the pages of *23 Skidoo* an advertisement for an antenna that promises 30 dB gain on 160 Meters and can be used indoors at that? For the rest of us, who have not been blessed with insights bursting forth from a garage in Long Island, such an antenna (in Yagi form) would require a boom length of about 39,680 feet. or about 7.5 miles. Naturally, it would be less if the antenna were in the Quad configuration.

For those curious as to how we reached the figure of 7.5 miles, here is the process. A three-element Yagi with a boom length of about .3 WL will have a gain (over a dipole, at the same height) of a tad over 6 dB. We now have a boom of about 155 ft.

If we double the boom length and the number of parasitic elements (it is now a five-element Yagi) the gain will be close enough to nine-dB that for illustration purposes it is acceptable to use that figure. The boom is now 310 feet long. To add 3dB (almost) we must double the boom length up to 620 feet to get 12 dB. To obtain a grand total of 15 dB entails a boom of 1,240 ft. Reaching upward to 18dB calls for a boom of 2,480 feet. To squeeze out three more dB to 21 will require 4,960 ft. If we're this far, might as well get greedy and go for 24 dB and 9,920 ft. For some all that is just getting warmed up on their way to 27 dB and 19,840 feet. And climbing to the very top of the hill, 30 dB at 39,680 feet or 7.5 miles. And hey, you really would "plug into DX" with that lash-up. I should point out that a gain of 30 dB (for those who have memorized that 10 dB is a 10 times power gain) is not a power gain of 30 times. A gain of 30 dB is equivalent to a power gain of one-thousand (1,000) times

And to think that for only $6.95 for the plans and some aluminium wrap in your rafters you can accomplish the same thing for far less effort. And you will of course be eternally grateful to *23 Skidoo* (February, 1995) because without it you would have never heard of such an impressive antenna.

(Please, no letters from the purists about that it would really take more than 39,680 feet for 30 dB, law of diminishing returns and all that. I know that. This was just for a simple picture.)

But I digress. Returning to our "disguiser" and to 160 Meters where the original article had placed the unit. The whole thing is rather inconsequential because at that low a frequency, if running 100 feet of RG-8, and with an SWR of 20 to 1, the total line loss would be 2 dB. Such borders on the impossibility of hearing the difference.

Neither I nor the "screwdriver antenna" man have yet received our due apologies.

I now quote from the very smart Howard Liebman, W2QUV, noted Technical Coordinator, "Even antenna manufacturers publish outright lies about their products!" The question is how long will it be until the hams finally scream, "I'm madder than hell and I'm not going to take it any more!"

(KNS, contrary to the rantings of someone who has been in the sun too long, is not connected commercially in any manner, shape or form with any antenna product in the Amateur Radio Service. He does, however, market a magic decoding ring which has the true gain figures of various antennas.) WR

hamfests May

Arizona

The COCHISE AMATEUR RADIO ASSOC. (CARA) will hold a hamfest, 6-7 May at the club's Moson Road facility in Sierra Vista. Admission is free as is overnight camping for paid-up members. Tailgaters $5 space fee. Saturday and Sunday breakfasts plus refreshments on site. VE exams Saturday. For information, phone Jack Dilts, KB7BNR, 520/459-2629 or write CARA, 2756 Moson Road, Sierra Vista, AZ 85635. Talk-in on 146.76(-) or 146.52(s).

California

THE LIVERMORE ARK is sponsoring an Amateur Radio/Electronic/Computer Swap Meet on 7 May, 7 a.m. to 12 noon at Las Positas College. Features include refreshments, free parking and covered spaces in the event of rain. Admission is free. Sellers pay $10 space fee. Contact Noel Anklam, KC6QAK, at 510/447-3857 eves. or leave message days at 510/783-2803. Talk-in on 147.045(+) (PL 94.8) from the west and 145.350(-) (PL 100Hz to receive and send) from the east.

Colorado

The WESTERN COLORADO ARC will hold a hamfest 6 May, from 9 a.m. (vendors 7 a.m.) at the Liff Auditorium, Mesa State College in Grand Junction, CO. VE exams will be held at 10 a.m. Food and drink is available on location. Admission is $3; vendors $10 for the first table and $7 for each additional table (includes admission). Talk-in on WCARC repeater 146.94(-). For information, send an SASE to: Earl L. Surad, WB6MUQ, 2999 Gunnison Ave., Grand Junction, CO 81504.

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The PIKES PEAK RADIO AMATEUR ASSOCIATION will hold a swapfest, 20 May, 8 a.m. to 3 p.m. at Liberty High School, 8720 Scarborough Dr. in North Colorado Springs. Ham gear, computers and electronics, refreshments. Admission $3. Tables: $10 each, $8 second or more, advance registration suggested. VE testing 9 a.m. (for information, contact Rick Brown, KDØSU, 719/531-9423). Send check payable PPRAA and SASE to Harv Hunter, WA3EIB, 1437 N. Chelton Rd., Colorado Springs, CO 80909; 719/597-8964.

Illinois

The KANKAKEE AREA RADIO SOCIETY will hold a hamfest on 21 May, from 8 a.m. (setup Sat. 6 p.m. and Sun. 6 a.m.) at the Will County Fairgrounds, Peotone, IL. Features include free parking, commercial dealers, computer vendors, giant flea market with shelters, food and drink, door prizes. Overnight parking available, no hookups. Admission $4 in advance, $5 at the gate. Inside tables $7. For information, contact Will Bowser, K9IFO, 1210 N. Riverside Dr., Momence, IL 60954; 815/472-2079.

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The CHICAGO ARC will hold a hamfest on 28 May, 8 a.m. to 3 p.m. (setup 6 a.m.) at DeVry Institute of Technology, 3300 N. Campbell, Chicago. Outdoor swapfest and parking free. Admission $4 in advance, $5 at the door. Indoor tables $1 per foot. For information and reservations, call 312/545-4740, 312/545-3622 or leave message 312/666-1606; CARC, 5631 W. Irving Park Rd., Chicago, IL 60634.

Iowa

The 39 HUNDRED CLUB, INC., will hold a convention/hamboree on 12 and 13 May at the Marina Inn, So. Sioux City, Nebraska. Registration begins at noon Friday and 7:30 a.m. on Saturday. Features include a flea market, exhibitors, seminars, get acquainted dinner, banquet, computer dealers, traders, free parking/electrical outlets. VE testing the 13th at 1 p.m. Admission for both days $5, Friday dinner $7.50, banquet $12.75. Chairman, WØFZO, Dick Pitner, 2931 Pierce Street, Sioux City, IA 51104; 712/258-1520. Talk-in on 146.91(-).

Kentucky

The PADUCAH AMATEUR RADIO ASSOCIATION (PARA) will hold a hamfest 20 May from 8 a.m. (setup 6 a.m.) at the Cherry Convention Center. Features include fleamarket, forums, VE exams, refreshments. Admission $5, tables $5 (8 ft). This will be a sellout so get your tables early. For information, contact David Fraser, KW4IU, 5715 Blandville Rd., Paducah, KY 42001; 502/554-7999.

Louisiana

The SPRINGHILL, NORTH LA/SOUTH AR hamfest will be held 13 May, 8 a.m. to 2 p.m. (setup 7 a.m.) at the Civic Center in Springhill. Features include dealers, swap tables, VE testing, free parking, and prizes. Admission is $3, tables $10. For information, call or write N5NSX, 605 5th NE, Springhill, LA 71075; 318/539-4167. Talk-in on 147.16(+) & 146.73(-).

Maryland

The GREAT HAGERSTOWN hamfest will be held on 14 May at the Hagerstown Junior College Athletic and Recreation Center in Hagerstown. Tailgating $5 per space (plus admission) first-come, first-served. Indoor swap tables available $20 each or $15 in advance. Responsible for own electrical cords. For information and reservations call Fred Bailey, N3HTN at 301/416-8079 or 301/714-0688. VE exams, no preregistration required.

Michigan

The WEXAUKEE ARC will hold a hamfest and eyeball QSO on 20 May, 8 a.m. at the Cadillac Middle School in Cadillac. For information, contact Dan, KE8KU at 616/775-0998 or write to WARC, P.O. Box 163, Cadillac, MI 49601. Talk-in on 146.98(-).

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Note: The MUSKEGON COUNTY ARES and RACES hamfest was listed incorrectly in the April issue. It should have read 15 April. We apologize for the error.

Minnesota

The ARROWHEAD RADIO AMATEUR CLUB will hold a swapfest 6 May, 9 a.m. to 2 p.m. at the Multipurpose building at the Head Of The Lake Fairgrounds, 4700 South Tower Ave. (Hwy 35) in Superior Wisconsin. Plenty of free parking, easy access, ham and computer gear, food and refreshments. For information, contact George Mead, KAØBUM, 4152 Ugstad Road, Duluth, MN 55811; 218/729-6882.

The PAUL BUNYAN ARC will hold a

hamfest on 7 May, 8 a.m. to 3:30 p.m. at the Bemidji Eagles Club. Features include dealers, door prizes, exams and flea market. For information, contact Dave Peterson, NØQHL at 218/751-2314 or George Welte, NØWBU at 218/751-2931. For testing, call Gurnee Bridgmen, W9NT at 218/243-2002. Talk-in on 146.73(-).

Missouri

The JEFFERSON COUNTY ARC will hold a "cavefest" 20 May, 7 a.m. (setup 19 May noon to 11 p.m., 20 May 4-7 a.m.) in a cave provided by Russ Bauman located 20 miles south of St. Louis. I-55 south to exit 178, Herculaneum. East to Highway 61/67, South on Highway 61/67 two miles to cave entrance. Easy drive-in, unloading. Electronic, radio and computer swapfest, forums, free parking, VE session (p/r). Admission $3; commercial exhibitors $15; amateur $10; electric hookup $7; tailgaters $10. For reservations send an SASE to Herb Metts, P.O. Box 232, House Springs, MO 63051; 314/671-0667. Talk-in on 147.075(+), 224.040(-), 442.500(+).

New Jersey

The CHERRYVILLE REPEATER ASSN. will hold a hamfest on 20 May, 8 a.m. to 2 p.m. (vendors 6 a.m.), at the Warren County NJ Fairgrounds located on County Route 519 just north of routes 22/78 near Phillipsburg, NJ. Features include indoor/outdoor vendors; forums on Amateur Radio, VE testing and QSL card checking. The site is handicapped accessible and there will be food and refreshments. Admission is $6 (children under 12 free). For VE testing call Marty Grozinski 908/806-6944 before 11 p.m. (prereg. only). To reserve table space, contact the club at 908/788-4080. Talk-in on 147.35(+).

New York

The 61st annual ROCHESTER HAMFEST and computer show, combined with the Atlantic Division/New York State ARRL Convention will be held 19-21 May. Setup is 6 a.m. on the 19th. Exhibits open 20-21 May at 8:30 a.m. An outdoor flea market adjoins the indoor selling area. Admission is $6 in advance, $8 at the door. Flea market permits are $10 each. Good for all 3 days. Ticket requests go to Irv Goodman, AF2K, 515 Drumm Rd., Webster, NY 14580. For additional information, write: Rochester Hamfest, 300 White Spruce Blvd., Rochester, NY 14623; 716/424-7184.

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The METRO 70cm NETWORK will hold an electronic flea market 7 May, 9 a.m. to 3 p.m. (vendors 7-9 a.m.) at the Lincoln High School, Yonkers, NY. Features include free coffee, refreshments, hourly prizes, free parking. VE exams 9 a.m. to noon. Admission is $5, children under 12 free. Vendors $19 first table, $15 second, $14 (bring own table). Talk-in 449.425(-) PL 156.7, 146.91(-). For information, contact Otto, WB2SLQ at 914/969-1053.

North Carolina

The DURHAM FM ASSOCIATION will hold a hamfest on 27 May, 8 a.m. to 3 p.m. (setup at 6:30 a.m.) at the South Square Shopping Mall, Highway 15-501 south and Chapel Hill Blvd. VE exams at 10:00 a.m. (p/r requested, limited walk-ins will be accepted). For exam registration or information, contact Dave Snyder, N2MLU, 600 S. Churton St. #64, Hillsborough, NC 27278; 919/644-8681. For dealer, flea market, or general hamfest information, contact Rodney Draughon, KD4KMI, 910/364-7420 or Rt. 4, Box 205, Rougemont, NC 27572. Talk-in on 147.225(+) and 145.60(-).

Ohio

The ATHENS COUNTY AMATEUR RADIO ASSOCIATION will hold a hamfest on 14 May, 8 a.m. to 3 p.m. at the City Recreation Center. Free paved outdoor flea market space for tailgaters and those bringing their own tables can be claimed the day of the event. Admission is $4. YLs and spouses of male hams will be allowed in free in honor of Mother's Day. For indoor space reservations, contact John Biddle, WD8JLM, 80 Wonder Hills Dr., Athens, OH 45701; 614/594-8901 after 6 p.m. For general info, write: Carl J. Denbow, KA8JXG, 63 Morris Ave., Athens, OH 45701. Talk-in on 145.15(-).

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The TRIANGLE ARC will hold a hamfest on 7 May, 8 a.m. to 3 p.m. at the Columbiana County Fairgrounds. Admission $4 (includes 1 prize ticket); indoor tables (limited) $6. For information, contact Dick Sisley, K8JKB, 1218 Northside Ave., East Liverpool, OH 43920-1642; 216/385-1245. Talk-in on 146.80(-).

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The TWENTY OVER NINE ARC, INC. will hold a hamfest 28 May, 8 a.m. to 3 p.m. (setup 6:30 a.m.) at the Canfield Fairgrounds located on route 46, in Canfield. Flea market indoor/outdoor spaces available. Admission is $4, $3 in advance, children under 12 admitted free with adult admission. Tables $8 per 8'. For information, contact Don Stoddard, N8LNE, 42 S. Whitney Ave. Youngstown, OH 44509; 216/793-7072. Talk-in on 147.13(+), 443.225(+) or 145.27(-). Mobile check-in and directions until 1 p.m.

Oregon

The KENO ARC will hold hamfest on 6 May, 9 a.m. to 3 p.m. (setup 7-9 a.m.) at the National Guard Armory, 2501 Shasta Way, Klamath Falls. Dealers, flea mar-

ket, snack bar, VE exams, free parking. Admission $4 in advance, $5 at the door. Vendor tables $10. Talk-in on 146.85(-).

Pennsylvania

The SOUTHERN TIER ARC will hold a hamfest 6 May, 8 a.m. to 4 p.m. at the Marvin Park Fairgrounds at Rte. 17c and Exit 64 in Owego, NY. Features include 36th annual banquet, VE testing, seminars, ARRL forum, vendor exhibits, indoor/outdoor flea markets, refreshments and tailgating. Admission $3 in advance, $4 at the gate; tailgate $2 extra; tables $15; banquet (includes general admission) $20 per person in advance. For information, contact STARC, P.O. Box 7082, Endicott, NY 13761. Talk-in on 146.76(-) or 146.52(s).

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The WARMINSTER ARC will hold a hamfest on 7 May, from 7 a.m. (vendors 6 a.m.) at the Middletown Grange Fairgrounds, Penns Park Road, Wrightstown. Indoor spaces with 8' table $12, unlimited outdoor tailgating spaces for $9 each. Admission $6 (unlicensed spouses and children under 12 free). VE exams 11 a.m. (prereg. at 10:30 a.m.). For information, contact Woody Woodside, N6XES at 215/672-8482, 9 a.m. to 9 p.m. or write to him at 665 St. Davids Avenue, Warminster, PA 18974. Talk-in on 147.69(-) repeater and 146.52(s).

Rhode Island

The RHODE ISLAND AMATEUR FM REPEATER SERVICE, INC. will hold a spring auction and flea market on 20 May from 8 a.m. at the VFW Post 6342, Main Street, Forestdale (North Smithfield). Spaces are $5 each, on a first-come first-served basis. Auction begins at 11 a.m. and runs until 3 p.m. Coffee, donuts, food and beverages are all available. For information, contact Rick Fairweather, K1KYI, 144 Parkview Drive, Pawtucket, RI 02861; 401/725-7595. Talk-in on 146.76(-).

Texas

The PANHANDLE ARC will hold a hamfest 6-7 May in the campus of T.S.T.C. just east of the airport between I-40 and Highway 60, Amarillo, TX. Admission $6 in advance, $7 at the door; tables, $7; VE exams, handicapped access. Talk-in repeaters 146.94(-) and 146.67(-).

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The PEARLAND ARC will hold a hamfest on 6 May, 8 a.m. to 2 p.m. at the League City Civic Center, 400 W. Walker, League City, TX. Dealers, swap tables, VE testing, prizes. For information, contact PARC 95 Hamfest, P.O. Box 2654, Pearland, TX 77588-2654. Talk-in on 147.22(+) and 146.52(s).

Utah

The UTAH HAMFEST and WSU CENTER for Aerospace Technology willl hold a hamfest 20 May, 8 a.m. to 5 p.m. at the Weber State University Student Union Building in Ogden. Features include dealers, seminars, swap meet and contests. Free parking, limited overnight self-contained RV parking. Admission: Adults (16 and over) $7 before 1 May, $10 at the door. Youth (under 16) $3 before 1 May, $5 at the door. Swap meet space $5 per table. Send preregistration to: Utah Hamfest, Inc., c/o OARC, P.O. Box 3353, Ogden, Utah 84409. Talk in on 146.90(-), 146.52(s).

West Virginia

The TRIPLE STATES RAC will hold a hamfest 14 May, 8 a.m. to 3 p.m. in Wheeling. World's largest telegraph key on display. DX forum, contests — QLF, hard disk drive tossing. Free 8 acre flea market, admission only. Two restaurants and tent barbeque. Admission $3, women/youths younger free. For information, contact Triple States RAC, Box 240, RR1, Adena, OH 43901, Phone/Fax 614/546-3950.

Wisconsin

The OZAUKEE RADIO CLUB will hold a swapfest 6 May, 8 a.m. to 1 p.m. (setup 6:30 a.m.) at the Circle-B Recreation Center, Highway 60 and County I (located 20 miles north of Milwaukee, west of Grafton). Admission is $2 in advance, $3 at the door. Tables are $3 for 4'. Food and refreshments are available. License exams start at 9 a.m. For admission tickets, table reservations, maps, or additional information, send an SASE to ORC Swapfest Chairman, W70 N 1018 Hampton Court, Cedarburg, WI 53012; 414/377-7468 or 414/377-2784. Talk-in on 146.97(-) and 146.52s).

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The MANCORAD RADIO CLUB will hold a hamfest and swapfest on 13 May from 8 a.m. (setup on the 12th, 10 p.m. and early the 13th). Accommodations for vendor drive-ins; FCC amateur exams. Admission is $2 in advance, $3 at the door. Reserved 8' tables, $4 each; electrical outlets $5. For information, contact Glen at 414/684-7096 any time or Red, 414/684-9097 days. Talk-in on 146.61(-) or 147.03(+).

Wyoming

The CASPER ARC, INC. will hold a hamfest on 27-28 May at Parkway Plaza in Casper. Admission $7 in advance, $9 at the door; swap tables $10. For information, contact CARC, Inc., W7VNJ, P.O. Box 2802, Casper, WY 82602; Steve Spier, N7JUO, 3511 Swanton Ave., Casper, WY 82609; 307/265-6575. WR

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Send ***Worldradio*** your hamfest announcement today! Please allow two months lead time. Be sure to include the date, time and place.

CONTESTS

Michigan QSO Party

The 1995 Michigan QSO Party is sponsored by the Oak Park Amateur Radio Club from 20 May 1800Z to 21 May 0300Z and 21 May 1100Z to 22 May 0200Z. Phone and CW are combined into one contest. Michigan stations can work Michigan counties for multipliers A station may be contacted once on each band/mode. Portable/mobiles may be counted as new contacts each time the county changes. County line contacts count as one QSO.

Exchange: QSO # and QTH - county for Michigan; state or country for others.

Scoring: Multipliers are counted only once. Michigan stations: 2 points per QSO x (states + countries + Michigan counties) on phone. Each CW contact is 3 points per QSO. Alaska & Hawaii count as states. VE counts as a country. Maximum multiplier is 85. Five (5) points for each W8MB contact. Non-Michigan stations: QSO points x Michigan Counties. 2 points for each Michigan phone QSO and 3 points for each CW contact. Five points for each club station contact with W8MB. Maximum multiplier is 83. VHF only entries: Same as above except multipliers per VHF band are added together for total multipliers. No repeater contacts are allowed.

Suggested Frequencies:

CW: 1.810, 3.540, 3.725, 7.035, 7.125, 14.035, 21.035, 21.125, 28.035, 28.125.

Phone: 1.855, 3.905, 7.280, 14.280, 21.380, 28.480.

Awards: Plaques - high multi-operator/ single transmitter score, High Michigan score, High Michigan (Upper Peninsula) score, High aggregate club score and High QRP only entry (minimum of 100 QSOs), and High Michigan Mobile score. Certificate: High score for each county (minimum 50 QSOs). Out of state: High Out of state plaque and certificates for High Score each state and country.

A log and summary sheet is requested showing the scoring and other pertinent information, name and address in block letters and a signed declaration that all rules and regulations have been observed. Michigan stations include club name for combined club score. Party contacts do not count toward the Michigan Achievement Award unless one fact about Michigan is communicated. Members of the Michigan QSO Party Committee are not eligible for individual awards. Decisions of the Contest Committee are final. Results will be final on 31 July 1995 and will be mailed to all entries that have sent in an SASE. Mailing deadline is 1 July 1995. Send logs to: Jeffrey Albrecht, N8WRY, 16193 Locherbie, Beverly Hills, MI 48025.

Connecticut QSO Party

Connecticut QSO party is sponsored by the Candlewood ARA, 2000Z 6 May until 2000Z 7 May with a rest period 0400Z - 1200Z. Phone and CW.

Work stations once per band and mode, mobiles as they cross county lines. No repeater QSOs.

Single operator, fixed/mobile, Novice, QRP(5W), multi-single, multi-multi classes plus Connecticut club competition.

Connecticut stations may contact other Connecticut stations for QSO/multiplier credit.

Exchange: Connecticut stations exchange report and county; others exchange report and state/province/DXCC country.

CW: 40 kHz. up from lower band edges; Novices 25 kHz. up from low end; Phone - 1.860, 3.915, 7.280, 14.280, 21.380 28.380. VHF: 50.150, 144.200, 146.580.

Scoring: One point per phone QSO and two points per CW QSO. QSOs with club station W1QI and ARRL HQ station W1AW count 5 points.

Connecticut stations multiply QSO points by states/provinces/Connecticut counties worked (DX only one multiplier); others multiply by Connecticut counties.

Awards: Plaques and certificates (100 point minimum). Special certificate for working all 8 Connecticut counties.

Send entry and SASE for results by 7 June to CARA, P.O. Box 3441, Danbury CT 06813-3441.

Massachusetts QSO Party

The 1995 Massachusetts QSO Party is organized by the Framingham Amateur Radio Association and will be held 6 May 1800Z to 7 May 0400Z and 7 May 1100-2100Z.

Classes: Outside MA, MA single op, MA multi-op, MA portable, MA team (5 MA single ops), MA Nov/Tech, MA Club.

Exchange: RST and QTH (state/province/DXCC country/MA county).

Scoring: Count 1 point for Phone and 2 for CW/Digital/Video. Multipliers are MA counties (maximum 14 per band, plus states+provinces+DXCC countries per band for Massachusetts stations). Final score is total QSO points times total multipliers.

Frequencies: Any authorized amateur band except 10, 18 and 24 MHz.

CW: 1.810, 3.550, 7.050, 14.050, 21.050 and 28.050. SSB: 1.850, 3.890, 7.290, 14..270, 21.390, 28.390. Novices: 3.705, 7.130, 21.130, 28.130.

Awards: Certificates awarded for highest scores in each contest class, state, Canadian province and DXCC country and to entrants working all 14 MA counties.

Postmark entries by 8 June. Send logs to FARA, P.O. Box 3005 Framingham, MA 01701 (for full copy of QSO Party rules send an SASE to above address, packet KA1USL@K1UGM or e-mail baymw@aol.com).

Nevada QSO Party

The Nevada QSO party, sponsored by the Frontier Amateur Radio Society will be held from 0000Z 13 May to 0600Z 14 May.

Work stations once per band per mode. Exchange RST and state/province/country. NV stations also give county.

Frequencies: 6 through 160 Meters.

Modes: CW/SSB/RTTY/SSTV/Packet

Scoring: 1 point phone QSO; 2 points per QSO other modes. Non-Nevada stations multiply by number of Nevada counties. Nevada stations multiply by state/province/county total.

Awards: Certificates to top score each state/province/DXCC country, Novice, Tech, Tech Plus, General and above.

Mail entry logs by 15 June to: Jim Frye, NW7O, 4120 Oakhill Ave. Las Vegas, Nevada 89121-6319. **WR**

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

LED digital clock

MFJ Enterprises, Inc. announces the MFJ-114 12/24 hour, 2.3" LED digital clock.

A display format of 12 hour local or 24 hour UTC time is user selectable. An adjustable black base lets you set it on your desk and customize your viewing angle.

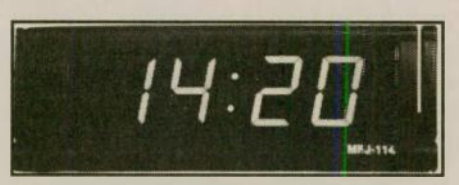
Built-in mounting holes will let you display this clock on your ham shack wall. The MFJ-114 measures 13½ x 6½ x 1¼ inches and uses a 120V AC power supply.

A battery backup feature keeps the time running even during power failures. Separate hour and minute set buttons make setting time very quick and easy.

The MFJ-114 is available only from MFJ dealers or MFJ directly. MFJ-114X is also supplied with a 240 volt adapter for overseas travel.

The MFJ-114 comes with MFJ's famous "No matter what" unconditional full one-year guarantee. The price is $39.95.

For more information or to order, contact any MFJ dealer or MFJ Enterprises,



Inc., P.O. Box 494, Mississippi State, MS 39762 or call (601) 323-5869, FAX: (601) 323-6551, or order toll-free at 1-800647-1800.

Shielded cables

CABLE X-PERTS, Inc., has added computer "LAN" CABLES to their product line. The first in this series is RG58A/U "THINNET" double shielded (foil+95% braid) Gray PVC jacket (PN:9907).

The next item is the 24GA, solid, 4 pair level 5, LAN cable (2404P-5). This product is UL verified to a level 5 rating. It is also UL rated to the CM/CMR fire code.

In addition, they also have jumper cables in RGS8U with BNC connectors installed at each end. These patch cords come in 6 foot (PN:205-527) and 25 foot (PN:205-540) lengths.

All items are stock. Pricing:PN:9907 starts at .22/ft. PN: 2404P-5 starts at .16/ft. PN:205-527 are $3.50 each. PN:205-540 are $8.00 each.

For the complete catalog, mail an SASE to: CABLE X-PERTS, 113 McHenry Rd, Suite 240, Buffalo Grove, IL 60089-1797. For more information see CABLE X-PERT'S advertisement on page 52 of this *Worldradio.*

RADIO WORKS' catalog

The latest issue of the RADIO WORKS general catalog (#951) is ready to mail. It is a source book of high performance wire antenna systems, antenna parts and accessories. Within its 80 pages is a complete selection of coax, connectors, antenna wire — everything for the wire antenna enthusiast. This issue features new products from several additional manufacturers. There are pages of new coax types, coax switches, power meters, insulators, tuners, support rope, etc. You name it, it's in there!

General catalog #951 is free and is sent by bulk-mail service. For extra fast priority-mail service, the price is $2 to help cover the additional postage. Contact the RADIO WORKS, Box 6159, Portsmouth, VA 23703; (800) 280-8327, (804) 484-0140, FAX (803) 483-1873.

ANC-4 Antenna Noise Canceller

JPS Communications, Inc. is pleased to announce the new ANC-4 Antenna Noise Canceller. This unit is an RF device designed to remove locally-generated noise from signals received by a primary antenna The unit is installed right at the antenna connector of the receiver/transceiver to cancel locally-generated noises, such as powerline noise, computer/TV noise, electrical noise from local machinery or equipment, etc., before they get into the receiver and affect the receiver's AGC circuits. This allows reception of signals well below the noise level induced by the local interference.

To cancel local noise, the interference signal must be detected and its phase and magnitude adjusted so that it matches the offending interference, but is 180 degrees out of phase, effectively canceling the interference. Controls are provided on the front panel to allow adjustment of both the phase and magnitude of the local interference, providing extremely deep cancellation of the offending interference.

This unit may be used with any receiver or transceiver with RF power output of 150 watts PEP or less. An RF detector built into the unit automatically bypasses the network whenever transmit RF is detected. The unit is not designed to be used

at the output of a high-power linear power amplifier, but must be installed at the lower RF level of the transceiver, if transmitting is anticipated.

The unit connects between the main station antenna and the receiver antenna connector. A short wire antenna and a short collapsible whip are supplied with each unit to act as the noise pickup antenna.

If no outdoor antenna is available, the ANC-4 may be used as an active receive antenna. By plugging the noise detecting antenna into the ANC-4's jack, use the gain control to increase the audio level.

The unit requires 12V DC @ 300 mA. Adapters are available from JPS: 5720M Capital Blvd, Raleigh, NC 27604 Phone (919) 790-1011,Fax (919)790-1456.

Tool Vest

The *Tool Vest* is designed for the worker who wants to have everything needed a heartbeat away without compromising safety. The *Tool Vest* easily fits over clothing adjusting to a wide range of sizes with its four expandable side release buckles.

Twenty front pockets organize those tools you always need, ready for immediate access. One large rear pocket is accessible from both sides adding to *Tool Vest* versatility. Bright red panels front and back make worker visible to others. List price is $54.97.

For information, contact Tool Pak, 7307 82nd St. CT CW, Tacoma, WA 98498; (206) 584-4914; Fax, (206) 589-1091.

AEA's Log Windows 2.0

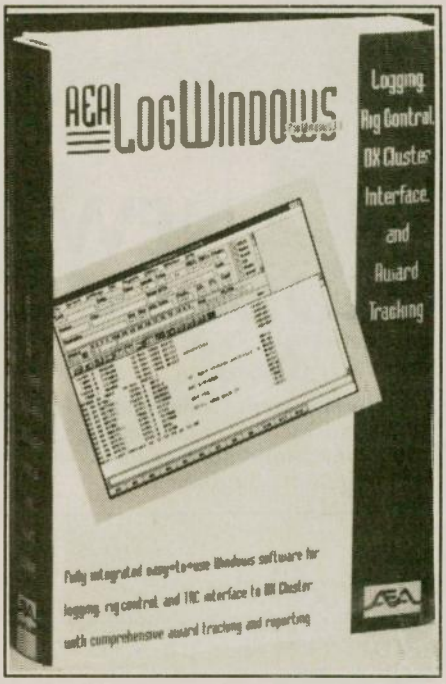
Advanced Electronic Applications, Inc. is now shipping Log Windows 2.0.

This new version of Log Windows is now compatible with AEAs PC PakRatt for Windows version 2.0. Users can have the superior TNC control of PC PakRatt for Windows 2.0, coupled with the powerful logging and tracking of Log Windows.

Antennas can be turned to the short path, long path, or in an arbitrary direction, with the click of a mouse.

A new Database Browser enables users to sort and print logs by any criteria. Users can also query on-line call book databases such as SAM, QRZ, or HAMCall for a call sign at any time.

Log Windows 2.0 was created to automatically display DX spots and allow users to move to the designated frequency quickly, log the contact, and then save the information in a log. Log Windows 2.0 has the ability to announce DX spots with a voice-synthesized-DX announcement. A filter can be turned on so Log Windows 2.0 will only display and sound an alarm for DX that is needed, preventing unnecessary spots from distracting people from other tasks. Users can display the 30 most recent DX spots, choose one to enter in the display, and grab it. This automatically sets the transceiver frequency and mode, and prepares the logbook to record the contact. Log Windows 2.0 does not require



an AEA TNC.

The stand-alone LW Import program allows all these logs to be imported into Log Windows 2.0: CT, DXLog, Log Master, Easy DX, Hyperlog, DX Base, N6RJ 2nd Op, Log View, DX Desktop, PC PakRatt, and any ASCII log. Logging and award tracking are supported for: ARRL DXCC, WAS, VUCC, and *CQ Magazine's* CQ Zone and US-CA awards.

Updating official ARRL DXCC list prefixes in databases is easy with the special utilities built into Log Windows 2.0. Log Windows 2.0 also allows users to: print QSO labels, print logbooks, see information displayed by the local Packet Cluster and change the frequency and mode of the transceiver to the frequency shown by the Packet Cluster.

Suggested retail price for Log Windows 2.0 is $99.00. Upgrades for Log Windows 1.0 are also available. For more information, please contact: Advanced Electronic Applications, Inc. P.O. Box C2160, Lynnwood, WA 98036; Phone: (206) 774-5554, Fax: (206) 775-2340.

Call sign License Plaque

A handsome plaque is now available for displaying your Amateur Radio licenses, offered by ShackAttack. These handsome plaques are hand-crafted from alder wood and finished with two coats of polyurethane gloss for a beautiful natural appearance.

The plaque edges are routed for a distinguished look. Overall dimensions are 7¼ x 12 with a 5 x 7 inch license display area. There is a 5" wide area below the license in which the station operator's call sign is displayed in large 2" pine letters. A plexiglass cover prevents laser printed text from sticking and all mounting hardware is included.

The license plaque is a great way to meet the amateur radio station requirements in FCC section 97.3 and enhance the looks of your shack. The Callsign License Plaque is available from Shack Attack for $19.95 plus $3.50 s/h. Call toll-free (800) 573-7388. E-mail: kb7vrd@aol.com. When ordering by mail, call signs should be clearly printed. Shack Attack, 1394 N 770 W, Dept. 33, Orem, UT 84057-5903.

The VHFDN-152 filter

Par Electronics, a long time manufacturer of filters for the CATV and MATV industry, is now manufacturing a unique filter to solve the increasing problem of intermod interference on 2 Meters. Previous attempts have used expensive and large bandpass filters or smaller bandpass filters that needed to be switched out during transmit because of their insertion loss. The VHFDN152 solves the problem by notching out the offenders-paging services located in the 152-153 MHz range. As a result, insertion loss is close to zero VSWR is less than 1.2:1 and the filter allows for reception of the 120-175 MHz spectrum (except 152-154 MHz) for those radios so equipped. The unit has been updated to make it transparent at 70cm allowing it to be left in line on dual band radios with a single coaxial connector. A second, smaller model rated at lower power (20W as opposed to 50W) has male and female BNC connectors allowing it to be connected directly to an HT. Both models are built in rugged brass housings and are priced at $62 and $68 respectively. For more information contact Par Electronics 6869 Bayshore Dr. Lantana, FL 33462 (407)586-8278, FAX (407)582-1234.

"Electromorse"

Electrosoft introduces "Electromorse," a program that combines a powerful Morse code tutor with a sophisticated CW keyboard. "Electromorse" runs immediately on any IBM compatible computer including laptops with no setup required. Running the program is intuitive, with help only a "hot key" away.

The tutor helps you learn code by sending random characters, buffers, or conversations. Random letters and numbers are sent in 5 character groups and may either include or exclude punctuation marks. Custom practice drills are made by randomly selecting from ten separate user defined buffers. Practice for VE exams is done by randomly selecting millions of unique conversations from a pool of common phrases. The Farnsworth method is used for code speeds below 13 words per minute.

Electromorse sends and receives CW from 5 to 100 wpm. The dot/dash ratio can be adjusted from 21 to 45 percent. An automatic serial number is available for contesters. Ten 200-character buffers are available to store messages that can be repeated indefinitely. The transmit speed, dot/dash ratio, serial number, serial port, and message buffers may be stored on disk. A CW side tone may be enabled or disabled, and a tune key is available. A split screen display separates messages sent, from messages received. Status lines at top and bottom of the screen show all settings including number of characters in each buffer and tuning indicator to simplify receiving code.

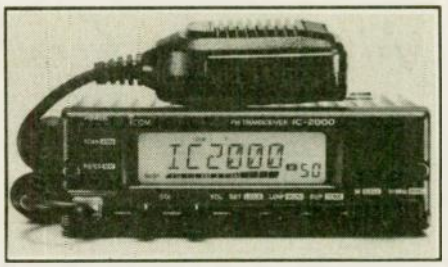
An optional interface kit is available that comes complete with parts, a battery, a circuit board, cables, connectors and a small case.

The "Electromorse" program is available for $30.00 without the interface and for $50.00 with the interface from ELECTROSOFT, P.O. Box 1462, Loveland, CO 80539.

ICOM IC-2000H

Icom introduces the IC-2000H superior wideband mobile, featuring clear, crisp reception designed specifically to deal with cross modulation interference. The IC-2000H employs a tracking tuning system and high quality RF band pass filters to improve image rejection and intermodulation characteristics.

Each of the 50 memories can be programmed with six-character names. This



allows identification of the frequency by name for less confusion. Two scratch pad memories and six scan edge memories are also available.

50 watts of output allows ease in working distant repeaters.

The die-cast aluminum one-piece frame is ruggedly constructed with a large heat sink to provide stable duty cycle operation.

The IC-2000H receives 118 to 174 MHz (118 to 136 MHz AM, 136 to 174 MHz FM, includes aircraft reception) and transmits 140 to 150 MHz (for MARS/CAP operation).

Advanced scanning features include full scan, program scan, five scan resume conditions, mode scan and priority watch.

Additional features include a call channel, busy channel lockout, auto power off, programmable up switch and separate volume-squelch knobs.

Optional features include a UT-55 alpha message pager, UT-85 tone scanner, UT-101 code squelch/pager and UT-85 tone squelch/pocket beeper.

The suggested retail price for the IC-2000H is $430.00. For further information about this product, please contact your local Icom Amateur Radio dealer or Icom America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004; 206/454-8155.

VE exam schedules

As a service to our readers, ***Worldradio*** presents a feature listing those VE exams, times and locations which are sent to us.

Please remember that our deadline for publication is three months in advance. For example, if your VE group is scheduling an exam for September, please have the information to us by mid June.

p/r = pre-register

Worldradio, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams."

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

w/i = walk-in

Date	City	Contact	Notes
Arizona			
6/10/95	Tucson	Joe, K7OPX 602/886-7217	w/i only
6/17/95	Tucson	Micki, AA7RR 602/883-8305	p/r req
Arkansas			
6/17/95	Mt. Home	Gerald, WM5W 501/430-5123	p/r req
6/10/95	Siloam Sprgs	Ward, WA5NRT 918/326-4631	w/i OK
California			
6/10/95	Carlsbad	Rusty, AA6OM 619/747-5872	p/r pref
6/4/95	Chico	Jacquelyn, W6YKU 916/342-1180	p/r
6/24/95	Chula Vista	Jim, KK6KZ 619/428-8418	p/r pref
6/22/95	Colton	Harold, AB6RN 909/825-7136 days 909/685-6073 eves	w/i OK
6/4/95	Concord	Gene, WW6H 510/254-5090	w/i only
6/24/95	Culver City	Scott, K6PYP 310/459-0337 or Dave, N3BKV 818/559-2572	w/i pref
6/24/95	Escondido	Tom, N6CLO 619/745-7850	p/r only
6/24/95	Fairfield	Dick, AB6EY 916/791-0268	w/i pref
6/15/95	Fountain Vlly	Cam, KI6WK 714/846-6984	p/r only
6/6/95	Fremont	Greg, KJ6EP 510/791-6818	w/i only
6/17/95	Garden Grove	John, N6CTV 714/534-8633	p/r pref
6/7/95	Lake Isabella	Tom, KN6TS 619/379-2947	w/i OK
6/29/95	Long Beach	W6LRF, 714/847-6370 or N6LUH, 310/596-1023	w/i OK
6/10/95	Novato	recording 415/883-9789	p/r
6/17/95	Oakhurst	Ken, K6LFR 209/683-8245	w/i OK
6/24/95	Pomona	Don, WA6HNC 909/949-0059	p/r pref
6/17/95	Redwood City	Joe, KB6OWG 145.23(-) PL=100Hz	w/i OK
6/7/95	Sacramento	Jim, AB6OP 916/393-8839 or Earl, AB6CN 916/331-1115	p/r pref; w/i OK
6/17/95	Sacramento	Lyle, AA6DJ 916/483-3293 or Phil, N6ZVA 916/338-3223	w/i OK
6/17/95	San Diego	Jeff, AB6NE 619/295-5852	
6/10/95	San Pedro	N6DYZ 310/325-2965	p/r pref; w/i OK
6/3/95	Santee	Knick, K6SK 619/466-8219	p/r pref
6/17/95	Stockton	Mark, W6DKI 209/465-7496	w/i
6/10//95	Sunnyvale	408/255-9000 24-hr.	w/i only
6/17/95	Tehachapi	Bill, N6GLO 805/822-1473	
6/10/95	Willits	Don, WA6ACX 707/459-3980	w/i OK
Colorado			
	All Colorado exams 24-hr recording 303/360-7293		
6/10/95	Colo. Sprgs.	Rick, KDØSU 719/531-9423	w/i OK
6/10/95	Denver	Glenn, WØ1JR 303/366-9689	w/i OK
6/10/95	Greeley	Rick Hubbard, 303/353-3577	w/i OK
6/3/95	Littleton	David Avery 303/795-5718	w/i OK
6/4/95	Longmont	Randy Abbott 303/651-1075	w/i OK
6/3/95	Sterling	Blaine, WAØJTB 303/522-5787	w/i OK
Connecticut			
6/28/95	Shelton	Lee, WA1TSW 203/735-9476	w/i OK
6/15/95	Vero Beach	Roger, KC4NHB 407/567-3979	w/i OK
Florida			
6/17/95	Melbourne	WB9IVR 407/724-6183	w/i OK
6/18/95	Vero Beach	Roger, KC4NHB 407/567-3979	w/i OK
Georgia			
6/24/95	Dalton	Bert, N4BZJ 706/259-5625	no w/i
Idaho			
6/10/95	Boise	Lem, W7JMH 208/343-9153	w/i OK
6/28/95	Grangeville	Steve, KD7EV 208/935-0669	
Illinois			
6/10/95	Oak Forest	David, NF9N 708/448-0580	w/i OK
6/17/95	Loves Park	Dennis, W9SS 815/877-6768	p/r
6/2/95	Westmont	Don, N9IZU 708/964-6712	w/i OK
Indiana			
6/21/95	Indianapolis	Pete, AA9HK 317/259-7610	p/r only
6/4/95	Terre Haute	Fred, K9EBK 812/466-2122	w/i OK
Iowa			
6/17/95	Council Bluffs	Lorraine, AAØBS 712/322-1454	w/i OK
Kansas			
6/1/95	Newton	KAØRCK 316/283-6042	p/r pref; w/i OK
Maryland			
6/26/95	Annapolis	Lois, KA3VVQ 410/647-4178	p/r pref; w/i OK
6/26/95	Glen Burnie	Jerry, NU3D 410/761-1423	p/r pref; w/i OK
Michigan			
6/10/95	Marquette	Rich, N8GBA 906/249-3837	
Massachusetts			
6/11/95	Gloucester	Rick, WZ1B 508/283-2278	w/i OK
Missouri			
6/3/95	Kimberling	NQØG 417/739-2888	w/i OK
Montana			
6/6/95	Great Falls	George, AA7GS 406/453-2360	w/i OK
Nevada			
6/10/95	Reno	Don, WS2Z 702/851-1176	
New Jersey			
6/10/95	Cranford	24-hr hotline: 201/377-4790	w/i OK
6/14/95	Ft. Monmouth	Gerry, WB2GYS 908/532-5354	w/i OK
6/5/95	Sayreville	Larry, N2ELW 908/754-5800 day; 908/613-8967 nite	w/i OK
New York			
6/13/95	Hicksville	Bob, W2ILP 516/499-2214	w/i
6/17/95	Long Island	Les, AA2FJ 516/364-0030	
6/4/95	Yonkers	Emily, AC2V 914/237-5589	w/i OK
North Carolina			
6/4/95	Henderson-ville	W2YTO 704/891-4359	p/r pref; w/i OK
Ohio			
6/1/95	Cincinnati	Herb, WA8PBW 513/891-7556	w/i OK
6/10/95	Van Wert	Robert, KA8IAF 419/795-5763	p/r
Oregon			
6/13/95	Pendleton	Mike, AA7SL 503/566-3597	w/i OK
6/14/95	Roseburg	Dick, AA7GC 503/672-7564	w/i OK
6/17/95	White City	Rick, KG7PX 503/779-3404 or Paul, KE7VO 503/878-3433	w/i OK
Pennsylvania			
6/3/95	Erie	Norma, W3CG 814/665-9124	w/i OK
6/17/95	Hermitage	Dennis, WM3H 412/347-5960	w/i OK
6/2/95	Nazareth	Robin, WA3T 610/820-9110	w/i
6/21/95	Pittsburgh	Mac, KC3RJ 412/279-8756	p/r only
6/10/95	Shrewsbury	Carol, KC6GMN 717/235-0273	p/r pref
6/17/95	Stockdale	Lou, KA3FLU 412/938-8125	p/r only
Rhode Island			
6/11/95	Providence	Judy, KC1RI 401/231-9156 or Al, NN1W 401/454-6848	w/i OK
Texas			
6/17/95	Austin	Jim, AB5EK 512/327-6184	w/i OK
6/17/95	Brownsville	Bob, N5VCG 210/542-7449	
6/10/95	Dallas	Larry, WR3J 214/350-5803	w/i OK
6/22/95	Garland	Bill, K8DNE 214/272-4499	w/i OK
6/13/95	Houston	Harold, ND5F 713/464-9044	p/r pref; w/i OK

Please include full name, call sign, and telephone number (including area code) of contact person

THE MART

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• Buy • Trade
• Sell • Inform

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.

THE MART *Worldradio*
2120 28th St., Sacramento, CA 95818

***WORLDRADIO* ON CASSETTES** for the blind. For information, contact TOM CARTEN, K1PZU, 1602-Y King's College, Wilkes-Barre, PA, 18711. F296

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. F296

CODE PROFICIENCY DRILLS are transmitted from WB3IVO Brass Pounders ARC each Saturday, Sunday, Monday and Thursday on 7040 kHz, starting 2000Z, each Tuesday and Friday on 14060 kHz, starting at 2000Z. Speeds range 20-60 wpm. F296

ARUBA COTTAGE — 2 bedrooms with beams and rig for rent. For info write to: AI6V, 11407 Tower Hill Rd., Nevada City, CA 95959. 694-795

ALL ABOUT CRYSTAL SETS. Theory and construction of crystal set radios. $9.95 each, ppd USA. Send to ALLABOUT BOOKS, Dept. W, Box 22366, San Diego, CA 92192. 9,1194,1,3,5,795

EDITING A CLUB PAPER? Need one for your club? Interested in Amateur Radio public relations? Need some help? Amateur Radio News Service would like to hear from you. For info write PAM MYERS, N8IAK, 510 W. Harrison, Alliance, OH 44601. F296

BUILD A 35' FREE STANDING tilt-over antenna tower. Plan book $8.95. Build a universal coil winding machine. Plan book $8.95. Include $1.00 S&H with each order. Other books available. DAVE GINGERY PUBLISHING, P.O. Box 75, Fordland, MO 65652-0075. 1-695

QSL SAMPLES—50¢ SAMCARDS, 48 Monte Carlo Dr., Pittsburgh, PA 15239. 1194-595

PERSONALIZED HOURLY HF SKYWAVE PREDICTIONS from your city or town: SKYCOM 1.5 floppy disk for Apple Macintosh or IBM PC and compatible personal computers. Includes complete mathematical description of theory ($30). DX window 2.0 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 ($50). Satellite Predictions MACSAT 3.1, $50; P/H $5 N. America; $10 International. SASE for more info: ATTN: DX; ENGINEERING SYSTEMS INC., P.O. Box 939, Vienna, VA 22183. F296

ANGUILLA — VP2E! Ham apartment for 1 or 2 persons. Multiband yagi, 40M yagi, R7 Vertical, tuner, power supply. Call DAVE, VP2EHF or Dorothea, VP2EE, 809/497-2150. 794-795

RTTY DIGITAL JOURNAL. The premier source of digital radio news and knowledge! Published ten times per year by the American Digital Radio Society. Whether a beginner or veteran, you need the RDJ for its coverage of all modes/bands from technical data to contesting. $20 per year (foreign higher). ADRS, Box 2465, New York, NY 10185. F296

KPC-3 TERMINAL PROGRAM. User friendly, split screen, scrollback buffer, save and send files easily, user programmable auto connect. SASE for free details. $29.95. COMTREK, Box 4101, Concord, NH 03302-4101. 3-595

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. F296

FREE HAM GOSPEL TRACTS. SASE, N3FTT, 5133 Gramercy, Clifton Heights, PA 19018. 894-1095

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 306/896-5476. 295-296

HAMS — DO YOU NEED COMPUTER PRINTER ribbons? Lowest prices. Color or black. State your needs. Free information. HARCLY, P.O.Box 830, Coquille, OR 97423. 595-895

AMATEUR RADIO REPAIR— Prompt service. ROBERT HALL ELECTRONICS, 1660 McKee Rd., Ste. A, San Jose, CA 95116; 408/729-8200. 295-296

WANTED: BUY & SELL all types of electron tubes. Harold Bramstedt, C & N ELECTRONICS, 6104 Egg Lake Rd., Hugo, MN 55038; 800/421-9397 or 612/429-9397. Fax 612/429-0292. 1094-1095

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. 1294-1295

WANTED: ELECTRON TUBES, ICs, semiconductors. ASTRAL, P.O. Box 707WM, Linden NJ 07036. Call 800/666-8467. 1294-1295

CQ, HR, QST, AND 73 magazines for sale. Send SASE to W6DDB, 45527 3rd St. East, Lancaster, CA 93535-1802 to get data sheet. 1194-1095

THE HOW-TO QUAD MANUAL with the new "Quad Clip." Thirty years experience building, learning and operating with the KING of Antennas. 82 p., 8 x 11, w/1994 updates, 50% full page detailed photos and drawings. Send $7.50 + $2.50 AIR/S&H, to AMPRUSS, c/o KH6CTQ, P.O. Box 551, Aiea, HI 96701-0551. 1094-1095

BROWNIE'S QSLs since1939. Catalog and samples $1.00. 3035 Lehigh St. (rear), Allentown, PA 18103. 4-795

DX DESKTOP for Windows™, DX station management, $99.00. Logging with DXCC, WAS, and WAZ. SAM and Buckmaster interface. DX Cluster interface with automatic radio QSY. Optional coordinated rotator control. Put Windows™ to work in your station with DX Desktop from DEBCO ELECTRONICS, INC., 3931 Edwards Road, Cincinnati, OH 45209, 1/800/423-4499. 1-695

VIBROPLEX AND MELEHAN KEY WANTED: Looking for Vibroplex bugs with New York or Georgia nameplate. Still seeking Melehan Valiant keys. RANDY COLE, KN6W, 1216 S. Alvira, Los Angeles, CA 90035; 213/939-9847. 3-695

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TEN PL-259ST CONNECTORS. Send check, $13 ppd., Rob Kontes, 465 Croft, Idaho Falls, ID 83401. 2-795

HAM RADIO REPAIR! Most HF radios repaired $116.00 plus parts. Hand held radios $72.00 plus parts. WARRC, JIM RUPP, Box 697, Grayland, WA 98547, 360/267-4011, AB7DR. 295-696

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033. 295-296

VE exam schedules *(continued)*

Date	City	Contact	Notes
6/17/95	Lubbock	Gerry, WB5R 806/765-5526 or Doug, W5JUV 745-1504	
6/13/95	San Benito	Fred, WA2VJL 210/399-0806	w/i OK
Vermont			
6/3/95	Bennington	Robert, KA1PXF 802/468-9166	p/r pref
Virginia			
6/3/95	VA Beach	Judy, KD4JMA 804/468-9166	p/r pref
Washington			
6/3/95	Spokane	William, 509/838-4320	p/r only
West Virginia			
6/10/95	Parksburg	Dana, WV8G 304/422-1823	w/i OK
Wisconsin			
6/10/95	Appleton	W9MDP 414/832-6279	w/i
6/3/95	River Falls	Chuck, KA9YRV 715/425-2428	w/i OK

The MART (cont.)

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. 794-795

MORSE CODE COMPUTER INTERFACES for IBM $49.95. Over 650 IBM shareware disks with quantity discounts and no shipping. Free catalog. DYNAMIC ELECTRONICS, Box 896, Hartselle, AL 35640, 205/773-2758, Fax 205/773-7295. 3-595

FREE! 100-page catalog with prices! Communications receivers, portable receivers, amateur transceivers; HTs and mobile transceivers, amateur and SWL antennas, scanners, RTTY and Fax equipment, computers, test equipment, books, manuals, accessories. TUCKER ELECTRONICS & COMPUTERS, P.O. Box 551419, Dallas, TX 75355-1419. Call toll free 800/527-4642; 24-hr fax 214/348-0367. 4-795

WANTED: HAM EQUIPMENT AND RELATED ITEMS. Donate your excess gear—new, old, in any condition—to the Radio Club of Junior High School 22, the Nation's only full-time, non-profit organization working to get ham radio into schools around the country as a teaching tool, using our EDUCOM (Education Thru Communication) program. 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 15th 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. Start 1995 by helping 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. Call 24 hours 516/674-4072 or Fax 516-674-9600. Meet us on the WB2JKJ classroom net, 7.238 MHz 1200-1330 UTC daily and 21.395 MHz from 1400-2000 UTC. Meet us at Ham-Com 95 in Arlington, Texas, 8-11 June. 595

PACKET RADIO. Join TAPR, connect with the largest packet/digital group in the US. Creators for the TNC-2 standard. Benefits: newsletter, software, discount on kits/publications. $15/year US, $18 Can/Mx, $25 elsewhere. Visa/MC. When joining, mention ***Worldradio***, receive TAPR's Packet Radio new book, "Packet Radio: What? Why? How?" ($9 value) Free! 817/383-0000, Mail: 8987-309 E. Tanque Verde Rd. #337, Tucson, AZ 85749-9399. 4-695

PICTURE QSL CARDS of your shack, etc., from your photo or black and white artwork. 500–$28.00, 1000–$44.50. Also non-picture cards. Customized cards, send specifications for estimate. Send two stamps for illustrated literature. Generous sample kit–$2.00, half pound of samples–$3.00. RAUM'S, 8617 Orchard Rd., Coopersburg, PA 18036. Phone or fax 215/679-7238. 3-695

POCKET MINI-KEY: Only 2x2 inches. QRPer's delight! $8.95 postpaid. WHITEROOK PRODUCTS, 309 South Brookshire, Ventura, CA 93003-4413; 805/339-0702. 595

YAESU FT-990 SIDEBAND/CW FILTERS NOW AVAILABLE! Also 8-pole & 10-pole crystal filters for Kenwood, Icom, & Yaesu. Fox-Tango filters available. Kits and upgrades. Authorized Kenwood warranty service center. Send for our free catalog. INTERNATIONAL RADIO & COMPUTER, INC., 3804 S. US #1, Ft. Pierce, FL 34982. 407/489-0956. Look for us at Dayton in booth #443. 5-795

AZDEN-KDK-ADI REPAIR Also other VHF/UHF amateur transceivers. Trade-ins welcome... Sales: AZDEN, Alinco, Vectronics, Valor, Pyramid, AEA, RF Concepts, etc. QRV ELECTRONICS, 503 Main St., P.O. Box 330, Crawford, GA 30630; Ph/Fax 706/743-3344. 1294-1295

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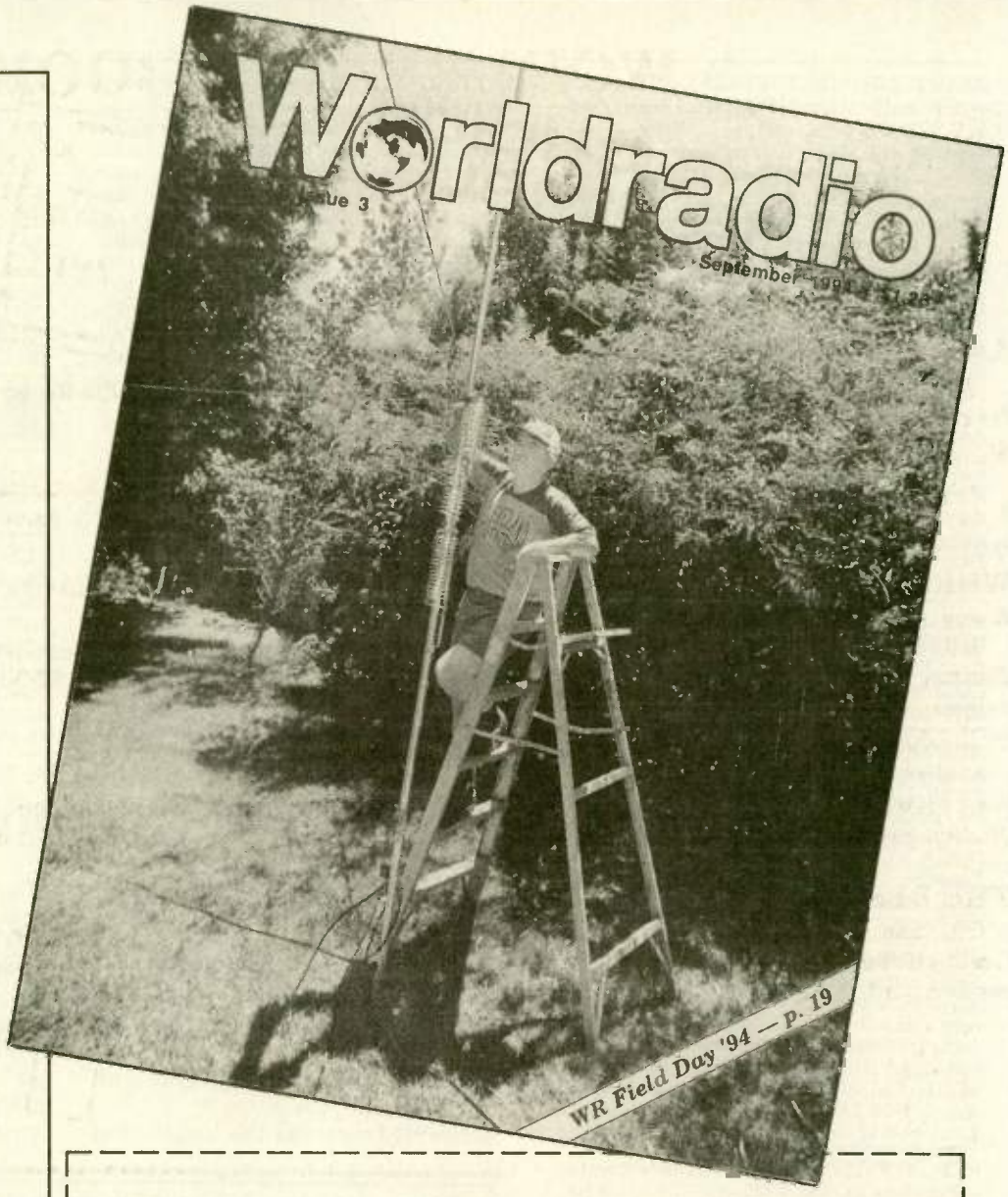

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Hamvention award winners

The Dayton Hamvention® Amateur of the Year is Rosalie White, WA1STO. Rosalie, 45, is manager of the ARRL Educational Activities Department, a member of the Shuttle Amateur Radio EXperiment (SAREX) Working Group, and coordinates ARRL continuing education workshops held at major conventions around the country. She holds an Advanced class license and has been a licensed amateur since 1970.

Winner of the Hamvention Special Achievement award is Ed Briner, WA3TVG, of Acme, Pennsylvania. Since 1979, Ed, who is 68, has been involved in humanitarian work providing medical assistance through the Medical Amateur Radio Council (MARCO). He is editor of the MARCO newsletter.

Philip Ferrell, K7PF, is the Hamvention Technical Excellence Award recipient for 1995. Phil, 61, holds a doctorate degree in electrical engineering, and is retired from the Boeing Company in Seattle. The Hamvention cited him for developing "Finger Printing," a method of identifying radio transmitters by their on-the-air "signature."

1995 marks the fifth out of the last six years that an ARRL official or employee has been the Hamvention's Ham of the Year. In addition to Rosalie White, recent winners have included Hudson Division Director Steve Mendelsohn, WA2DHF (1990); retired ARRL General Manger (and now International Amateur Radio Union President) Dick Baldwin, W1RU (1992); former ARRL director and now President emeritus Harry J. Dannals, W2HD (1993); and retired ARRL Washington Area Coordinator Perry Williams, W1UED. —*ARRL Bulletin*

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