Worldradio

Year 24, Issue 9 March 1995 • $1.25

FEATURED IN THIS ISSUE

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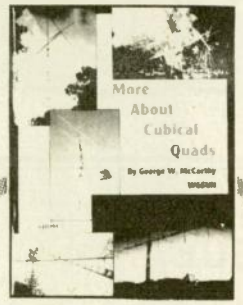

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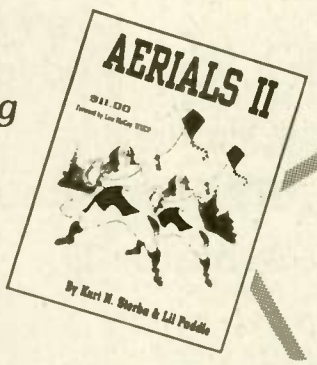

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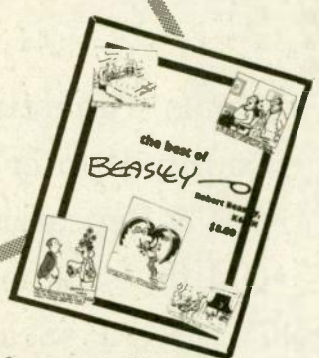

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High adventure in Owens Valley

Vic Black, AB6SO

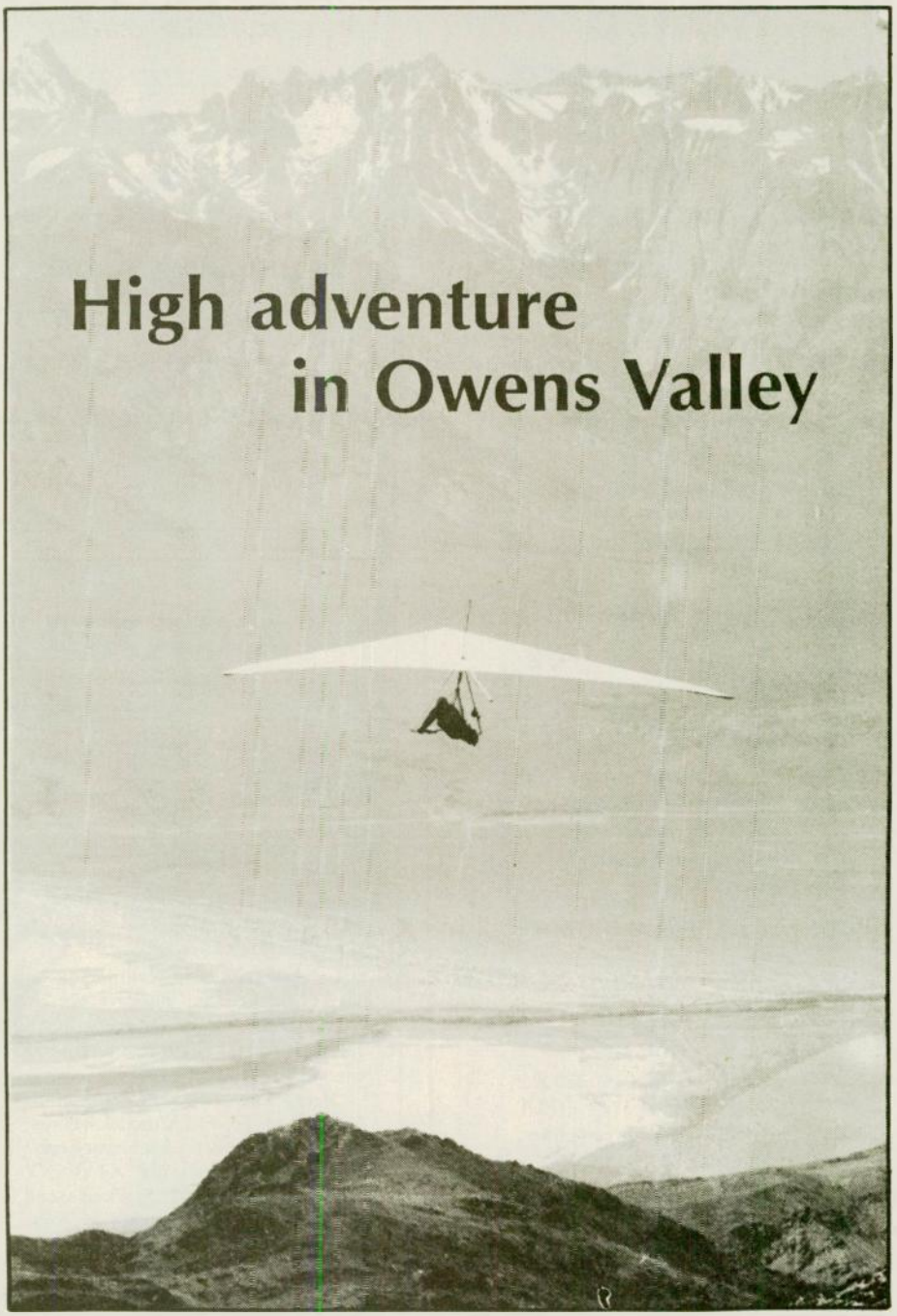
Events unfolded on Memorial Day weekend, 1994, which confirmed the value of our communications capabilities during times of need and uncertainty. I was to be the ground crew and chase driver for the hang glider distance world record holder Geoff Loyns, KB6NZG, from Redwood City and Ed Cline, KC6QNX, from Campbell, California.

The pilots launched from Walt's Point at the 9,200 foot level on Horseshoe Meadow Road in Inyo County. The launch site is located just south of Mt. Whitney, the highest mountain peak in the contiguous US, and less than 75 miles from the lowest spot in the US, also in Inyo County. Their plan was to fly north along the craggy eastern escarpment of the Sierra Nevada then cross awe inspiring Owens Valley.

It doesn't do it justice to simply say this is the country's deepest valley. The scope of the region is enormous. Everything is on such a grand scale that it's difficult to imagine that during the 1872 earthquake, estimated at 8.3 on the logarithmic Richter scale, the entire Sierra Nevada block lifted 12 feet and moved 20 feet laterally in relation to the floor of Owens Valley. Vertical striations are easily visible on the fault scarp where the movement occurred.

Crossing the valley wouldn't be easy. There would be no ridge lift to help out. The pilots would depend solely on thermals rising from the valley floor.

To make matters worse, the floor of the valley was strewn with ancient lava flows. There would be few safe landing zones. If they safely made the crossing of Owens Valley, Geoff and Ed planned to use ridge lift to fly north along the crest of the Inyo and snow-capped White Mountain ranges. Then if the lift generating thermal conditions held up, they would eventually turn northeast from Bishop, California, follow US Highway 6 over 7,100-foot Montgomery Pass and head east toward the high desert plains near Tonopah, Nevada. That would make a truly epic day-long flight which could exceed 150 miles.



Hang glider distance world record holder, Geoff Loyns, KB6NZG, flying over Owens Valley. ***—photo by AB6SO***

Any mountain flying can be hazardous. This is particularly true when such great elevation differences exist. Perhaps the most treacherous condition involves harmonic waves. These wind currents exhibit wavelengths of tens or even hundreds of miles and amplitudes of thousands of feet. An aircraft caught in the downward portion of the wave

(please turn to page 6)

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FAR Scholarships

The Foundation for Amateur Radio Inc., a non-profit organization with headquarters in Washington, DC, plans to administer 56 scholarships for the academic year 1995 - 1996 to assist licensed radio amateurs. The Foundation, composed of over seventy-five local area Amateur Radio clubs, fully funds five of these scholarships with the income from grants and its annual hamfest. The remaining 51 are administered by the Foundation without cost to the various donors.

Licensed radio amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. The awards range from $500 to $2000 with preference given in some cases to residents of specified geographical areas or the pursuit of certain study programs. Clubs, especially those in Delaware, Florida, Maine, Maryland, New Jersey, Ohio, Pennsylvania, Virginia and Wisconsin, are encouraged to announce these opportunities at their meetings, on their nets, during training classes, and in their club newsletters.

Additional information and an application form may be requested by letter or QSL card, postmarked prior to April 30, 1995 from:

FAR Scholarships
6903 Rhode Island Avenue
College Park, MD 20740

The Foundation for Amateur Radio, incorporated in the District of Columbia, is an exempt organization under Section 501(c)((3) of the Internal Revenue Code of 1954. It is devoted exclusively to promoting the interests of Amateur Radio and those scientific, literary and educational pursuits that advance the purposes of the Amateur Radio Service. For more scholarship information, see Youth Forum, on page 48.

1995 Young Ham of the Year nominations

The nominating period for 1995 "Young Ham of the Year Award" is now open. Originally known as the *Westlink Report* "Young Ham of the Year," this award program, now entering its ninth consecutive year, is presented annually to a United States licensed radio amateur who is 18 years of age or younger and who has provided outstanding service to the nation, community or the betterment of the state of the art in communications through the Amateur Radio hobby/service.

The "Young Ham of the Year" award program was conceived in 1985 by then *Westlink Report* "Editor-in-Chief" Bill Pasternak, WA6ITF. His desire was (and still is) to highlight the accomplishments of the nation's many young radio hobbyists, and to encourage the entry of more young people into the exciting and rewarding hobby of Amateur Radio.

With the absorption of the *Westlink Report* readership base into ***Worldradio*** magazine, the award's originator has decided to continue it under the banner of his own *Amateur Radio Newsline* organization in the hope that this real-life experience will lead the award winner and many other young hams into careers in the sciences and technologies.

Any continental United States (FCC licensed) ham radio operator aged 18 years and younger who has used Amateur Radio to significantly contribute to the benefit of the service, to the state of the communications art, to the community or the nation are eligible to be nominated.

All nominations must be submitted before April 30, 1995 on an official application. For an application, send a self addressed stamped envelope to the 1995 Young Ham of the Year Award c/o *Newsline*, 28197 Robin Avenue, Saugus, California 91350. These nominating applications are also available electronically with an E-Mail request to: BILLWA6ITF on America Online; B.PASTERNAK on GEnie or billwa6itf@aol.com via the Internet.

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—Happy St. Patrick's Day—

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COLUMNS

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Worldradio (USPS 947000) is an international conversation. You are invited to participate.

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

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

Subscription rates: $14* per year; $27* for two years; $39* for three years; $140* for life; *$10 extra per year for surface mail delivery outside the U.S. Please remit international postal money order. IRCs will be accepted.

PUBLISHER'S MICROPHONE

Amateurs in North and South America, Europe, Africa, Asia and Australia are now looking at the names of those who, deservedly so, receive a little extra attention. The latest to become ***Worldradio*** SuperBoosters (Lifetime Subscribers) are:

***Alvin Norris, WB8UJM, Mt. Orab, OH**
***Fred Crowner, WD8OTO, Columbus, OH**
***Lyman W. Fitzgearld, KA7OES, Seattle, WA**
***Mark McCormick, KAØPEB, Albert Lea, MN**
***Denys Collins, NØHKR, Kansas City, MO**
***Jay Miller III, WA5WHN, Albuquerque, NM**
***Alan Schuman, AA6ZL, San Francisco, CA**
***Olin Daunell, KD6PKR, Petaluma, CA**
***Warren Gilleran, KD6UD, Santa Clara, CA**
***Eran Glago, KD6KVO, Glen Ellen, CA**
***Dick Pooley, W7HUY, Brush Prarie, WA**

•

And now to correct a mistake from last month. In listing **Dr. Terry ROGERS, WZ7G**, I listed his last name as Richards instead of ROGERS as it should have been. I'm baffled as to how that happened unless I may have been thinking of the great composer Richard Rogers and my mind just played tricks on me. My apologies and I urge all in Seattle who may need the services of a physician to choose the services of the genteel, tolerant, mannerly and understanding Dr. Hammerstein.

The following is certainly not meant as real legal advice of any sort, and if you find yourself in a tough spot see an attorney in your city. But, I was told that if you move into a neighborhood and sign the agreement (antennas, whatever) you have signed a contract. Your signature says you agree to the conditions of what you have signed. That's it. Don't cry later.

If you wonder why you don't see more antenna companies advertising here in ***Worldradio*** it's because "Kurt N. Sterba" has alienated most of them. Another volcano telephone call just came to our office.

•

The mysteries of the ionosphere will shortly be better understood, by some. The noted guru, Bob Brown, NM7M, is putting the finishing touches on his upcoming book, *The Little Pistol's Guide to HF Propagation* which will eventually be at a radio store in your neighborhood. Bob retired after a career as a professor at a major university but writes so we can all understand it. He's earned WAZ with 100 watts and a tribander.

Knowledge is power, as in the case of an amateur reaching the DXCC Honor Roll with but five watts.

I've heard of a recent incident in which a group of amateurs met for a restaurant lunch. As is the custom, they placed their hand-held transceivers on the table and some were engaged in QSOs from the restaurant. They observed one woman who seemed to be displaying a great deal of curiosity about what they were doing. So, one of the amateurs pulled off his shoe and started talking into it à la Maxwell Smart. I'll bet he got the dickens from agent 99 when he got home!

What's it like being on a cruise in the Caribbean with many other amateurs aboard? How does it feel to operate from the beaches of locations where the pile-ups are calling YOU? We'll have a report for you in a few months as agent K6FO goes on the Yaesu DX-Caribe Cruise '95. It's a tough assignment, but somebody's got to do it.

•

There is a discussion going around that the use of "ham" radio operator may not be the best choice of words when approaching law enforcement and other government agencies. What is going through their mind when they hear "ham?" Ham-handed? Ham-actor? Some don't even feel that "Amateur" is the best choice of words. (What an amateur!) Some have suggested when introducing oneself in a serious situation that the phrase "Licensed Radio Operator" be used. Such a phrase would separate us from the non-licensed radio talkers. And yes, we are indeed LICENSED radio operators. It used to be said that the Extra Class exam was about the same difficulty as what once was called the FCC First Class license for commercial operators. (I thought the Extra was harder, when I took it almost 20 years ago.)

•

While there are special driver's licenses for people who drive vehicles for a living, no one calls our non-commercial driver's licenses "amateur drivers," do they?

Maybe it's time to add a little class to the image of the highly-capable but not-compensated radio operators.

—Armond, N6WR

NEW
Dual Band HT

Dual Band Handheld FT-51R

Only one Dial/Volume knob required for easier use.

The First Dual Band HT with WINDOWS!

Three dual receive configurations VHF/VHF, UHF/UHF, or VHF/UHF with main band frequency on right or left side. Flexible programming allows transmit on main or sub band.

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Spectrascope™ displays active adjacent frequencies in real time with relative signal strength.

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LCD Display Mic with Remote Functions. (Optional)

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(2 Watt version shown.)

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"Scrolling instructions tell me what to do next!"

"I use the Spectrascope to find new contacts faster."

"Yaesu did it again!"

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  UHF RX: 420-470 MHz
  TX: 430-450 MHz
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- 5 Selectable Power Output Levels
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Specifications subject to change without notice. Specifications guaranteed only within amateur bands.
Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

Ed Cline, KC6QNX (below) checks his gear prior to hang gliding over Owens Valley. Ham helps ham (right) with lift-off.

—photo by AB6SO

High adventure

(continued from p.1)

can be dashed into the rocks below. The danger is especially acute for the kite-like hang gliders which weigh less than 100 pounds. The only visual clue to the existence of harmonic waves is the formation of lenticulars, the lens or lentil shaped clouds that often appear over mountain peaks. "Lenties" indicate a natural example of standing waves and hang motionless as wind currents pass through them. Fortunately, the fair weather cumulus clouds looked favorable and reported winds aloft appeared optimum for safe, long flights.

Both pilots are experienced mountain fliers. They were well prepared with maps, 2 Meter handie-talkies, rocket assisted parachutes, water, food, oxygen, helmets and heavy clothing. Since temperature drops about 3.5 degrees F for every 1,000 feet in altitude gain, they expected temperatures to dip to as low as 10-15 degrees F at high altitudes. The wind chill effect would make it seem even colder.

Less than an hour into the flight Ed reported that he had followed a "local," a large soaring hawk, into a major thermal updraft. I could hear his variometer buzzing in the background indicating a rapid change in altitude. Suddenly Geoff called on 2 Meter simplex. He had spotted a crumpled glider crashed into a rock wall at 10,000 feet northeast of Mt. Whitney. He dropped down for a closer view and saw no apparent movement. No parachute was in sight.

I immediately contacted the Inyo County Sheriff's dispatcher in Lone Pine. I relayed a description of the glider, the exact location and elevation. My handy radio direction finder and compass provided bearings from known road land marks.

The dispatcher contacted the airports at Lone Pine and Independence and alerted Search and Rescue in Bishop. A short time later the dispatcher reported that the crash site was one week old and that the pilot, who had suffered a broken arm, had been successfully extracted by helicopter after spending the night clinging to a cliff. This was a great relief to all of us. The wreckage had been left in place because of the difficulty of removing it from such a remote area. I offered apologies to the dispatcher for the false alarm, but he reminded me that it's better to be safe than sorry.

After the scare, Ed climbed to 14,400 feet and flew more than 60 miles from launch before landing in the high desert. During the last fifteen minutes of his flight he flew northbound 3,000 feet above US Highway 395. I just stayed even with him as I drove at 50 miles per hour. Geoff managed to grab thermals that topped out near cloud base at 18,000 feet where there is only half as much oxygen as at sea level.

He flew 103 miles north of the launch site before the day began to cool down and the air lost its ability to keep the hang gliders aloft. He landed on an alluvial fan near the base of the White-Inyo Range northeast of Bishop. And me? I spent a leisurely day driving and playing with ham radio in one of the most spectacular desert valleys on earth. **WR**

Recruiting new hams

Jim Heaton, AA8RF

The ranks of Amateur Radio operators have swelled in recent years thanks to the introduction of the "No-Code" Technician license. While there have been some adjustments we have endured, such as crowded bands and inexperienced operators, the net effect of newcomers to our hobby is a great positive. Every additional ham with a ticket helps protect the spectrum allocated us. More hams means bigger markets, allowing mainstream stores such as Radio Shack to carry an ever-increasing array of ham gear at favorable prices.

Years ago when the amateur license renewal period increased to ten years, a decade of artificial growth in the number of hams with active tickets was created. Today, for the first time in many years, inactive amateurs will begin losing their licenses as the first renewals for our current ten year tickets come due. Suddenly, we'll start losing members of our community as those who are inactive forget, or choose not, to renew.

To counter this trend and continue our growth, I'd like to encourage you personally to look for potential new members of our worldwide club. Working toward this end, I've had some success encouraging the uninitiated to come on board.

Two fellow engineers joined me in studying for my upgrade from Novice to Tech last year at work when I told them that the FCC tests had been simplified by including the complete question and answer pool in the study guides. One skill engineering school teaches thoroughly, is the ability to memorize rapidly. These two, after only a week of study, passed their tests with flying colors.

Another engineer friend had enjoyed listening to scanners for years. He also liked electronic toys. I think our visit to a local hamfest sold him. He passed his No Code and is on the air.

My daughter was a different story. She always enjoyed talking third party, but to a seventh grader doing hours of homework every night the prospect of more studying was a bit much. In her case, the promise of a video game from me and her own HT (I think kids having some of their own equipment is key to maintaining their interest) did the trick. She is now KB8SRW, and her trusty Kenwood 215 with 12 volt battery pack and speaker mike are burning up the air waves. At the age of one, my youngest son used to say, "Daddy, CQ, CQ!" when he wanted to go down to the shack with me.

Many more people who know nothing of ham radio (or worse, have a perception of it being only 90-year-old men hunched over vacuum tube AM rigs straining to hear garbled messages from who-knows-where) would enjoy the hobby, if only they knew what it has to offer.

For some, packet alone would be enough incentive; being able to move files long distances with no toll charges, free worldwide E-mail, free Internet (the "Information Super Highway") access and leveraging their existing computer investment would ignite a lifelong burning interest.

For others, the novelty or safety of a 2 Meter phone patch available through a local club with no per-minute charge is reason enough to take the plunge.

NASA wannabes like myself light up at the prospect of talking through a satellite directly or actually contacting an astronaut in orbit.

Teachers ponder the possibility of bringing technological wonders into the classroom to share with eager, young minds.

Radio controlled vehicle enthusiasts rev up at the prospect of uncrowded control frequencies available to only a few.

Survivalists target the idea of self-contained communication facilities capable of local and worldwide contacts using minimal equipment. The very busy who have no time for hobbies, like the fact that ham radio is one of the few activities one can enjoy mobile.

Truckers like the higher caliber of conversation and longer range available compared to their other radios.

Bargain hunters enjoy traders' nets.

Ex-military see the opportunity to serve through MARS and RACES.

For almost anyone with leisure-time interests, there is an area of our hobby that is tailor made to fit. But we must introduce them or they'll never know the world of possibilities available. WR

Didja ever wonder...?

Why do you need a driver's license to buy liquor, when you can't drink and drive?

Why isn't "phonetic" spelled the way it sounds?

Why are there interstate highways in Hawaii?

Why are there flotation devices under airplane seats instead of parachutes?

Why are cigarettes sold in gas stations when smoking is prohibited there?

How does the guy who drives the snowplow get to work in the morning?

If a 7-11 is open 24 hours a day, 365 days a year, why are there locks on the doors?

If nothing ever sticks to Teflon, how do they make Teflon stick to the pan?

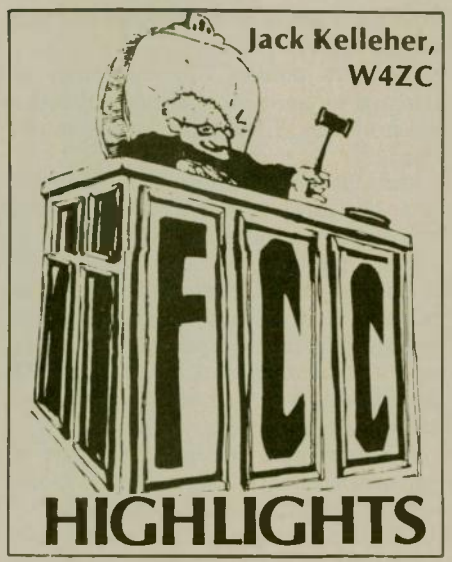
If your vehicle goes at the speed of light, what happens when you turn on the headlights?

Why do they put Braille dots on the keypad of the drive-up ATM?

Why do we park on driveways, and drive on parkways?

You know that indestructible black box they use on airplanes? Why can't they make the entire plane out of the same substance?

Why is it that when you're driving and looking for an address, you turn down the volume on the radio? —*The Blurb,* Philmont Mobile Radio Club



HIGHLIGHTS

Spectrum auctions continue

The second round of spectrum auctions, which began in early December 1994, is the subject of an article in the December 15 issue of *The W5YI Report* ("FCC Auctions of Spectrum for PCS Services"), which is the basis for some of the following.

The FCC has begun its massive sale of spectrum that will be used to construct and operate the next generation of cellular telephone systems. The first, narrow-band auction of licenses to provide two-way paging and interactive television raised more than $1 billion this past summer. Initially, the current wide-band auction was expected to raise some $10 billion for the US Treasury. Now we are seeing figures like $15 billion. Just how much the final figure will be is anybody's guess, but as of December 9th, after the first week of bidding, the total was about $750 million.

The number of licenses may be between 2,000 and 2,500 in more than 500 major and basic trading areas. Frequency-wise, these licensees must operate in bands allocated to the land mobile service and the associated mobile-satellite service. The total width of the bands allocated to these services, between about 800 and 2500 MHz, is on the order of 400 MHz. More space for these services was allocated or earmarked in ITU Region 2, at WARC-92; and still more frequencies may become available as a consequence of the ongoing effort to transfer 200 MHz from Government to non-Government use.

FCC reorganization implemented

Effective December 1st, the FCC's Private Radio Bureau became the Wireless Telecommunications Bureau, which will handle FCC domestic wireless telecommunications programs and policies except those involving satellite communications. The Bureau also will serve as the Commission's principal policy and administrative resource concerning spectrum auctions.

Regina M. Keeney is Chief of the new Bureau, with Ralph A. Haller and Gerald P. Vaughan as Deputy Bureau Chiefs. Both of Keeney's parents are licensed Amateur Radio operators. Her father, John Markey, W2AAW, said "Gina grew up with Amateur Radio in the house. We are an enthusiastic ham family. I often show her *QST* and especially the 'Happenings' column, when she visits."

The Wireless Telecommunications Bureau will have seven divisions, two of which will be concerned with amateur matters.

The Private Radio Division will handle rule making and regulatory matters concerning public safety, industrial, land transportation and other private mobile radio services, aviation, marine, amateur, Interactive Video Data Service (IVDS), broadcast auxiliary service, personal radio services, point-to-point microwave, antenna tower clearance, and the radio operator examination program. Additionally, this division will project demand for existing and possible new communications requirements and services.

There will be no branches or Branch Chiefs within the division. Robert H. McNamara heads the new Private Radio Division, with Herbert W. Zeiler as Deputy. Staffers include John B. Johnston, Kathryn Hosford, Monty J. DePont and Robert James.

The Licensing Division will oversee the processing of applications and licensing of specialized mobile radio, paging, private land mobile, private and common carrier microwave, broadcast auxiliary, Amateur Radio, IVDS, aviation and marine and general mobile radio services.

Status of Tandy's proposed Family Radio Service.

Several months ago the Radio Shack Division of Tandy Corporation filed a Petition for Rule Making (RM-8499) for a new unregulated and unlicensed Family Radio Service (FRS), using frequencies in the General Mobile Radio Service (GMRS) bands at 462 and 467 MHz.

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 January 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	AAØVB	KGØSL		KBØQDK
1	AA1LQ	KD1YQ	N1TYE	KB1BMP
2	AA2VD	KF2ZP		KB2SZC
3	AA3JO	KE3QT	N3UDE	KB3BGA
4	AE4BG	KS4KC		KE4UEJ
5	AB5ZL	KK5HL		KC5LSC
6	AC6IR	KO6NL		KE6PQB
7	AB7HD	KJ7HC		KC7HWL
8	AA8RS	KG8NW		KB8WEE
9	AA9NM	KF9ZO	N9ZQK	KB9JCB
N. Mariana Is.	KHØO		KHØDP	
Guam	WH2J	AH2CZ	KH2LP	
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6NS	WH6ZY	WH6CRY
Amer. Samoa	AH8M	AH8AH	KH8BJ	WH8ABB
Alaska		AL7PW	WL7ZY	WL7CJD
Virgin Is.	WP2Q	KP2CD	NP2HV	WP2AHV
Puerto Rico		KP4YH		WP4MVN

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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 proposed new service would use half-watt narrowband FM transceivers which can operate on flashlight battery power. Tandy/Radio Shack is already testing GMRS unlicensed FRS communications in some markets under an FCC Special Temporary Authorization.

Formal comments and reply comments on RM-8499 came from two areas, GMRS users and the commercial sector.

The GMRS user's community opposed the FRS proposal. Their position was that mixing licensed and unlicensed operators on the same frequency will not work: harmful interference will be caused to existing GMRS operations; The current "professional quality" GMRS will deteriorate into "consumer-grade communications;" the primary interest of Tandy (and other commercial interests) is to sell a ton of cheap radios without regard to the consequences.

Comments from the commercial sector were unanimously in favor of a Family Radio Service.

Motorola noted recent Congressional authorization to de-license GMRS. They suggested that FRS be given co-primary status. Motorola believes that opposition to the FRS is due the desire of GMRS users to keep their numbers low. They (Motorola) feel that the FCC should be seeking regulatory policies that encourage the widespread use of radio.

The Mobile and Personal Communications Division of the Telecommunications Industry Association believes that the FRS would have broad market appeal, but only if it were an unlicensed service.

Tandy contended in its reply comments that the American public has long needed convenient, high quality, short range communications which is (sic) currently unavailable.

Uniden agreed with Motorola and Tandy that FRS would be a broadly popular service. They do not feel that low cost, low quality radios would overrun the spectrum, nor would FRS cause interference to current GMRS users.

Status of vanity call signs

As reported in the February, 1995, issue of ***Worldradio,*** the FCC Authorization Act that would have converted an annual regulatory fee for Amateur Radio "vanity" call signs to a one-time application fee failed to pass in the last session of Congress. The bill, H.R. 4522, passed the House but failed in the Senate despite a concerted last-ditch effort by ARRL to have the bill considered during the lame duck session. *Broadcasting and Cable Magazine* attributed the bill's defeat to opposition to unrelated provisions by the National Association of Broadcasters. The FCC now is expected to introduce a "vanity" call sign program with a $70 fee renewable every ten years.

In one of its final issues, *Westlink Report* said not to look for any action until the second quarter of 1995. They speculate that the Commission will probably announce its decision the last weekend in April — perhaps at the Dayton Hamvention forum.

CD-ROMs

An excellent story entitled "CD-ROMs for the Radio Amateur" appears in the fall 1994 issue of *Communications Quarterly Magazine*, published by *CQ Magazine*.

Morse code update

We have been following and reporting on the activities of ORACLE, and on an NZART (New Zealand Association of Radio Transmitters) study of the matter. NZART's position was communicated to the NZ Minister of Communications in a letter which stated in part:

"It is therefore suggested that the New Zealand position on Article 32 and RR2735 of the ITU Radio Regulations at coming conferences of the ITU should be:

1. To not actively seek any change to the current text of Article 32 or to RR2735 at this time;

2. To support NO CHANGE...to the text of Article 32 and to RR2735 should this subject arise during the proceedings of an ITU conference, and

3. To review this position at such time when future technical developments can provide an alternative means to ensuring intercommunication on the limited HF spectrum allocated to the Amateur Service, or when increased HF spectrum for the Amateur Service should become available

"Your confirmation of this as the New Zealand position would be appreciated."

Mr. Williamson, the Minister of Communications, replied as follows:

"Dear Mr. Meachen,

"Thank you for your letter of September 19th and the additional information with respect to the Morse code and Amateur Radio.

"While I acknowledge the stance taken by your International Amateur Radio Union members, and the New Zealand society, on the question of the retention of the Morse code requirements, I am of the view that it would be unwise to adopt the three very precise positions which you postulate.

"I am advised, and believe, that the amateur service worldwide is a progressive body of enthusiasts, who look to the future for self-training, intercommunication and technical investigation. To adopt a rigid stance on the matter of the value, or indeed, in the opinion of some, the low value of Morse code as a means of intercommunication is, in my opinion, contrary to the progressive nature of the hobby.

"Having said that, I can give you an assurance that New Zealand will not actively make proposals for changes to the International Radio Regulations, as they affect the amateur service, until such time as there is evidence of significant opinion here in New Zealand, and or overseas, to support modification of Article 32."

Author's Note: It's obvious from these developments that "It ain't over until the fat lady sings." Meanwhile, keep in mind that elimination of the requirement for Morse code is not the same as proscription. **WR**

Reminder: International DX Convention, April 21-23, Visalia, CA. Contact: W6BJH

Amateur Radio equipment insurance - is it necessary?

Bill Hill, W3IBT

The answer to the question is, "it depends." There is never-ending confusion about insurance in general. When it comes to protecting ham radio equipment, there is confusion heaped upon confusion.

All insurance is simply a method of sharing your risks of loss with others who have similar exposures. Homeowners with other homeowners; car owners share with other car owners, etc. These risks are transferred to an insurance company which acts as a clearinghouse; they accept premiums and pay losses. They also write the insurance contract which spells out what is covered under various circumstances and how much they will pay. The cost of the insurance is proportional to the amount of risk the insurance company assumes.

Now, let's talk about protecting your ham gear. Many people think that if they have a homeowner's or tenant's policy they're covered. Well the answer is "it depends." The answer is yes if your equipment is at home and you have a loss like a fire or burglary. On the other hand, if you slip and pour a cup of coffee through on your brand new transceiver and it takes 20 minutes for the smoke to clear from the shack, the answer is no. The same goes for the mobile radio installed in your car. The typical homeowner's, and for that matter, automobile policy provide no coverage for radios installed in your car, other than the factory equipment. In other cases, the answer is maybe. Some homeowner's policies are broad enough to cover losses to towers and antennas, but others aren't. To verify coverage, make a list of your questions and talk to your insurance agent.

Let's talk about deductibles. People are always interested in the amount of their deductible. They're always too high as far as the insurance buyer is concerned - especially when it's time to file a claim for your $499 radio and you find out that the deductible on your policy is $500. You might ask why insurance companies don't sell policies without deductibles. There are lots of reasons but a couple of the most prominent are that a no deductible policy would be more expensive than the average person is willing to pay and also, the cost of adjusting all the little claims would add huge amounts of overhead to the insurance company, which would get passed along to you, the insurance buyer.

If you think that your present insurance may not be meeting your needs, consider a specific ham equipment policy. They are designed to fill in the gaps left by homeowner's and automobile policies. Coverage is proved on an "all risks" basis which means that virtually any physical loss or damage that your equipment may suffer is covered, unless it is specifically excluded. They cover your equipment wherever it may be - at Field Day, installed in your car, in a canoe, anywhere! Also, a specific radio equipment policy will most likely have a much lower deductible than your homeowner's. Most homeowner's policies have at least a $150 deductible; many $500. Ham equipment policies typically have a $50 deductible. It may be well worth buying the radio equipment policy just to cover the potential difference in deductibles. Finally, some Amateur Radio equipment programs can extend coverage to include mechanical breakdown and protection for towers and antennas.

If you'd like information or if you have questions, you can contact either the ARRL or Ham Radio Insurance Associates. Where will you get the best deal? The answer is "it depends."

Brazilian Islands list

John Minke, N6JM

According to the latest IOTA Directory there are 26 island groups for Brazil. Ronaldo Bastos Reis, PS7AB, publishes a list of QSL managers for various Brazilian calls, and also includes the IOTA references associated with such calls if applicable.

I have prepared a list of the Brazilian IOTA groups with known calls, most of them from the *PS7AB QSL Manager List.*

SA-067	PP1 Espirito Santo State ZZ1CZ
SA-079	PY1 Rio de Janeiro State Center
SA-077	PY1 Rio de Janeiro State East ZY1UP
SA-029	PY1 Rio de Janeiro StateWest PY1MIZ, PY1VKA/P, PY1ZAK
SA-071	PY2 São Paulo State Center
SA-028	PY2 São Paulo State East PRØGOX, PSØZAC, PVØAX, PYØAH, PYØBW, PYØJO, PYØJY, PY2CJW/P, PY2CSN, PY2HA, PY2MFA, PY2XIQ, ZVØJY
SA-024	PY2 São Paulo State West PYØGCW, PYØGP, PY2CJW/P, PY2FFZ/2, ZWØIM, ZWØORF, ZW2SP, ZXØKP, ZY2GCW/P, ZY2IM/P, ZY2ORF/P
SA-047	PY5 Paraná State ZWØMI
SA-027	PP5 Santa Catarina State North PP5XX, ZZ5AM, ZZ5AVM, ZZ5LL, ZZ5NL, ZZ5SC, ZZ5WB
SA-026	PP5 Santa Catarina State South PP5AS, PP5IM, PP5IW, PP5SC, PP5SZ, PP5ZYZ, PRØR, PS5P, PWØP, PWØW, ZWØJR, ZYØNS, ZYØP, ZYØPS, ZZ5AS, ZZ5EW, ZZ5FO, ZZ5IM, ZZ5IW, ZZ5QN, ZZ5SZ, ZZ5UF
SA-023	PY6 Bahia State North PY6JJ, PY6SI
SA-062	PY6 Bahia State South ZV2GTI/6
SA-019	PY6 Abrolhos Archipelago PYØA, PYØB, PYØOK, PYØOM, ZY6EMM
SA-046	PY7 Pernambuco State PY7ACQ/P, PY7XC/P, ZY7EH, ZY7EK, ZY7TR, ZZ7SR
SA-045	PQ8 Amapá State ZV8BI
SA-016	PR8 Maranhão State Centre PR8AAT, PR8AGD, PR8OL, PY1DMX/PR8
SA-072	PR8 Maranhão State East PS8AM
SA-041	PR8 Maranhão State West ZX8CW, ZX8DX
SA-060	PY8 Pará State East ZY8IS
SA-042	PY8 Pará State West ZY8AZ, ZY8BI, ZY8EA, ZY8FLC
SA-025	PS8 Piaui State PS8AM/P, ZW8AA, ZW8AK, ZW8AM, ZW8BF, ZW8QS

(please turn to page 63)

A basic course in handling Morse code — it's easy!

M.L. Gibson, W7JIE

I first learned International Morse Code at Fort Worden in 1938. My instructor was one of those storybook hard-nosed "you'll learn code or else" types. I learned it. I transferred to Hawaii and gained speed. In the Alaska communications system, I really got up speed until Morse was phased out. But by then I had a ham ticket (1946) and continued to use Morse. You might say it is my preferred mode of enjoyable operation.

The one subject I hear most often on HF or anywhere else is "code is so hard — I can't get it." Or words to that effect. This little article is intended to help you over the hump so that Morse code is an enjoyment instead of a pain in the head. Bear with me while I try to ease you through the subject. It will take a bit of effort on your part — nothing in life is really easy. You cannot expect to drink a bottle of 7-Up and become smart or learn to handle code without a bit of effort.

First, notice I said nothing about "copying code." That is the basic fact in this sequence. You don't have to learn to copy code! What you do is learn a new language. No pencil and paper for you. Instead you "read code" in your head. As an example of your ability you can communicate (talk) with another person at anywhere from 100 to 350 words per minute. You just talk, make sounds, understand sounds, and communicate. Easy, huh? Learned it as a child.

Some folks become good speakers, others just mumble along in life. But they all communicate. Using Yankee, English, Spanish or whatever. Strangely enough you learned to talk at an early age. But remember how hard it was? And some of the words you just could not say. But you talked! And what you did was convert sounds to intelligence. The same way we are going to learn this code stuff. If a guy speaks to you at 300 wpm or a gal says something at 200 wpm, you understand them even though you only talk about 150 wpm. Not unusual. But you communicate. And using a variety of sounds, accents, pronunciation, softness, loudness, with background noise and all that chatter, you still communicate.

Now consider code. It is a very simple language. No accents, southern drawl, or other complications. It's just binary — tone and no-tone. The tone group for the word "for" does not sound like "four" or "fore" but just "for." "And" sounds like "and" not "Andy," "an," "Anna" but just "and." Each word has a very different sound than similar words. Only when you run into words that have the same spelling but different definitions do you run into trouble. But, depending on the way it is used, the meaning is different. The requirement then, is to learn words instead of piling letters into a group. By reading "words" in your head, it becomes very easy to increase your code speed to whatever you want. "Reading" code at 75 wpm is not hard — running a typewriter or electronic printer at 75 wpm may be difficult. Who cares? You can easily communicate at any speed. You just learn to read code in your head. Let's see if we can't get Morse code into the same category of communication as talking.

Second, you must prepare some tapes. Use a computer or whatever to generate machine-like Morse code at an audible frequency. Some like high tones and others prefer low tones. Personally when the noise is high I like lower tones but at a slower speed. If the frequency I'm using is relatively clear of QRM and QRN, then I like higher pitched tones to gain speed. Running along at 45 or 50 wpm is easy and enjoyable. And if the frequency is clear, the other guy can send good stuff, then you communicate effortlessly and enjoyably. Really. So on to prepare the tapes. I recommend you consider 30 minute tapes at 5, 10, 15, 20, 25, 30 wpm and on up to whatever you want.

Call your personal tops. Using any, I mean any subject matter from a newspaper article, magazines, books, stories, you make up these 30 minute tapes. You can use either the Farnsworth or any other method. Starting at 5 wpm, I'd suggest you not use the Farnsworth method. Farnsworth method — that is making the characters at say, 20 wpm, but with wide letter and word spacing so that the speed is really 5 or 10 or whatever words per minute. Some folks swear by it and some swear at it. Using a speed of 5 wpm for 30 minutes will grind the character recognition into your head with less effort. Something that will help is to have someone else prepare your tapes. That way you have no idea of the subject matter. Be sure to have punctuation and numbers in the tape. It may take some investigation to find material but I've found it in *Sunset Magazine*, *Smithsonian*, *Discover*, and biographies. Mix the context up so you will have a continuous storyline with some challenges. I have one tape with a description of the solar system — unusual words but excellent training.

But at 10 wpm and above, I'd recommend the Farnsworth method at about 20 wpm for all tapes below 25 wpm. (By the time you get to 20 wpm you will not actually need a method such as Farnsworth.) OK. So now you have a half-dozen prepared tapes at 5 wpm increments.

Now comes the easy part. I must assume you have learned most of the characters in Morse code. Put the 5 wpm code tape into the cassette playback and turn off all other distractions. I mean it. No monitors, no background music, no idiot-box, just plain silence. Earphones if necessary. Driving to work, taking a school bus, car-pooling (if you are not engaged in distracting conversation), any kind of activity that does not require concentration. I mean those things you just do naturally with little brain work. Turn on the tape player and go ahead and do whatever you are going to do. No fair copying a thing down on paper. Remember you are trying to increase your code speed.

If you want to, try writing your name just as fast as you can for one minute. Now count the number of letters you wrote in a minute and divide by five. The result is the absolute tops you can copy code. (Note, I said *copy* code.) Your goal is not to copy, but to use code. No matter how you try you will be hard pressed to exceed that "copy" speed. Your muscles just don't work any faster. What was the speed? 17? 21? 24? No matter, that is the top for you. And if you must copy it down then read it and then respond, your total speed is somewhat lower. Let's get off that "copying" kick and get down to "reading" code in your head.

Okay. You are now listening to code off the tape. But you don't know a thing except you hear an occasional letter or number now and then. Fine! Perfect. You are beginning to learn a new language. Just suppose you listen for the half-hour it takes to get to work. Meanwhile, your subconscious is just sitting

there. But along comes this code noise! Ah-ha! Something to listen to. And don't think that this "noise" is just going right on by. It's not. Although you cannot identify a lot of the noise, there is actually a learning process going on. Now and then a character, then two or three in a row. After a week of two, half-hour sessions, you will suddenly begin to recognize complete words! It's a fact. It will happen.

Just as soon as you think you might know the subject matter on the tape, turn the thing over and go 5 wpm faster! None of this six and five-eighths words per minute. It's 5, 10, 15, 20, etc. Now you are beginning to learn the secret of "copying in your head." You are hearing the sounds of words rather than assembling a word letter-by-letter. And you were doing it while engaged in an effort that required little real hard thinking. In other words, you were actually doing two things at once. It's got a two-bit name: "subliminal learning." It is a common practice that's been in vogue for years. And now you are part of it! Cheese maw, I'm learning code!!

I heartily suggest you really consider that getting perfect comprehension of the various texts is not important! Your goal is to improve your code speed. Once you know the various characters of Morse code, the language has been learned. All you need to do is to enhance your speed, which is made possible by going faster and faster. As soon as your brain has been trained and accepted the higher rate of speed, as acknowledged by your understanding the text, then the brain is ready for a higher speed. It works wonders even though you don't get "every" word, at least you are going at a good rate. By the time you understand 30 or 40 wpm, just think how easy it will be to pass that miserably slow 20 wpm for an Extra Class License. Amazing. So keep at it, and in a month of two 30-minute practice sessions a day, you will hit 40 wpm with no effort. From 5 to 40 in a month!! No excuses accepted or offered. Just do it!

Comments and criticisms graciously accepted. I may respond. Have good fortune and C U at 30 wpm soon. **WR**

The antenna tree

Larry Ikenberry, K7APT

As I climbed the old logging road up to our future building site on Bush Mountain, I couldn't stop looking at one gigantic Douglas fir tree down below. It was so dominating — the top was even higher than where we stood. I figured it must be over 160 feet tall. Large fir trees surrounding it were dwarfed by its towering top and enormous limbs.

As we labored that summer building a new home, I watched the old Douglas fir each day. It pierced high above the horizon, and its top would sway in the wind and rain. I knew that someday it would be a super antenna tree for a great long-wire antenna.

It was several years before I reestablished my ham station in our new home. I bought several hundred feet of solid copper wire and decided on an end-fed long-wire with 450-ohm ladder line to feed it.

With a bow, a neighbor boy shot an arrow and line over a high limb about two-thirds the way to the top. We pulled up the wire and ended up with a 350-foot-long wire antenna. The antenna was 130 feet above the base of the tree and about horizontal from the roof of the house. The tree had to be 180 feet high!

Reception was great! I worked about 25 countries on 10, 15, and 20 Meters over the next year. Every day for nine years I saw that beautiful old tree holding up one end of my antenna. With binoculars you could even see the insulator just beyond the end of its branches. Many other radio amateurs shared this vision with me as we admired the beautiful old spire swaying in the wind.

And then one morning I heard the sound of chain saws. As they started clearing the land next to mine where the old Douglas fir stood, I knew it was only a matter of time. I hiked down through the woods and talked to the tree cutter about "my" tree. They were only cutting hardwood at that time and would wait until fir prices went up before harvesting the fir trees. They cleared timber all summer. Then they began clearing the fir. The tree cutter said he would let me know before they felled my old Douglas fir so I could first take down my antenna.

All the trees around my antenna tree were cut down and removed. But my tree still remained. Maybe they might just leave that beautiful old tree, the most beautiful tree in sight for miles around. It must have been 75 years old at least.

Then early one morning in October I heard chainsaws again. Along with a tremendous crash down the mountain, I heard my antenna crashing across my roof. Old Douglas fir was no longer there. Only an empty space was left. Another empty space was left inside me. I was sick. I guess I believed they would never really cut it down. It was the end of a beautiful majestic tree that had been growing for nearly a century.

As I pulled up the antenna wire and coiled it by the house, I looked where the old majestic antenna tree had once stood. It was a sad moment. The landscape was changed and there was a void against the horizon. There would never be another tree quite like the antenna tree. — *Watts News,* Olympia ARS

MFJ ACCESSORIES

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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 **$24.95**

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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 **$24.95**

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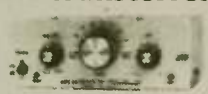
Creates artifical RF ground that eliminates or reduces RF hot spots, RF feedback, TVI/RFI, weak signals caused by poor RF grounding.

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."

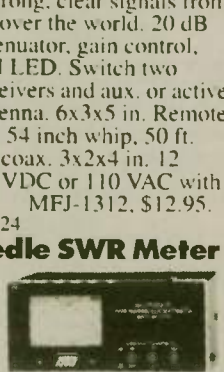
Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz - 30 MHz.

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.*

MFJ-1704, $59.95. 4 position cavity switch with lightning/surge protection. Center ground. 2.5 KW PEP, 1 KW CW. 50 dB isolation at 500 MHz. 50 ohm. 6¼x4¼x1¼ in. *MFJ-1704N, $69.95, N connectors.*

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.

$29.95 MFJ-260B

$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.*

MFJ Low Pass Filter

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.

MFJ-704 **$39.95**

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.

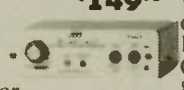
MFJ-564 **$49.95**

Full Color FAX

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.

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-1214PC **$149.95**



MFJ/Bencher Keyer

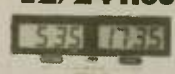
The best of all CW worlds --a deluxe MFJ Keyer using a Curtis 8044ABM chip in a compact package that fits right on the Bencher iambic paddle!

MFJ-422B **$134.95**

Iambic keying, speed (8-50 wpm), weight, tone, volume controls. Automatic keyer or semi-automatic ("bug")/tune mode. RF proof. 4⅛x2⅝x5½ in.

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

12/24 Hour LCD Clocks



$19.95 MFJ-108B

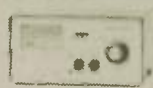
$24.95 MFJ-112

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.

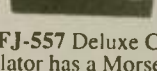
VHF SWR/Wattmeter

MFJ-812B **$29.95**



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.

MFJ Multiple DC Outlet

MFJ-1118 **$64.95**

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.

Write or call . . . 800-647-1800

Free MFJ Catalog

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• 1 year *unconditional* guarantee • 30 day money back guarantee (less s/h) on orders from MFJ • Free catalog

MFJ ENTERPRISES, INC.
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MFJ . . . making quality affordable

MFJ HF/VHF SWR Analyzer™

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

MFJ-259 **$219.95** lets you read your antenna SWR from 1.8 to 170 MHz quickly and easily without any other equipment!

MFJ-259 handheld *Univeral SWR Analyzer™*

MFJ's exclusive *RF Resistance Meter™* lets you measure RF resistance up to 500 ohms at minimum SWR.

Has built-in 10 digit LCD frequency counter and smooth vernier tuning.

You get *four* instruments in one . . . 10-digit frequency counter . . . RF signal generator. . . SWR Analyzer™. . . *RF Resistance Meter™*

Measure antenna resonant frequencies and 2:1 SWR bandwidths. Adjust mobile antennas, antenna tuners and matching networks in seconds.

Measure RF resistance, inductance, capacitance, resonant frequency of tuned circuits, transmission line velocity factor /impedance/ loss. Test RF chokes,baluns.

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, $39.95 each. *For 8 pin RJ45 modular phone jack replace B with M in model number above.*

Regenerative RCVR Kit

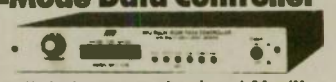
MFJ-8100K **$59.95** *kit*
MFJ-8100W **$79.95** *wired*

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.

MFJ-1278B Multi-Mode Data Controller

MFJ-1278B **$299.95**



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!

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!

MFJ-1796 **$199.95**

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.

MFJ's world famous 3 KW Versa Tuner V

MFJ-989C **$349.95**

Here's why the MFJ-989C is the finest 3 KW antenna tuner money can buy . . .

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, 10⅛x4½x15 in. Meter lamp needs 12 volts. Add $13 s/h.

MFJ *No Matter What™* Guarantee

MFJ's famous one year *No Matter What™ unconditional* guarantee means we will repair or replace (at our option) your MFJ product sold in this ad *no matter what* for a full year.

Super Hi-Q Loop Antenna

MFJ-1786 **$299.95**

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, $219.95, like MFJ-1786 but remote control has only slow/fast tune buttons.

Dual Band Mobile Ant.

Mobile Antenna for 144/440 MHz

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.

MFJ-1724B **$14.95**

5/8 Wave Mobile Ant.

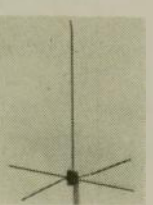
Maximum Gain™ 5/8 Wave 2 Meter *magnet mount* mobile antenna has stainless steel radiator, 12 ft coax, low SWR. UHF mobile (MFJ-1728) or BNC handie-talkie (MFJ-1728B) connector.

MFJ-1728/B **$24.95**

5/8 Wave Ground Plane

$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.

MFJ-1750 **$19.95**



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MFJ . . . making quality affordable

Going mobile

Phil Salas, AD5X

First of a 3 part series

I've operated portable for several years. I actually started back in high school when I would take my Lafayette HA-650 crystal controlled 6 Meter AM rig with me wherever I went. In recent years I've been taking QRP rigs with me when I take my family to Mustang Island (Texas) for our summer vacation. However, mobile operation is something I've been wanting to get into in a big way for awhile.

I have dabbled in HF mobiling. In the late '70s I operated 10 Meter mobile with a converted CB rig. My most memorable contact started with me calling CQ on the way into work one morning and having a station in Belgrade, Yugoslavia answer (I almost drove off the road). From 1989-1991 I operated some more 10 Meter mobile with a converted CB rig. Both times I used a cheap (K-Mart) CB magmount antenna with a few turns removed from the loading coil. Unfortunately, with the demise of old Sol's spots, 10 Meter mobiling is no longer very exciting. Its time to move down in frequency.

For about a year I've been struggling to figure out how to mount an HF rig in my GEO Metro. This car has plenty of legroom but is designed so that is all there is — i.e. there is no under-the-dash space to mount a radio. Even my relatively small Yaesu FT-7 wouldn't fit. Fortunately Kenwood came out with their TS-50 which I could fit with no interference to driver or passenger. But — mounting an HF rig in your car is only the first step. These three articles should give you an idea of what setting up an HF mobile station is like.

Transceiver mounting

If I can fit a TS-50 into my Metro, anyone should be able to install almost any HF rig into almost any other car! There are a few things to keep in mind, however. Obviously, try to locate the radio where all controls are easily accessible. However, make sure that the radio doesn't interfere with proper operation of the car as well as safety equipment — like airbags! You'll also save a lot of grief if your spouse isn't inconvenienced by the radio. Finally, locate the radio so that you can get a short grounding braid from the radio to the car chassis. Grounding at the radio is very important! For my ground, I used a short piece of tinned copper braid with a banana jack on one end connected to the ground bolt on my transceiver. Another piece of braid with a banana plug on one end is connected to the car chassis. The banana jack/plug interface lets me quickly remove the TS-50 from the car. The optimum place for my rig was vertically mounted on the side of the transmission console. Incidentally, for great audio sound, you might consider using one of those Radio Shack "CD-player to cassette adapters." These plug into your car's cassette slot and they have a 1/8" stereo plug that plugs directly into your rig's headphone jack (might need a stereo-to-mono adapter with some rigs).

Powering

Power your radio directly from the battery. This can save you a lot of problems such as excessive voltage drop, conducted noise, and possibly interference from your radio back into the electrical system. You can pick up #14 wire, 30 amp fuse/fuseholders, and battery lugs at an auto supply store. Make sure you fuse the wires (both positive and negative) right at the battery. I used #12 wire. I ran this wire into the passenger compartment through the electrical wiring grommet in the firewall. Inside the passenger compartment, I terminated the power cable with a Radio Shack 2-pin female 20 amp Molex connector (RS 274-154 female, RS 274-151 male). I also "T'd" off this connector with a short piece of 2-conductor wire terminated in the smaller "RACES style" female Molex connector (RS 274-222 male/female pair) for future accessories.

Antenna location

Obviously you must decide on an antenna location before you go much farther. Trunk lip and hatchback mounts are available for lightweight antennas like Hamstick and Outbacker. Trailer hitch mounts are great for heavy antennas like Bugcatchers. I went with a side mounted ball mount which required drilling holes in my car (gasp). If you go with a ball mount, pay money for a decent one like the Hustler SSM-2. This is a heavy duty well insulated mount that will support most any antenna you'll ever use. The cheaper "CB style" ball mounts have plastic collars that crack easily, they can arc over at amateur power levels, and they can loosen easily especially if the mount is on the right side of the car where wind resistance tends to unthread it (I learned this the hard way).

Cabling

First of all, buy some decent coax cable. RG-8X with Type II insulation is excellent. Also, plan ahead. You might eventually want to have remote antenna switching and control at a later date. So when you run your coax, also run a few more wires at the same time. I also ran a 4-conductor cable. It is best to run your cables under the interior plastic trim inside your car. I was able to do this in only about 30 minutes after I figured out how to remove the trim. You will undoubtedly break some of those little plastic trim fasteners so pick up some spares at the auto supply outfit when you buy your fuses, wire, and other hardware. If you are using a ball mount, the time to mount it is now when the trim is off. After mounting, connect a short piece of RG-8X to the ball mount and position the free end so that it will pass under the trim when it is reinstalled. This end should have a PL-259 on it. Also attach a PL-259 to the end of the coax you have run from your radio and position this cable so that it will also pass under the trim. This gives you access directly to the antenna base when the trim is reinstalled. This is important for many of

the antennas you may use. More on this later.

Noise reduction

OK, your radio is mounted and all your cables are run. Now the real work starts! Use an antenna that is resonant on 20 Meters and install it on your mount. Start your car and turn on your HF rig. Tune the radio to an unused frequency and listen to and observe (via the S-meter) the noise level. Now turn off your engine and see if the noise level drops. If (probably "when") it drops, you've got some work to do. Turn off the radio, restart the engine and turn on the radio. Disconnect the antenna. The radio should quiet considerably. If the noise doesn't drop, you've got to filter your DC power line. If the noise does drop, you also have to filter your DC power line. If the noise does drop, this implies the noise is all radiated. I suspect your noise problems will be all radiated.

To eliminate radiated noise from my car, I had to do several things each of which helped a little. The work performed was as follows:

1.) Connect copper braid from the hood to the body.

2.) Connect copper braid from the trunk/hatchback to the body.

3.) Connect copper braid from the engine to the body.

4.) Connect copper braid from the exhaust pipe to the body at the engine end and the tail pipe end of the exhaust pipe (noticeable noise improvement).

5.) Put coaxial bypass capacitors on all fan leads (RS 272-1085) for another noticeable noise improvement.

For the copper braid I used the shield from scrap RG-8 pieces I had around. I used #8 solder lugs, #8 split ring stainless steel washers, and #8 stainless steel self tapping machine screws for all ground connections. When I did all of the above, my automotive noise was gone! I had originally been running around with an S9 noise level!!

Well, that's about enough for now. Next time we'll start looking at antennas. While you're waiting for Part 2, you might want to collect a few catalogs that list antennas, mounts, and cable. My favorites are:

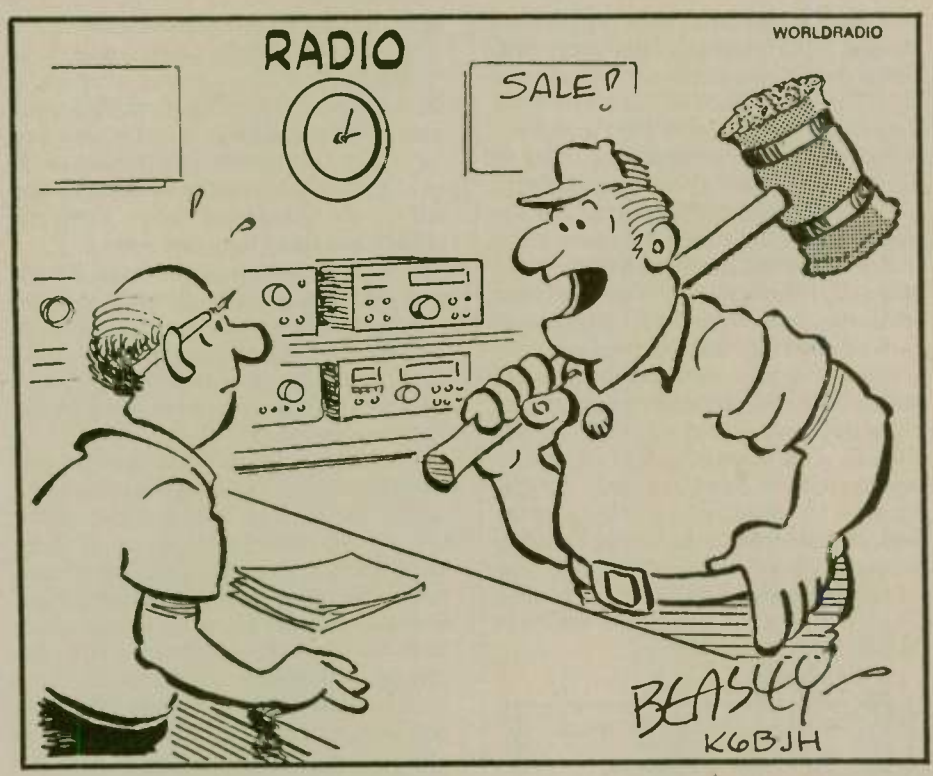
Radioware Corporation, 87 Belmont St., N. Andover, MA 01845; 800/950-9273.

Antennas West, P.O. Box 50062, Provo, UT 84605; 801/373-8425.

ASA, P.O. Box 3461, Myrtle Beach, SC 29578-3461; 800/722-2681.

Radio Works, P.O. Box 6159, Portsmouth, VA 23703; 804/484-0140.

To be continued next month. See you then. Phil, AD5X. WR



HI, I WRITE THE MONTHLY PRODUCT EVALUATION COLUMN FOR "SPURIOUS EMISSIONS" MAGAZINE-- GOT ANY OF THOSE "HIGH-IMPACT" HANDHELD RADIOS?

Amateur Radio and sporadic-E research

Ken Neubeck, WB2AMU

(Conclusion of a 2 -part series)

By observing the data over long periods of time (such as two sunspot cycles) some facts just come right out. I recently collated some ionosonde sporadic-E data from the government agency NOAA that was recorded at the Boulder, Colorado facility over a 21-year period from 1973 through 1994.

Boulder is located at 40N in latitude in the northern temperate zone and the data collected is representative of sporadic-E activity that is heard throughout much of the United States. Despite the inherent limitations of hourly readings, one can see patterns in sporadic-E that occur on a yearly basis as well as throughout the sunspot cycle.

For the purpose of this exercise, I used the general dividing line of critical frequency greater than 5 MHz. Using the factor of 5.4 times the critical frequency, this equates to an MUF that reaches 27 MHz which would be detected on the Amateur Radio 10 Meter band. I tabulated the data by the number of days each month for which critical frequency went above 5 MHz. The dividing line of 5 MHz has been traditionally used in many scientific studies.

A day in this table is tabulated by what is considered local time for Boulder and the dividing line would typically be 12 a.m. There are some events that start in the late evening and will last into the early morning hours. I find that tracking events by days, as opposed to the number of hours, is more consistent.The duration of the cloud tends to be somewhat random based on many factors being present. The occurrences of sporadic-E events in Boulder tracks well with 6 Meter observations that I have collected for the past several years from my home QTH in Long Island at latitude 41N.

A 22-year period covering two solar cycles up to the most recent data available (August 1994) is used for Table 1. Long term data covering at least two sunspot cycles is ideal for determining any patterns that may be present.

In addition, some of the limitations are compensated for by the inclusion of several years worth of data. Table 2 shows a comparison of data collected from Boulder with the Hobart ionosonde station in Tasmania (41° So. lat.) for the year 1992. This table is intended to show the symmetry between the North and South temperate zone for stations located approximately the same distance from the equator. It can also be seen that the month of March in Boulder is equivalent to September in Hobart, when very low sporadic-E activity is seen. In both cases, these months fall in between the end of the winter and the beginning of the summer season.

YEAR	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
1973	2	2	3	2	10	25	19	15	2	13	7	6	106
1974	12	5	1	8	16	26	22	14	2	4	4	9	123
1975	9	5	1	1	19	26	22	17	2	1	5	6	114
1976	10	2	0	2	16	24	29	19	2	13	10	8	135
1977	8	6	6	5	16	30	28	15	5	3	3	9	134
1978	5	4	2	4	15	24	27	14	2	2	6	4	109
1979	3	2	0	4	19	26	24	15	2	3	6	7	111
1980	8	3	2	4	16	25	28	14	5	5	7	7	124
1981	4	2	1	2	18	30	28	21	3	1	8	9	127
1982	9	1	0	7	17	24	23	21	4	4	5	7	122
1983	2	2	2	2	17	25	24	15	3	1	8	5	106
1984	6	2	2	3	19	22	18	10	3	–	11	6	102
1985	2	1	0	5	11	26	21	13	0	3	8	6	96
1986	4	2	1	2	17	21	22	23	5	12	11	8	128
1987	5	6	2	2	14	26	26	20	2	9	2	7	121
1988	0	1	0	5	18	28	21	11	3	2	3	3	95
1989	1	1	2	2	15	22	27	11	1	2	3	2	89
1990	4	0	0	3	16	26	22	14	1	2	2	2	92
1991	3	0	0	5	15	20	20	11	1	2	5	4	86
1992	5	2	1	5	18	24	26	18	3	5	7	11	125
1993	4	3	0	3	19	26	27	16	4	7	8	11	128
1994	4	5	1	3	17	21	22	15					88
AVG	5	3	1	4	16	25	24	16	3	4	6	7	113

Figure 1. Number of days for which critical Es frequency ≥ 5 MHz using ionosonde data from Boulder, Colorado.

Some observations can be made about sporadic-E occurrences in the northern temperate zone from the long term sporadic-E data collected at Boulder.

First, there are two distinct seasons for sporadic-E occurrences; a strong summer season and a lesser winter season. The strength of the summer season can be seen not only by the number of events that occur but also the high critical frequency values that are typically reached during those months (typically in the 7 to 14 MHz range). There are very few sporadic-E events in March and September.

In fact, the maximum critical frequency value in March seldom reaches 7 MHz, whereas values of over 7 MHz are the norm for the summer months of June and July. This explains why very few 6 Meter sporadic-E openings are seen during this month by hams located in the northern temperate zone.

Events in September appear to "spillover" from the summer season and the maximum critical frequency value seldom goes above 7 MHz. It can be seen that March and September are the logical dividing lines between the sporadic-E season in the temperate zones. Openings seldom last more than one hour.

Few differences occur during the summer months of May through August from year to year. There are minor variations in the number of events throughout the solar sunspot cycle with most of the variation appearing in the winter months.

Of particular interest is the increase in winter activity around the solar minimum. During the winter seasons following the solar minimums of July, 1976,and September, 1986, significant increases are observed in the months of October through March, in comparison to other years of the cycle. (The high number of events in October of 1976 and 1986, as well as the following Februarys particularly stand out when compared to other years.)

Bill Shanney, KJ6GR, suggests that this increase in events during the minimum may be attributed to the reduction of ionized oxygen and nitrogen atoms in the ionosphere that occurs

during the solar minimum. This reduction may provide for a slower recombination rate which may enhance sporadic-E cloud development. Hams should pay particular attention during the upcoming solar minimum year (projected for the 1995/1996 time frame) for additional sporadic-E activity in the months of September through March. The comparison between Hobart and Boulder data shows that the sporadic-E phenomenon is a symmetrical phenomenon where the most intense time is during the summer season of a particular hemisphere with a compatively minor winter season. In both hemispheres, there is considerable drop-off of activity during the equinox months. Symmetry such as this cannot be explained by simple means such as direct correlation with seasonal meteor shower activity.

	J	F	M	A	M	J	J	A	S	O	N	D	TOTAL
BOULDER	5	2	1	5	18	24	26	18	3	5	7	11	125
HOBART	25	17	7	8	7	19	15	8	0	7	20	28	161

Figure 2. Comparison between Boulder (40 degrees north) and Hobart (41 degrees south) 1992 ionosonde data for number of days each month for critical frequency ≥ 5 MHz.

Perhaps the strongest piece of information for hams that can be gained from the ionosonde data provided in the tables, is the fact that sporadic-E is consistent throughout the solar cycle, particularly during the summer months. So it makes no sense to give up on bands such as 6 and 10 Meters just because the F-layer activity has waned. In fact, it seems that an absence of F-layer activity on these bands really magnifies the amount of activity that comes in via sporadic-E skip. June can easily be identified as the best month of sporadic-E in the northern temperate zone. In fact, it is not uncommon to see openings on every day of June. The activity during June can be so high, that it is not uncommon for hams in the United States to work into the European and African continents. Occurrences in the winter months are somewhat harder to predict as they tend to occur at random. However, there will be occasional days in the winter where openings will last several hours.

When discussing the possible causes of the sporadic-E phenomenon, one has to be extremely careful. The cause of the phenomenon has been the subject of much controversy over the past three decades and speculations *not* based on fact have been presented as fact. Careful reading of the existing documentation and texts is required for anyone studying the phenomenon and before any theory is put forth. There is no substitute for proper research when drawing conclusions on the sporadic-E phenomenon. The thunderstorm correlation theory is one example of an idea that has been championed by some radio amateurs as well as by some scientists. However, it does not appear that thunderstorms occur in a regular pattern that would cause the regular occurrences of sporadic-E as shown in Table 1.

One of the most exciting days in recent years were the events on Field Day weekend of 1994. During the opening hours there was a terrific opening between Florida and Western Europe that lasted for over four hours. At the same time, there was an opening between the East Coast of the US and Florida and the Midwest. There was also a double hop opening between California and Maryland! All of this occurred during the first hour of Field Day! Two hours later, an additional cloud appeared that allowed contacts between California and Washington State. This suggests that at least seven distinct cloud formations were present during that time period. Examination of the weather maps show that many of the clouds appeared in areas where there was no thunderstorm activity or weather fronts. One of the clouds was over the area of Northern Arizona, which was seeing record high temperatures and dry weather. This remarkable day certainly seems to suggest that something more than thunderstorms is responsible for sporadic-E cloud formation. Then too, innumerable stations were listening to the band on Field Day!

It is important to realize that the geomagnetic field around the earth is a factor, and it is also important to note that this field is not uniform in the various zones. In particular, there are variations in the temperate zones based on the observations collected over the years. For example, there is a distinctive seasonal pattern noted in the temperate zone area in the United States where a major summer season and a minor winter season of activity exists. The minor winter season does not seem to be present in the Western European area where more aurora events are noted during the winter time. Likewise, sporadic-E appears to be much more intense during the summer in Japan, than in the United States.

Previous scientific studies looking at the sunspots and possible relationships with sporadic-E have not come up with any distinct correlation. With the appearance of two seasons, it seems logical to examine the angle of the earth to the sun throughout the year. The angle of the sun's equator to the earth's equator changes throughout the year with the two equators in near parallel alignment during the summer and winter solstices. It is also known that the active zones of the sun are on either side of the equator and they move through-

out the sunspot cycle (in the 5 to 30 degree region of the sun), with the sunspots approaching the equator as the minimum is reached. It seems that there is too much of a coincidence not to take into account the location of the active zones of the sun in conjunction with the symmetry seen in the sporadic-E seasons. A detailed explanation is provided in Chapter 9 of the book, *Six Meters, A Guide To The Magic Band* (Neubeck/ Worldradio Books).

Bill Shanney, KJ6GR, has taken this idea to the next level by suggesting that an area of future study could be the variation in intensity and wavelength of Extreme Ultra Violet (EUV) rays that are emitted from the active zones. Since the metallic ions of E-clouds have a lower ionization potential than oxygen and nitrogen molecules, they may be ionized by lower frequency UV waves that see less change during the solar minimum. Reduction in EUV frequency at the solar minimum may be responsible for less oxygen/nitrogen ionization, yet there may be sufficient lower frequency UV to ionize the metallic ions. Hence, this shows as the apparent increase in sporadic-E events during the solar minimum. EUV radiation would be strongest during the daylight hours which would coincide with the diurnal pattern of sporadic-E. Most of the events occur during the day and evening but seen rarely beginning after midnight local time up through the early morning. Typically, less than 2 percent of sporadic-E openings are seen between the hours of 1 am and 5 a.m. local time.

From discussions with people who work in the solar-terrestrial physics division of NOAA situated in Boulder, Colorado, there is currently very little work being conducted by the scientific community on sporadic-E. There have been only a handful of scientific research papers written in the past ten years, no new papers written after 1990. Many of the ionosonde stations that are situated worldwide routinely collect sporadic-E data such as the blanketing frequency, the maximum frequency and the height of sporadic-E clouds that pass over the stations. This is amazing because virtually no one requests this data for any kind of study and the data is seemingly collected for the sake of collecting it. This seems wasteful. More people, including hams, should take advantage of this data.

Ideally, an international data base could be established using Amateur Radio observations on 10, 6 and 2 Meters. The database would help in definitive mapping of sporadic-E openings, particularly those observed during contests. Sporadic-E of itself may appear to have limited value as subject matter to researchers. However, if it can be shown that sporadic-E has a link with certain types of solar activity, it may prove valuable as an indicator for these types of activity to scientists. This is the challenge for those who observe the phenomenon, and ponder the causes.

The author wishes to thank George Talarski, National Geophysical Data Center, in Boulder, Colorado, and Bill Shanney, KJ6GR, for their help in providing supporting information for this article. The author would also like especially to thank Dr. Ernest K. Smith for providing him the time and some thoughts on the subject during a recent telecon.

Ken Neubeck, WB2AMU, has recently written a book on 6 Meters; SIX METERS, A GUIDE TO THE MAGIC BAND. It provides a complete look at this incredible band. The price is $12 plus $2 shipping and handling (California residents-please add sales tax of $.98) and can be ordered from: WORLDRADIO BOOKS, P.O. Box 189490, Sacramento, CA 95818. **WR**

Product Review

A & A Engineering Gary Breed QRP Kit

Jeff M. Gold, AC4HF

When choosing a QRP CW transceiver kit to build, you need to consider the type of receiver design the kit uses, the quality of the parts, the ease of assembly and the rig's final performance. A kit with a superheterodyne (superhet) receiver offers single signal reception. This means that the receiver is designed to reject one half of the wave. When you tune in the signal it gets louder and then drops off when going in one direction with the tuning knob. It is easier to tune and less likely to get overloaded by nearby AM broadcast stations. They are often more complex to build, more expensive and sometimes larger.

I found many options for superhet transceiver kits. Gary Breed had published an article in *QST* (Dec 1990, Jan 1991) on a transceiver he designed for backpacking.

A&A Engineering manufactures a Gary Breed transceiver kit. This kit is 100% complete. The kit comes with matched crystals for the narrow crystal filter, circuit boards, nuts, bolts, wires, pre-punched and painted enclosure and key and earphone plugs, and speaker. The parts were all of good quality. The completed transceiver measures 6"x 7.25"x 3". It is small and rugged enough for backpacking. The rig can be tuned to cover any 50 kHz of the band the kit is built for. The transceiver can run off a small 12V gel cell and will put out 5 watts from a 13.8V source. The rig has semi-QSK transmit/receive switching. There is an audio derived AGC circuit and two stages of audio filtering. The kit is available for 20, 30 or 40 Meters.

I chose the 20 Meter band kit. The receiver and transmitter sections are on separate circuit boards and packaged separately. The directions start with a copy of the two original articles by Gary Breed from *QST*. There are some additional notes on final assembly and suggested tune up procedures along with schematics and small parts overlays. All the information you need to build the kit is there, but I suggest going over it a few times before starting to build.

I liked the fact that you build the receiver and transmitter separately. The boards and the parts are also packaged separately making it easier to sort out the parts. I was able to build the receiver first and test it before proceeding to the transmitter section. It is much easier to track down problems before you have both the transmitter and receiver tied together. There is a fairly low parts count for the receiver and the parts aren't packed close together on the board. The receiver uses a multifunction VHF FM receiver IC (Motorola MC3362), no other active devices except an audio amplifier are needed. This is what really helps to keep the parts count so low. I found it very easy to build the receiver section. An experienced builder will have no problem finishing it in one sitting. The receiver

(please turn to page 22)

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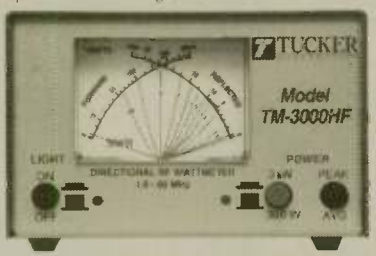

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- Power Handling: 300/3000 W, scale selectable
- Frequency Range: 1.8-60 MHz
- Connectors: High Quality SO-239 (input/output)
- Power Requirement: 9-12 VDC (AC adapter included)
- Size: 5.3"(135mm)W x 5.75"(146mm)D x 3.5"(89mm)H
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- Power Handling: 30/300 W, scale selectable
- Frequency Range: 100-500 MHz (can be used from 50-650 MHz with reduced accuracy)
- Connectors: Teflon BNC with gold pins
- Powe: Requirement: 9-12 VDC (AC Adapter included)
- Size: 5.3"(135mm)W x 5.75"(146mm)D x 3.5(89mm)H
- Weight: 1.2 lbs

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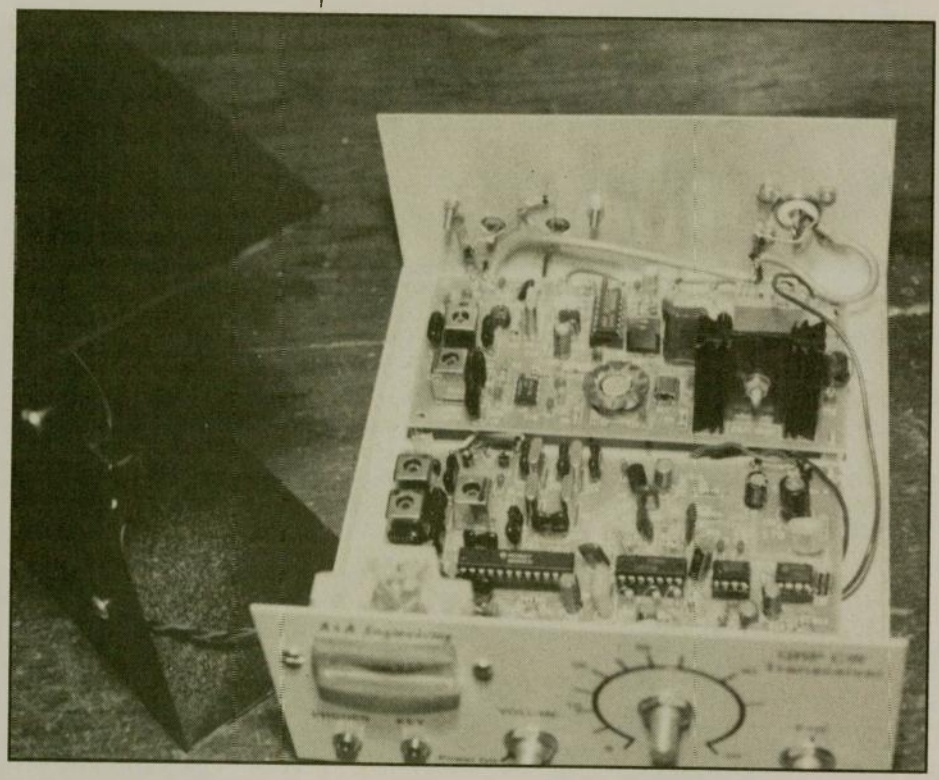

Product review

(continued from page 20)

worked well from the first test.

The receiver is very easy to align. To align the receiver you first tune a coil that adjusts the VFO frequency. You can hook up a frequency counter or use a general coverage receiver (most modern HF transceivers have general coverage receivers). If you use a general coverage receiver you first put it on the frequency to which you want to adjust the QRP kit's VFO. Next you put a wire into the antenna connector on the receiver and run it near the VFO and then listen on the general coverage receiver for a tone as you tune the coil. The next step is to tweak two other coils while listening to a weak signal. You adjust them until you get the best reception.

The transmitter is on a separate board. There is also a relatively low parts count for this section. The only tricky part in building the transmitter is in preparing five inductors. Winding these coils isn't hard and is good experience.

When you finish with both the transmitter and receiver boards you will then start to assemble the controls and wire the receiver and transmitter together. A nice feature is that there is separate power to the final amplifier section. This allows you to test the transmitter section using low power in case something is wrong with your wiring.

To align the transmitter section it is best to use an oscilloscope. If you don't have one you can get by with a watt meter that will show low power in the one to ten watt range. There are two coils which you adjust back and forth to get maximum power output. For best performance it is best to tune these coils and observe the wave form on a scope. The wave should be a nice clean sine wave. I adjusted mine and measured about eight watts output. I then turned one of the coils back to lower the power to under five watts. The wave was still nice and clean. You will have to align a few more things such as the TX offset and then the sidetone level and QSK delay. These are not difficult to perform.

I finished aligning my 20 Meter kit in time for a weekend DX CW contest. This is a very tough test for a QRP rig. I got on the air and managed to work LY2BMX first call. Next I worked a Spanish station and carried on a QSO for a few minutes with him. I worked stations from all over the world with no problems. I was able to get through to many of the DX stations on the first call. I noticed that for some reason people seem to be able to hear my signal fairly well, even under crowded band conditions. In subsequent QSOs I received reports that my signal sounded very good. I have listened to it on my main station rig and it does sound good.

I enjoyed building the kit and experienced no frustrations during the process. All parts were good quality and there were no missing parts. The rig has continually performed well. One criticism of the finished rig is that the T/R changover circuit uses relays and is somewhat loud. Another criticism is that the rig only covers 48 kHz of the band. To tune the receiver, there is a main tuning knob and a fine tuning knob. There is no RIT with the rig, but I find the fine tuning allows me to tune in stations fairly well. The filtering on the rig works well except in very crowded band conditions. During these times I plug in an audio filter. Price $159.95. For more information, contact A & A Engineering, 2521 W. La Palma Ste #K, Anaheim, CA. 714/952-2114. **WR**

Worked all OOs

Richard A. Strand, KL7RA

When I was a Novice in the early 60s I would get on 40 Meters running 60 watts and call CQ with no takers for hours (I think this early operating experience forced me to seek out similar results in later life by moving to the arctic) and the OO cards came pouring in for my 20 Meter harmonic. Boy was I excited to get home from school and check the mail for OO cards.

My real 7 MHz QSOs would be from around Nebraska and 9 land but the OO cards would be from 1 and 2 land and even a 6 once.

But alas someone showed me how to tune the transmitters buffer/amp stage and my *"Worked all States OO"* stopped at 23.—South Jersey Radio Association-*Harmonics.*

SPECIAL EVENTS

Cherry Blossom Festival

The Macon ARC will operate W4BKM 1400Z - 2300Z on Saturday, 18 March 1995, at the 13th annual Cherry Blossom Festival in Macon, Georgia. Phone 7.235, 14.235 and 21.335; CW 7.135, 14.035, 21.135. For certificate, send QSL and an 9x12 SASE to Macon ARC, P.O. Box 4862, Macon, Georgia, 31208.

VOA commemoration

Members of the Piscataway ARC will operate "VOA" starting March 18, at 0000 UTC until 2400 UTC 19 March, to commemorate the WWII operation of the Voice of America relay station, WBOU. CW - Novice subbands. Phone — lower third of the General 80 through 15 Meter subbands and the Novice 10 Meter subband. RTTY operations will also be conducted on 80, 40 and 20 Meters. For certificate, send QSL and a 9x12 SASE to the station worked.

Anniversary of the Norwegian Lady

The Virginia Beach ARC will operate WA4TGF, 25 March from 1400Z to 26 March 2000Z, to commemorate the 104th anniversary of the Norwegian Lady.

CW-10 kHz up from the bottom of the Novice subbands; phone — 3.880, 7.280, 14.280, 21.280, 28.363, 146.550.

For certificate, send QSL and SASE to VBARC, P.O. Box 62003, Virginia Beach, VA 23462.

25th anniversary

The Playground ARC will operate W4ZBB on 4 and 11 March, 1995 from 1500Z through 2200Z to celebrate the 25th Annual North Florida Ham/SwapFest. Operations will be in the center of the 15, 20, and 40 Meter phone bands and on 147.00. For a certificate, Send QSL and an 9x12 inch SASE to PARC, P.O. Box 873, Ft. Walton Beach, FL 32549.

Albert Einstein's Birthday

On 11 March the Southern Patuxent Amateur Radio Club of Calvert County, Maryland, with Baltimore Gas & Electric Company will operate special event station N3IFL at the Calvert Cliffs Nuclear Power Plant overlooking the scenic Chesapeake Bay, to commemorate Albert Einstein's birthday.

The purpose of the special event is to generate interest in Amateur Radio and promote the peaceful use of nuclear energy. All amateur operators are invited to participate and all nuclear facilities are encouraged to operate similar special event stations.

At least one plant in Canada will participate in this year's event. All participating stations will offer commemorative QSL cards and Bob Smith, N3IFL, will present a special certificate to any station that sends log extracts for working five nuclear facilities.

Operation will be in all HF bands, both CW and SSB from 1300Z to 2200Z. Suggested frequencies are 3.970, 7.270, 14.270, 18.140, 21.370, 24.790, and 28.370. Direct any correspondence to Bob Smith, N3IFL, 12480 Catalina Drive, Lusby, MD, 20657.

OFF THE AIR

Never too old

About a year ago, I decided I'd like to be an Amateur Radio operator. So I gathered the necessary material and began studying. In February, 1994, two days before my sixty-seventh birthday, I passed test elements 1A, 2, and 3A. While waiting for my "ticket" to arrive, I recognized that I had not really learned very much. Sort of like a guy who had been taught to fly, but not yet learned to land. So, I took another step forward and in April passed test elements 1b and 3b, and was immediately operating as a General Class operator.

What's the big deal? None, really. It's just that I've been reading about some people wanting special consideration with respect to code testing because they were old. That's a whole bunch of bunk. You don't get old until you think you are.

I'm already studying for test element 4a, and it is pretty tough for me. But, I'll make it one day. What about element 1c? I doubt that I'll be able to handle that one. But, I'll never be an airline pilot or a brain surgeon, either. We all have our limitations and must live with them. That's the way life is. You simply don't plead for relief from those limitations. You do the very best you can with that with which you've been endowed. 73.

JOHN C. JOHNSON, KC5GDO
Geronimo, Oklahoma

Elimination of code

I have only been a ham since 1993, but after reading all the controversy about eliminating the code as a requirement, I have formed my own opinion about the situation, that I have not seen printed elsewhere. I believe that the code should be eliminated, because it just isn't an important means of communications anymore. Those who want to learn the code would always be free to pursue that aspect of the hobby on their own. On the other hand, I do not think it should be made any easier to achieve the different levels of license classes.

I propose that if the code were eliminated, or the speed requirement reduced, that the written portion be made *much more* difficult. This means that the FCC stop giving away the answers and that the tests be structured in such a way that knowledge of electronic theory is demonstrated, rather than answers being memorized. I think that this change would satisfy those people who do not want to study code and it would satisfy those who want people to have to *earn* their privileges. I was one who hated to study the code (and have never used it) and would much rather have spent the time on *learning* the theory.

DOUGLAS E. STANGLER, AB7BU
Renton, Washington

Remaining a no code

After reading your fine publication, February, 1995, I decided it was time to write and express my opinion and concerns.

I have been a no code Tech since June 28, 1994. There's an attitude circulating about in hamdom from older hams as well as young that I find disturbing. "If you are a Tech, Novice, or especially a no code, you are less than a ham; or as I've heard it put, "an almost ham," if you don't have a General license or above.

There appears to be resentment towards these classes of license; towards those persons who, like myself, enjoy the privileges that come with them, and choose not to upgrade.

For myself, I find more than enough band choices and frequencies to keep me involved and interested and content.

To all those amateurs who want to upgrade to a higher class, I am for you 100%: But don't come down on me because I choose to stay a no code. *Amateur Radio is supposed to have something for everyone*, this is what I want to say to those of you who do not accept me as a ham.

Thank you for the article, "More for Less," on page 17, by Allen Jones, K9DZE. This is of special interest to me as I am active on 2 Meters and want to get on 6 Meters for DXing SSB, and perhaps one day, CW. I've got my sights on DXCC as well as WAS and WAC. This sounds incredibly like FUN, just as all of ham radio should be.

It would be nice to have more articles on 6 Meters.

I look forward to finding ***Worldradio*** in my mailbox.

DEAN COUZIN, KE6IEG
Santa Cruz, California

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General Chairman, Ken Allen, KB8KE

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Deadlines
In order to have time to return tickets to you, we must have advanced reservation orders postmarked not later than April 8 (USA) or April 1 (Canada). Tickets will not be mailed before January 15th, 1995. Ticket requests that are received **AFTER** the deadline will be processed and **HELD** for pick-up at Hara Arena. Tickets can be picked up beginning Thursday, April 27 at 8:00 a.m.

Flea Market
Flea Market Tickets (valid all 3 days) will be sold IN ADVANCE ONLY. No spaces sold at gate. A maximum of 3 spaces per person (non-transferable). Electricity is available in a portion of the last Flea Market row for $40 additional per space. Rental tables and chairs are not available in the Flea Market. Vendors ***MUST*** order an admission ticket for each person when ordering Flea Market spaces. Please send a separate check for Flea Market space(s) and admission ticket(s). Spaces will be allocated by the Hamvention committee from orders received by February 1. Please use 1st class mail *only*.

Notification of Flea Market space assignment will be mailed by **March 15, 1995**. Checks will not be deposited until after the selection process is complete. Please indicate in the box below if you would like to attend regardless of Flea Market space assignment.

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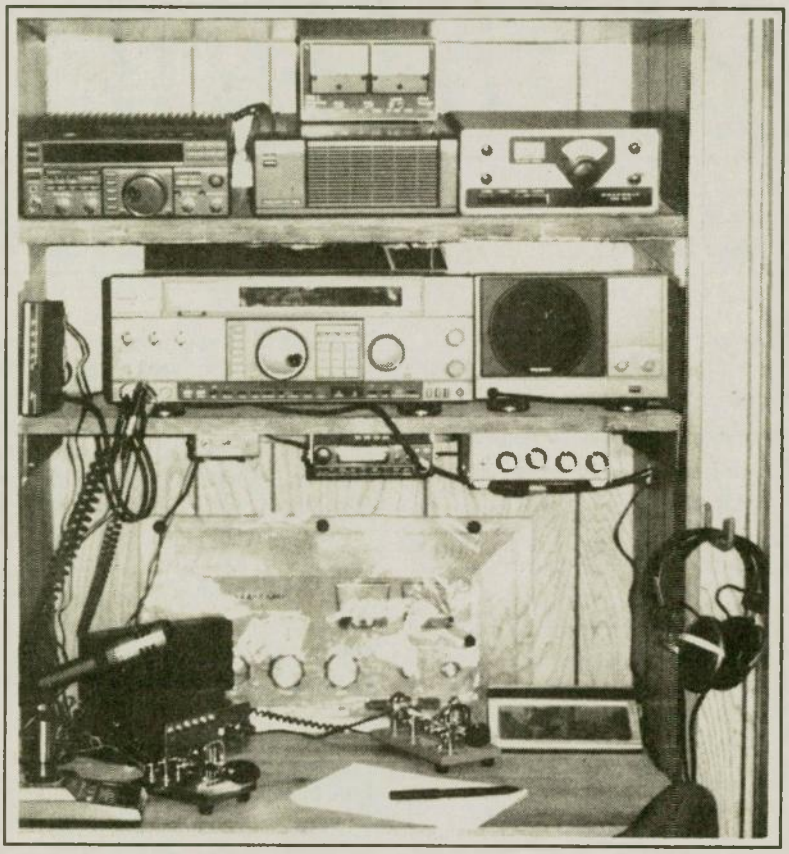
‡ Admission ticket must be ordered with flea market spaces

STATION APPEARANCE

Joseph Falcone, AA8HV

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.



I started taking the tests for my amateur license in January, 1992 and passed my Extra license in May 1992. CW did not come easy to me and I had to take both the 13 and 20 wpm tests several times. Now, however, I work mostly CW and have been actively pursuing DX since I hooked up to the local DX packet cluster in December, 1993. As of August, 1994, I have 86 countries confirmed and hope to achieve DXCC and *Worldradio's 100 Nations Award* by the end of the year. I enjoy QRP work and use an MFJ 9040 for portable activity. I am also engaged in CW county hunting, mostly through ragchews on 40 Meters. I am an active member of the FISTS CW club and would like to see the lower portions of all the bands reserved exclusively for CW.

Not having very much extra space in my house for my "shack," I utilized an area in the basement where the previous owners had a built-in refrigerator. Using some extra sheets of wood, I installed shelves for the equipment and for a writing area.

All wiring is fed through the back wall where there is an open area. This open area contains the 110 and 220V power and a shelf holding the Heathkit SB-220 amplifier.It also vents built up heat.

The station consists of the following:

FT-890, FP-800 power supply, HW-8 QRP transceiver, KPC-3 packet controller, FT-1000D with SP-5 speaker and an Alinco DR-1200 for packet. A used, but mint, Heathkit SB-220 amp is the newest addition to the station.

Station accessories include a J-Com Magic notch filter, Autek QF-1A audio filter, Autek WM-1 meter, MFJ-492 memory keyer and a Vibroplex iambic keyer and bug. My antenna is a Cushcraft R-7.

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!

Richard M. LeNoir, NØBGK

Facing a number of antenna restrictions and operating constraints in my present location, I have used a random wire strung through the trees for my high frequency operations. This wire, though low profile, certainly is not invisible (especially in some seasons), so occasionally a neighbor will ask what it is. That question always gives me an opportunity to provide some gentle education about Amateur Radio as I answer the direct question.

I was recently chatting with neighbors who were preparing to move from the area, the lady said, "We know it's not a clothesline — it is too high up for that! But what is it?" Knowing that the husband was a radio officer in the Air Force, I expected to receive at least an interested hearing to my answer as I began my explanation.

When I finished, the husband and I had a good laugh as he said, "How embarrassing for an Air Force officer! Here I've been looking at a high frequency antenna for several years now and never recognized it! A discone or a conical or a log periodic I could have handled. But a wire!? NOBODY uses a WIRE anymore!"

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***:

483. John W. Wittmann, WK8X
484. Randy O. Ryan, N8MOT

Rules and application forms are available from N6JM or ***Worldradio***.

Please include an SASE with sufficient postage to cover 2 ounces.

Spratly Islands (1S)

QRZ DX reports that a group of Philippine DXers are making plans for an April DXpedition from the Spratly Islands. The proposed callsign is DU0K and is scheduled for about seven days beginning April 10.

Ghana (9G)

From Ghana, 9G1BS has been very active on RTTY. Look for this one between 14.081 and 14.086 MHz from about 2100 UTC. He has been known to appear on 15 Meters, including SSB.

9G1MR likes 75 Meters; try 3.789 to 3.795 MHz 2200 UTC for this one.

Other reports from Ghana include the following:

9G5SX	1.829 MHz	0000 UTC
9G5SX	3.506 MHz	1700 UTC
9G5RF	7.007 MHz	1800 UTC
9G1BS	7.084 MHz	0145 UTC
9G5JL	10.107 MHz	1700 UTC
9G5JL	18.080 MHz	1545 UTC
9G1JX	14.026 MHz	1715 UTC
9G5MF	21.026 MHz	1745 UTC
9G1BJ	21.294 MHz	1715 UTC
9G1SB	21.267 MHz	1530 UTC
9G5HX	24.894 MHz	1600 UTC

During the November Worldwide DX Contest 9G5AA was active, giving your DX editor a new one for CW!

Taiwan (BV)

The number of calls from Taiwan continues to increase on the bands.

The following calls were reported during November and December:

BV2FA	14.226 MHz	2330 UTC
BV2OO	7.011 MHz	1530 UTC
BV4LQ	7.009 MHz	1700 UTC
BV4OM	14.008 MHz	2300 UTC
BV5BG	14.241 MHz	1000 UTC
BV7CG	21.270 MHz	1000 UTC
BV7EJ	7.021 MHz	1200 UTC
BV7GA	14.216 MHz	0030 UTC
BV7GG	7.023 MHz	1430 UTC
BV7II	7.013 MHz	1500 UTC
BV7NB	14.018 MHz	0900 UTC
BV8BC	14.222 MHz	0900 UTC

Many of the reports are European contacts with Taiwan, which explains some of the strange times.

BV2TA has been found on the WARC bands, as he was worked December 5th on 17 Meters CW by the Europeans at 0900 UTC on 18.072 MHz.

Bolivia (CP)

CP8XA appears to be the only active DXer from Bolivia. He is active in DX contests and several bands. He has been reported and can be found as follows:

3.581 MHz	0345 UTC
7.010 MHz	0015 UTC
10.101 MHz	1130 UTC
14.007 MHz	0030 UTC
18.076 MHz	1615 UTC
21.276 MHz	1600 UTC
24.930 MHz	1400 UTC
28.020 MHz	1100 UTC

He may not necessarily be found on these exact frequencies.

According to the 1991 *Callbook* there are 1,750 licenses for Bolivia. *Long Skip* did report of CP8AL, working Ontario DXers recently on 14.010 MHz at 2315 UTC.

Iran (EP)

Europeans reports are via *DX News Sheet* including recent activity from Iran. EP2HM was found near 14.189 MHz around 0900 UTC with EP2MHB on 14.257 MHz at 1300 UTC. As far as we know Amateur Radio is still illegal in Iran. Therefore, these calls will not be valid for DXCC.

Ethiopia (ET)

In his DX column in *The Canadian Amateur Radio Magazine* Paul Cooper, VE3JLP, reports that ET3BT has been showing up on the 14.226 MHz DX net almost every day. Look for this one between 1800 and 2230 UTC.

Also reported from Ethiopia is ET3BN on 7.005 MHz at 2230 UTC, 14.030 MHz at 1700 UTC, 18.070 MHz at 1315 UTC, 21.015 MHz at 1000 UTC, and 21.288 MHz at 1300 UTC.

Other calls from Ethiopia were ET3YU on 14.221 MHz at 2115 UTC and 21.301 MHz at 1445 UTC, and ET3SID on RTTY near 14.088 MHz at 1600 UTC.

South Georgia Islands (VP8)

As of this writing the South Georgia Islands DXpedition is on schedule and should be history by the time you read this. Let's hope the propagation is fa-

vorable for us as many need this one - including one frustrated DX editor.

Macao (XX9)

Recent activity from Macao includes the following:

XX9AS	14.195 MHz	1100 UTC
XX9AW	3.799 MHz	1430 UTC
XX9GD	18.122 MHz	0800 UTC
XX9TSX	14.023 MHz	2300 UTC
XX9TZ	14.195 MHz	0000 UTC
XX9X	7.005 MHz	2130 UTC
XX9X	14.195 MHz	0015 UTC

U.K. bases on Cyprus (ZC4)

DX News Sheet reports of two U.K. stations operating from Cyprus recently. ZC4ESB was reported on 7.002 MHz at 1500 UTC and 3.505 MHz at 2000 UTC, on 19 November and 9 December, respectively. ZC4ZZ was worked on RTTY 9 December on 14.086 MHz at 1300 UTC. No stateside reports of activity with these ZC4 calls were found.

Gaza (ZC6)

QRZ DX and other DX publications continue to report on the activity by ZC6B reported to be in the Gaza area. The problem is the call sign, as the ITU block of ZBA-ZJZ is allocated to Great Britain, and this is not a British operation. Another call, ZC6A, is scheduled to appear soon.

IOTA

Stu Stephens, K8SJ, reports that his J8/K8SJ beginning February 10 for two weeks of operating from Bequia Islands in The Grenadines (NA-025) has been cancelled due to health problems. Stu says "maybe next year."

Pedro, HK3JJH, informs us that he is planning to activate one or two new South American island groups this coming season. Pedro recently operated from Fuerte Island (SA-078) for a new one.

We had a nice selection of IOTA operations during the month of December, some of them brand new ones. From the pileups, it is obvious of the expanding interest in this program. Heard on the bands:

AN-018	Alexander Island	VP8GAV
NA-025	Bequia Island	J88CJ
NA-031	Aquidneck Island	KA3UNQ/P
NA-065	Whidbey Island	K6LIK
NA-110	Edisto Island	AC4WW
OC-203	Stewart Island	ZL1HSP
SA-027	San Francisco Island	ZZ5LL

CQWW aftermath

There was some interesting stuff in *CQ's* Worldwide DX Contest the end of November. True, the bands were not in the best of shape, but the stuff was there. I worked 9G5AA for a new one on CW and 9M8X for a new one on 40 Meters. C6AHX was a multi-op effort from Treasure Cay (NA-080) in the Bahamas. That IO9T was from Sicily (EU-025) operated by Maurizio Tramuto, IT9TQH.

This one was a good one for WPX types. JE1CKA led a team of about 10 operators at the Saipan Diamond Hotel in the Marianas (OC-086) signing with KHØAM.

DXAC actions

The ARRL DX Advisory Committee (DXAC) voted 14 to 2 against a petition to add the Austral Islands and the Marquesas Islands to the DXCC Countries List. Those voting against felt that French Polynesia is not a Point 1 DXCC country, and for that reason these two island groups do not qualify as separate countries under the current DXCC rules.

The DXCC voted 13 to 1 against adding the Balleny Islands to the DXCC Countries List. Those voting against this proposal felt that the Belleny Islands are a part of Antarctica.

Finally, the DXAC voted 14 to 2 against recommending establishment of a DXCC award for contacts made while operating mobile. Many comments stated the impossibility of verifying that contacts were indeed made while operating mobile. It was also noted that all DXCC awards today are based on either mode or band.

DXCC desk

The DXCC Desk reports that the number of unprocessed applications at the end of November was 138, which included some 15,248 QSL cards. The DXCC Desk received 328 applications (29,441 QSL cards) for endorsements and new awards during the month.

WØ QSL bureau

The ARRL and the Kansas City DX Club have reached a mutual agreement on the operation of the WØ QSL Bureau. The KCDXC will continue on with the WØ Bureau operations.

Odds and ends

The *DX Bulletin* reports that the new governor of the State of New York, George Pataki, formerly held the call of K2ZCZ. He is not any relation to the George Pataki, WB2AQC, a contributor to Chod's sister publication, *The DX Magazine* and occasionally ***Worldradio.***

John Reisenauer, NL7TB, is working on a new program, The United States Islands Awards Program (US I), which covers inland freshwater river and lake islands of the fifty states of the United States and selected salt water state islands. John says that the program may be further expanded later, but for now will accommodate a maximum of ten river islands and ten lake islands from each of the fifty states and approximately ten salt water islands from Alaska, Hawaii and applicable coastal state.

I question the "selected" salt water islands, where some count and others do not. John listed the selected Alaska salt water islands, which did not include Fox Island. There appears to be no clear basis for his "selected" islands. I suggest the program be patterned after the Canadian Islands Award, where all islands count with simple requirements.

For further information on this program contact John at Rt 2 Box 2161, Benton City, WA 99320, phone (509) 588-3122.

I received a note from Jim Keller, N2LQQ, commenting on the December DX World regarding Oscar Jimenez, HI8OMA, who was looking for help in getting on 6 Meters. Jim was bothered a bit as he has made several QSL requests to the post office box listed and has never received a reply. That's a good point for several reasons. If he is not receiving his mail we do not want to use that address to send contributions or other equipment. If he does receive his mail and won't reply to QSL requests, then why should the DX committee help him get on 6 Meters? The courtesy of an SASE and funds for postage has always been provided.

Antique QSL Department

John Munroe, W7KCN, provides us with two more antique cards from the estate of Joe Pacquette, KL7PI.

MP4BBE was the Bahrain call of John St. Leger, of the Bahrain Petroleum Company Ltd. The card indicates that the contact was made on 31 March, 1961, at 0357 GMT on 14 MC with a CW report of 559. In 1961 they still were using the terms megacycles and Green-

DX Prediction — March 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	*(10)*	12	**17*	*(9)*	**15*
12	*(10)*	11	**15*	*(8)*	*(12)*
14	*(18)*	**13*	13	*(15)*	23
16	*(22)*	*(12)*	**17*	18	28
18	24	*(11)*	*(15)*	*(15)*	30
20	24	18	*(18)*	*(11)*	30
22	20	23	25	*(10)*	30
24	*(17)*	**25*	29	*(9)*	**29*
2	15	23	30	8	**24*
4	**14*	17	26	8	**20*
6	*(12)*	12	24	10	**17*
8	*(11)*	**13*	**20*	*(9)*	**15*

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(14)*	9	**16*	*(9)*	**15*
10	*(13)*	8	**15*	*(8)*	**15*
12	23	11	12	15	18
14	28	*(12)*	**19*	19	**25*
16	30	*(11)*	*(17)*	18	**28*
18	**29*	*(11)*	*(15)*	16	**29*
20	24	19	*(19)*	*(11)*	**30*
22	20	20	*26*	*(10)*	**30*
24	**17*	*(18)*	29	9	**29*
2	**15*	*(13)*	25	8	**24*
4	**15*	*(11)*	22	8	**20*
6	*(15)*	*(10)*	19	9	**17*

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	14	*(9)*	*(16)*	**9*	**15*
9	*(14)*	8	**14*	*(11)*	**15*
11	26	11	12	17	18
13	30	*(10)*	**21*	**19*	**25*
15	30	*(9)*	*(18)*	**19*	**28*
17	**32*	*(9)*	*(16)*	18	**29*
19	**26*	*(11)*	*(13)*	16	**30*
21	22	*(17)*	*(23)*	*(11)*	**30*
23	**18*	*(18)*	28	10	**29*
1	**16*	*(13)*	*(24)*	9	**24*
3	**14*	*(10)*	22	8	**10*
5	**15*	*(9)*	18	8	**17*

wich Mean Time.

Bahrain now has the A9 prefix. The

MP4 prefix is British prefix that was assigned to those countries in the area, which were obviously under British control. I worked a MP4 several years ago, but couldn't shake loose a card from the guy!

The second card is green with yellow call letters and black printing. This was for a 1960 contact Joe made with FF7AG of Nouakchott in Mauritania, which became an independent and new DXCC country on June 20th of that year. The date of the contact was 23 February, so the card really counts for French West Africa. Lionel de Faultrier was the operator for this 20 Meter phone QSO. The rig was using a 807 running 20 watts.

QSL Information

Jim, N2LQQ, has been trying being trying to get a QSL for a contact with 4U48UN, UN Headquarters Station in New York City that he made well over a year ago. The card was sent to W8CZN, the QSLmanager, with a follow-up card ten months later. I have sent cards via W8CZN and received a reply. However, it could be that the logs have not been sent to him.

Jim also comments on the sending of a green stamp with an SASE for direct reply. Jim says, "QSLing direct into foreign countries gets very expensive. Some of these foreign hams are playing games with us on QSLs. I realize a lot of them are in financial need, but it's not right for them to send a bunch of cards to one of us and expect us to mail them out. It's the principle of the thing and not the 32¢ stamps. I have both received a foreign QSL from a US ham and remailed foreign QSLs that were sent me this way. When we send them a green stamp and an SASE, they should honor it."

Many DXers do not understand that in many countries a green stamp will not cover the return airmail postage. To solve this, many foreign DXers will mail the cards in bulk for posting in another

QSL Routes

3A50LZ	—W3HCW	9Q5IY	—LA1K (See Note 1)
3DA0/W7LN	—W7LN	9Q5LN	—W7LN
3D2XC	—JE1DXC	9Q5ZP	—LA2ZP
4K9W	—DL6KVA	9X/SM5DIC	—SM0BFJ
4U1ITU	—DL3DXX (See Note 2)	9X5EE	—PA3DLM
5H3JA	—AA0OB	A22JR	—N5FDX
5N8NDP	—IK5JAN	A25/W7LN	—W7LN
5R8ED	—LA1SEA	AT3D	—VU2VP
5V7DB	—DJ6SI (See Note 1)	BV/KJ5LL	—KJ5LL
6Y5X	—DJ6QT	BV/WB4IUX	—WB4IUX
7P8CW	—DK7PE	BV4AS	—KA6SPQ
7Q7WB	—W7LN	C6/G4VXE	—G4VXE
8P9CT	—KB9EKO	C6AHX	—WA4WTG
8P9CU	—K9JJR	C6AHY	—WA4WTG
8P9DC	—K9JJR	CE3F	—LU8DPM
8P9HX	—K5GN	CO6AP	—W3HCW
8Q7BX	—I4ALU	CO7KR	—DL5DCA
8Q7XO	—DL7UTM	CR3X	—DL5EBE
9G5AA	—G3SXW	CR7DKG	—W7LPF (See Note 4)
9G5AR	—N7BG	CS7P	—CT4NH
9G5JL	—K7GE	CT1DKG	—W7LPF (See Note 4)
9G5JR	—WA7LNW	CT1FDD/CU3	—CU3AV
9G5MF	—KC7V	CV5A	—CX7BL
9G5MT	—WY7K	CW8B	—LU8DPM
9G5RF	—GM3YTS	CX9CW	—LU8DPM
9G5SX	—G3SXW	CX7BF	—CX1AA
9G5WH	—KF7AY	CX7BY	—W0IJN
9K2F	—9K2RA	CX8BBH	—LU8DPM
9K2MU	—WA4JTK	D2/C91AM	—W7LN
9M6NA	—JE1JKL	D2RU	—GM0FET
9N1WT	—OE7KWT	D2XX	—PA3CXC
		EA1AHP/P	—EA5OL
		EA5FVL/P	—EA5OL
		EA6/DL2DN	—DL2DN
		EA8AFG	—EA8AM
		EL2PP	—N2CYL
		EV1F	—UC2AFC
		EW1MM	—W3HCW
		FK0P	—F6AUS
		FO0TSK	—JK4VSE
		FR5HB	—F6FNU
		G0SHN/HK4	—F6AJA
		G4VXE/C6A	—G4VXE
		GB0DH	—G0LRE
		H5ANX	—A22RS
		HB4FG	—HB9ALM
		HC8KU	—DL5XX
		HC8N	—AA5BT
		HS0AC	—G0CMM
		HS0ZBI	—NW3Y
		HT5JC	—F6FNU
		HV0XX	—I0WDX
		HV3SJ	—I0DUD (See Note 3)
		IT9AXZ/P	—IT9AXZ
		IT9HLR/P	—IT8HLR
		IT9LOR/P	—IT9LOR
		J28BS	—F5PHW
		J68AH	—AC0S
		J68AR	—K9BQL
		J79AA	—K4BAI
		J79JS	—G4WVX
		J79VX	—G4WVX
		J79WD	—AC1O
		J79XM	—K1XM
		J79YL	—KQ1F
		J88CJ	—V44KAO
		KP2/WB8VPA	WB8VPA
		L50D	—LU8DPM
		LP3C	—LU3CF
		LZ7N	—LZ1NG
		NP4Z	—WC4E
		OE8Q	—OE8KDK
		OL9ERO	—OK1MD
		OH0/N0AFW	—N0AFW
		OT4T	—ON4UN
		P0RR	—PP5JR
		P29KH	—WD9DZV
		PA3EVJ	—VE3MR
		PJ6/N4UYU	—N4UYU
		PP0F	—PP1CZ
		PQ0MM	—PP5JR
		R9WA	—W3HCW
		S79KMB	—KN2B
		T20XC	—JE1DXC
		T30XC	—JE1DXC
		T31BA	—DL2ZAD
		T31BB	—DF6FK
		T32A	—JA5EXW
		T32J	—JR5JAQ
		T32O	—JF4LNO
		T32Q	—JR4QZH
		T32X	—JA4GXS
		T77BA	—T70A
		TA0/UY5XE	—SP8BIA
		TI2IDX	—WA9BXB
		TI5NW	—WB3LUI
		TI5NW	—WB3LUI
		TL8NG	—WA1ECA
		TM4TEL	—F6KLS
		TM5PTM	—F5PTM
		TM5T	—F6KCE
		TM5TON	—F6BSL
		TM8TEL	—F6KLS
		TO0P	—F6BFH
		TO6SAX	—F2WS
		TU4EI	—W3HCW
		TU4SR	—OH8SR
		TU5EV	—W3HCW
		TY1/ON5GA	—ON5GA
		UA2FCB	—DK4JF
		UA9XS	—W3HCW
		UK8BBB	—I0WDX
		UK8OM	—RW6HS
		V31MF	—K5AZ
		V31MX	—K0BCN
		V31MY	—K5AZ
		V31OB	—WN0B
		V31RY	—WN0B
		V47AD	—K4ADK
		V47NF	—WB8GEX
		V47NS	—W9NSZ
		V47W	—AB4JI
		V47WK	—AB4JI
		V47WZ	—WZ8D
		V51WL	—W7LN
		V73Y	—WA4WTG
		V77Y	—KL7Y
		VE3MJQ/9X5	—VE2PR
		VI0ANT	—VK4BMD
		VK0IX	—VK5IX
		VK8BW	—ZL2RR
		VK9XX	—JA2JPA
		VP2V/WA2VUY	—WA2VUY
		VP2VI	—AB1U
		VP5P	—WB3DNA
		VP5R	—N2VW
		VP5Y	—K4UTE
		VP8CQO	—CE8ABF
		VP8CQQ	—LU8DPM
		VP8CQR	—DL1EHH
		VP8CQS	—DL1EHH
		VP8VW	—W8TPS
		VQ9QM	—W4QM
		VS6VW	—K0TLM
		VS6WO	—K9EC
		W7LPF/DU2	—W7LPF (See Note 4)
		WB8GEX/VP5	—WB8GEX
		XE2MOO	—KD5RQ
		XE2XA	—K5TSQ
		XF4M	—AA6BB
		XN0OX	—VY2OX
		XQ8ABF	—LU8DPM
		YM0I/P	—SP8BIA
		Z2/W7LN	—W7LN
		ZB2X	—OH2KI
		ZD8OK	—N8ABW
		ZF1A	—K9LA (See Note 2)
		ZF2AH	—WA6VNR
		ZF2AY	—K9LA
		ZF2QM	—W6OSP
		ZF2RF	—K4UVT
		ZF2RO	—JH1ROJ
		ZF2VG	—K4UVT
		ZL7AMO	—ZL1AMO
		ZP5XYE	—JA7ZF
		ZS6WLN	—W7LN
		ZW8JR	—PP5JR
		ZZ5AVM	—PP5JL
		ZZ5LL	—PP5LL

country where the return postage is less costly. I assume that the costs were absorbed by the DXer sending the cards in bulk. If you received cards without postage for remailing, it could mean that the original DXer never included funds or SASE. If he kept the green stamp and forwarded the cards to be remailed at someone else's expense, then that is another story. There are many DXers who just say, "so what does it matter? You got your card!" I kind of lean that way. How many times have you sent a green stamp and SASE, and never receive anything?

4K9W —Axel Schernikau, P.O. Box 1102, D-18217 Kuehlungsborn, GERMANY

7X5JF —Moktar Bensmain, c/o Dr. Ammari, 9 bis Rampe Louni Arezki, 16019 Algiers-Kettani, ALGERIA

BA1CY —Chou, P.O. Box 6111, Beijing, PRC

CN2AR —Sjoerd Quast, P.O. Box 82, Afilah, MOROCCO

DU1KK —Dick Kwiatkowski, American Embassy (IM), APO AP 96440

EL2NC —P.O. Box 2751, Monrovia, LIBERIA

JI7BCD/JD1—Seizou Ishizawa, 13-40 Sakuragi-chou, Mutsu-city, 039-51 Aomori, JAPAN

JO6HYO —Akimitsu Baba, Kenkyosai 402, 328-6, Seisui, Setouchi-cho, Oshima-gun, Kagoshima 894-15, JAPAN

JW0 I —P.O. Box 280115, D-13441 Berlin, GERMANY

LR2Z —P.O. Box 81, 9410 Ushuaia, TF, ARGENTINA

LS3Z —P.O. Box 96, 9410 Ushuaia, TF, ARGENTINA

TL8UB —Urs, P.O. Box 7, Alindao, CENTRAL AFRICAN REPUBLIC

V31ER —Emil Rodriguez, 19 Joseph Andrews Drive, San Ignacio, Cayo District, BELIZE

V31VW —Vancouver Mountain Radio Club, P.O. Box 1622, Vancouver, WA 98668

V44KAO —P.O. Box 827, ST KITTS

VP8MAR —Nigel, Halley Base, Port Stanley, FALKLAND ISLANDS

XU1MF —M Fukuda, P.O. Box 961, Phnom Penh, CAMBODIA

YS1JRG —P.O. Box 32, San Salvador, EL SALVADOR

ZA1AJ —Vit Kungar, Ambassade de la Republic Tcheque, RRUGA Skenderbeu 10, Tirana, ALBANIA

ZA1AJ —Vit Kuncar, OK2ZW, Havrice 292, 688 01 Uhersky Brod, CZECH REPUBLIC

ZF2VW —Vancouver Mountain Radio Club, P.O. Box 1622, Vancouver, WA 98668

ZY1UP —John Mendonca, P.O. Box 3100, 20001-970 Rio de Janeiro, RJ, BRAZIL

NOTES:

1. This manager requests direct only. Do not QSL via the bureau.

2. This route is valid for the Worldwide CW Contest only.

3. Include 2 IRC for airmail return or 1 IRC for surface return.

4. To QSL direct, use Joseph Lutz, U.S. Mission - Geneva,

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Many thanks to the following contributors: DU1KK, PS7AB, N2LQQ, K5AZ, K7GHZ, W7LPF, NL7TB, K8SJ, AH0W, Western Washington DX Club (WA0RJY), Western New York DX Association (KB2NMV), 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).

Conditions on the bands during 1994 seemed to have gone from bad to worse. I sure hope that 1995 brings some good openings. It is a good time to get out those delinquent QSL cards and to check them over for the various operating awards. Those of you involved in the IOTA program should be aware that some additional IOTA groups have been created. Check your files as you may have some of them already confirmed. And, remember, the start date for IOTA is the same starting date as for DXCC. Very 73 es GL DX!

de John N6JM WR

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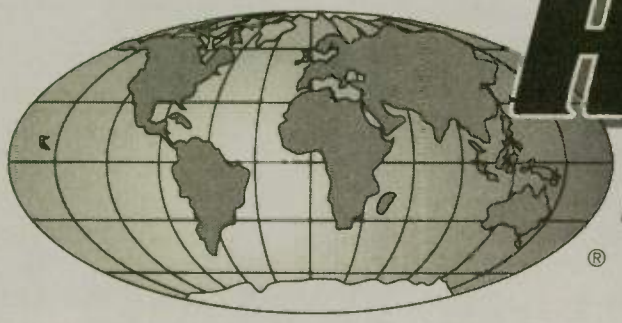

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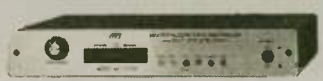

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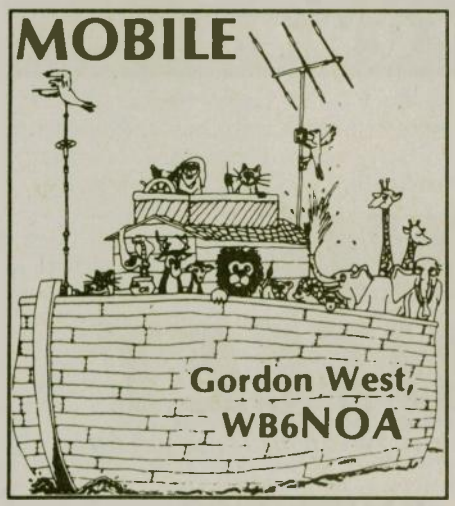


GPS on land and sea

The Department of Defense has now declared the global positioning system (GPS) officially operational, with all 25 satellites sending out telemetry in their mid-earth orbits. There are 6 orbital planes, 4 satellites per orbit, giving us 24-hour-a-day position finding capabilities on land and at sea to a minimum of 4 satellites in view.

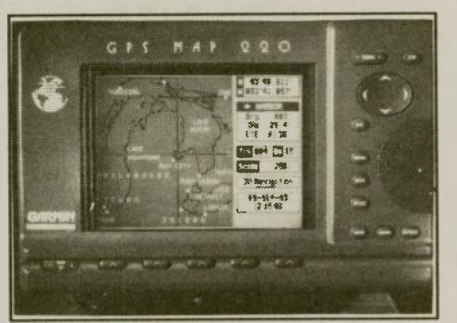
The least expensive GPS receivers are found in the marine marketplace. Twenty-five different GPS manufacturers continue to wage price wars which have resulted in portable GPS prices dropping down to $350, and chart display GPS at around the $1,000 mark.

The GPS receiver in both portable units as well as chart versions tunes into the satellite spread-spectrum transmissions at 1575.42 MHz, SPS Channel L1. The GPS receiver calculates real time, satellite time, and the time delay in receiving the spread-spectrum data stream. The calculation of time delays from 3 or more satellites in a known position is called trilateration, and this is interpreted as a 2D or 3D readout of latitude and longitude on the display screen of your GPS equipment. On GPS chart recorders, the readout also includes a blinking X with a chart or map surrounding your position. All this happens within one minute of turn-on, and as long as your GPS antenna unit has a clear shot at the sky, it will continue to update your position every 2 seconds.

Position accuracy is 300 feet 95 percent of the time. This works out to be 170 nanoseconds time accuracy. For mariners, 300 feet is close enough to get them safely to the harbor entrance, but not necessarily accurate enough to carefully navigate down a very tight channel.

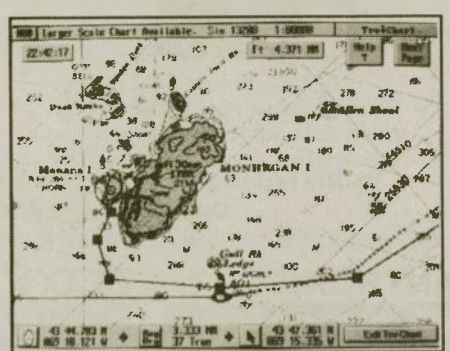
For GPS use on city streets, a 300 foot error could put you just about a block away from your true position. But the error is corrected by reference stations called "differential beacons," and with the right differential receiver, your position now resolves down to an accurate 10-foot circle!

For mariners, the U.S. Coast Guard offers differential signals on the 200 kHz-500 kHz RDF band. If you use GPS near a major ocean or river port, chances are you can receive the Coast Guard differential signals "free of charge" on the airwaves, with an additional $500 DBR add-on.



Marine GPS doing double duty in vehicles.

Most major cities will also offer differential corrections to GPS for hire. The differential signals are piggybacked on the FM subcarriers of FM 88-108 MHz transmissions. Accuracy gets down to inches—far better than the Coast Guard system—but every month you might pay up to $75 for this GPS correction signal.

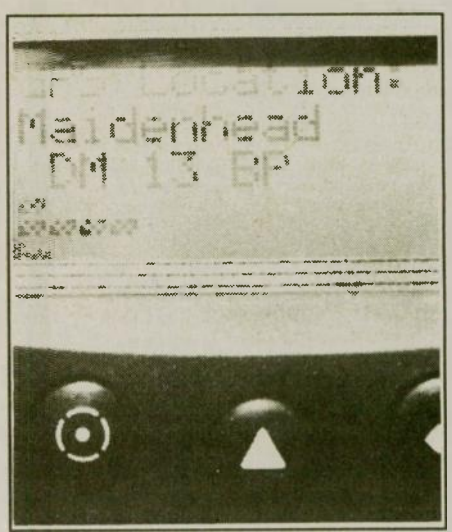


CRT screen with full mapping in a Windows™ format.

But driving around the country doesn't necessarily require differential corrections — 300 feet is plenty close enough for spotting your position on highways and big roads. One marine GPS manufacturer, Lowrance (800/538-0775; Model GPS1000), includes USA highways as part of its mapping readout. It also takes "C Map" cartridges for detailed marine charts for boaters. This set is ideal for motorhome use while traveling throughout the country.

The Lowrance Globalmap 1000 includes road maps too!

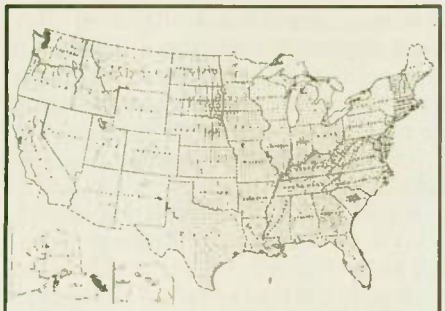
If you have a lap-top computer, you can load in a city map program from Delorme (207/865-1234) and spot yourself down to the city street and alley level. And even without differential corrections, you will always find yourself within just a few driveways worst-case of what your real position is. And many times, it will be spot-on!



The Trimble Scout™ does grid squares, latitude and longitude and Thomas Bros. maps.

And if latitude and longitude in hours, minutes, and is all you want, and you have marine charts or street maps with latitude and longitude lines for spotting your position, a little handheld GPS on your next camping trip or boating cruise will quickly show you where you are, 24 hours a day.

And if you are a county hunter or grid square collector, check out the Trimble Scout GPS (408/481-6055) and watch the grids go by! WR



County Hunter

Ace Jansen, N3AHA
1234 Thommill Way, San Jose, CA 95121

Well, it happened! After five years of wondering and worrying, it actually happened! Someone broke into my van and stole my radio equipment. It was something I had feared for the last five years, but didn't take extreme caution to prevent. Gone is my Kenwood TS-440SAT HF radio and Kenwood SP-41 mobile speaker. Gone is my Kenwood TH-215 2 Meter handie talkie, Kenwood SMC-32 speaker/microphone, and Kenwood PG-3E cigarette lighter power cord. Gone is the Heathkit keyer/paddle that can't be replaced. Gone is my mobile SWR meter, MFJ 24-hour clock, lightning arrestor, power cables and coax. I was completely wiped out! It was a terrible experience; from discovering theft, to filing insurance claims, to making a decision on repurchasing new radios. You should do everything you can to prevent being...

Robbed!

It was November 30, 1994 — a normal day. I kissed my wife and two-month-old daughter and left for work. When I walked around the van and saw the driver's side window smashed, my heart dropped. I looked in the van and confirmed the obvious...everything was gone. Thoughts of violation and anger prevailed. I called the police department and filed the claim and requested an officer visit to fingerprint. The officer arrived soon after and promised us he wouldn't find anything, and he didn't. In the back of the van, I saw more damage— a side panel in the van and the battery cover were removed so the bad guys could follow the coax and power cables to their origin. It was obvious at this point; these crooks knew what they were doing, and spent long enough in the van to complete the job. They obviously were sure no one would detect them.

Insurance

Then came the task of filing insurance paperwork. Ironically, or expected according to Murphy, I had dropped the ARRL ham radio insurance in January 1994 after nine years of paying premiums. I had dropped the insurance because my auto insurer (USAA) and renter's insurer (USAA again) assured me that my radio equipment would be covered under one of the policies. After a call to USAA, I was assured I was insured and filed my claim. It took some time though, because I had to first remember what was in the van, radio equipment and miscellaneous personal "stuff." Then I went to the Sunnyvale, California, Ham Radio Outlet and got a quote for replacing all my equipment. USAA was great and paid exactly what HRO quoted.

Buying new radios

Now, the dilemma moved to the next phase; I had money, but no radios. I had to decide if I wanted to buy a Kenwood TS-450SAT and the Kenwood TH-28A HT (which were the radios I used for the quote) or something different. In the end, I bought a Yaesu FT-900AT for HF and the Kenwood TH-22AT HT for 2 Meters.

I was in Delaware for Christmas vacation, and went to the New Castle HRO. I told Kent, KD1IJ, my sad story and I discussed how I planned to use the radio, i.e. for county hunting. I told him I needed to operate SSB and CW and needed to change frequencies quickly. I also told him I needed to operate split to contact DX. After about 45 minutes, I chose the...

Yaesu FT-900

If you have to make a mobile HF radio decision between the Yaesu FT-900AT and the Kenwood TS-450AT, here are the reasons I decided on the Yaesu 900: 1) the Yaesu has a built-in keyer although if the front panel is detached from the radio, the keyer speed control is not convenient. 2) the frequency readout is a high contrast backlit LCD (needed for mobile operation to prevent the sun from wiping out the readout...a problem I've always had with my Kenwood display), 3) less line noise sensitivity (Kent and I did a noise test using separate antennas and no antenna and determined the Kenwood to be noisier). 4) the Yaesu's antenna tuner automatically tunes as you change frequency (the Kenwood tuner must be activated and turned off), 5) the radio looks more rugged—like it belongs in an Army jeep (the Kenwood looks pretty like it belongs in a shack), and 6) the Yaesu is smaller than the 450, though not as small as the Kenwood TS-50S.

HT decision

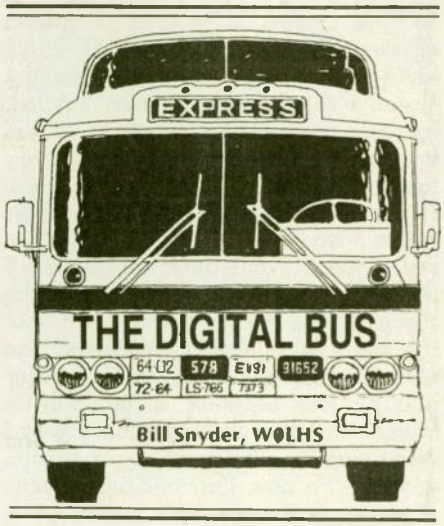
The HT decision was tougher. I pulled out the Kenwood TH-22AT, the Kenwood TH-28AT, and the Yaesu FT-11R and compared features. The major differences were the Kenwood TH-28AT has 440 MHz receive capability and the Yaesu FT-11R has a backlit keypad, more memories and other features. This decision took me an hour, it was very frustrating and Kent was very patient. I decided to purchase the TH-22AT because I saved $70 over the other two radios and I avoided a lot of features I probably wouldn't use. I compared the three options by considering the cost of the radio with a speaker/microphone and cigarette lighter power cord. After making this decision, I had a little buyer's remorse and questioned why I was using an HT for mobile operation anyway. So now I'm considering purchasing a 2 Meter mobile radio too!

Lessons learned

Although everything was covered minus a small deductible, it sure is a hassle to replace everything and reinstall it...PLUS learn how to operate new radios. Yes, it's a new toy, but it's a little extra time away from other things. Here's what I learned and hopefully you can learn from my mistakes:

1) Don't leave an unusual antenna on your car like I left my multi-resonator Hustler antenna on the van. The police officer said the antenna was a big advertisement to thieves. I even had a quick disconnect on my Hustler mast, but didn't remove the antenna every day. 2) Install your radios with quick release mounting kits to make it easier to remove your radios. Covering the radios with a cloth isn't good enough. 3) Park in your garage. This means you've got to take off the antennas and clean up the garage to make room for cars. 4) Install a car alarm. These things are a nuisance when they go off for no reason, but they can be a very effective theft deterrent. 5) Pay for insurance and don't worry about it. That's what insurance is for, right? Hope you take these lessons learned and become a little more cautious and avoid being robbed.

Well, I'm on the air again, and a little more cautious about how I leave my car and the radios. Hope to hear you on the County Hunter's Net in March as I drive cross country — I'm relocating from northern California to northern Virginia in mid-March. Until May, happy hunting! 73, Ace. WR



Writing a column like this is fun, although some days I dread looking at the blank computer screen and wondering what I am going to put in the empty space. Today I have a lot of things that are boiling around in my memory because I'm starting this column on my 62nd anniversary as an active ham operator.

During those 62 years I've collected a pile of log books, with only one or two missing. I feel bad about one particular missing log, it's the one that contains my first years (1953 on) on RTTY.

RTTY for me started on 40 Meters. At that time I owned a Collins 32-V-2 transmitter, a Hammarlund HQ-129 receiver, and a long wire Zepp antenna. In June 1952, I returned to my ancestral home after an active duty stint in the army Signal Corps and started working for a radio station that was going to go on television. Prior to that I had been working in California.

When my father died I moved back to North Dakota to help my mother, and then I went on a short tour of active duty with the army reserve. I got the TV job because of my film experience, and that put me back in the ham shack of my high school and college days.

If I had that first RTTY log book, I'd be able to refresh my brain about all the contacts I made on 40M with that old Model 12 Teletype machine that shook the house when it pounded out copy. I was the only ham in the area that owned a Teletype machine in those days, and I couldn't go on the air because the FCC had not authorized frequency shift keying (FSK) on the HF bands. It was okay on 2 Meters, but there was no one with whom to communicate on that band, so I sat for four months with the whole RTTY package ready to go on the air when the FCC turned us loose.

If a ham wanted to try RTTY in 1953 he had to own a Teletype machine; the microcomputer had not been invented. Cheap TTY machines were hard to come by. Old Model 12s were slowly becoming available, but the 12 was a monster. Most smelled of oil and were drenched with it, but they were built like a battleship, and they worked.

My World War II years with the 58th Signal Battalion had exposed me to the more modern TTY machines. I became familiar with the innards and wire use of the Model 19, but I knew little about radio links and frequency shift transmissions. Nevertheless, I was interested.

I ordered my Model 12 through W2NSD in New York; he had a contract to distribute used machines from the Associated Press offices as they were replaced with later models. I also got tuning unit plans and filters from the same ham operator so I could be ready to go when the machine arrived. I was lead to believe it would take time to get a machine.

While waiting to work for WDAY television, I spent the summer working at the WDAY radio transmitter as summer vacation relief. In those days a station had to have an operator on duty all the time it was on the air. I held both 1st Phone and 2nd Telegraph FCC tickets, so I filled in for vacationing operators.

Watching a radio transmitter is like watching the Grand Canyon erode deeper. It's boring, so I took advantage of the work shop at the transmitter and started building the RTTY tuning unit. With nine hours a day just watching dials and making log entries, I really went to work on the TU.

It was a work of art with bells, whistles and a power supply with which one could probably weld railroad rails. When it was finished, I plugged it into the Hallicrafters receiver in a rack near the transmitter console and tuned for RTTY signals. There were plenty of them, but all I could do is watch the polar relay reed flip back and forth in time with the incoming signals. I had heard nothing from the Model 12, so I sat and watched the polar relay and wished for a machine.

I learned one thing from watching the reed: when I first turned on the receiver, I had to keep tweaking the dial to keep the reed buzzing. The TU filters were really sharp, so if the receiver drifted slightly the TU relay reed quit clicking.

In August the railroad freight office called to say there was a shipment of electronic stuff from Chilicothe, Missouri to be picked up. I was excited; the machine had arrived and my $55 order was filled. I hauled the big boxes home and parked the greasy machine in the ham shack. The grease had soaked into the wiring harnesses, so I did a bit of cleaning — a lot of cleaning would be a better way to say it.

The next move was to hook up the RCVR, the TU, and the machine. The Model 12 worked fine from the keyboard, but when I tuned in a RTTY signal on the HQ-129, everything quit. I'd get the polar relay clicking in fine style, flip on the machine, and nothing but garbage printed out. Key clicks were doing me in.

The seven magnets in the 12 were

putting out key clicks of about 9 on the Richter scale. I was disappointed, but there was one ray of hope. I accidentally tuned in a Canadian military station near Winnipeg; it had a giant signal and when I flipped on the machine it started to print code groups that were perfect. Now I was really excited, the blamed TU really worked!

Licking the key click problem was fairly easy; I built a vacuum tube keyer with seven tubes, one for each magnet. I used tubes that would handle the current easily and mounted the thing on the stand that held the Model 12. Now I was in business — but I couldn't talk to anyone because there were no other locals with interest in RTTY. They were all CW or AM phone addicts.

My ham shack became a show place; all the hams in town came over and watched the aged Model 12 hammer the foundation of our two-story house. In between working on the design of our television station building, I was putting on demos of a Teletype machine copying press, code groups and weather. It was fun!

Wayne Green was minding a column in *CQ* magazine during those early RTTY days. Merrill Swan, out in California, had the *RTTY Journal* started, and he and Green were keeping the RTTY fans supplied with knowledge on what was happening at the FCC offices in Washington.

The FCC gave the green light for frequency shift keying on the HF bands for a late weekend in February, 1953. I had modified the oscillator of the Collins 32-V-2 to shift the frequency 850 cycles, the only shift allowed. It was a simple addition to the circuit. I was ready for the opening — I felt like a avid fisherman does each spring, at last I was going to get a chance to work someone on the ham bands.

I didn't make the first day, but I was there that first weekend. If I had my log of that time, I'd be able to tell you who was the first one that I worked, but I can't remember that stuff today. I worked Merrill Swan, I remember that fairly well, and I worked both coasts. North Dakota was on the RTTY map.

The only document I have to show that I was there that weekend is a copy of the April, 1953 *CQ* magazine. In Wayne Green's column he lists the early bird stations, and my call is there!

I gave many stations North Dakota for WAS RTTY. Boyd Phelps, WØBP, was the first ham to get that ARRL award on the RTTY mode, and I feel honored to be his ND contact. I was the only RTTY station in North Dakota for a long time, and I guess that was the high point in my 62 years of ham radio operation.

Last month I told of getting messages from ZS1AFZ via packet. At the time I wrote that column I had received six messages from Maria. She finally sent me ten messages. The first six arrived in sequence, but the last four didn't. Isn't it funny, I got ten out of ten messages from South Africa, but out of 33 USA hams who said they sent ten messages to me — one a day for ten days — only three hams managed to get all ten to me, and none of them came in sequence. Maria's messages came via the SATGATE in Winnipeg and were only handled by six BBS stations. The more BBS stations that handle a message, the better the chances are that some will be lost.

EAVESDROPPINGS

SANTA CLAUS DIDN'T BRING ME ANYTHING THIS YEAR — HE JUST TOOK MY MONEY...HE COULDN'T FIND THE PACTOR HELP FILE WHERE IT SAID HOW TO LISTEN IN ON THE MODE...PACTOR SEEMS TO HAVE MORE GRAPHICS FLYING THROUGH THE AIR THAN ANY OTHER MODE...I'VE BEEN THINKING OF GETTING A COLOR PRINTER, BUT I THINK THIS PACKET SYSTEM IS RUNNING IN BLACK AND WHITE...THE BEST THING ABOUT THE BASEBALL SEASON LAST YEAR WAS THE ABSENCE OF THE WORLD SERIES...IF THAT COULD ONLY HAPPEN TO THE HOCKEY SEASON, I'D BE HAPPY TOO...MY KIDS ARE POWER STRANGER ADDICTS, I THINK THAT IS WHAT THEY CALL THEM DOLLS...THE BANDS ARE GOING DOWNHILL FASTER THAN NEW COUNTRIES ARE SHOWING UP FOR DXING...I WONDER IF THERE IS SOME WAY WE CAN SPEED UP THE SOLAR CYCLE AND PLUG UP THE HOLE IN THE WHATEVER HAS A HOLE IN IT SO DX WILL GET BETTER...

Write me: Bill Snyder, WØLHS, 1514 South 12th St., Fargo, ND 58103. My packet address is WØLHS @ WØLHS.#SEND.ND.USA.NA. 73 and DIT DIT. **WR**

Basement rescue

Dot Bishop, VK2DDB's OM John, VK2ZOI, boasts he "shows no remorse about not having Morse." He found that it is a useful mode. Especially when he is locked in a room under the house with the door double-deadbolted and the key on the outside.

Unable to be heard yelling at the top of his voice, he had to resort to using a piece of 2x4 against the floor joist—sending CQ CQ SOS. Rescue was swift! —ALARA *Newsletter*

Search And Rescue Communications

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

A couple of weeks ago, the Civil Air Patrol's mountain repeater indicated an emergency locator transmitter had tripped. Looking outside at a snow storm moving through the area, our first assumption was the wind had bounced a plane at one of several airports and triggered the ELT.

Acting on this premise, the on-call mission coordinator asked for volunteers to check local airports to silence the signal. I live about 10 minutes from a popular military and general aviation strip so that's my usual assignment. Often it's a small plane that has just touched down or a military chopper that got buffeted in the wind. As I began to head out the door, I grabbed my cold weather gear and the "extra" radio bag. My son wanted to come along to the airport, so he got his heavy coat too.

Checks of local airports didn't provide any ELT signals, but one CAP member could hear the signal and got a bearing from a subdivision in the Salt Lake foothills. As we headed West in a snowstorm the signal got stronger. Moving into the next county, the mission coordinator gave us the Air Force mission number and passed along initial coordinates from the SARSAT (one of several satellites that monitor the ELT frequency).

Pretty soon it's late, it's cold, it's windy and we're sitting on top of a mountain awaiting sheriff search teams, a military helicopter and a CAP plane. The weather cleared and it got pretty hectic setting up a landing zone for the chopper, handling communications relay from ground teams and an aircraft. One of our CAP teams continued to track the signal in coordination with the CAP plane and the military chopper.

During the effort we used aircraft frequencies, sheriff frequencies, CAP frequencies, a cellular phone, and Amateur Radio frequencies — all stuff from the "extra" radio bag I'm glad we brought! The cell phone worked either high on the mountain or in one or two hot spots. The sheriff team was impressed that we could track the signal, communicate on a number of independent frequencies, and were prepared for the weather.

Seven hours later, we got home in the early hours after helping track the signal to a plane crash that killed four people. The site was near the top of a rugged mountain and would require some intensive technical rope work to do the recovery and investigation.

What can we learn from this mission? As with other emergency signals, you cannot write it off as a false alarm. Had the crash been survivable, I know there would have been a good chance of rescue despite harsh weather conditions.

Once you're underway, it's too late to go back and get something you forgot. Having the aircraft radio and public safety radio was very helpful. It's quite a security blanket to be able to talk to people when they're out in the dark and in some pretty challenging terrain.

If your gear isn't checked and your batteries are not fresh, it's is too late to correct the problem on the mountain. Our DF gear worked as it was designed to work. When we got home, it got a cleaning and some fresh batteries. We had spare battery packs, food, warm clothing, extra fuel and antennas. If snow had prevented us from leaving the back country, we would have been OK for several days.

We were also part of a team. The team wasn't just the CAP members in the field, but included the mission coordinator, the people plotting SARSAT hits, Amateur Radio operators who relayed some information, the sheriff dispatchers, the aircrews (CAP and military) and the sheriff ground teams. We were able to provide a communications link between these groups and each was critical to the mission.

It is important that each part of the team is prepared but it is critical that all members of the team recognize each others' importance to the mission. I was impressed that the sheriff team was supportive of our involvement in "their" jurisdiction. We all shared information and support.

One other observation was the level of trust between everyone involved. When we took a bearing, or the other team took a bearing, there was no discussion as to skill or accuracy. The sheriff team had worked with the CAP enough on past missions to know there was high reliability in the information we provided. When the sheriff got the military involved by requesting a chopper, the Army crew had high lev-

els of trust and knew the request was urgent.

The only way you develop trust is over time and through honest interactions. If you're trying to put on a show to convince someone you have skills that don't exist, you'll be discovered. When you work with others you develop trust by observing and working together. There are some air crews with whom I will not fly, and there are some communicators I would not want on the air to relay critical mission traffic. Most of these people will boast of their expertise and how they've taken the fast track to expertise. It isn't that easy! Expertise comes with practice and effort.

Take the time now to prepare. Preparing and training doesn't happen on the way to the field.

Even though I am a proponent of radio communication skill and preparation, having cellular phones available was handy. The deputy sheriff and other mission teams used this as another way to make the effort effective. The coverage wasn't "downtown" but it was another tool used effectively. Don't rule out anything in an emergency — use what you have to benefit your purpose for being there: The crash victim. You want to give them the best chance at surviving!

Be careful!

A news item yesterday told of a man who tried to clean his toilet with a wide variety of household chemicals. As they mixed, the man was overcome by toxic fumes released as the chemicals mixed.

Several rescuers were treated for inhaling the toxic fumes. Rescues happen because someone got caught by an unexpected event. That event is usually harmful and potentially fatal. When you respond in ANY capacity, don't get caught up in the mechanics and forget to use common sense.

Look around! Evaluate what caused the emergency. If a plane crashed in bad weather it's just as dangerous to the search crew as it was to the downed pilot. If people are being evacuated from a chemical leak, it's as much a hazard to an Amateur Radio team as it is to everyone else.

Wandering around giving weather observations doesn't exempt you from lightning strikes or getting hurt in high winds. Be careful! Last year a highway patrol trooper was hit and killed while directing traffic and several years ago a good citizen was struck while helping someone change a tire on the freeway.

Look at the risks when you respond, be prepared and know your limits. The worst case rescue in my book is having to rescue the rescuers (or attend their funeral). You're important! You're needed for the next rescue. Don't take chances.

Pocket guides

Several months ago I asked if any of you had suggestions or examples of pocket guides. A number of readers offered suggestions and samples arrived by mail. The two samples are larger than a shirt pocket but are outstanding examples of on-the-spot help for communicators.

One of the guides was done for California's Alameda County; it is called the *Instant Trainer Emergency Manual*. I like the "instant trainer" title. This manual was prepared by David Hunt, KB6JAW, and Syd Furman, W6QWK. The second guide is from Sonoma County (also California) and is credited to Darlene LaMont, KD6GCK. It too is quite outstanding!

Here's what they contain that I feel is most desirable for a pocket guide:

Emergency net procedures — How to check in, what information is important, what types of nets occur (resource, command, support, etc.) and important terminology such as "tactical call" and "precedence."

Frequencies — Where will you find emergency operations including VHF, UHF and HF? An area map shows towns and frequencies for command and backup and has frequencies for nearby groups you may need to use to relay messages outside your area. It is also good to know the Amateur Radio band limits and neighboring area frequencies.

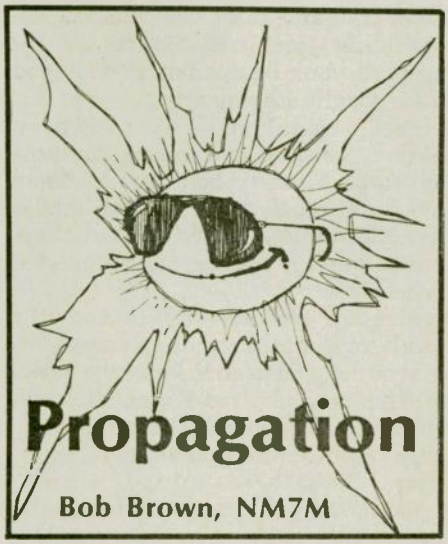
Supplies — You should have a jump kit or grab-and-go kit. Checklists developed over time are valuable as you prepare your equipment and as you leave for the staging area.

Packet operations — If you will be on packet, there are some special concerns as to type of bulletin board to expect and available routing paths. Both guides list information needed for packet operations and procedures to get connected properly.

Message formats — Whether your local group has a special message format or not, you need to know the basics of sending traffic. You also need to know the ARRL format and how to get messages ready for relay on national traffic nets.

Other standards — Both books also detail their power connector standard and procedures unique to their organization. When we respond for the first time or under stressful conditions, it's easy to overlook details or forget special procedures. Be sure to include "specials" in your manuals.

I'm still looking for a shirt-pocket size notebook for Amateur Radio emergency responders! My ideal is similar to emergency medical guides advertised in many rescue magazines. These fit in a shirt pocket have about 30 pages and are spiral bound along the top. Stay tuned for more suggestions! Someone (besides California) must have some pocket guides. Let me know what you have — together we can determine what the "ideal" will be. **WR**



It's pretty well accepted that Bob Hope was the person who gave a boost to "one-liners" as a form of humor. But humor is not the only style that goes with such brief expressions. If my memory serves me right, there's a classic line in the works of Charles Dickens where Oliver Twist was told "Be grateful, you ungrateful wretch!" on being given a bowl of porridge. Being non-specific, a statement like that can cover a wide range of topics.

Take the geomagnetic field. Dickens' words would apply there to all those who complain about the effects magnetic storms, myself included. Just think what the earth's magnetic field has done for us over the centuries, guided all sorts of people in their travels - Chinese warlords in the years B.C., the Great Navigators around the time of Columbus, the Arctic and Antarctic explorers, even Boy and Girl Scouts in our time - as well as help stabilize satellites in their orientation and, most importantly to us, it holds our precious ionosphere in place.

If that last idea is "news" to you, you probably didn't read my column in the December '94 issue of ***Worldradio***. There, I pointed out how the geomagnetic field not only "traps" electrons, in the ionosphere and Van Allen's radiation belts as well, but also how it helps maintain the F-region at night when the sun no longer ionizes the atmosphere.

Of course, there is the "down-side" to that idea, magnetic storms ripping up the high latitude field lines and taking our precious electrons along for the ride. So face it, "for better or worse," our fate as radio amateurs is tied to the state of the geomagnetic field; as Dickens would say, "Be grateful, you ungrateful wretch."

The geomagnetic field, however, is not what would be called a "stay-at-home" creature, wandering and changing in the course of time, right now and back in geological ages. In simple terms, we describe the earth's field by giving its spatial orientation relative to the geographic axis and its strength, both in terms appropriate to a magnetic dipole.

As for wandering, in the last hundred years or so, the dipole axis up in the Canadian Arctic has wandered from 70 N, 263 E in 1831, to 77.4 N, 257 E in 1984. And over geological time, it has wandered to a greater extent as the study of paleomagnetism shows some exotic orientations of the dipole axis. The latter are too spotty and remote in time for us to get excited about, so we'll just stay with the present era which is well-documented by the use of sound scientific methods.

Now the geomagnetic field is the sum of the field of internal origin and ionospheric currents, with the internal field being the largest of the two contributions and the one responsible for the pole wandering. At the moment, the mapping of the field is the task of the Defense Mapping Agency in Washington, D.C. and they publish a series of maps (36"x 54") every ten years, the 1985 Epoch being the most recent one. The maps show all the features of the surface field — total intensity, its horizontal component, vertical component, declination and dip — on Mercator projections as well as the same information on polar diagrams for those regions.

But this sort of thing got going in a big way back in the 1800s and now we know that the strength of the dipole is weakening, dropping about 5% per century. That's shown in figure 1 where the strength of the dipole, in ampere-meters squared, is shown for the last 150 years. But fear not; just because it's dropping about 5% per century does not mean the decay will continue to decline in a linear, straight-line fashion. So one doesn't have to worry about the field going to zero in just the next 20 centuries. Well, "Not exactly!"

If one wanted to put a formal touch to the matter of decline in strength, a more appropriate model might be one with an exponential decay. In that case, the 5% per year decline is the current slope of the curve for the dipole strength and 20 centuries translates into the exponential time constant, the time for the field to fall to 37% of its current value. Still by geological standards, that rate of change is fast, not taking eons as one might expect. But if one looks hard at figure 1, it's clear that the fit of the data points with a straight line starts to deteriorate in current times.

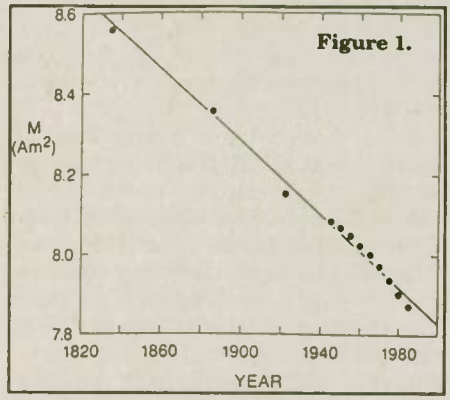


Figure 1.

As a matter of fact, the decay was accelerated somewhat back in 1970 with the occurrence of a "magnetic jerk." The "jerk" was significant enough to put magneticians "on edge" and even has them speculating as to its origin, whether of internal or external. Who knows? Mother Nature, of course, but she keeps her own counsel and we have to wait for the story to unfold.

Speaking of stories, I like to look back in time and use our modern ionospheric methods to write stories about radio in earlier days. But there's nothing to keep me from turning the clock ahead and writing about the future. So let's see where we'd be if someday the "Wicked Witch of the West" (WWOW) got peeved at us and turned off our magnetic field with a snap of her fingers.

To find out what it'd be like without something to grab and hold our ionospheric electrons, let's see what they'd be doing just before the WWOW put her curse on us. So let me pick a time and a place, say up around 300 km at high noon on a nice summer day, and check it out. That's a reasonable choice for an ionospheric discussion and up there, the temperature is a balmy 1,500 degrees Kelvin and it's not all that crowded, only 1,500,000,000 atoms and molecules per cubic centimeter.

If the smoothed sunspot number were about 100, electrons would be outnumbered by 300 to 1 and gyrating around the magnetic field about 220,000 times per second in a helical "holding patterns." At that temperature the electrons would be moving along smartly, at about 250 km/sec in spirals no more than 0.2 meter in radius.

The idea of electrons colliding with something is not new to us; they do it all the time in the D-region where they "eat up" our RF and convert it into heat. The collision rate is pretty high down there, about 200 million collisions per second at 50 km altitude. Going up another 50 km to 100 km altitude, collision rate drops by a factor of 2,000 and is only 100,000 collisions per second. I think it's fair to say that by the time one gets up around 300 km altitude, the collision rate is pretty small, something on the order of 1 collision per second or less. So an ionospheric electron goes around the field line a million times or more before getting bumped by a neighboring atom or molecule.

Now enters the WWOW and in a fit of pique, she snaps her fingers, the magnetic field then goes to zero and we're in a whole new world, ZAP! Those same electrons, moving along at a speed of 250 km/sec, are now free to move out in straight lines, covering a lot of territory before having another collision. And the ones heading up the magnetic field lines would move into less dense regions where collisions are even less frequent; what's worse, their speed is great enough that even earth's gravitational field can't stop them in their outward rush to freedom.

The other electrons heading down the magnetic field would move into denser regions and soon recombine with positive ions and be lost from the ionosphere. So if it weren't for the sun creating more and more free electrons all the time, the ionosphere would collapse and soon disappear. In fact, that's what would happen at sunset when production of fresh electrons ceases altogether.

While the WWOW may be able to snap her fingers and wipe out the earth's magnetic field, she doesn't have the awesome power needed to speed up the time to sunset so the ionosphere at 300 km, an F-region height, would slowly decline as the sun sank in the sky. Then, like the D-and E-regions down deep, it'd really start to decay when the solar UV was turned off.

So it would be a long, barren night with the D- and E-regions gone and not much of an ionosphere left up high for DXing, even ragchewing. See what I mean when I say "Be grateful, you ungrateful wretch!" The WWOW may just have it in her power to make things worse, much worse than they are now.

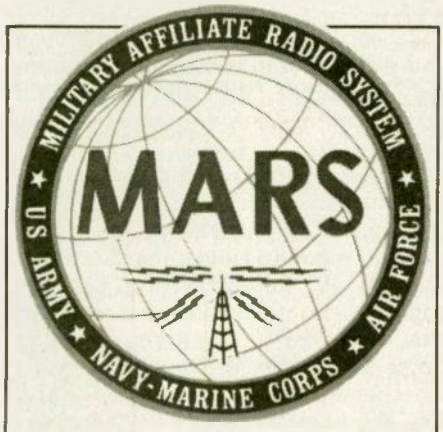
Well, that makes a good story but it's not really true; a witch may have a lot of power but getting rid of the entire geomagnetic field would take a lot of doing. It's just too darn big, extending over too much space. And besides, it would be in violation of the laws of physics unless all the energy stored out there in the field were dissipated somewhere, somehow.

I'm sure you've heard of the "Big Bang Theory" for the creation of the Universe so let me say there would be a "Big Bang" if the WWOW tried to get rid of the earth's magnetic field with a snap of her fingers. Smaller versions of the same thing are found when discharging a large capacitor or shorting a big inductor carrying a heavy current. Those actions reduce the electric or magnetic fields to zero but are not accomplished without a loud noise and a big spark and in terms of energy, the noise, light and heat would all add up to the energy stored in the fields.

Now scale up that big inductor to terrestrial proportions and think of the noise, flash and heat that would result. Truly mind-boggling. So I doubt the WWOW would try that, just the basic instinct of self-preservation would over-rule any silly move along those lines. So we can rest easy, whether we believe in witches or not. The geomagnetic field may be weakening but at least it's doing it gradually, as shown in figure 1.

In conclusion, saying the magnetic field serves us well by holding our ionosphere in place is not enough. I should point out that being a pawn in the "Solar/Terrestrial Interaction" game, it has dragged us, its users, unknowingly into the space age. So, like it or not, we have been put in a position where we need to pay attention to what the solar wind is doing to the geomagnetic field.

If we don't, we'll end up being the radio-equivalent of the kind of person who ignores weather warnings from the National Hurricane Center. Well, not quite as life-threatening as all that but you get the idea. So, as a minimum, listen to those WWV broadcasts every day, plotting up the daily A-index and being sure that the K-index is 4 or less when you get on the air. That's good advice and you got it right here! Okay? **WR**



Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

Like the March winds which are blowing in the optimism of spring, new and continuing areas of close cooperation and service are evident throughout the MARS communities. The close Army MARS/Air Force MARS relationship that exists is reflected in the following message that came out of New York State recently. The message was addressed to Chief Air Force MARS Ray Collins, AFC4A, Chief Army MARS Robert Sutton, AAA9A, and Director of Eastern Area Army MARS Fred Neff, AAA3E...unity at the top, unity throughout the organizations.

For those readers who may be unfamiliar with MARS traffic handling as described in the message, I would like to look at some of the terms used. "Gateway" or "gate" is a station which collects all of the message traffic for a given area and then disperses it to individual operators. A state gateway is a station which collects the traffic for an entire state; a region gateway for a region which may include several states or, as in this case, serve part of a state which has a very large population base. "Digital traffic," in this case, means messages that are being transmitted via packet and placed on packet BBSs for dispersal. "TEXN" is the acronym which stands for Traffic Exchange Network. Each service has stations appointed as TEXN stations who can enter the nets of the other service and take traffic to and from that service for delivery within the state. Call signs of Army MARS always begin with AA and call signs for Air Force MARS are usually AFA. This message is reflective of close support given in most areas of the country.

The message reads, in part: "Good morning, sirs. My name is Ron Billings (AAR2HG, New York) and I am a state/alt region gateway station here in the Southern tier of New York State serving New York City, Long Island, and Albany. Recently we had a situation here in New York which may interest you."

With the resignation, for personal reasons, of the Northern tier gateway for New York State, a "very big void" was left in digital traffic coverage for northern New York State.

"None of our members had HF capabilities to access our Fort Drum gate and our VHF system is shy of completing the path to Ft. Drum. All of our members from the cities of Utica west to Syracuse and on into the Rochester and Buffalo areas were now totally in the dark and now had no access to a full service bulletin board system."

Before the resignation, the BBS software in use by the New York State packet system was transferred to another New York Army MARS member who volunteered to be the new Northern tier gateway.

"New to BBS operations, AAR2ZH had to get the bugs out and it was to be a few weeks before the system was up and reliable for the forwarding of record traffic. We now had some problems. Our New York Participation officer, the New York State DEO, and our State Director are all in that area and must be able to access the digital system. Yes, we can always send via voice; but, as we all know, there's nothing like digital modes. ... Wondering how to fill that void until AAR2ZH comes on line, I called upon our brother Air Force stations in New Jersey, Delaware, and New York. Working with AFA1UN, AFF1C, AFA1NC, AFF1K, we had a forwarding route to upstate New York in place (and operating) in a matter of hours. Our northern New York Army stations could access the AFA1LZ board for record traffic. Forwarding from the station was through AFA1DA New Jersey and AFA1NW Delaware and these stations forwarded via their circuits to the northern AFA1LZ board."

Not only were the two MARS services — Army and Air Force — closely united in solving the problems of maintaining reliable communications, three states were also involved in this effort. In the MARS operations, service orientation is secondary to meeting the objectives of continuous quality services. State lines are ignored whenever one state is in a position to help another. This has been most evident in many of the emergencies supported by MARS during the past months.

"...What's the point? The Air Force/Army sysops in the Northeast are a very close knit group. We don't do much without notifying the other sysops in the network of network changes. We believe in the MARS program and anything we can do to make it better, we will. In my opinion, the bottom line of this scenario is this: If this had been an emergency situation, and our network was being utilized by FEMA, the Red Cross, or other agencies that we support, we would have had no interruption in the flow of record traffic. We were put to the test and thanks to these Air Force stations, we had no time loss in the forwarding of traffic to Northern New York. This situation also compliments these gentlemen as sysops of their boards. They must know their software well to make changes like this in a moment's notice. AAR2ZH is now up and we are now forwarding normally to upstate New York on our Army HF backbone. My sincere thanks to all the stations involved. ... signed Ron Billings, AAR2HG, New York."

This type of cooperation is not unique to New York State. Here in Florida, Army MARS BBS listings and Air Force MARS BBS listings are often duplicates with a mix of traffic and bulletins from and for both services. Before my station was able to reach an HF BBS reliably, my digital traffic reached me via Army-Air Force-Air Force-Army. For voice nets, as well, the TEXN program also provides for interservice MARS cooperation. Throughout the nation, indeed, throughout the world, there is close interservice MARS cooperation. In this way the availability and the quality of MARS services to the military personnel and, in emergency support, to all the people of this great country are guaranteed.

MARS ... proud...professional...ready.

WR

Visit Your Local RADIO CLUB

ALABAMA

Montgomery Amateur Radio Club, (W4AP). P.O. Box 3141, Montgomery, AL 36109. Meets 3rd Mon./monthly, 7 p.m., State Trooper Dist. Office, Coliseum Blvd. & Federal Dr. Nets Sun. 8:30 p.m. 146.84(-) & Thurs. 8:15 p.m. 147.18(+). Info: Fred, K8AJX, (205) 270-0909.

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 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.

Calaveras Amateur Radio Society, (CARS), WA6YGA. P.O. Box 391, Angels Camp, CA 95222. Meets 3rd Thurs./monthly, 7:30 p.m., Fire Dept., 1404 Hwy 4, Angels Camp, CA. Net each Mon., 7:30 p.m., WB6MFV/R, 145.170(-), PL 100 Hz. Contact N6EL, Lloyd, (209) 754-3714.

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.

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., First Interstate Bank, First 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. 1108, 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, 1695 E. Lincoln Ave., Orange at Lincoln & the 55 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: George, KI6YK, (510) 837-9316.

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

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.

Shasta Cascade Amateur Radio Society, (SCARS). 2955 Shasta St., Redding, CA 96001. Meets: 3rd Wed./monthly, 7 p.m. at the C.D.F. Conf. Rm. Grape St., near Parkview Ave., Redding, CA. Net 146.64, Wed., 8 p.m.

Sierra Foothills 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.

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).

Tri-County Amateur Radio Assoc. P.O. Box 142, Pomona, CA 91769. Meets: 2nd Mon./monthly, 7:30 p.m., Covenant United Methodist Church, corner of Towne Ave. & San Bernardino Rd. in Pomona, CA.

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.—6 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

Gulf Coast ARC, Inc. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN rptr. 146.67(-) & 145.33(-), serving Pasco Cnty.

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: 146.25(-) & 147.675(+).

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

Six Meter Club of Chicago, Inc., K9ONA. Meets 2nd Fri./monthly, 7:30 p.m., St. John's Lutheran Church, 47th St. & Brainard Ave., La Grange Pk., IL. Info net every Tue., 9 p.m. K9ONA/R 146.970(-), 443.300(+), 107.2 Hz PL.

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(-).

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 (H.A.R.A.) P.O. Box 1183, Marquette, MI 49855. Meets 1st Thurs./monthly, 7:30 p.m., Jacobetti Veterans Facility, Marquette. 146.70.

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./monthy, 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.

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.

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.

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.

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 Zim-merman 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, (518) 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

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. 145.35(-) 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 Sat. 6 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.

TEXAS

Brazos Valley Amateur Radio Club, (B-VARC). 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.

Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m., Green Valley Fire Dept., 16th & Norwood Rd., Huntington, WV. Monthly breakfast 1st Sat., 9:15 a.m., Bonanza.

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.

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

OLD-TIME RADIO

Russ Rennaker, W9CRC

Like many youngsters my age I had an insatiable desire to learn about "things. The father of one of my boyhood friends happened to be the telegrapher at the local railroad station. My young friend and I spent many a rainy afternoon one summer in the railroad station. The "clickety clack" of the instruments intrigued me. The idea that a noise like that could actually transmit intelligence amazed me. That summer my friend and I learned Morse code.

We decided to build our own telegraph line. We scavenged sounders and keys from the old stuff that had been discarded at the telegraph station. We strung a wire from the top barbed wire on the fence that ran past both our houses and ran it into our rooms. Our private telegraph wire worked fine in dry weather but when it rained and the fence posts got wet, it went dead. But we had fun that summer.

That was the year I built my first crystal radio receiver. I soon discovered the "dits" and "dahs" I heard on my radio wasn't the same as the land line Morse code I had learned at the railroad depot. It was an entirely different code and most of the letters were dissimilar. It was called the Continental Morse code. Now I had to learn this "new" code all over again, and I set about it methodically.

I was twelve years old by this time, and a full working member of the farm family. One of my jobs was plowing with a horse-drawn plow. This took hours of doing nothing but sitting there on an old bumpy "sulky" plow and occasionally shouting at the horses.

I wrote all the letters and their appropriate code symbols on a piece of cardboard and fastened it to the frame of the plow in front of me; I needed both hands to manage the horses. I would hum the dots and dashes out loud, making up words and sentences as I went along. I swear those horses would quicken their pace and pick up their ears as I transmitted my signals to all the world. I imagined the plow was a "ship" and it sank many times that summer as I transmitted my imaginary distress signals.

One afternoon a salesman in a Model "T" Ford pulled up at the side of the road to ask directions. I did not see him until I was very near, still humming the "dits" and "dahs" out loud. By the time he got my attention I guess he must have thought I was crazy, or talking in a foreign language. I answered his question and he drove away shaking his head. By the end of the plowing season though, I had learned the "new" code. **WR**

The Gettysburg Address

Which is not printed on the new Form 610...

Federal Communications Commission
1270 Fairfield Road
Gettysburg, PA 17325

—Phil-Mont Radio Amateur Club

QUARTER CENTURY WIRELESS ASSOCIATION INC.

John G. Troster, W6ISQ

President Lew McCoy

In case you missed the paragraph in the *QCWA Winter Journal,* our President, Lew McCoy, W1ICP, underwent a quintuple heart bypass operation. Three days later they added a pacemaker. But as the saying goes, "you can't keep a good man down." Just to prove it, they dragged him out of bed for a trial run the day after the operation.

Lew warmly thanks everyone for the cards and flowers he received. He says he "appreciates being appreciated." He's under orders to shed poundage and walk every day. He feels well and says he plans to attend various affairs and conventions as usual, beginning with W6EEN's Palm Springs QCWA Mini-Convention. Lew says he will be back on the air after he does a little research into how Big RF affects pacemakers! This most likely will produce a review of pacemakers and ham radio in a forthcoming column.

Now hear this

In the October, QCWA column, we mentioned that the Old Old Timer's Club was for folks who had been licensed amateurs for forty years. We received a letter from Bert Wells, W5JNK, Executive Secretary of OOTC to advise us that OOTC also accepts people with "first two-way communications via commercial or military means, for eligibility...." Write Bert for details. And remember out there that our QCWA President, Emeritus Leland (tench-hut) Smith, W5KL, is now President of OOTC.

David Sumner, K1ZZ, one of us

"Folks, this is Dave Sumner, K1ZZ. He's young to be the ARRL General Manager, but he's aging fast." Thus, did the late ARRL President Vic Clark, W4KFC, introduce Dave at conventions. Not to contradict Vic, but even now Dave doesn't look much more than three months older than when I first met him, about 1973.

Dave grew up in Norwich, Connecticut, a few miles down the pike from ARRL HQ in Newington. At age 10, someone gave him a crystal set kit which he wound together and was surprised to receive some local stations, albeit weakly. However, one night he got the cat's whisker in just the right spot when behold and lo, he heard the VOA in Cincinnati. That did it. He decided there was something to this radio stuff after all.

At 12, he built a one tube radio for a school science fair. His father was not

One of us! Dave Sumner, K1ZZ, operating 8A11ARU from Bandung, Indonesia. IARU conference 1991. *—Photo by NX1L*

licensed at the time (he's now NW7R), but had been in the Signal Corps in the Big One, so he could help Dave in some of the technical matters. Dave passed the Novice license at 13 and received the call KN1ZND. He began building radios from kits bought with paper route money, upgrading four months later.

Dave was fortunate to find an Elmer in Bud Ward, W1GEA, now deceased, owner of a TV and radio repair shop. Bud, who incidentally had cerebral palsy, was a dedicated amateur who used Dave and other high school kids to be his hands, all the while teaching them how to work with and repair radios and TVs. Dave worked in Bud's shop after school from 8th grade through high school.

In '65, Dave took first place nationally, QRP, (under 150 watts then) in the ARRL DX Contest, CW naturally. He's been a contest bug ever since. That same year, he also picked up his Extra Class license.

Dave pursued a math-science track in high school and was granted a National Merit Scholarship. At that time, Michigan State was recruiting Merit Scholars, so Dave became a Spartan. And what does a National Merit Scholar who is a whiz in math and science study in college? Political Science, that's what! Actually, Dave says he majored in Amateur Radio, dividing his time between the University's ham station W8SH, and a station on a farm 11 miles out of town on which lived a young fellow named Chuck Hutchinson, K8UDJ. If that name sounds familiar to you, it should! Chuck is now K8CH, and Manager of Membership Services at ARRL! Chuck's farm was a home away from home for Dave.

Dave worked for ARRL two summers between college years being hired by Ellen White, W1YL, (QCWA member, of course) who was then *QST* Deputy Communications Manager. Dave was put to work in the Contest

Branch where he already had a reputation as a winner.

As might be expected, Dave was graduated from Michigan State in just three years, and in 1970 put his Poly Sci degree to work for an insurance company in Hartford, Connecticut. Doesn't everybody within 100 miles of Hartford work for an insurance company? Anyway, while insuring the nation that first year, Dave was appointed New England member of the Contest Advisory Committee of ARRL. He stuck it out with insurance until a permanent position opened at ARRL in 1972, at which time Perry Williams, W1UED, and Dick Baldwin, W1RU, conspired to get him hired as an Assistant Secretary working for Perry.

Shortly after he arrived in Newington, he began night school in the MBA program at the University of Connecticut. He spent most of the '70s working on that night school degree, which he completed in '79.

In the mid '70s Dick Baldwin assigned Dave to early preparatory work on IARU matters for the WARC-79 program, then led by ARRL. Among other things, IARU helps amateur societies around the world present the case for Amateur Radio to their respective governments. Dave's job was to visit countries and help them with their individual program. He once arrived in Prague to be met by a man he had worked on the air for many years. The very surprised gentleman never expected that the distinguished IARU representative, would look like a high school kid. But that was Dave, even at age 25. In '76, Dick Baldwin made Dave Assistant General Manager, and when Dick retired in '82, Dave was named General Manager.

Dave's responsibilities at ARRL for the last four years have been shared with Barry Shelly, not licensed, who is the Chief Financial Officer of the League. Barry manages the advertising, public sales, accounting, purchasing. Dave handles member services, field services, international and technical publications, and is responsible for all of *QST* except the advertising. In short, Dave gets *QST* to the loading dock where Barry takes over. The way it really works, says Dave, it that Barry makes the money and he spends it.

Dave married Linda in 1980. They met through a friend, and what do you know, she had a ham ticket, KA1ZD! Linda is a 10 Meter addict and particularly enjoys 10 Meter phone contests. She likes huge antennas. This is not a misprint. Dave says she is always eager for him to put up an even bigger antenna. Their daughter Deryn is 12. She passed the Novice written and took the Tech exam in January. We will await further reports, but you know she passed.

The family station is a TS-930 and Drake [illegible] plus VHF gear to put them on all bands from 160 Meters to 432 MHz. Right now they have a 6 element yagi on 10 Meters on a 100 foot pole, but you can be sure Dave will be climbing the tower in the spring to add a few elements. There are three 100 foot poles in the yard, that will ultimately sprout multi-element yagis on all HF bands. Dave's real love is still DX contesting, and, if you have ever checked the DX contest results you'll find K1ZZ in there with the usual big score, sometimes multi-multi. You will also find him operating, as often as possible, from countries which he visits on IARU business.

Dave speaks with admiration and thanks for the many ARRL volunteers who work unceasingly on amateur matters to supplement Headquarters staff activities. If you were on the air during the greatest new event of the season, the Hiram Percy Maxim 125th Birthday QSO Party, you got the idea just how many of the 172,000 members of ARRL are volunteers in some capacity and were on the air for that event.

The board of directors consults with Dave and also assigns jobs for him and the HQ staff to carry out. He states that as excellent the HQ staff is, they can't get as close to membership concerns as can board members who really can mingle with the troops in their districts and feed that information back to HQ. Remember that and feel free to voice your thoughts to your Division board member. Officially Dave is part of the IARU International Secretariat, and also ARRL's publisher of *QST* and Executive Vice President and Secretary of ARRL.

Dave is active in church affairs, also a volunteer on the Regional Planning Board in Coventry, Connecticut, where he lives. It seems the town fathers decided to rewrite the local zoning laws, and if that happens, can Amateur Radio towers be far behind? Dave volunteered for the board to be sure both sides were represented! A word to the wise?

Dave is involved in an impressive number of diverse activities, most of which having to do with preserving and advancing the cause of Amateur Radio. We can all be grateful for Dave's intense participation. Until next time...

73 + 25, Jack, W6ISQ WR

FM & REPEATERS REPEATERS REPEATERS REPEATERS REPEATERS

BILL PASTERNAK, WA6ITF

As you begin to read this month's column, the first thing you will ask yourself is: "...so what's all that important about a silly Southern California repeater council election? Its not going to affect me here in Des Moines."

Oh how wrong thou art! What happened last December 3rd in Carlsbad, California, will definitely impact every ham who operates any form of FM on our domestic VHF and UHF bands, especially those who run FM packet. This is because December 3rd was the day that packet radio, for the first time, flexed its muscles and woke up the sleeping political tiger within.

Packet radio and those interested in the politics of packet radio came out from behind the shadows of the voice FMer and proved that one need not be "mad as hell and not going to take it anymore." Rather, packeteers said to their voice counterparts "we are here, we have a place in the politics of VHF and UHF communications and we will not be silent anymore." They then exercised the power of the ballot box to decide the destiny of one of the nations most active FM voice frequency coordination councils. These were the ballots "heard" nationwide.

TASMA '94 - the election to beat all elections

The votes of at least forty-two packet radio operators were responsible for the reelection of Sidney Radus, N6OMS, as President of Southern California's Two Meter Area Spectrum Management Association in the most hotly contested election in the history of that group. Radus and his almost all-incumbent slate was able to push back a challenge mounted by the San Diego based Committee for Better Amateur Radio or C-BAR repeater group. That group had fielded a slate of candidates headed by attorney Rick Anglin, N6KUB. While Anglin and the C-BAR backed candidates did rack up an impressive 252 votes, it was not enough to beat the 290 votes which Radus and his group received.

The key to Radus' win was probably not as much a vote of confidence by repeater owners and FM service users as it was the large turnout of packet radio users. They saw Radus as more willing to cooperate with them than the San Diego-based challengers. Just weeks before the election, some of the key political leaders in the Southern California Packet Radio community pledged their support to N6OMS, and then sent out packet messages urging area packeteers to join TASMA, pay their dues and cast their votes for Radus.

It is becoming evident that packeteers tend to be far more politically motivatedthan their brethren in other modes and are keenly aware of the needs of their own digital domain. Radus promised cooperation with packet while the postings supporting C-BAR labeled the packet community as "outsiders."

In addition, others have noted that the name "Committee For Better Amateur Radio" is easily confused with the 20 Meter "Better Amateur Radio Federation" — the group that has spent the better part of two decades harassing legitimate service nets operating on the HF bands — particularly 14.313 MHz. The poor choice of an organizational name and treating packeteers as outsiders probably was enough to anger many packet operators who were politically fence-sitting; got them to pay their dues and to cast a vote for Radus — either in person or by proxy. Whatever the reason, Radus says that he and the others elected are grateful to all:

"...You know, we have to cooperate all across the band. To know that these people are interested enough in repeater coordination to help reelect a group that will try to protect coordinations, and work cooperatively with them, I think is to everyone's advantage. We certainly appreciate the support that they gave us," Radus said. Observers at the meeting peg the number of people at over 200 — an all-time high attendance for a Southern California repeater council meeting. But also cited is the demographic makeup of the crowd. There were many new faces, but missing were the backbone of any repeater coordination council, i.e. owners of coordinated repeaters or their appointed representatives. In fact, those who came appeared to be individual hams who were in support of one or the other slate of candidates. Repeater owner-operators, especially long-term system operators were conspicuous by their absence.

Several side notes: TASMA has a unique structure in that it welcomes any ham to join the organization — even on the day of an election — and to vote in that election. As such, TASMA, on election day, had a membership roster of 542 — probably a record for any local repeater coordination body. With each person paying $10 to join, that gives TASMA about $5,400 in operating capital to proceed with several scientific studies it has undertaken. These include a complete evaluation of the status of all 2 Meter repeaters it has coordinated since its inception as the Southern California Repeater Association in 1971, and the follow-up of interference complaints by its recently formed Interference Sub-Committee.

"During this next year, we are going to implement the work of our interference committee to insure that repeaters take care when operating within their parameters; that if there are interfering repeaters or other interference to repeaters that we can make our recommendations to the FCC on a solid basis with good technical data," says N6OMS.

In any election there are winners and there are losers. In this case, we see two distinct groups. First is C-BAR from San Diego. There was some speculation that it might attempt to form a coordination group of its own to challenge TASMA. This may have been thwarted before the election itself by comments made by Southwestern division ARRL Director Fried Heyn, WA6WZO, who told the assemblage that he hoped for full cooperation by all concerned spectrum users regardless of the vote. With Heyn commanding an almost unbelievable level of respect from all geographic areas and special interests in his Division, it is very doubtful that a rival 2 Meter coordinator based on C-BAR's defeat would appear. Also, Radus offers this olive branch to those of C-BAR:

"They know what our policies are. We welcome their assistance, cooperation and their participation. We are very grateful to everyone who is a member of the Amateur Radio community, and we would solicit their support now in the same way as those who voted for us."

But C-BAR is almost insignificant

when compared to the hundreds of 2 Meter repeater owner/operators from all over Southern California who did not attend a meeting which affects their very existence. Like other areas of the country, TASMA seldom hears from those it coordinates and most repeater owner/operators rarely bother to keep coordinators informed of the status of their system. Only when some problem arises such as co-channel or adjacent channel interference does a system operator communicate with his local coordinator, and most expect instantaneous miracles. Coordination in the minds of many repeater operators appears to be a one way street, and if over the next year changes to the band structure are made that are not to their liking, they will have no grounds on which to complain.

Finally, does the outcome of this election mean that the repeater council is "beholden" to the packet community? Probably so, but it also could signal the kind of unity breakthrough that many packet operators nationwide have been hoping to see. It opens the door for substantial dialogue between the two modes that was not deemed possible only a short time before. It is FM saying to packet: "we need you" and packet responding: "fine— lets join forces for a common good." Again, what has happened in the birthplace of modern VHF/UHF FM repeater technology will have a profound impact on repeater operations nationwide. If California has one major ham radio export, it is ham radio politics. And frequency coordination is as much political as it is technological. As such, packet radio supporters in other geographic areas are certain to take note of what has happened in Southern California and think in terms of similar political activity in their neighborhood — and that neighborhood will be yours! No, it won't be something that occurs overnight, but it will happen. You can bank on it!

The wall

Ever hear of the wall? Well unless you operate packet radio, the wall probably means very little. But to those hams 19 years of age or younger, the wall is a place for teenagers to leave their messages which can be about just about anything!

The wall was the creation of seventeen-year-old Christine Fuller, N9RVU. She got the idea that teens needed a place where they could communicate with one another and not bother those outside of their peer group. So last August, Christine posted an ALL United States packet radio message that suggested that teens nationwide begin communicating by posting notes on packet in the same way that they might get posted at school on a designated wall. She asked teenage hams to send in their stories, pen pal messages, graphics, topics of teenage interest or anything they might like. All she asked is that all the messages use a common and easily recognizable topic header that she titled "the wall."

It has been about five months since the wall got started. It was pretty slow until early November. Then something amazing happened. Teen hams from around the nation began to react to the outcome of the November elections which swept the Democrats out of office and the Republicans in. Immediately, several major topics of mutual interest emerged on the wall. Two of the most popular have been ongoing discussions of newly elected House Speaker Newt Gingrich, and the possibility of prayer again being permitted in the public school system. And if you think that teenagers are not interested in the future of our country or that they are too young to have valuable opinions, just drop by the wall and look for yourself. Its a veritable gold mine of insight into today's youth and probably into thefuture of ham radio.

And we will add, to those over the age of 19, read but please do not post your opinions. We oldsters who have been following the construction of the wall know that it is built on the spirit of the young. Old line ideas have no place and are really not wanted there. They can do nothing but bring this very important wall of the future, tumbling down.

Our congratulations to Christine Fuller, N9RVU, for having the imagination and creativity to begin the wall. She, and others like her are the future of ham radio, of our nation and of our world.

Feedback via E-mail

At the end of each month's column is a summary of how to contact this writer by electronic mail. Does it really work? Yes, as witnessed in this comment on our December, 1994, column on the probable privatization of many repeaters:

Subject: Re: Article in ***Worldradio***
Date: 94-12-08 12:01:50 EST
From: Jeffrey M. Seligman
To: BillWA6ITF@aol.com

"Bill,

"Been too busy to reply in the detail that I wanted to re: your repeater article which I enjoyed. But, as a current repeater owner in Southern California area until my move to Arizona, I felt that many of the points you touched upon were important but "dated." Things have changed a lot in the repeater world even in the past five years. Channels are more crowded, courtesy and sharing is a *must*, and closed repeaters are rapidly becoming a thing of the past.

"Basically, the FCC's present mode is "Use it or lose it." You cannot have a closed repeater tying up a channel for 5-10 users and then have 100 users on the next channel. This is ham radio not commercial radio, charging a fixed fee and limiting access to a repeater is a COMMERCIAL operation. This can cost us a band by not demonstrating uniform usage.

"That's my view from my limited vantage point. I am not saying that there should be NO closed repeaters, just that it should be thought out CAREFULLY for the benefit of the entire ham community in the areas served by that machine."

73, Jeff Seligman, WA2VNT

If what Jeff Seligman sees were only the way it is. But recent figures tell a different story. Most of those applying for new repeater sanctions these days — in California and in other regions — are in search of channel pairs for closed and private repeater operations. Most operational parameter changes being instituted by repeaters is that of limiting system relay function to smaller and more exclusive user bases. Sorry, but "private" is very quickly becoming the repeater owners buzzword, nationwide.

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

The Youth Forum

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

Ah, the joyful bliss of high school—friends, cars, dances, sports, parties. All of these and more lie along the star studded, sweet smelling path through high school and, for many people, on to college. Wait a minute—college. The very word strikes fear and excitement in the hearts of high school students everywhere.

OK. Let's get serious. Although it has its moments, high school is not always a carefree, completely blissful experience, as certain adults and their often selective memories might have the younger generation believe. One of the most stressful trials of high school is answering that inevitable question—"What are you going to with the rest of your life?" Of course, once you've made that easy decision, the only challenge is figuring out where you want to go to school and how to pay for it without selling your soul, among other things.

Unfortunately, I can't help you decide which college or vocational school to attend. Nor can I help you decide which career path is right for you. However, the following information on Amateur Radio scholarship programs might just help you figure out how to pay for your post-high school education.

Foundation for Amateur Radio

The Foundation for Amateur Radio (FAR) is devoted to promoting Amateur Radio and to encouraging educational study which leads to the advancement of the amateur service. The following information regarding FAR scholarships was obtained from a recent FAR press release.

The Foundation for Amateur Radio Inc., a non-profit organization with headquarters in Washington, DC, plans to administer 56 scholarships for the academic year 1995-1996, to assist licensed radio amateurs. The Foundation, composed of over seventy-five local area Amateur Radio clubs, fully funds five of these scholarships with income from grants and its local hamfest. The remaining 51 are administered by the foundation without cost to the various donors.

Licensed radio amateurs may compete for these awards if they plan to pursue a full-time course of studies beyond high school and are enrolled in or have been accepted for enrollment at an accredited university, college or technical school. The awards range from $500 to $2000 with preference given in some cases to residents of specified geographical areas or the pursuit of certain study programs. Clubs, especially those in Delaware, Florida, Maine, Maryland, New Jersey, Ohio, Pennsylvania, Virginia and Wisconsin, are encouraged to announce these opportunities at their meetings, on their nets, during training classes, and in their club newsletters.

Additional information and an application form may be requested by letter or QSL card, postmarked prior to April 30, 1995 from:

FAR Scholarships
6903 Rhode Island Avenue
College Park, MD 20740.

The ARRL Foundation

The ARRL Foundation was founded nearly twenty years ago "for the advancement of Amateur Radio." Throughout its history the ARRL Foundation has provided financial assistance to programs and services benefiting the Amateur Radio community in general.

The ARRL Foundation Scholarship program was started in the 1980s and currently awards 16 scholarships to deserving students. The ARRL Foundation offers scholarships for students ages 17-24 and 38-45. In order to qualify for the scholarships awarded to 17-24 year-olds, applicants must be licensed Amateur Radio operators and be studying for an initial college-level degree or certification. Applicants need not necessarily be members of the ARRL.

Several different scholarships are offered by this organization. Most awards consist of $1000. However other awards are available which range form $500 to $5000. Scholarship awards are determined, in some cases, by a student's residential location, course of study or financial need.

By the time this article reaches the newsstands, the deadline (February 1, 1995) for this program will have passed. However, students are encouraged to request information regarding the 1996 ARRL Foundation Scholarship Program. Further details concerning this scholarship opportunity may be obtained by writing to the following address:

ARRL Foundation Scholarship Program
c/o ARRL Foundation
225 Main Street
Newington, CT 06111.

Dayton Amateur Radio Association

Another major source of scholarship funding for radio amateurs is the Dayton Amateur Radio Association (DARA). The Dayton Amateur Radio Association is the same organization which sponsors the celebrated Dayton Hamvention and other amateur events. In 1995, DARA will be awarding eight scholarships, each totaling $2,000. Applicants must be graduating from high school in 1995 in order to qualify for these awards. A copy of the applicant's Amateur Radio license, high school transcript, a copy of an acceptance letter from the school the applicant will be attending and a brief essay must accompany the scholarship application. Applications must be postmarked no later than May 15, 1995 in order to qualify for this program. Winners will be notified around June 1, 1995. Further information regarding DARA scholarships and applications can be obtained by writing to:

Dayton Scholarship Committee

45 Cinnamon Court
Springboro, OH 45066-1000

The scholarship programs mentioned in this article are not the only such opportunities which exist within the amateur community. Many local radio clubs and similar organizations offer scholarship and grant programs to qualified students. In addition, remember that even if you are unable to obtain an Amateur Radio related scholarship, many private corporations and professional organizations offer scholarships which might be obtained by students with an Amateur Radio background (especially if you plan to study a technical or scientific field). A visit to your guidance counselor's office or the local library should provide all the information you need.

Scholarship information needed

As I mentioned earlier, the scholarship programs described in this article are, by no means, a complete listing of such opportunities for young Amateur Radio operators. Therefore, if you know of a scholarship program targeting young Amateur Radio operators, please contact me at the address above so that I can include the information in a follow-up column. While any information is helpful, ideally I would like information regarding scholarship requirements and restrictions, deadlines, number of awards, the monetary amount of each award and the name, address and telephone number of a contact person. All scholarship opportunities will be published in a timely manner, provided that I receive the information at least three months prior to the date of publication. So, please forward scholarship information to me as soon as it becomes available.

New "Youth Net" formed

Just as this issue went to press I received a letter from Brenda Schopp, KB7ZNW, of Washington State. Brenda, 14, and fellow young amateur, Jayson Mosher, N7URO, 16, have formed a new HF net aimed at young amateurs. The "East Side Youth Net" meets every Wednesday at 0000 UTC on 3.925 kHz. According to KB7ZNW, check-ins ages 21 and younger are welcome. Brenda and Jayson hope this net will encourage increased activity and upgrades among young amateurs. Good luck, guys and thanks for the letter! I'm looking forward to hearing about your progress soon!

"Young Ham of the Year" award update

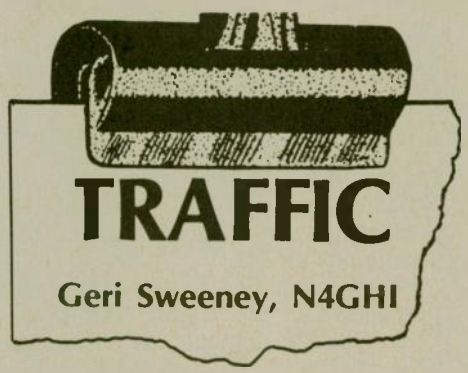
According to Bill Pasternak, WA6ITF, *Worldradio* columnist and producer of the Amateur Radio *Newsline*, the award formerly known as the "*Westlink Report* Young Ham of the Year Award" will be administered in 1995 by *Newsline* and will be known simply as the "Young Ham of the Year Award." According to WA6ITF this move will not cause major changes (if any) in the presentation or administration of this prestigious award.

Pasternak added that the nomination period for the "Young Ham of the Year Award" is now open. This award is presented annually to an Amateur Radio operator age 18 or under who has made an outstanding contribution to Amateur Radio or his/her community. As this column goes to press, an announcement concerning the nomination deadline and the date and location of the award presentation is pending. Nomination forms and further information is available by sending a self-addressed stamped envelope to the following address:

Young Ham of the Year Award
c/o *Newsline*
28197 Robin Avenue
Saugus, CA 91350

Unfortunately, I'm out of time and space for this issue of the "Youth Forum." Keep the letters and story ideas coming- they're always appreciated.

73. See you on the bands! AAØCR. WR



TRAFFIC

Geri Sweeney, N4GHI

Originating traffic

While any traffic handler can easily earn the new ARRL Traffic Originating certificate (only requiring originating 4 messages), it takes a special person to originate hundreds of messages in one month. To count as an origination, the message must come from someone other than yourself and the contact with this other person must be via some mode other than radio. Some folks manage to gain their hundreds with help; such as setting up a message center and using one call.

In Virginia, we are lucky to have K4DOR, Manny. Incredibly, he originates hundreds of pieces of traffic during any holiday month. How does he do this? He has acquired a clientele over the years from delivering messages. He pleases his "customers." He cares.

This year a newcomer to Virginia, N3PDK, Mike, had an idea. He put a sign on his door at work. First, he just put a question mark. As fellow workers asked about the sign, he explained the concept of traffic and volunteered to send a message. His list is growing. Some traffic handlers prefer the relay part of traffic handling (from one net to the next). If we don't make certain we relay accurately, we impact on Manny and Mike's customers. Take whatever extra time you may need to insure you get things such as the phone number correct.

Traffic trivia

In the last column I asked which five sections handled the most traffic last year. It occurred to me later that not only did I not know the answer, there was probably no way of finding the answer short of calling each section STM and asking for their stats. This data isn't published. Sections are generally made up of a state, such as here in Virginia; but, California has nine sections and several states have two or three. Then, there are Puerto Rico and the American Virgin Islands (part of the 4RN). I suppose dividing states into parts was to make them more manageable. Still, how can a sparsely populated section, say Montana, hope to compete with a section with Los Angeles in it? So, even if ARRL knew the answer, one would have to handicap each section as to their number of Amateur Radio operators, and/or traffic!

Sections are grouped into regions, hopefully to even such odds. Mostly, a region is made up of call areas. Thus, states in the 1 call area make up the 1RN, states with 2, the 2RN. Perhaps to even regions out, some states with a 4-call (Kentucky, Tennessee, and Alabama) were given to the Central Area as part of Region Five. So, one would suppose that all the regions should have about the same amount of traffic. And, region data is published.

Looking over the data for the past year, September of '93 to August of '94, I did find an answer. A problem which developed was that many regions didn't always show a report. Each region has a daytime cycle manager and an evening cycle manager. Reporting went from never missing (half of the managers) to the Region 9 daytime manager who did not report 7 out of 12 months. For missing reports, I took the average of the 12 and added it in to each missing month. That way, each region would have the same number of reports. Finally, afternoon and evening reports were totaled to give one number for each region.

Rounding off the numbers, Region Five was the winner with about 15,000 messages during the year. Second place went to Regions One and Four with about 12,000 messages. In third place were Regions Six, Seven, Eight, and Ten, running in the 8,000 range. Fourth place was given to Regions Two and Nine with almost 6,000 messages. Region Three came in last with only 3500 messages for the year. Perhaps we should take Kentucky, Tennessee, and Alabama back from Region Five and lend them to Region Three...hi.

The afternoon cycle passed more traffic than the evening cycle in 7 of the regions. Only Regions Three, Four, and Nine handled more traffic during the evening cycle. Afternoon cycles generally utilize SSB and evening cycles are often found on CW. Some years ago a mid cycle (early evening) was established. Only a few Regions have supported it (for various reasons) and thus the stats were not included. Stats for Region 11 and 12 (Canada) were not available. Region 13 (ARN) is unique in that it collects international traffic and is only responsible for a liaison in the evening cycle.

What does all that mean? Not much. Several regions could gain credit for the same message as it is relayed along. A

better criterion might be traffic originations where traffic would only be counted once. That data can only be found in Section activity reports. But, more importantly, Deming would say, you should only compete with yourself. If you are competing within the system, the system suffers. Looking at the system helps us to determine who may need help and how we can enhance it. So, while Region 3 may be least quantitatively, it may be best qualitatively.

Sending a message

When you are sending a message, whether SSB or CW, you (transmit) are trying to get the other station (receive) to copy exactly what you see. To enable you to do this, procedures have been established. Imagine a blank paper and a pen held over it. The procedure is to start in the upper left hand corner and move the pen to a different position when directed by a key word or given sign. The sender assumes that the receiving station will write in a straight line until a date is given. That is the key word to move the pen into a new position for the address. When sending the address in CW, an AA is sent after each line of the address to indicate that the pen should be moved down a line. When using SSB a pause should do the trick. Depending on conditions, phonetics may be used to spell some words on SSB.

If numbers follow a ZIP, they will always be phone numbers. Therefore, one need not announce 'telephone.' If no ZIP was given, 'telephone' may be announced. Why? Numbers at this time could be ZIP or phone numbers. The key is to always imagine where the pen of the receiving station should be, and to help it find the correct position with appropriate signals. After the address a break is spoken on SSB and a pause is given for fills. If nothing is heard, the text is read. On CW a break is sent to move the pen along to the text area but no pause is given for fills until the end of the message. After the text (writing in groups of 5 on a line for easy visual confirmation of the check) another break is given and the signature provided. A pause is now taken for fills on both SSB and CW.

Some maneuvers have been established (not in a manual) by experienced traffic handlers to move this process along. The principle is the same - the transmit station wants the receive station to move to another position on the message. On SSB, words can be used. On CW, a sign may be given. An Example: Often, a number of messages have the same preamble, other than the message number and the check. Rather than read the entire preamble over and over (after the first message has been sent), stations often read (or send) the part that has the differences (Number to check). A break is then sent (voice and CW) indicating 'move your pen' and begin the address. If the receiving station has the time, and wishes to, s/he can go back after the sked and fill in the city, state, and date on the messages. This saves a lot of time when you have a lot of traffic. Since you do have the call sign on each message, they won't get confused, even if they get shuffled.

There may be a call sign in the address. If the receive station happens to know the call, they may wish to interrupt (sending a break sign), indicating the send station should go on to the text.

For those who occasionally relay a message or two, these informal procedures may seem unnecessary, but for those who hit Brass Pounder League month after month, it's very helpful.

Net frequency?

Net frequencies are listed in a Net Directory. That frequency indicates where you should look for a net. Since no one, or net, owns any frequency (including digital stations), the net control station may be running the net near, but not on the expected frequency. Of late (read in newsletters, observations, and experience), it appears that few folks are looking about for their net. Hopefully you aren't an NCS who calls the net on the published frequency, even if someone else is using it.

One day, due to QRM, EAN was moved 3 kHz away from the published frequency and it took 30 minutes for everyone to find it. One experienced traffic handler told me that he never looks over 1 or 2 kHz from where he expects you to be. Thus, I think it might be fun to practice a bit. Why not have net managers name one NCS each month to call the net off frequency - say, within 5 kHz. Perhaps Net Managers could give a point to those who checked in by the first QNI. Five points would be deducted from anyone who called a parallel net on the published frequency (thinking the NCS absent). If anyone accumulated 10 points, they would get a certificate from the STM. Yes, another list someone would have to keep, but it might be helpful as training; and, those who are organized and hand out other awards wouldn't mind. Those who aren't, don't hand out things anyway.

Best Christmas message

Included in a message from CA to ME, 'Glad to hear the barge is on its way x Have sent 1,000 camels marching East with all your gifts.' Traffic handling can be delightful! **WR**

Was it something I said?

When the phone in the next office of the courthouse rang, Raymond answered it, saying, "The driving examiner is out at the moment. Would you like me to take a message?

"Yes," the voice on the other end replied.

Raymond waited patiently, but finally asked, "Well, what's the message?

"You mean you aren't a recording?" the voice asked.

"No, I'm Raymond."

"Oh, I'm sorry. I was waiting for the beep." —*ARNS*

QRP's top DXer

It was early evening, and Dan Walker had hit the depths of despair.

What started as a QRP DXer's dream — XYØRR calling "CQ" on 15 Meters, and no takers — had quickly become WG5G/QRP's nightmare: Repeated calls to the XYØ, and no response.

"I don't think anyone put more effort into (working) that operation than I did," he said. And the avid low power operator from San Antonio had nothing but fatigue and frustration to show for it.

Early the next morning, though, it's a different story. "After missing the XYØ (Myanmar, formerly Burma), I came across a large pile-up on 15 CW — mostly East Coast," Walker said. "All I could hear on the DX frequency was 'up' by a policeman.

"Well, I knew that 3B7 was supposed to be on, but had put all my time into that XYØ. I know that Texas has a great long path opening into 3B7 (St. Brandon Island) at that time of morning, so I turned the beam and there he was — S9 + 20. 3B8CF/3B7 was working eastern USA and JAs and the pile-up was 20 kHz wide."

Walker heard a loud W3 station on the outside of the pile-up calling him and the 3B7 came back. "So, I just dropped my call in once when the 3B7 signed, and bang: 'WG5G/QRP de 3B8CF/3B7 559.'"

"The best part of any pile-up is listening to the howl after you've worked the DX and all those kilowatts are still calling."

So swing the fortunes of a very small group of radio amateurs who have honed QRP and DXing skills to tally DXCC totals envied even by operators running the legal limit.

Restricting his output to 5 watts on CW, and 10 watts PEP on SSB, Walker has worked and confirmed 317 countries QRP. In all, there are currently only 326 countries recognized by the ARRL.

Walker's is a remarkable feat by any standard, and it is one he believes is unmatched by any other QRPer in the world.

While other QRP DX "Big Guns" names and faces may frequently adorn the pages of popular QRP publications and the podiums of QRP forums, Dan Walker has quietly — and unassumingly — risen to the top in this arduous numbers game.

It took him fully a decade at the key and microphone of WG5G/QRP to earn a place on the ARRL's DXCC Honor Roll — the near culmination of a string of increasingly ambitious goals set by the 37-year-old electronics technician.

First licensed KA5GRF in 1979, Walker was inactive until 1984 when he got a Heath HW-9 transceiver and decided to try for Worked All States QRP. He confirmed 49 states as a Novice. Working Alaska clinched the award in October, 1985.

But it was working KH6SP at Pearl Harbor while using the HW-9 and a five-band vertical that gave Walker his first bout of QRP DX fever.

Walker soon trained his sights on the Worked All Continents award, upgrading his antenna system in hopes of rising to the challenge. In August 1986, WAC was his after receiving an RST 329 from EA8BCJ on the Canary Islands.

Walker upgraded to Extra Class in two months, assigned the call WG5G.

His next goal: DXCC QRP. Snagging 4Z4DX in Israel on 20 Meter CW gave Walker country No. 100, in May 1987.

In this natural progression, Walker moved on to Worked All Zones QRP. Numbers 39 and 40 — completing the sweep — were 3W8CW in Vietnam, and VU2OIC, long path to India. In December, 1988, the WAZ certificate hung at WG5G.

Walker, now approaching the "Is That All There Is?" stage, set two ultimate goals: confirming 300 countries, and qualifying for the DXCC Honor Roll — which requires DXers to confirm 317 or more countries, within nine of the ARRL's current country list total.

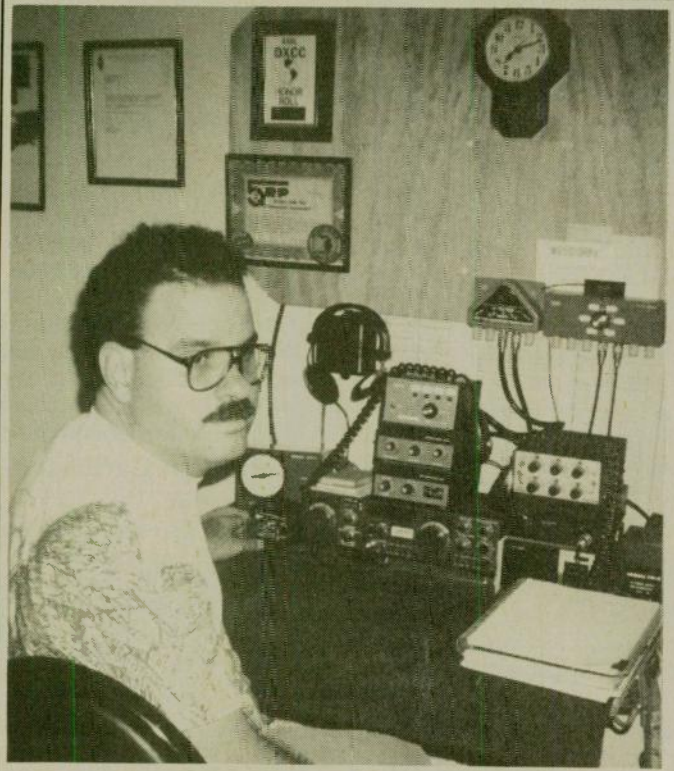
In May 1991, country No. 300 was snagged, compliments of FT4WC on Crozet Island in the Indian Ocean. "That's 12,000 miles distant from San Antonio," Walker said. "You can't go any further than that."

On July 4, 1994 — on his fourth try to work a DXpedition to the Sovereign Military Order of Malta — WG5G/QRP worked 1AØKM for country No. 317, and a place on the DXCC Honor Roll.

Walker's saga was accompanied by a constant evaluation of antennas at WG5G/QRP. From this modest five-band vertical of his Novice days, Walker upgraded to an HQ-1 mini-quad on a 30-foot mast, a HyGain TH-2 trapped two-element yagi beam, and then to a series of Canadian-made Gem Quads — progressing from two, to three and then four elements, modified. His antenna resides on a 50-foot tower today.

Along the way he also upgraded from the HW-8 to a Kenwood TS-130V transceiver with an outboard VFO, giving him split-frequency capability — an option he says is critical in the chase for DX.

Walker knows of only three other operators who have achieved the 300-country total, QRP: Ron Moorefield,



Dan Walker at the operating position of WG5G/QRP in San Antonio.

WG5G/QRP's Top 10 for Low Power DXing

1. **Use a split-function transceiver.** Many of the most succulent DX catches call on one frequency, and listen for responses on another.
2. **Check the bands** even when "they're not supposed to be open." Occasionally you'll be pleasantly surprised.
3. **Check long path headings** when the bands "aren't supposed to be open." What a difference 180 degrees can make.
4. **Remember, on 10 Meters** you often can't hear stateside skip. Take a moment to switch to an omnidirectional antenna to spot the frequency the DX is listening on.
5. **On CW, use your receiver's attenuator** and narrow filter to "fool yourself into thinking you've got a chance."
6. **Be aware that signals** don't always come in at headings you read in books and charts. Try turning your antenna. Peak DX in a different direction, if you can. This works especially well on very, very long paths.
7. **Become a student of solar flux** figures, and compare the numbers with the DX you're hearing at the time. Look for correlations and patterns. Generally, before a solar storm, band conditions improve dramatically. When this happens, look for similar conditions to occur in the next 27-day cycle.
8. **Don't be fooled by the A and K indices.** Sometimes the numbers indicate poor conditions for DX, but the bands prove otherwise. A general rule of thumb, however: If the A index is below 10, and the K is below 3, the bands will probably be OK. Index figures are broadcast at 18 minutes past each hour on WWV, and are updated daily at 2118 UTC.
9. **Learn from veteran DXers.** Then develop your own techniques and body of knowledge.
10. **For every dollar invested** in your QRP DX-chasing station, put 1 cent into the rig and 99 cents into the antenna.

W8ILC, in Ohio; Tom Russell, N4KG, in Alabama; and Randy Rand, AA2U, in New Jersey. Only Walker, though, has posted 317.

Looking back, Walker says "the really rare ones" were 5AØA from Lybia for country No. 101, and the 3B7 DXpedition.

But it was FR5AI/T on Tromlein Island that provided perhaps his biggest thrill. "It came down to the last morning of (FR5AI/T's) operation and I was really frustrated," Walker said.

"I missed him on a VK DX net a couple of nights earlier because he had no copy. Then I had a sked with him the following night and he didn't show.

"So, about 6 a.m., I get on 20 Meter CW," Walker said. "I had only three hours sleep because I had been waiting for him until 3 a.m., the night before. And then instantly, I hear his fist."

Walker recalls the FR5 in QSO with a stateside station at the low end of 20 Meter CW. "As soon as he signed, bedlam broke loose. I knew something the pile-up didn't: Yoland (the operator at FR5AI) moves when a big pile-up develops. I went looking for his fist and found it about 6 kHz up in QSO.

"He signed and I dropped my call again."

Bingo: "WG5G/QRP de FR5AI/T 559."

"As soon as we signed, the mob scene was back . . . I never heard him again — but needless to say, I couldn't go back to sleep. Amazing how a new country perks you up." **WR**

For US and Canadian contesters, the spring contest season hits its peak in March, with the ARRL SSB DX Contest taking place the first full weekend of the month and the *CQ* Worldwide WPX SSB. Contest the last full weekend of the month. See the December 1994 issue of *QST* for the complete rules for the ARRL contest and the January 1995 issue of *CQ* for full details for the *CQ* WPX Contests. Another March contest of great interest is the annual Bermuda contest, the weekend of 18-19 March. The latter event is sponsored by The Radio Society of Bermuda and complete rules and application blanks may be obtained by sending an SASE. to the Society at P.O. Box HM 275, Hamilton, Bermuda HMAX, or to K4IIF, P.O. Box 205, Winter Haven, FL 33882.

For the casual contester, or the DXer who likes to jump in and work a new country, zone or prefix, the following contest calendar and mini-rules gives you the basic information to make a contact.

Contest: ARRL SSB

Time: 0001, 4 March to 2400, 5 March

Exchange: W/VE send RS + state or province, DX send RS + power input

Contest: CQ WPX SSB

Time: 0001, 15 March to 2400, 26 March.

Exchange: All send RS + 3 digit serial number.

Contest: Bermuda

Time: 0001, 18 March to 2400, 19 March.

Exchange: All send RS(T) + 3 digit serial number.

Results of the 1994 Canada Day contest

Dave, VE2ZP, reports that despite poor conditions there was good participation in the 1994 'test and five new records were set. Robby, VY2SS, won the Single Operator category for the second straight year. A higher multiplier count was the key as he scored 35% more points despite 200 fewer contacts.

The top non-Canadian entry was Bruce, AA6KX, who made an impressive 661 QSOs, the second highest single operator total. It is all the more remarkable due to the tendency of Canadians to avoid the US phone bands. Bruce won the LU8DQ memorial plaque sponsored by VE3HX.

Other US entries in order of score were N8FU, K6XO/7, W9HE, KB4GID, NW0F, K4EF, W5ASP, W7YS, AA4XM and NE0P/9.

The breakdown of scores for the top 5 single operator, all-band stations was as follows:

Callsign	QSOs	Mult.	Score
VY2SS	719	70	400,260
VE5SF	472	51	210,834
VE6JY	371	56	209,776
AA6KX	661	38	167,960
VA3SK	235	57	133,266

The 1995 Canada Day Contest will take place from 0001 to 2400 GMT, 1 July, 1995. For complete rules and application send SASE to Dave Goodwin, VE2ZP, 15 Oval, Aylmer QC J9H 1 T9 Canada, or to K4IIF.

Contesting from the Caribbean

VP2M Montserrat

The Woodbridge Wireless team from Woodbridge, VA will operate from 1-6 March including the ARRL contest using the callsign VP2MFM. Operators will be WB4NFS, WD4KXB, KJ4VG, KA4RRU, KO4FM, WA4PGM, W2HPF and W4MYA. QSL to WD4KXB.

9Y Trinidad

Unfortunately, although 9Y is an outstanding contest location, particularly in the *CQ* Worldwide 'tests as it is a 3-point country for W/K/VE operators, an expedition there is very difficult to arrange.

First of all, when you arrive at the airport you find that there is really no provision for bringing equipment into the country on a temporary basis. There is no mechanism for posting a bond to guarantee that you will take your equipment with you when you leave. Rather, the assumption is made that you are importing it permanently and therefore you will pay large import duties. Some items could be hit with taxes, fees and VAT (Value Added Tax) which could total 75% of the value of the equipment. The local authorities have books in which they list categories of equipment to help them assess value. This is why there are few contest operations from

9Y4 compared to the many expeditions from the other major 3-point island, Aruba.

Now, if you do have gear available in Trinidad, it is easy to get a license such as K4IIF/9Y4. 9Y4 calls per se are only issued to citizens of the country at the present time. However it is best to apply for the license in person at the Post and Telegraphs (PTT) offices in downtown Port of Spain. Just show your US license and passport and be prepared to give them your proposed operating location. The term of the license is one year and the cost is less than $5.00.

It is possible to operate using a 9Y4 call if you are lucky enough to be invited as a guest of a local amateur. However, that is a long shot unless you have a very good friend with a 9Y4 call.

1994 WAEDC CW results, North America

Worldradio congratulates ZF2NE, for his high single operator score for North America with 560,450 points, N2WCQ/3 for the top US single operator score with 511,360 points and KC1XX for their North American and US high score in the multi-operator class with 809,490 points. Other North American entries are summarized in the following tables:

Call	QSOs	Mult	Score
ZF2NE	1,019	275	560,450
N2WCQ/3	940	272	511,360
N6AR	788	272	436,738
K3WW	750	276	414,000
K2SX/1	721	273	392,847
K2LE	636	258	328,176
K4PQL	606	252	304,668
W2AX	578	236	271,400
KA1DWX	439	233	199,914
KB4GID	367	196	143,276
NN3Q	347	188	130,096
W2UP	300	182	109,018
K2PS	307	161	97,244
W3BGN	228	185	83,990
WA2ASM	236	172	81,184
K2QMF	218	178	77,074
KC1F	277	125	69,250
WE6G	245	122	59,414
N8LXS	185	113	41.132
VE3EJ	186	109	40,548
K1JKS	166	113	37,403
WA2WYR	129	129	33,153
K4BAI	119	84	19,992
N8LM	100	74	14,800

Multi operator

Call	QSOs	Mult	Score
KC1XX	1,233	330	809,490
N7PMC	716	243	347,247
KF2KT	215	194	83,032

These scores courtesy WAEDC Manager, Herb, DL2DN. WR

CONSTRUCTION

Automatic emergency backup power

Jim Schmidt, N6MKK/TI2MKK

The 12V DC Portable Power Supply by Phil Salas, AD5X, in *Worldradio*, July 1994, page 61, was most interesting because I had used this circuit with some modifications for the past two years in Costa Rica. Compliments to Phil for a new idea for an old circuit.

While living in third world countries, one finds the commercially supplied 110 volts constantly shuts down or browns out. The following circuit works well. We find it is better to store batteries outside of the house for ventilation. Also, for long periods of shutdown, you can jumper your car battery and have continuous use of your emergency station.

The following are suggestions to add to Phil's circuit to make it safer and longer lasting. I had used the same 25 amp bridge rectifier (yes, Costa Rica does have a Radio Shack). The problem I encountered with the bridge was the voltage drop under full load, was about one volt or more, when drawing 20 amps. I shopped around back in California and found an inexpensive 1 N6391 diode (approximately $2.00) that drops only about 0.7 volts. You can shop around and find even lower voltage drops. You must heat sink these two diodes; they get hot.

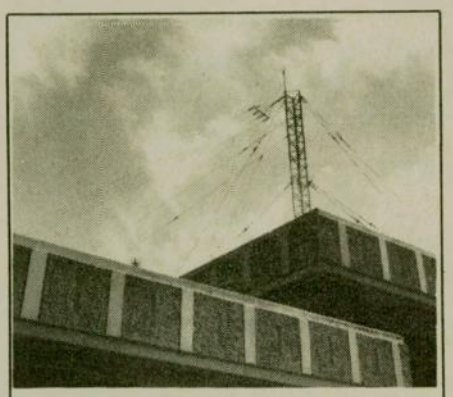
The rig, which I used in this circuit, was a Kenwood TS-430S; but with the Radio Shack rectifier, I was flat-topping. The transmitter needed eleven plus volts. After replacing the diodes having a smaller drop, my rig worked much better and less heating was noticed. My newer rig a TS-50S, had no problem. Use a short heavy gauge wire for lowest voltage drop.

The other part of Phil's circuit is that the charging line should have a small diode of approximately 4-5 amps. According to three articles in *QST* (March, April and May 1990) on battery powered hamming, some power supplies regulation circuits are not protected from the high current of the battery (some few milliseconds after power supply turn-on). The result, according to the article, is a burned out voltage regulation circuit. My power supply (cheaper C.R. type) never did commit suicide.

The capacitors C1 and C2 help to keep out any spikes on the lines. Adding a four volt DC light and diode tells you the battery is charging. The light can go in the same line with D2. The light gradually goes out when the battery is charged. This light is the voltage difference between the low battery discharged level and the regulated 13.8 volts. I prefer a slower trickle charge using a 5 ohm resister at one watt, whereas Phil apparently wanted a faster charge time. Also, gel-cells can take a higher charge rate than 12 volt car batteries.

Most Amateur Radio operators recommend fusing all the hot lines just in case you touch those leads to the wrong place. Twenty amp fuses should do it.

This emergency backup circuit has been successful for two of my winters in Costa Rica. Remember, while on batteries, it is wise to drop your transmit output level. None of my contacts ever noticed a change in my signal when the power was interrupted. This previous winter, I used the famous TS-50S and noticed no flat-topping even at lower voltage levels than the TS-430S. Each rig has its own sensitivities. WR



AERIALS

Kurt N. Sterba

I feel honored and flattered to have received a letter from "Mr. Radials" himself, the esteemed Arch Doty, K8CFU.

In part, the letter said, "I am attaching for your amusement or amazement—a copy of an advertisement that appeared in yesterday's *Wall Street Journal*. "Gee, just think, you can buy one dB of gain in an antenna for only $19.95!"

On the sheet containing the copy, next to the ad, Arch had written in red, "GOSH!"

Yes, there it was, a telescopic cellular antenna at an introductory price of $19.95. We are told that this will "drastically reduce dropped calls and boost your signal strength by at least 1 dB."

Note that it won't boost it at least two dB, so the figure must be even lower than they feel they could get away with, something like "almost 2 dB."

Alas, they are selling a product with which, after installation, the customer won't be able to hear the difference. Truly tragic. Possibly a little counseling time with a minister, priest or rabbi may help the manufacturer.

Returning now to some DX basics not known by all. Take a string and wrap it around a world globe at its widest point. That is the equator, which is a "menagerie lion" running around the middle of the earth.

The string, from where you started, around the globe and back to your starting point represents about 24,000 miles. For the benefit of those who received their licenses from the Rick Crash licensing school of a few years back, we'll mention that this is the circumference.

Now cut the string in half and place one end at your QTH. The other end you can run out to various places on the globe and realize how far you can go and be "half-way around the world," or where how far is the farthest you can get—the farthest away being around 12,000 miles. To go farther than that, it would be shorter to go around the world to your destination in the exact opposite direction.

Wherever you are in the USA you could put your string at your QTH and put the other end in Europe. (No not due east, but rather in a northeasterly direction so as to take the shortest length of string.) This is called, amazingly enough, "Short Path," and such is the direction you want to aim your beam antenna, most of the time.

On occasion the signals are stronger "Long Path." This means that instead of just a few thousand miles to Europe on the direct route, the best signal propagation is all the way around the world in the opposite direction. Your beam would be aimed exactly 180 degrees opposite the usual direction. That is, of course, unless there was some path skewing and you would have to aim, for maximum signal, in some different direction.

To help calibrate your string, here are some distances. We could say that it is 8,000 miles from New York to Johannesburg but I know you want better accuracy with your string than that. The actual number is 7,967 miles. In the other direction, New York to Taipei, we could call it 7,800 miles but it really is 7,788 miles.

For the West Coast gang, from Los Angeles to Sydney is 7,489. Those who are accustomed to doing shoddy work may wish to round it off to 7,500.

QST, on page 34 of their January 1995, issue did a truly insightful review of **AERIALS II** ($11 and $2 S/H from ***Worldradio***.) It was truly a brilliant capture of what the book is. The reviewer, Brian Battles, WS1O, did deeply probe beneath what just a casual reading of the book would have revealed. I'm impressed!!!

There was a quite recent issue of a hammag, which in an article regarding the quad, said not to use insulated wire. The article never gave a reason not to. In reality, the only reason not to was that the dimensions given in the article would be off a bit. Actually, it would be better to use insulated wire. The main reason would be that during rain storms you would have less static as the rain would not be striking the wire.

Oh, my. One of the hammags has an annual almanac now. Could someone tell them, regarding their antenna frequency vs. wire length charts, that what they keep printing as "Mhz" should be MHz. The "H" is supposed to be upper case, as Lil terms it. I would have just called it capitalized.

Then there are six pages of charts regarding HF beams. Under the heading called "Gain" you will see numbers such as 7.8, 10, 8.5, 11.0, etc.

However, there is nothing mentioned about what that gain is measured in. Are they dBd, dBi or any other kinds of dBs? Then, it is always amusing to see the manufacturer's claims. Let's take, for example, the various 4-element yagis, boom length and promised gain.

17.5	9.2
14.0	7.7
34.0	8.5
17.0	10.0

The last figure, to no one's surprise, was from The Granite Antenna Corp.

Hy-Gain says they need FIVE (not four) elements on a 26 ft. boom to realize 7.5 dB.....hmmmmmmm.

And of course, Dinah and her Dozen are able to realize 12.5 dB gain on a 20 ft. boom. WOWOW!!!

Sharp-eyed Bob Kallaway, KP2AV of Sandia Park, NM wrote, "I've read **AERIALS II** twice and somethings are actually sinking in!"

"Just when I was beginning to understand a few things.....this comes along — in your publication yet!! Help!"

What he was talking about was that on the very pages of this revered journal was a phrase that said, "Using a tuner to force transceiver happiness is better than not having the tuner but does little to enhance communications."

OK. With the usual garden variety dipole, or yagi or loaded mobile antenna, (already somewhere near resonance or even somewhat off) with the tuner in the shack the loss in the line will be so small as to be not worth worrying about.

Should you have some really whacky weirdo zoo lashup, it would be better to have the tuner right at the antenna.

KP2AV also asked about the availability of **AERIALS**. It was totally sold out but due to the great international demand (one ham in Canada wanted a copy) it will be reprinted fairly soon, I've been told.

One question that came in asked if it was worth the hassle (with neighbors) raising his tribander up from 20 feet to 40 feet. Yes! While you may lose communicating with yukky neighbors (who you probably don't like much in the first place) you will make many new friends on the air. The 20 to 40 ft. leap is probably second only to the 40 to 80 leap for cost/benefit ratio improvement when doubling height.

Another inquiry received as to where to find the Budwig connector. The recluses can be found at PO Box, 827, Ramona, CA 92055.

Pete Petersen, WY7Z, Bellevue, WA dot matrixed me with "Congratulations on your innovative ladder antenna. It's the sort of thing that lets you step up and be heard."

(Ho, Ho, Ho) We'll hear more from WY7Z next month as he outlines some of his not-so-obvious antenna structures.

(KNS goes by his nom-de-ham so as to avoid being trampled by monstrous hordes of autograph seekers during a book signing party at Dayton. One must find refuge in anonymity after being forced into the spotlight of fame by a review in QST.) **WR**

hamfests March

Arkansas

The LITTLE ROCK HAMFEST and ARRL STATE CONVENTION will be held on March 31st, from 4 p.m. to 9 p.m. and April 1st from 8 a.m. to 5 p.m. at the Little Rock Exposition Center, exit 126, I-30, southwest Little Rock. Admission is $7. Call for dealer prices. Features include flea market, exhibitors, forums, working stations on; packet, amateur television, satellite. For information, contact Jim Blackmon, KB5IFV 501/246-6734 Office, 501/246-7833 (24 hr. recorder).

California

THE LIVERMORE ARK is sponsoring an Amateur Radio/Electronic/Computer Swap Meet on March 5th from 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. Talk-in on 147.045(+) from the west and 145.350(-) PL 100Hz from the east. Contact Noel Anklam, KC6QAK, at 510/447-3857 eves. or leave message days at 510/783-2803.

Florida

PLAYGROUND AMATEUR RADIO CLUB will host its 25th annual North Florida ham/swapfest on March 18 and 19 at the Fort Walton Beach, FL fairgrounds from 8 a.m to 5 p.m. (Sat.) and 8 a.m. to 3 p.m. (Sunday). Features include large flea market, commercial vendors, forums and meetings. Admission is $5. Ladies and persons under 16 admitted free. Tables are $10 per day or $15 for both days. Call Bud, K8YNU at 904/243-5404 or Scott, KE4BFT at 904/244-3182. For RV space call Roberta at 904/862-0211. For information, you may write PARC, Box 873, Fort Walton Beach, FL 32549.

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The GAINESVILLE AMATEUR RADIO SOCIETY'S 8th Poorman's hamfest and computer show will be held on March 31st and April 1st from 5 p.m. to 11 p.m. (Friday), 8 a.m. to 4 p.m. (Saturday) at the Alachua County Fairgrounds in Gainesville. Admission is $5 - tailgate $6 - tables $7, good refreshments - free parking. Overnight camping Friday and Saturday - $10 per night. Tickets and tables send check and SASE to: Bill Wells, K4RDP, P.O. Box 1397, High Springs, FL 32643 or call 904/454-3105; talk-in 146.82(-).

Illinois

The LIBERTYVILLE and MUNDELEIN AMATEUR RADIO SOCIETY, assisted by the North Shore Radio Club, will hold its annual LAMARFEST at the Lake County Fairgrounds on March 26th from 8 a.m., setup from 6 a.m. Large, all indoor electronic, radio and computer swapfest, commercial exhibitors. Rest area, free parking, public cafeteria, VE testing. Admission is $5; swapfest tables $10; wall tables $15; commercial tables $25; advance table reservations (only with tickets) until March 18th. Talk-in 147.345(+) NSRC repeater; 146.52(S). For information, write Lamarsfest '95, 650 Green Bay Rd., Lake Bluff, IL 60044, or call Frank Avellone, W9GLO, at 708/234-4124 before 10:00 p.m.

Indiana

The MICHIGAN CITY ARC will sponsor their annual hamfest/computer show on March 25th from 8 a.m. to 2 p.m. at Rogers High School, 8466 Pahs Rd. Setup 6 a.m. Admission $4, six foot tables $6, electric hookups $2. Talk-in on 146.97(-) (131.8 Hz PL). For information, call or write Ron Stahoviak, N9TPC, 213 S. Dickson St., Michigan City, IN 46360, 219/872-6594.

Kansas

The TROJAN AMATEUR RADIO CLUB will sponsor their swapfest on March 18th from 8 a.m. to 3 p.m. at the Colby National Guard Armory on K-25. Admission $2, tables $5. Setup at 6 a.m. Food on site. Presentations by National Weather Service, Kansas Packet Group and ARRL. Early bird dinner Friday, March 17th, 6:30 p.m. at the Sirloin Stockade. Talk-in 146.82(-) WØWOB repeater. For information, write TARC, Box DX, Colby KS 67701-0983.

Massachusetts

The MT. TOM AMATEUR REPEATER ASSOCIATION will hold its 11th annual flea market on March 5th from 9 a.m.; vendor setup 8 a.m.; VE exams 10 a.m.; tailgating (weather permitting) at Smith Vocational School, Route 9, Northhampton. Features include: door prizes, static equipment displays. Admission is $3, under 12 free; tables $12 reserved, $15 at door, tables provided (includes one admission). Tailgating $5 per parking space, does not include admission. The site is handicapped accessible. For information, contact Jim, K1MEA, 413/527-3199 eves., before 10 p.m. EST.

Maryland

THE BALITIMORE AMATEUR RADIO CLUB, Inc., will hold its hamboree and computerfest on March 25th and 26th from 8 a.m. to 4 p.m., at the Timonium Fairgrounds in Timonium. Features include ARRL Convention program and banquet, indoor/outdoor show and sale areas, Amateur Radio dealers, tailgating (indoor and outdoor). Admission is $5 each day or $8 for both days, advance sale only. Call 410/426-3378. Outside the State of Maryland, dial 800/426-3378. You may write to GBH&C, P.O. Box 95, Timonium, MD 21094-0095.

Michigan

The SOUTHERN MICHIGAN ARS is sponsoring its 34th annual Michigan Crossroads hamfest. It will be held on March 18th from 8 a.m. to 3 p.m. (setup at 6 a.m.). Features will include computers and crafts. Free parking and full food service. There will be *no* exams this year. Admission is $3 in advance, $4 at the door. Table reservations $4 minimum, reserved until 8 a.m. Table rental not considered admission. Send an SASE to: SMARS, P. O. Box 934, Battle Creek, MI 49016 or call Wes Chaney, N8BDM, at 616/979-3433. Talk-in 146.66(-).

Missouri

The ARARAT SHRINE ARC will host the traditional spring hambash on March 18th from 8 a.m. to 2 p.m. at the Ararat Shrine Temple, Kansas City. Commercial dealers, flea market, VE session, forums, good food, free parking. Admission $2 each or 3 for $5 in advance, $3 at the door. Swap tables, $15 (includes 3 admissions). Talk-in on 145.13(-). For information, SASE to Roger Bessmer, KBØIIG, 2525 Southwest Blvd., Kansas City, MO 64108, or Bill, W5NI, 816/246-7280.

New York

The WESTCHESTER EMERGENCY COMMUNICATIONS ASSOCIATION will hold its 11th annual hamfest and computer show on March 19th from 9 a.m. to 2 p.m. at Yonkers Raceway. Features include free parking, major equip-

ment dealers, door prizes, tailgate area, full food service, radio tech clinic, forums, walk-in FCC exams. Pre-registration of all vendors including tailgating is required. Talk-in on 147.06(+) repeater. Call 914/962-9666 or write Tom and Jeanne Raffaelli, 544 Manhattan Ave., Thornwood, NY 10594.

North Carolina

The MECKLENBURG AMATEUR RADIO SOCIETY will hold is 1995 Charlotte hamfest and computerfair on March 11th (9 a.m. to 5 p.m.), and March 12th (9 a.m. to 2 p.m.), at the Charlotte Merchandise Mart in Charlotte. Features include major manufacturers and large radio/computer dealers from throughout the country. There will be forums, great prizes, and VEC FCC testing on Sunday (pre-reg or walk-in as space permits). Lots of parking. Admission is $6 in advance, $8 at the door, good for both days, under 12 free. Talk-in on W4BFB, 145.29(-). For more information, call 704/841-HAMS or write to: Charlotte Hamfest, P.O. Box 221136, Charlotte, NC 29222-1136.

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The DOWN EAST HAMFEST ASSOCIATION will be holding their 5th annual hamfest on March 26th from 8 a.m to 3 p.m. at the Lenoir County Fairgrounds, Highway 11 South. Features include: Dealers, vendors and flea market inside; tailgate facility outside. VE exams start at 11 a.m., walk-ins only. Admission is $4 each or (3) for $10 in advance; $5 each or (3) for $12 at the door. Tables $9 each, electric $5 each. Security is provided through the night. Talk-in 146.685(-). Contact person is Doug Burt, WB4UOU, 919/524-5724.

Ohio

The HAMFEST ASSOCIATION OF CLEVELAND will hold its winterfest on March 5th from 8 a.m. to 2 p.m., early setup 6 a.m. at the Cuyahoga County Fairgrounds, Berea. VE exams will be administered early. Admission $5 at gate. Tables $13 (includes admission), extra tables $10. For more information, contact Hamfest Association of Cleveland, P.O. Box 81252, Cleveland, OH 44181-0252 or call 800/CLE-FEST (999-7388 in Cleveland area).

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The TEAYS AMATEUR RADIO CLUB of Circleville, OH, will be hold their annual hamfest on March 12th from 8 a.m. at the Pickaway County Fairgrounds in the 4-H building. Tickets $4 in advance, $5 at the door; tables $5 in advance, $6 at the door (until filled). For information and advanced ticket/table sales, contact Dan Grant, W8UCF, 22150 Smith-Hulse Rd., Circleville, OH 43113 or call 614/477-3026.

Pennsylvania

The 8th annual YORK SPRINGFEST (ham and computer) will be held March 12th from 8 a.m at the York Fairgrounds. Indoor tables and blacktop tailgating. Food, refreshments and prizes. Admission is $5, age 12 and under and unlicensed spouse free. Inside tables $19 and $25 (add $10 for electricity). Tailgating $5 per space. W5YI VE exams. Talk-in on 146.97(-). Advanced info and registration, call 717/843-7864 (leave message or fax) or write: York Springfest, P.O. Box 526, Red Lion, PA 17356.

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The TWO RIVERS ARC, INC., will hold its 23rd annual hamfest/computer fair on March 26th from 8 a.m. to 3 p.m. (vendor setup the 25th from 4:30 p.m. to 10 p.m. or the 26th from 6:30 a.m. to 8 a.m.), at the Greater Pittsburgh Expomart in Monroeville. Admission is $4; vendor passes are maximum of 1 per 2 tables (excess of this number is $4 each). Six foot tables are $12 each. Electricity $10. For information, contact TRARC, Inc., P.O. Box 225, Greenock, PA 15047.

Tennessee

The MIDDLE TENNESSEE AMATEUR RADIO SOCIETY will hold its 1995 hamfest on March 11th from 9 a.m. to 3 p.m. at the National Guard Armory, Highway 55, in Tullahoma. Vendor setup 3 p.m.; tables $5. Admission is $3, children under 12 free. Talk-in on 146.70(-). For more information, contact Ian Haynes, AB4SW, at 615/649-5187.

Texas

The MIDLAND AMATEUR RADIO CLUB will be holding their 40th annual St. Patrick's day swapfest on March 18th (9 a.m to 5 p.m.) and 19th (8 a.m. to 2:30 p.m.) dealer setup on the 17th from 3 to 6 p.m. at the Midland County Exhibit Building east of downtown Midland on the north side of Business 20. Features include huge flea market inside, many dealers, T-hunts, large concession stand and VE exams at 12 p.m. on Saturday. Admission is $7 in advance or $8 at the door. Tables are $10 each for the first two and $15 each for additional tables. For information, contact the Midland ARC at P.O. Box 4401, Midland, TX 79704.

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The FOUR STATES AMATEUR RADIO CLUB will hold its hamfest on March 25th from 7 a.m. to 6 p.m. at the Texarkana College Student Center. Dealer setup on Friday after 6 p.m. Overnight RV parking available on request; security provided. Admission is $3. Talk-in 146.62(-). For information, contact Four States ARC, c/o Bill Wilson, KB5WDV at #34 Dustin Terrace, Nash, TX 75569 or call 903/832-5644.

Virginia

The VIENNA WIRELESS SOCIETY will hold its 19th annual winterfest on February 26th at the Vienna Community Center in Vienna. VE testing February 25th only. Talk-in on 146.91(-) and 146.68(-). For information, contact Christine, KE4HWE at 703/560-7399 or Jorge, KE4DGQ at 703/729-4711.

Washington

The MIKE & KEY ARC of Seattle, will hold its 14th annual elctronics show and fleamarket on March 11th in Puyallup. Admission is $5 (under 16 free with adult). Tables with one admission is $22, commercial booths $88. Free parking, including Friday overnight parking for self-contained RVs. Talk-in on 146.82(-), PL103.5 and 146.58(S). VE exams 11 a.m., preregistration required. For table information, call 206/854-4031.

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The WALLA WALLA VALLEY ARC will hold its swapfest on March 19th from 8 a.m. to 3 p.m. at the Milton Freewater Community Center in Milton Freewater. There will be a Northwest ARRL Division meeting from 1 p.m. to 3 p.m. Admission is free with sign-in. Swap tables (radio gear and related equipment only, please!) Talk-in on 147.28(+). For information, contact David Pence, KB7WRT, 180 E. Sumach St., Walla Walla, WA 99362-1348 or call 509/525-2529.

Wisconsin

The TRI-COUNTY ARC will hold its annual hamfest on March 19th from 8 a.m (vendors 7 a.m.) at the Jefferson County Fairgrounds, Jefferson, WI. Admission is $4 and six foot tables will be $5 each. Information may be obtained by writing W9MQB, 213 Frederick St., Fort Atkinson, WI 53538 or call 414/563-6381 eves.

'Tis the hamfest season. Get your announcements in early!

CONTESTS

1995 Virginia QSO party

The Virginia QSO Party, sponsored for the 20th year by the Sterling Park Amateur Radio Club, is scheduled for March 18-20, 1995.

Plaques will be awarded to the top scoring Virginia and out-of-State stations, and to the top CW-only, Novice/Technician, QRP only, VHF-only, Club, and VA mobile stations. Certificates go to the high scoring fixed station single operator in each Virginia county, US state, Canadian province, and DX country.

The theme this year is:" "95 in '95."

The reason is that there are 95 Virginia counties and SPARC is attempting to get all of them activated during the contest weekend in 1995 (for the first time, we believe). Comunication with all clubs in the state is encouraged, as many portable and mobile operations as possible during the contest.

New plaques will be provided for this 20th anniversary year of our sponsorship for the two highest scores from: (a) all QRP and (b) all VHF by the contest operator.

For contest log/report form sample plus a list of all 95 VA counties and their abbreviations, send an SASE to W3FTG. For further information, contact Sterling Park ARC contest chairman William T. "Red" Free, W3FTG, 3627 Great Laurel Lane, Fairfax, VA 22033-1212 or W3FTG@N3RR on the DX Packet Cluster, or e-mail redfree@aol.com, or packet W3FTG@N4WJN.VA.US.NA.

Friendship contest

Friendship Contest is sponsored by the Russian-Speaking Radio Club International (USA) and '*KV Journal*' (HF Magazine), of Moscow, Russia. The purpose of the contest is to strengthen friendly ties between the amateurs of the United States and the new CIS and Baltic countries.

Dates/times: April 22-23, 1995, 13:00 to 13:00 GMT

Bands: 7, 14 MHz (please avoid DX windows). Modes: CW, SSB concurrently.

Only stations located in the USA (50 states) and the following countries are invited to participate in this competition:

Russia	Moldova (Moldavia)
Azerbaijan	Ukraine
Armenia	Tajikistan
Belarus (Byelorussia)	Georgia
Kyrghyz (Kirghiz)	Uzbekistan
Turkoman	Kazakhstan
Estonia	Lativa
Lithuania	

Participants call 'CQ FC' on CW, and 'CQ Friendship' - on SSB.

Categories: One operator - 2 bands

Exchanges: US stations send RS(T) with a state name.

CIS/Baltic stations send RS(T) with CQ Zone number.

Points: US stations get 1 point for contacts with stations in the CIS/Baltic countries only. Stations in the CIS/Baltics get 1 point for QSOs with the stations in the USA only.

Any one station may be contacted twice on the same band (1 - CW, 1 - SSB)

Multipliers: For the US stations: Countries of the CIS and the Baltic countries (total 15) and the following *CQ* Zones in which the above countries are located: 15, 16, 17, 18, 19, 21, 23, 40. For the CIS/Baltic: 50 states of the USA.

Multiplier is counted only once, regardless of the band/mode

Final score: Total QSO points x total multipliers

Awards: Plaque for top scorer in the USA and CIS/Baltics. Top 10 participants in the USA and CIS/Baltics shall receive diploma. Special diplomas will be awarded to the CIS/Baltics winners by country and zone. A special prize will be awarded to the participant who sends in the best commentary along with the log. Results will be published in *KV Journal* and *CQ Magazine*.

Logs: US logs (3.5" diskette and paper) must be sent to:

Friendship Contest, c/o RSRCI, P.O.Box 715, Brooklyn, NY 11230.

For the CIS/Baltics: Russia, Moscow, 105122, P.O.Box 59, SRR

Deadline: Mail your logs in no later than May 15, 1995.

Handi-Ham video

A videotape of the Courage Handi-Ham System is available. The VHS format tape details the history, philosophy and services of the Courage Handi-Ham System.

The video, *Making Contacts — Making Friends, the Courage Handi-Ham Story,* are available to any club or organization wishing to show it by writing Sr. Alverna O'Laughlin at Handi-Ham headquarters. In your letter, state the date(s) you want to show the video, the approximate number in the audience, and the name of the group or organization to whom it will be shown. Allow six weeks lead time for delivery of the tape.

Copies of the videotape can be purchased for $15 by contacting the Courage Handi-Ham System, 3915 Golden Valley Rd., Golden Valley, MN 55422. WR

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

Cable X-pert

If you're having difficulty or concerned about installing PL259s, "N" connectors, then Cable X-perts, Inc., will install their connectors at $5.00 per connection plus the cost of the connector on any of their coax cables (except LMR series).

All connections are soldered, HI-POT tested, continuity checked, and sealed with UV resistant heat shrink tubing. Normal turn around time is 10 business days. For further information see our advertisement in or mail a business size self-addressed stamped envelope to: CABLE X-PERTS, INC, 113 McHenry Rd, Suite 240, Buffalo Grove, IL 60089-1797.

If you need additional information or have any suggestions please call 708/506-1886 or fax 708/506-1970.

ARRL *Handbook*

The American Radio Relay League has announced the publication of the 1995 ARRL *Handbook for Radio Amateurs.* Now in its 72nd edition, the *Handbook* is considered the "final authority" on technical matters for Amateur Radio operators, broadcast engineers, and others interested in communications technology. More than six million copies of the *Handbook* have been sold since the first edition in 1926.

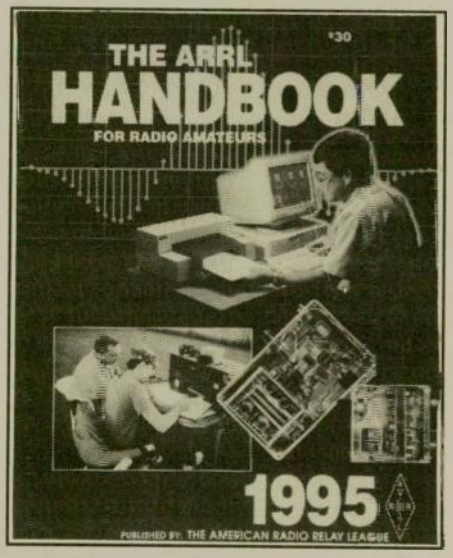
The 1995 *Handbook,* is not merely a revision but an entirely rewritten book that supersedes all previous editions, with new chapters that represent a snapshot of Amateur Radio in the 1990s.

"The 72nd edition has been reorganized for easier reading, and represents several years of research and revision," says Mark Wilson, ARRL Publications Manager. "In addition to many of the well-known experts who have contributed to the book in the past, we've assembled a stable of new contributors to cover digital signal processing and other evolving technologies that are shaping the Amateur Radio of today and tomorrow."

The *Handbook* features chapters on radio and communications theory, background information on assembling, setting up and testing an Amateur Radio station, and a wealth of new projects for the homebuilder from power supplies to transceivers and amplifiers.

Handbook enthusiasts have traditionally incl[illegible] nic hobbyists and professionals, shortwave listeners, science teachers, students and others.

The 1995 edition is available at Amateur Radio and electronics retailers, book dealers, or through the American Radio



Relay League. List price is $30.

To order the 1995 ARRL *Handbook for Radio Amateurs,* call ARRL at (203) 666-1541, Ext. 255. The American Radio Relay League, Inc., 225 Main Street, Newington, Connecticut, 06111, MCI Mail ID: 215-5052, fax: 203-665-7531.

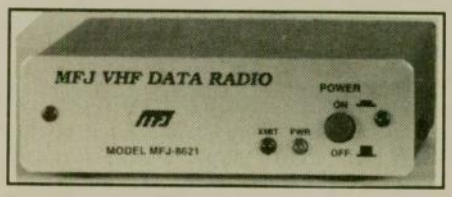
MFJ-8621 *"Packet Only"* VHF data radio

The MFJ-8621 Data Radio will monitor *"Packet Only"* on your favorite packet channel for continuous 24 hour a day duty for only $119.95.

You can dedicate MFJ's *"Packet Only"*™ transceiver to your favorite packet channel for continuous 24-hour-a-day duty. It won't stop monitoring packet unless you want it to!

MFJ's 8621 is a 2 Meter FM data receiver built exclusively for, and dedicated to monitoring high-performance packet. It will run all data rates through 9600 straight out of the box.

Easy to operate...just plug in an appro-



priate TNC cable (also available), your antenna, a 12V DC power supply and you're ready to enjoy error-free packet. At 5 watts output, the ideal power for packet, and it is plenty to cover your operating area without disrupting distant nodes.

It will operate on 145.01 MHz with crystals pre-installed, but you can also order plug-in crystals for the packet channel of your choice. Additional features that'll prove that the MFJ-8621 is the VHF data radio of choice:

- Direct modulation data rates through 9600 baud without modification.
- Ultra-fast PIN diode switching gives you near instantaneous changeover between transmit and receive.
- A dual conversion receiver, 0.25 uV low noise preamp, and a double-tuned front end give excellent signal reception and freedom from intermod.
- A narrow 10.7 MHz IF filter plus a special full data-bandwidth 455 KHz IF filter for optimum passband and steep skirts for error-free data reception.
- Unsquelched audio feeds directly to your TNC for fast DCD response, and the receiver local oscillator is crystal-controlled. It runs full-time, so there is no start-up drift or synthesizer lock-up delay.
- Once set-up, that's it. There's nothing to adjust—just turn it on and you'll be monitoring your favorite packet channel for as long as you want.

The MFJ-8621 offers very dependable performance, 24 hours a day. Works well for portable packet, because it measures 5x 5x1½ inches and draws just 15 mA on receive and less than 1 amp on transmit on 12V DC.

Optional accessories are available through MFJ for the 8621. Pre-wired MFJ-8621 to TNC cables are as follows: Order MFJ-5100, $9.95 for all MFJ/TAPR/PacComm TNCs; order MFJ-5100X for PK232; MFJ-5100Z for PK-88; MFJ-5100Y for KAM/KPC3; $14.95 each. A 110V AC power supply (MFJ-4110) is available for only $39.95.

The MFJ-8621 *"Packet Only"* VHF Data Radio comes with MFJ's famous "No Matter What" full one year unconditional guarantee. 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 1-800-647-1800.

Vibroplex

The Vibroplex® Co., Inc., the "Oldest Name in Amateur Radio"™, has been acquired by S. Felton "Mitch", Jr., of Mobile,

Alabama. Mitch whose amateur call is WA4OSR, is an Extra class amateur first licensed in 1963. Mitch is the first ham to own Vibroplex. The company will be moving all its operations back to the south, where its roots began. All current Vibroplex products, including the Original bug, the Iambic, the Vibrokeyer, and the Brass Racer keys will continue to be produced.

Mitch says "The Vibroplex name is older than Amateur Radio and has come to represent the one piece of equipment in the ham shack that symbolizes the interest, camaraderie, and esprit de corps of the worldwide ham radio community. Even in this age of electronics, the heritage of Vibroplex has been passed down from generation to generation in the service of professional and Amateur Radio operators who demand quality. I intend to continue the unmatched Vibroplex quality, feel, simplicity, and performance." Be watching for some new, exciting products from Vibroplex in the near future.

The address for Vibroplex is 11 Midtown Park, E., Mobile, AL 36606-4141. The new voice telephone numbers are 05/478-8873 or 800/840-8873. The new fax number is 205/476-0465.

Mouser Electronics components catalog

Mouser Electronics, one of the top 50 electronics distributors nationwide, announces the publication of their latest industrial electronic components catalog. This is an excellent guide for buyers, engineers, and even manufacturing managers. Provides specification drawings, and a real rarity, up-to-date, guaranteed prices. It is easy to use with a Quick Index on the front cover and a comprehensive index of both manufacturers and product categories. Mouser is sensitive to time constraints and provides same day shipping on all orders.

The new, 276-page catalog contains over 45,000 in-stock, factory-authorized product selections from more than 100 quality conscious manufacturers and features new product listings from AMP, Teccor, SGS Thomson, Littelfuse, Amphenol, 3M, and Belden. Select from semiconductors, passive components, electromechanical devices, resistors, capacitors, switches, transformers, inductors, wire and cable, connectors, publications, equipment, and supplies...all available at guaranteed published prices and in-stock for immediate

(same day) shipment or scheduled order delivery.

Complimentary copies are available by calling toll-free (800) 992-9943. Mouser Electronics, 2401 Hwy 287 North Mansfield, TX 76063, 817/483-4422.

MFJ to use Kantronics' G-TOR™

MFJ Enterprises, Inc., has licensed to utilize Kantronics' patent-pending G-TOR technology. The lightning-fast G-TOR mode, developed by Kantronics, will likely be incorporated into MFJ's 1278-series multi-mode data controllers. The addition of G-TOR will enhance MFJ's data controllers with the highest data throughput rate available and will multiply the number of G-TOR based stations on the air. Once the G-TOR mode is implemented, MFJ will offer an update package for previous versions of the 1278 series.

Since Kantronics released G-TOR in March 1994, more than 6,000 stations have been equipped with this evolutionary, cost-effective mode. Kantronics, a pioneer in amateur data communications, continues to offer the G-TOR license to modem manufacturers and software developers. For more information, contact Kantronics, 1202 E. 23rd Street, Lawrence, KS 66046, 913/842-7745, fax 913/842-2031.

IC-100H tri-band FM mobile transceiver

Icom announces the IC-100H tri-band FM mobile transceiver for 144 MHz, 440 MHz and 1.2GHz. Three independent band units allow you to receive on all bands simultaneously. A large LCD readout displays complete information for each band, including S/RF, volume and squelch levels. Each band is controlled by a separate volume and tuning knob and there are three external speaker jacks. In addition, there is an antenna connector for each band so you can use a duplexer or triplexer without any mismatching antenna loss.

The all-in-one IC-100H may be installed as a complete unit or you can detach the front panel and mount it separately from the main body (with optional OPC-332). The IC-100H can also be remote-mounted, by mounting the main body in the vehicle's trunk with the optional OPC-333 and OPC-3.35.

Cross-band double duplex (transmit on one band while receiving on two others), cross-band repeat (mini-repeater3 and cross-band full duplex (transmit on one band and receive on another) are possible.

The IC-100H provides exceptional performance. AFC-RIT, AFC-VXO, manual RIT and manual VXO modes are included to compensate for "off-frequency" of the transmit station (1.2GHz).

The IC-100H has high sensitivity and a double-conversion superhetrodyne receiver system, providing more than 2.4W

of clear audio output power.

Two separate memory banks include a total of 642 memory channels, making this an ideal rig when there are multiple hams in the family. Each memory channel stores the operating frequency, duplex direction, offset frequency, subaudible tone, encode on/off, tone squelch on/off and skip information.

Priority watch allows you to scan one (or more) memory channels per band while operating on a VFO frequency. You can also transfer call or memory channel contents to VFO. This is particularly useful when searching for signals around a memory channel frequency and for recalling the offset frequency, tone, etc.

Over 22 functions are accessible from the multi-function DTMF microphone including 14 DTMF auto dial memories for autopatching, accessing repeaters and controlling other equipment, etc. The one-

touch PTT enables telephone-like conversations without having to continuously press PTT. The beep tones for each band have a distinct sound so you can keep your eyes on the road.

For information on pricing and availability, please contact your local Amateur Radio dealer or Icom America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, (206) 454-8155.

PC PakRatt for Windows 2.0

Advanced Electronic Applications, Inc. (AEA) offers version 2.0 of the powerful PC PakRatt for Windows computer program. PC PakRatt for Windows 2.0 is aPC PakRatt for Windows 2.0 is a full-blown Windows application for controlling the entire AEA family of data controllers, including the PK-900, DSP-1232 and DSP-2232, as well as the PK-232MBX and the PK-88. This new version now supports the PK-96 1200/9600 bps packet controller and the PK-12 1200bps packet controller.

PC PakRatt for Windows 2.0 makes operating your data controller easy. PC PakRatt for Windows 2.0 can run twoAEA data controllers simultaneously. Run HF or VHF Packet,AMTOR, BAUDOT, Morse Code, ASCII, Signal Analysis, NAVTEX, PACTOR, or dumb terminal modes all through PC PakRatt for Windows.

PakRatt for Windows 2.0 is now fully compatible with Log Windows 2.0. This means users have the powerful TNC control of PC PakRatt for Windows 2.0, coupled with the great database, logging, and tracking features of Log Windows 2.0.

Sending and receivingANSI graphics in PACTOR is now possible. Users now have access to this exciting form of computer art with PC PakRatt for Windows 2.0.

MailDrop operation is more powerful with an increased buffer size. MailDrop makes it easier to read, write, and file messages with redesigned windows.

Other features included in PC PakRatt for Windows 2.0 are:A packet monitor window for displaying monitored packets, custom parameters for 9600bps packet operation, split-screen operation, on-screen status, file transfers, macros, QSO logging, menu-driven help, on-screen parameter lists, separate windows for each data controller, and much more.

Suggested retail price for PC PakRatt for Windows version 2.0 is $129.00. Upgrades for PC PakRatt for Windows 1.0 are available directly from AEA by calling (206) 774-1722, weekdays between 8:00 a.m. and 4:30 p.m., Pacific time. PC PakRatt for Windows version 2.0, as well as the rest of AEA's high quality product line, is available from your favorite Amateur Radio dealer.

For more information, please contact: Advanced Electronic Applications, Inc., P.O. Box C2160, Lynnwood, WA 98036, or call (206) 774-5554, fax: (206) 775-2340.WR

Brazilian islands

(continued from p. 11)

SA-038 PYØR Atol das Rocas
PYØAD, PYØRC, PYØRK, ZYØRCO, ZØRF, ZØRK, ZYØRV, ZYØRW

SA-003 PYØF Fernando de Noronha Archipelago
PPØF, PQØF, PSØF, PTØF, PUØF, PUØWH, PVØAKL, PXØF, PYØAB, PYØAC, PYØAJ, PYØAPS, PYØAS, PYØBXC, PYØCW, PYØFA, PYØFC, PYØFE, PYØFF, PYØFG, PYØFI, PYØFJ, PYØFJD, PYØFK, PYØFM, PYØFN, PYØFNI, PYØFOC, PYØFZ, PYØMAG, PYØOD, PYØPO, PYØYCW, PYØYS, PYØZDX,PYØZFB, PYØZFF, PYØZPH, PYØZZ, PY1ZFO/Ø, PY2GWF/Ø, PY2XB/Ø, PY7ACQ/Ø, PY7AIN/Ø, PY7AKW/Ø, PY7LJØ, PY7VOC/Ø, ZWØF, ZXØF, ZYØFA, ZYØFCA, ZYØFCM, ZYØFJ, ZYØFKL, ZYØFMC, ZYØFMN, ZYØFOC, ZYØFRT, ZYØFT, ZYØFX, ZYØFZB, ZYØFZI, ZYØZZB, ZZØF

SA-014 PYØS St Peter and St Paul Rocks
PSØWH, PWØPP, PYØDX, PYØPP, PYØRO, PYØSA, PYØSJ, PYØSK, PYØSP, PYØSR, PYØWH, PYØXB, PYØZDF, PYØZSA, PYØZSB, PYØZSC, PYØZSD, PYØZSE, PYØZSF, PYØZSG, PYØZSH, PYØZSJ, PYØZSP,ZYØSA, ZYØSB, ZYØSS, ZYØSW, ZYØZY

SA-010 PYØT Trindade Island
PPØMAG, PYØAW, PYØBLR, PYØCZR, PYØDVG, PYØEG, PYØEP, PYØNA, PYØRE, PYØTA, PYØTAU, PYØTB, PYØTE, PYØTF, PYØTK, PYØTM, PYØTQ, PYØTR, PYØTSN, PYØTUP, PYØTW, PYØTX, PYØTY, PYØZAA, PYØZAE, PYØZZA, ZXØVG, ZYØTA, ZYØTC, ZYØTF, ZYØTI, ZYØTJ, ZYØTK, ZYØTM, ZYØTO, ZYØTR, ZYØTT, ZYØTW, ZYØTX, ZYØTY, ZZØTA

No doubt there are other calls I have missed. The latter three are separate DXCC countries and if you have those three confirmed you already have those IOTA reference numbers. The above list does not reflect the changes in the island arrangement. PVØAX no longer counts for SA-028 and now counts for SA-071.

There is also an award, the *Brazilian Islands Award (DIB)* for confirming contacts with at least 20 different Brazilian islands. A list of islands and the rules are available from Pedro Sirzanink, PP5SZ, Rua Padre Roma 194/704, 88010-090, Florianopolis, SC, BRAZIL. Please include $2.00 (U.S.) or 2 IRC for the list. WR

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 of a person to contact for further information.

w/i = walk-in

Date	City	Contact	Notes
Arizona			
4/8/95	Tucson	Joe, K7OPX 602/886-7217	w/i only
4/15/95	Tucson	Micki, AA7RR 602/883-8305	p/r req
Arkansas			
4/15/95	Mountain Hm	Gerald, WM5W 501/430-5123	p/r req
California			
4/2/95	Carlsbad	Rusty, AA6OM 619/747-5872	p/r pref.
4/2/95	Chico	Jacquelyn, W6YKU 916/342-1180	p/r
4/22/95	Chula Vista	Jim, KK6KZ 619/428-8418	p/r pref.
4/27/95	Colton	Harold, AB6RN 909/685-6073	p/r pref.
4/2/95	Concord	Gene, WW6H 510/254-5090	w/i only
4/29/95	Culver City	Scott, K6PYP 310/459-0337 Dave, N3BKV 818/559-2572	w/i pref.
4/29/95	Escondido	Tom, N6CLO 619/745-7850	p/r only
4/29/95	Fairfield	Dick, AB6EY 916/791-0268	w/i pref
4/20/95	Fountain Vlly	Tom, N6XKY 714/778-1542	p/r only
4/4/95	Fremont	Greg, KJ6EP 510/791-6818	w/i only
4/29/95	Garden Grove	John, N6CTV 714/534-86333	p/r pref.
4/23/95	Hanford	Carleton, AA6GZ 209/924-4221	w/i only
4/27/95	Long Beach	Blair, W6LRF 714/847-6370; Dale, N6LUH 310/596-1023	p/r pref.
4/15/95	Long Beach	Ken, KN6EC 310/431-8998	p/r pref.
4/29/95	Pomona	Don, WA6HNC 909/949-0059	p/r pref.
4/15/95	Redwood City	Joe, KB6OWG 145.23(-) PL=100	w/i OK
4/5/95	Sacramento	Jim, AB6OP 916/393-8839 Earl, AB6CN 916/331-1115	p/r pref.; w/i OK
4/15/95	Sacramento	Lyle, AA6DJ 916/483-3293 Phil, N6ZVA 916/338-3223	w/i OK
4/15/95	San Diego	Jeff, AB6NE 619/295-5852	
4/8/95	San Pedro	Elvin, N6DYZ 310/325-2965	p/r pref.; w/i OK
4/8/95	Santa Rosa	Claude, 707/996-6461	p/r
4/1/95	Santee	Knick, K6SK 619/466-8219	p/r pref.
4/29/95	Sonoma	Jim, 707/996-6461	p/r
4/15/95	Stockton	Mark, W6DKI 209/465-7496	w/i
4/8/95	Sunnyvale	408/255-9000 24-hrs.	w/i only
Colorado			
4/8/95	Colo. Springs	Rick Brown, 719/531-9423	w/i OK
4/8/95	Denver	Glenn, WØ1JR 303/366-9689	w/i OK
4/8/95	Greeley	Rick Hubbard, 303/353-3577	w/i OK
4/1/95	Littleton	David Avery, 303/795-5718	w/i OK
4/22/95	Longmont	Randy Abbott, 303/651-1075	w/i OK
4/1/95	Sterling	Blaine, WAØJTB 303/522-5787	w/i OK
All of Colorado VE info		24-hr hotline 304/360-7294	w/i OK
Connecticut			
4/26/95	Shelton	Lee, WA1TSW 204/735-9476	w/i OK
Florida			
4/15/95	Melbourne	Bill, WB9IVR 407/724-6183	w/i OK
4/20/95	Vero Beach	Roger, KC4NHB 407/567-3979	w/i OK
Idaho			
4/8/95	Boise	Lem, W7JMH 208/343-9153	w/i OK
Illinois			
4/8/95	Chicago	David, NF9N 708/448-0580	w/i OK
4/15/95	Loves Park	Dennis, W9SS 815/877-6768	p/r; w/i
4/15/95	Westmont	Don, N9IZU 708/964-6712	w/i OK
Indiana			
4/19/95	Indianapolis	Pete, 317/259-7610	p/r only
4/2/95	Terre Haute	Fred, K9EBK 812/466-2122	w/i OK
Iowa			
4/29/95	Council Bluffs	Lorraine, AAØBS 712/322-1454	w/i OK
4/22/95	Mt. Pleasant	Dave, WDØENR 319/986-6164	w/i OK
Kansas			
4/6/95	Newton	Charles, KAØRCK 316/283-6042	p/r pref. w/i OK
Maryland			
4/25/95	Annapolis	Lois, KA3VVQ 410/647-4178	p/r pref.
4/25/95	Glen Burnie	Jerry, NU3D 410/761-1423	p/r pref.
Michigan			
4/26/95	Dearborn	313/676-6248	p/r pref.
Missouri			
4/1/95	Kimberling	James, NQØG 417/739-2888	w/i OK
Montana			
4/4/95	Great Falls	George, AA7GS 406/453-2360	
New Jersey			
4/8/95	Cranford	24-hr. hotline: 201/377-4790	w/i OK
4/12/95	Ft. Monmouth	Gerry, WB2GYS 908/532-5354	w/i OK
4/22/95	Rio Grande	John, AA2TZ 609/884-8117	w/i OK
4/3/95	Sayreville	Larry, N2ELW 908/754-5800 days 908/613-8967 eve.	w/i OK
New York			
4/11/95	Hicksville	Bob, W2ILP 516/499-2214	w/i
4/15/95	Long Island	Les, AA2FJ 516/364-0030	
4/2/95	Yonkers	Emily, AC2V 914/237-5589	w/i OK
Ohio			
4/6/95	Cincinnati	Herb, WA8PBW 514/891-7556	w/i OK
4/8/95	Van Wert	Robert, KA8IAF 419/795-5763	p/r
Oregon			
4/8/95	Eugene	Bary, AA7LE 503/343-8811 days; 503/935-2518 eves.	p/r
4/11/95	Pendleton	Mike, AA7SL 503/566-3597	w/i OK
4/12/95	Roseburg	Dick, AA7GC 503/672-7564	w/i OK
Pennsylvania			
4/1/95	Corry/Erie	Norma, W3CG 814/665-9124	w/i OK
4/15/95	Hermitage	Dennis, WM3H 412/347-5960	w/i OK
4/7/95	Nazareth	John, WX3C 610/767-4778	w/i
4/8/95	Shrewsbury	Carol, KC6GMN 717/235-0273	p/r pref.
4/15/95	Stockdale	Lou, KA3FLU 412/938-8125	p/r only
Rhode Island			
4/13/95	Providence	Al, NN1U 401/454-6848 Judy, KC1RI 401/231-9156	w/i OK
4/29/95	Slatersville	Bob, W1YRC 401/334/2129	p/r pref.
Texas			
4/29/95	Austin	Jim, AB5EK, 512/327-6184	w/i OK
4/8,22/95	Dallas	Larry, WR3J 214/350-5803	w/i OK
4/27/95	Garland	Bill, K8DNE 214/272-4499	w/i OK
4/11/95	Houston	Harold, ND5F 713/464-9044	p/r pref.
4/15/95	Lubbock	Gerry, WB5R 806/765-5526 or Doug, W5JUV 806/745-1504	
Vermont			
4/1/95	Bennington	Robert, KA1PXF 802/447-0032	w/i OK
Virginia			
4/15/95	Virg. Bch	Jim, KQ4BA 804/424-9343	p/r pref.
4/1/95	Williamsburg	Andrew, WJ4X 804/253-2811	w/i only
West Virginia			
4/8/95	Parkersburg	Dana, WV8G 304/422-1823	w/i OK
Wisconsin			
4/1/95	River Falls	Chuck, KA9YRV 715/425-2428	w/i OK
Wyoming			
4/22/95	Cody	Lynn, K7IKO 307/587-5888	w/i only

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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

The MART (cont.)

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CQ DX CQ DX...Is anyone out there?

Dale Carter, N6AGK, submits this photo of himself operating his recently completed Spider 40M QRP CW rig "a terrific kit" alongside the campfire at the 8600' elevation in Yosemite National Park. Power is from a cellular phone battery, and the antenna is a dipole strung in the Lodgepole pines at about 20 feet. He tells us "contacts were with...errr...well...actually, nobody responded. But, it did keep me from having to do dishes. And the CW listening was great!" WR

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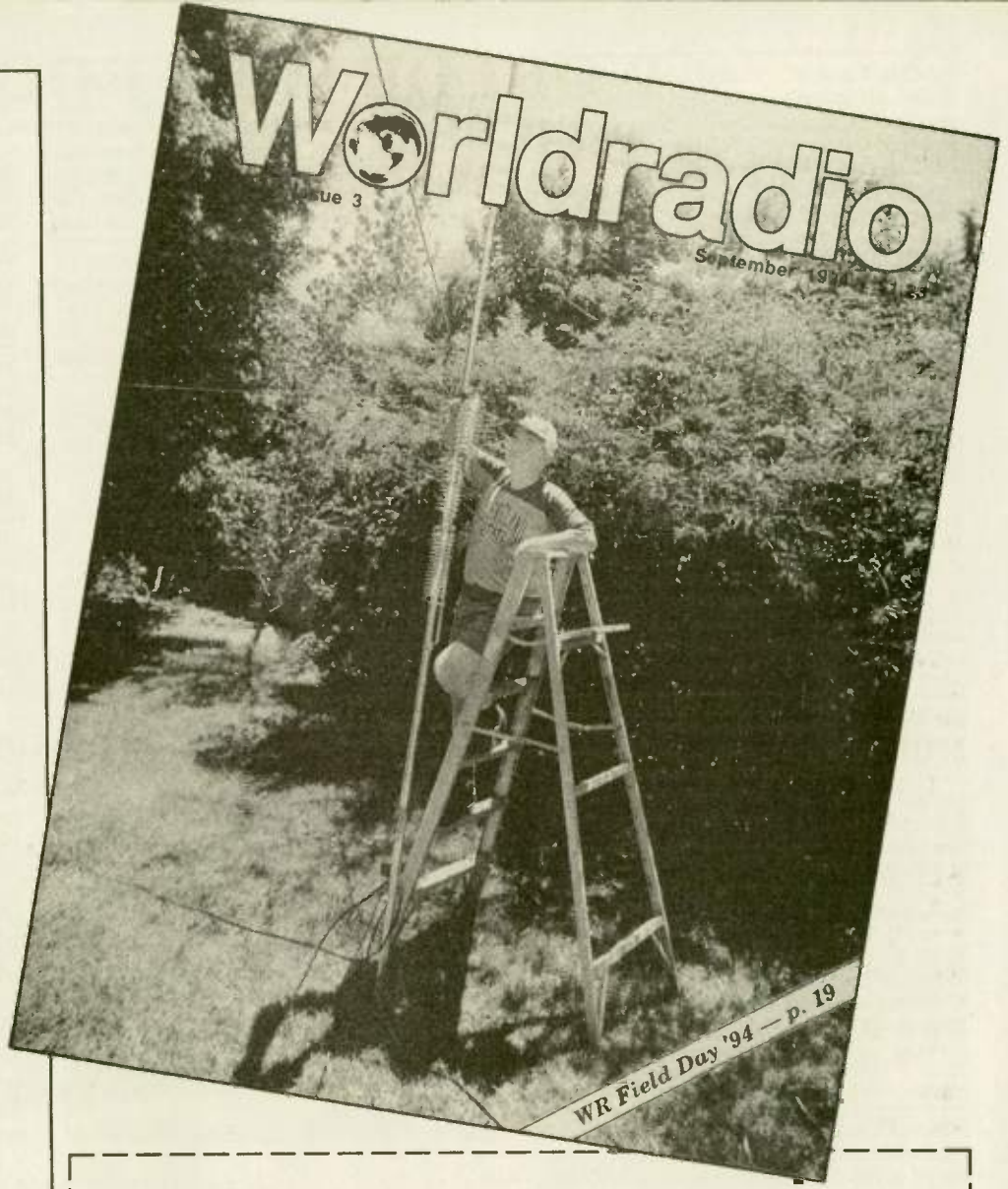

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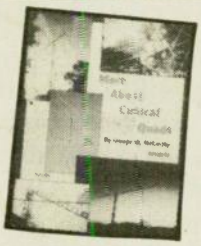


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Hams aid Japan relief

More than 200 amateurs are providing communication in the Kobe, Japan area following an earthquake on January 16 that killed more than 5,000 people and left tens of thousands homeless.

Amateur Radio is being used to connect relief centers and to exchange information on road conditions and traffic; the health, welfare, and whereabouts of residents; and the availability of water and food, according to the Japan Amateur Radio League.

The JARL and the Japan Amateur Radio Equipment Indusry Association (JAIA) are conducting the effort, at the request of the Ministry of Posts and Telecommunications. 200 hand-held transceivers for 430 and 1260 MHz, as well as three repeater stations, were supplied by JAIA member companies for the operation. Each portable station has been assigned a special call sign — 8J3AAA, 8J3AAB and so on.

JA3YRL in Kobe serves as communication coordination, while JA3RL, at the JARL's Osaka office, monitors the activity.

400 of the 600 relief centers (with a total of 240,000 evacuees) are not being served by this communication system, and the JARL is considering equipping at least half of them with amateur stations.

—ARRL Bulletin 6

More on vanity calls

Issuance of the long-awaited "vanity" call signs appears to be closer. The FCC announced on January 24, 1995, that as soon as the new application form 610-V becomes available and its licensing facility prepared to process them, a four "gate" system will begin.

The first gate will allow the previous holder of a call to apply for its return; or, where that individual is deceased, a close relative may apply. Gate two would permit Amateur Extra Class operators to apply; gate three, Advanced Class licensees, and gate four, all others—including club station trustees wishing to apply for the call of a deceased former holder.

Public notice of the opening of each "gate" will be made by the FCC. The fee for the use of the special calls will be $70 (but the Commission is proposing to lower that fee to $30), payable upon application.

There will continue to be *no charge* for the issuance of automatically assigned, sequential calls assigned to new and upgrading operators.

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