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Worldradio

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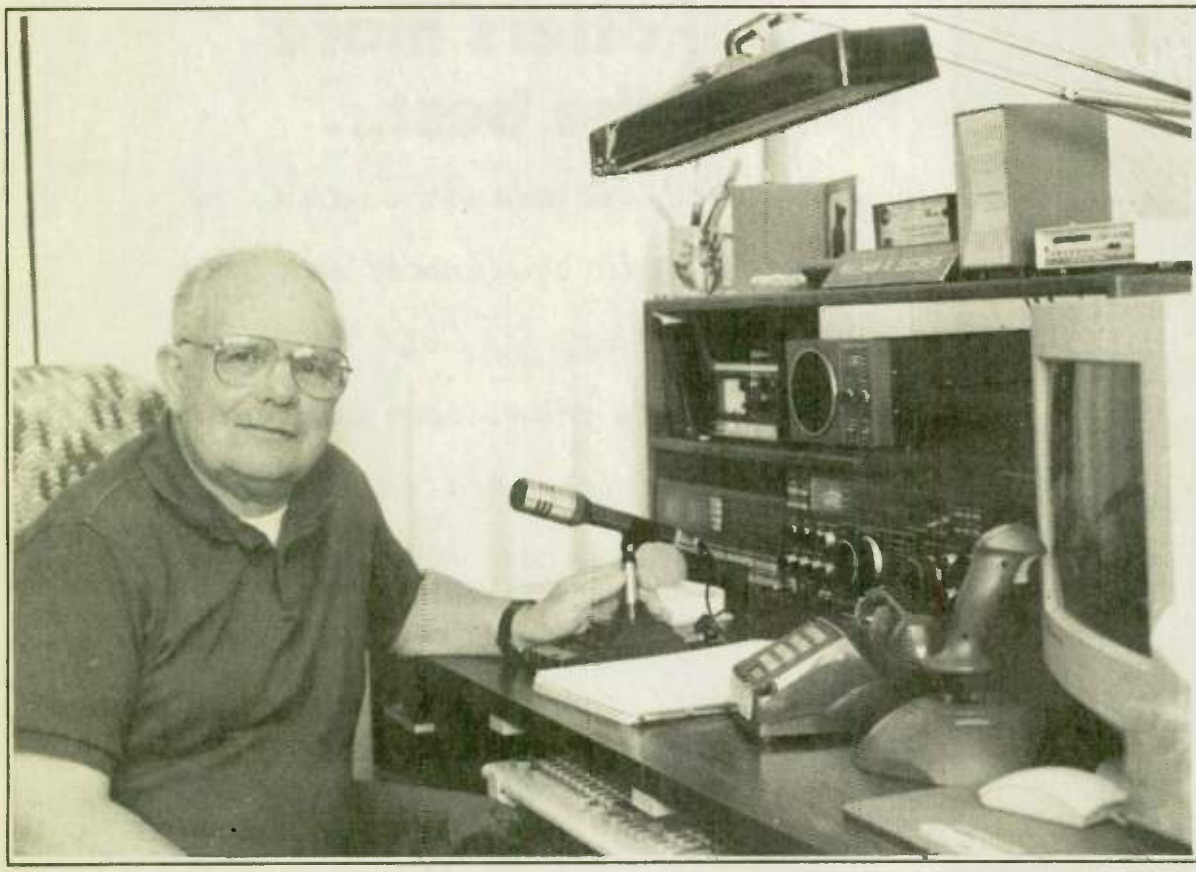

Bill Seeber, AA6MY, assistant manager of the Seafarer's Net, monitors Maritime mobile nets from his home.

High seas adventure — from your shack

Lou Ann Keogh, KB6HP

Life on the high seas is filled with adventure, even if that adventure is one you share from your radio shack at home. Just imagine yourself in the middle of an ocean, with your radio as the real lifeline that it is. There is where you will find the people who care about your welfare and who check on you to be sure all is well. They are there if an unlighted vessel approaches yours at night — the fear of pirates is still quite a real one in many parts of the world. These fellow hams are the people who will do their best to get you help in a medical emergency, such as the one *Worldradio* reported last month.

That story described the dramatic rescue at sea of a critically ill Amateur Radio operator. He was saved as the result of the actions of a group of people who can be found on high frequency maritime mobile nets every day of the year. Where are these nets? Who are the people who operate on them? Here are some answers.

Meet Bill Seeber, AA6MY. Bill is presently an assistant manager of the Seafarer's Net, one of the 20M maritime mobile nets which keep track of all those hams when they are on the water. The 66-year-old native of Sacramento, California, came to Amateur Radio in a round about fashion. The United States Air Force first introduced him to aircraft electronics during the years between 1949 and 1953. They also took him to such exotic locales as North Africa.

Returning to Sacramento after his stint with Uncle Sam, Bill went to work for the City of Sacramento, and in 1954 married another native Sacramentan, his lovely Carol.

Pursuing his love of boating in the extensive Sacramento River delta region, Bill served as an active member of the Coast Guard Auxiliary for more than 26 years. While he was thoroughly familiar with the FM

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NEWSFRONT

Worldradio

Some information has been supplied to *Worldradio* Newsfront courtesy of *Newsline*.

Vanity call signs — Gate 1 open

For hams wanting a vanity call sign, the magic date was 31 May. That's when Gate 1 of the FCC's vanity call sign program opened. You can request your own former call sign, or a call sign previously held by a deceased close relative. The cost is $30 dollars and you will need to file FCC form 610-V.

The Commission says you should check its call sign database to make sure the call sign you want is not already assigned. Call signs are normally available two years after a license expires, is surrendered, is revoked, set aside, voided or if the licensee dies.

Here are the rules about requesting a vanity call sign for your primary station. You must already hold an unexpired amateur operator/primary station license. You may request a call sign that was previously assigned to your primary, secondary, repeater, auxiliary link, control or space station. You can ask for your former call sign even though it has been unassigned for less than 2 years. The 2-year requirement does not apply if the call sign was previously assigned to a station of the requester. You do not have to hold a class of operator license required for the call sign group you are requesting if you previously held that call. Also, your mailing address does not have to be in the region designated for the call sign you're seeking. The Commission says a call sign requested by a former holder may be in any region.

If you want to apply for the call sign of a deceased close relative, your current Amateur Radio license must qualify you for the same group of call that you are requesting. That means if your relative's call sign was a Group A (a 1x2 for example) call, you must be licensed as an Extra class operator. The class of license of the deceased relative has no bearing on your eligibility — it is only the group of call that is to be considered. First check the public notice concerning sequential call signs, available from the FCC, to determine your eligibility to hold the call you wish to request.

A call sign requested by a close relative of a former holder who is now deceased may be in any region. Your mailing address does not have to be in the region for the call sign you seek. Just who is a close relative? The FCC says it can be a spouse, child, grandchild, stepchild, parent, grandparent, stepparent, brother, sister, stepbrother, stepsister, aunt, uncle, niece, nephew or inlaw.

If you are requesting a formerly held club station call sign, the Commission says you must also hold an unexpired club station license listing you as trustee. You can request your club's former call sign even though it has been unassigned for less than two years. The two year requirement does not apply to an otherwise eligible club station if the call sign was previously assigned to the club station for which the requester is the license trustee. In this case, your operator license class does not have to match that of the call sign you request. Your mailing address does not have to match that of the call sign you request. Your mailing address does not have to be in the region designated by the call sign being requested.

As to the application itself, it must be accompanied by payment of $30. You can send a check payable to FCC, a bank draft, a money order or a credit card. If using a credit card, you must also fill out and submit FCC form 159 along with your Form 610V. The Commission specifically says to please not send cash.

Your application package should be sent to: Federal Communications Commission, Amateur Vanity call sign request, P.O. Box 358924, Pittsburgh, PA 15251-5924.

If you fail to meet the above eligibility standards, your application will be dismissed.

For more information about the vanity call sign program you can call the FCC Consumer Assistance Branch at 1-800/322-1117.

FCC establishes Family Radio Service

The FCC has amended Part 95 of its Rules to establish a new personal radio service — the Family Radio Service. This service was created in response to a petition filed by the Radio Shack Division of Tandy Corporation, requesting that the Commission establish a new radio service aimed at providing the American public an affordable and convenient means of direct, short range two-way voice communications among small

(more NEWSFRONT on page 13)

Worldradio

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

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio. Articles for consideration may be submitted through the U.S. Postal Service or e-mail to kb6hp@ns.net

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Publisher's Microphone

And now we present the names and calls of those who, as they show up at the next meeting of their radio club, should be met by a red carpet (or at least rose petals scattered on the floor) as they make their way to their chair.

The latest to become ***Worldradio*** Superboosters (Lifetime Subscribers) are:

- **Gerald Heller, KA2WGR, Flushing, NY**
- **Frank Frisone, KA2QYE, Ballston Spa, NY**
- **Samuel Long, W4WSE, Winchester, VA**
- **Bryce Carrick, AE4FN, Asheboro, NC**
- **Thomas J. Willis, KQ4BR, Midway Park, NC**
- **Michael J. Bowers, KB8ZDG, Flint, MI**
- **Robert W. Jorgensen, WA8TTX, Niles, MI**
- **Ron Rateno, NØEPT, Carol Stream, IL**
- **Nathan Gordon, KF9LI, Earlville, IL**
- **G.R. Cundiff, N5ASD, Borger, TX**
- **Robert Nicholson, WA6LIF, Long Beach, CA**
- **Doug Orr, KN6OI, Carlsbad, CA**
- **Ron Self, KD6VWS, Joshua Tree, CA**
- **Tom Boles, Liberal, KS**

That famous comment by Mark Twain would be appropriate here. As you know there are those who have said that with cellular phones, Internet, advances in civil agencies communication, etc., that the role of Amateur Radio in emergencies was over. Well, a rather minor earthquake near Seattle dumped the telephones and cellular system. But, there up in the sky, coming to the rescue, as always, was Superham with his hand-held transceiver clipped to his belt.

•••

The following (condensed) letter is from Ken, N7SQU, and Judy, AA7UC, Roush.

"***Worldradio*** is dedicated to furthering the very best segments within our hobby. This is important because unlike many publications, ***Worldradio*** readers, especially ones who truly care about our hobby, are listened to and helped to clarify and properly express their important opinions.

"You actively seek input from your readers — even from readers like myself who constantly exhibit a bizarre sense of humor. This does require an unusual amount of patience.

"The magazine (I prefer to think of ***Worldradio*** as a journal) has assembled an outstanding group of columnists who evaluate their areas of expertise fairly and write on a level that is extremely reader friendly.

"Personally, we believe that if our compadres understood how helpful the staff try to be, we would enjoy many more articles about the future hopes and possibilities relating to our hobby. More readers would write about their technical experimentation, their DX experience, operating procedures, protocol, and real life operating — what went well and what didn't.

"Too many of us have learned to be afraid of putting our ideas, hopes, fears, and experience in writing. No one likes rejection, however it is a part of life, because in the case of publications, certainly not everything we write should be published. Still, with competent help much of what each of us puts in writing can be useful, and worthy of publication. You have provided us within the Amateur Radio community with such an opportunity.

"These are but a few of the reasons that we became Lifetime Subscribers to ***Worldradio.***"

•••

As always, the International DX Convention was a Number One event. I was pleased to learn from two vendors that their best-selling book there was *The Little Pistol's Guide to HF Propagation* by Bob Brown, NM7M. That book is available here at ***Worldradio*** for only $10 plus $2 handling and postage. For California stations please add 78-cents tax.

•••

Last month, in this space I asked who knew the meaning of "Dinky Dau." Those with the correct answer were: Russell Streiber, WH6NE, Honolulu, HI; Larry Morrison, WA5RES, Haileyville, OK; Larry Coppala, KD4ZD, Fairdale, KY; Robert Randall, W2TWY, Maryland Heights, MO; Andy Estes, KD5TR, Little Rock, AR and Mel Nunes, AB6QM, Ignacio, CA. And, each win a one-year extension of their ***Worldradio*** subscription!

David Jolly, G3TJY, said ***Worldradio*** is a "Splendid, useful magazine."

—Armond, N6WR

Stay tuned for next month's exciting coverage of the Dayton Hamvention!

NEW

Compact Dual Band Mobile FT-8000R

Now, a dual band that's so advanced it's simple!

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"High-tech features, too, like the enhanced Smart-Search™."

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The FT-8000R is the first mobile to provide superwide receiver coverage – from 110 to 550 MHz and 750 to 1300 MHz*, receiving public safety, marine, and weather channels. Using Yaesu's exclusive Enhanced Smart Search™, the FT-8000R automatically seeks out and loads active simplex channels into up to 50 ESS memory channels in just seconds – ideal when traveling.

Built-to-last, the FT-8000R brings together the most-requested dual band features and a MIL-STD 810 rating for enduring performance. Dual receive (V+V, U+U or V+U), Crossband Repeat (bidirectional or one-way), up to 50 Watts of VHF power output (35 Watts on UHF) with High/Medium/Low selection on each band, and "plug and play" 1200 or 9600 bps packet are just a few.

Clearly a standout, the FT-8000R boasts 110 memory channels (55 per band including one-touch "Home" channels) that store repeater shift, CTCSS encode tone, and packet baud rate. Other essential features include a backlit microphone (another Yaesu first), Time-Out Timer, and an all-new S-Meter Squelch that opens based on the S-meter reading. And, for a programming alternative, the optional ADMS-2C Personal Computer Programming Kit simplifies operation even more.

The FT-8000R is the most affordable, easiest-to-operate dual band mobile on the market today! Bring its high-tech performance features home with you. Available at your Yaesu dealer now!

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  TX: 144~148 MHz
  430~450 MHz
- 3 Power Output Levels
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  70cm 35/10/5 Watt
- 110 Memory Channels (55 per band,including "Home" channels)
- Enhanced Smart Search™
- CTCSS Encode
- Time-Out Timer (TOT)
- S-Meter Squelch
- Dual Receive (V+V,U+U,V+U)
- Crossband Repeat (bidirectional or one-way)
- PC Programmable w/optional ADMS-2C
- Intelligent Band Display (IBD)
- Receiver Muting
- Auto Power Off (APO)
- MIL-STD 810 Rating
- Omni-Glow™ Display
- 1200/9600 bps Packet Compatible
- Alternating-Band Memory Selection (ABMS)
- DTMF Autodialer (one memory per band)
- Accessories

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FT-8500
Dual Band Mobile
Detachable remote front panel, Alphanumeric Display, Spectra-Analyzer™, Digital Voltage Display, 110 memories in 5 banks, choice of microphones, offers high performance operating flexibility.

High seas

(continued from page 1)

Maritime radio network, a friend's description of Amateur Radio's capabilities really caught his attention.

In 1987, Bill received his Novice license; In 1989, he earned his Extra class ticket. Encouraged by the late Ray Nevis, WA6ZEL, of Medford, Oregon, AA6MY became active on the Seafarers Net. It meets on either 14.300 or 14.313 MHz, plus or minus, depending on QRM, at 0200 to 0400 UTC.

The Seafarers Net is one of many Amateur Radio nets that keep track of vessels. Their location, weather conditions, and any potential problems are noted, and in the event of an emergency, the Coast Guard is notified. The boaters know that if they do not come up on frequency on schedule that many people know that they are either having radio problems, or are in trouble. Their point of departure and destinations are a matter of record, and should their absence from the radio be prolonged, the Coast Guard is notified.

Bill explained that these nets follow one another, and literally provide around the clock coverage, depending on propagation, to any given spot on the map.

A 45' tower with a Cushcraft A3, and an R7 up in the air. ***—photos by N6WR***

Some nets end at a given time; others don't leave the air until all their traffic is cleared, and the next net takes over — or an earlier group comes back on the air, to resume their watch.

Here is a list of nets Bill has provided which can heard at the times and frequencies noted (with flexibility in frequency to allow for QRM or previous occupancy of the frequency):

Manana Net:14.340 MHz, (warm-up) 1830 UTC, session begins at 1900 UTC, until all traffic is cleared

Pacific Maritime 15M Net: 21.402 MHz, at 2200 UTC, until all traffic is cleared

Maritime Mobile Service Net: 14.300 — 14.313 MHz, 1600 to 0200 UTC

Seafarers Net: 14.314 MHz, 0200-0400 UTC

Pacific Maritime 20M Net: 14.313 MHz, (warm-up) 0400 UTC, session begins at 0430 UTC

Hurricane Net: 14.325 MHz, as needed, all coasts

Baja California Maritime Net: 7.238 MHz, 1530 UTC

Chubasco Net: 7.294 MHz, 1530 UTC

Sonrisa Net: 3.968 MHz, 1400 UTC

There is a good selection for the interested amateur to have an opportunity to begin listening to some of the regular traffic that can be heard. All of the nets have their own ways of doing things, some more formal, and some less. If you would like to participate in the activities on one of these nets, allow yourself plenty of time for listening over a number of sessions to learn how things are done on that net.

What is that? You live in the middle of the country, and can't imagine what possible help you might be? Well, you just might be in a position to help out when propagation is such that you are the only station on the net who can hear a boater way out in the middle of the ocean. Relaying is an extremely important role on any of these nets.

For example, here is a rundown of active members and relay stations (and their locations) who are able to provide the necessary coverage for the Pacific Maritime Net:

Jim Ashford, NH6HN, Kailua, Hawaii;

Ed Breen, NH6HT, Keaau, Hawaii;

Russ Spalding, WA6AVS, La Pine, Oregon;

Del Rasmussen, N7FHR, Central Point, Oregon;

Tom Whelchel, WA6TLL, Riverside, California;

Grady Williams, K6IXA, Atwater, California; and

Dick McNish, KB6USC, of Somis, California (who also has a granddaughter in FO).

Just think about it; you could be the Amateur Radio operator nearest the family of a sailor who would like someone (you) to call Grandma and wish her a happy birthday!

Bill Seeber, AA6MY, has a fine station, it is true. It consists of a Yaesu FT-1000D, with an FL-7000 amplifier available if needed. He has a 45' tower with a Cushcraft A3, and an R7 up in the air. But he stresses that modest station or super station, if you have an interest, take the opportunity listen in on some of the maritime nets he has listed here. You may very well find this is an aspect of Amateur Radio that is right for you. Maybe you too can share in the adventure. WR

1996 International DX Convention

John F. Minke, III

Once again the gathering of DXers was held at Visalia, California, the weekend of 19-21 April. This was the 47th time the annual event has been held, and this year it was hosted by the members of the Southern California DX Club at the Holiday Inn. The chairman this year was Rick Samoian, WB6OKK. The theme was appropriate, and typical of the positive thinking DXer: Spots on the Rise!

This year there was an increase in the activities on Friday with four sessions beginning at 5 p.m. In addition, to encourage younger DXers to attend, free convention-only tickets were available to all amateurs under the age of 21.

Technological advances

Well-known DXer Chip Margelli, K7JA, presented the latest information on DSP, digital signal processing. Previously, this was done externally to one's radio, it is now incorporated in the design of modern radios, such as Yaesu's FT-1000MP. Although Chip is employed by Yaesu, his message on DSP represented an overview of available technology.

DSP is a process whereby a signal waveform is digitized to allow manipulation. The premise of DSP is: No interference and no noise. Adaptive filtering to form-fit the incoming voice and data wave forms is possible for "smart communications" for electronic countermeasures applications; however, the DXer's interests lie in the elimination of QRM and QRN.

The presentation was summarized with a demonstration where an incoming beacon signal was copied. A noise source was then introduced to produce an interfering line noise, entirely covering the beacon signal. The noise blanker was turned on, but really had little effect. With the use of DSP though, this noise was eliminated and the beacon was again clearly readable.

IOTA is alive and well!

New this year were sessions on IOTA, Islands-on-the-Air, with which most DXers are familiar. Martin Atherton, G3ZAY, (who also holds NU2L), traveled all the way from England to present the IOTA program. Martin was introduced by Jim Zimmerman, KG6VI.

Martin discussed the history of IOTA from its concept by Geoff Watts (the only SWL ever to be inducted into *CQ*'s DX Hall of Fame) in 1964, to its present operation by the Radio Society of Great Britain. He also explained the streamlining of the program, where all records have been computerized, something the DXCC program should be studying.

For the purpose of this program, the world is divided into 1175 island groups. It would have been unrealistic to count every single island in the world, so the islands were grouped, in order to have a manageable program.

Martin Atherton, G3ZAY.

Interest in the IOTA program has grown from a mere 200 active people in 1985, to over 10,000 DXers — a figure based on *IOTA Directory* sales. There are approximately 1,000 DXers in the data base. Out of those 1175 island groups, some 870 groups have been activated and have received reference numbers.

The IOTA program has 18 individual awards. The basic award is for working and confirming contacts with at least 100 different island groups, with representation of all seven continents (Europe, Africa, Asia, North and South America, Oceania, and Antarctica).

There are awards for working each of those seven continents, plus three regional awards (Arctic islands, British islands, and the islands of the West Indies). There is a world diploma for working 50 percent of all the activated island groups in all continents. A plaque is available for reaching 750 island groups with shields for each 25 additional island groups, up to a maximum of 975. As with the very popular DXCC program, QSL cards must be submitted when applying for IOTA awards.

Martin described the annual IOTA conventions and said that the committee is looking for hosts to sponsor the IOTA conventions for the years 1998 and 1999, outside the United Kingdom.

Saturday sessions

Our Master of Ceremonies, Dave Bell, W6AQ, welcomed all the DXers to the convention. As the International DX Convention is an officially recognized ARRL function, Dave

(please turn to page 11)

FCC drops pilot RFI program

The FCC has quietly ended a pilot program in Tampa, Florida, that referred consumer-electronics interference cases to a local repair shop for resolution. Jim Dailey, the FCC engineer in charge in Kansas City and head of the FCC's privatization task force, says the FCC's data showed the program "had no takers" because the complainants did not want to spend money to eliminate the interference.

Fear was another reason, says Roy Lewis, W4WLY, whose Vulcan Electronics in Tampa was the only shop certified by the FCC (from August 1995 until February 1996) to deal with interference problems. Lewis reports that all of the approximately two dozen complaints of RFI to televisions, stereos, telephones and even air conditioners, stemmed from unlicensed, high-power operations that the customers already had identified. He said the customers not only didn't want to pay to have the problems resolved, "they were afraid of retaliation if I went out there."

In an April Public Notice, the Commission said it cannot resolve most of the thousands of complaints of interference to TVs, radios, stereos and televisions "because the cause of this interference is the design or construction of these products and not a violation of any FCC rule." Resolving interference problems will be the responsibility of manufacturers and consumers, Dailey said. "We are separating the issue of interference from the issue of compliance. We are not in the television or telephone repair business." Dailey said consumers who buy an electronic device "have a presumption that it ought to work when they buy it."

The FCC's Telephone Interference Bulletin encourages consumers experiencing telephone interference to write equipment manufacturers, and it even provides a sample complaint letter to make it easy.

Lewis said the consumers complaining about RFI problems believe the government should do something about it. Extremely high-powered 11-meter operations are common in the Tampa area, Lewis reports. He said the scofflaws often cascade several illegal power amplifiers to obtain extremely high power levels, and he'd like to see the FCC beef up enforcement, "at least in metro areas."

In the same Public Notice, the Commission emphasized that its Compliance and Information Bureau "will continue to take appropriate enforcement action where it has been determined that the interference is caused by violations of the Communications Act or the Commission's rules or policies." *(It's a shame that some of the money from spectrum auctions is not useable to police spectrum abuses. I wonder what the reaction would be if HF Amateurs were the alleged "scofflaws"?*—W4ZC)

ARRL Lab supervisor Ed Hare, KA1CV, says he's cautiously optimistic about the FCC's stance on interference, as reflected in the Public Notice. "I truly hope the Commission's statement represents a shift in the way the FCC will handle these matters," he said. But he noted that the FCC has not taken "appropriate enforcement action" in any of the cases referred to Lewis' shop.

Ralph Barlow, engineer in charge of the FCC's Tampa office, agrees that such illegal operators generate lots of interference complaints, but says it would take more than complaints before his office would treat it as a compliance issue. For example, a properly operating amplifier could cause telephone interference, but "it's still the telephone's problem," he suggested, until the FCC has good reason to believe the interference source also is breaking the law. Then, "we would address it only as a compliance issue" and on a priority basis. "Which prob-

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 May 1996.

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	ABØBS	KIØCS		KBØWHV
1	AA1PY	KE1EO	N1XFI	KB1BXY
2	AB2AW	KG2GV		KB2YSX
3	AA3OF	KE3WL	N3XHP	KB3BOP
4	AE4TZ	KT4PM		KF4JEE
5	AC5HR	KK5ZR		KC5UHB
6	AC6UL	KQ6FX		KF6DMG
7	AB7QN	KJ7XJ		KC7AAC
8	AA8WV	KG8WW		KC8DNZ
9	AA9SA	KG9GG		KB9NNQ
N. Mariana Is.	KHØY	AHØAW	KHØEZ	WHØABF
Guam	WH2T	AH2DB	KH2QF	WH2ANP
Hawaii		AH6OO		WH6DAW
Amer. Samoa	AH8O	AH8AH	KH8CT	WH8ABF
Alaska		AL7QI		WL7CSZ
Virgin Is.	WP2X	KP2CJ	NP2JF	WP2AID
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Subscriptions received by the 20th of the month will begin with the issue dated two months from the month of receipt, i.e., if we receive the subscription by April 20, your first issue will be June, which will be mailed to you in early May.

ably means we'd never get to it," Barlow conceded. Tracking down an offending operator can sap a lot of resources the FCC needs to apply elsewhere, he said. "We go after the worst first."

Dailey concurred that the FCC's staff is thinly spread and that other issues — primarily those involving safety — come first. After the FCC's reorganization is complete, he'll have one person for each of the four states in his region. "We have to look at what we can accomplish with the resources available to us," he said.

Hare says the ARRL will continue to cooperate with the FCC and manufacturers in cases of interference that involve Amateur Radio.

The FCC provides basic consumer information about interference problems via the Internet on the FCC Compliance and Information Bureau's home page at:

http://www.fcc.gov/Bureaus/Compliance.

(The list also is available through the Commission's "Fax on Demand" service at 202/418-2830. Request document 6904.) Documents available for viewing and downloading include the *Interference Handbook* and the *Telephone Interference Bulletin.* The *Interference Handbook* includes a list of equipment manufacturers who provide specific assistance with interference problems.

The ARRL makes available several RFI-information packages through its Technical Information Service. Specific packages are available for interference to TV, cable, VCRs, telephone, computer and audio equipment as well as on electrical and automotive interference. Each package costs $2 for ARRL members and $4 for nonmembers, postpaid. Write to the ARRL Technical Department Secretary, 225 Main St, Newington, CT 06111. Most are also available on the Hiram BBS (860/594-0306) or the ARRL FTP site ftp://oak.oakland.edu/pub/hamradio/arrl/infoserv/tech. (tnx *ARRL Letter*)

FCC issues FEMA call signs

The FCC has issued Amateur Radio call signs to the Federal Emergency Management Agency. FEMA Frequency Manager Paul Reid, N4EKW, says FEMA will use the call signs only in emergencies to communicate directly with ARES, RACES and other Amateur Radio operations. The FEMA call signs all have the same format. For example, the Region 1 call sign is KF1EMA, while the FEMA Headquarters at Mt Weather in Berryville, Virginia, has been issued NF1EMA.

Hams may fight spectrum plan

Amateur Radio may soon be fighting to retain some of its primary microwave spectrum. This as the result of FCC approval of a plan to reallocate 185 MHz of spectrum transferred from the Federal Government to the private sector. The Commission also established the scope and timing of future rulemaking proceedings to assign the reallocated spectrum.

According to reports in several communications industry publications, the Secretary of Commerce identified 235 MHz of Federal Government spectrum for private-sector use. Hams will have to fight to protect 2300-2310 MHz from being reallocated and auctioned off.

The Commission says it intends to consider all options for the appropriate use of the remaining 185 MHz, including, but not limited to, those addressed in allocating the first fifty megahertz. Public safety radio is a prime candidate for some of the reallocated spectrum. The Budget Act requires that the FCC study public safety spectrum needs and develop a plan to ensure adequate spectrum through the year 2010.

The text of this rule making procedure is not yet out, but you can expect all timetables to be very short. Because of this, all hams interested in saving the 2300 to 2310 MHz band will have to unite and move very swiftly. WR

New Hudson Divison vice director

Dr. Richard A. Sandell, WK6R, of Scarsdale, New York, has been appointed Vice Director of the ARRL Hudson Division. He will fill out the unexpired term of Paul Vadarny, WB2VUK, who became Division Director upon the election of Stephen Mendelsohn, WA2DHF, as the League's First Vice President earlier this year.

gave the floor to League President, Rod Stafford, KB6ZV, who introduced the many ARRL officials in attendance.

Low band DXing

The San Diego DX Club was responsible for this interesting presentation, a description of low band antennas by three of their members. The session was moderated by Ken Seals, KA5Q. The first low band DXer to describe his antenna was Bill Taylor, K6TQ, whose interest was in 160 meters. Bill said that 160 meters is a fun band, although originally he didn't think it was fun. Slides were shown detailing the installation of his vertical antenna made from 4-inch pipe and guyed with dacron line with a tuning coil and vacuum relay at the base. The antenna is also capable of being switched to 80 meters. Bill said that DXCC was worked in two years on this band.

Rick Craig, N6ND, was the second member to describe his antenna, a two-element Yagi which was installed in October 1989 at his home in Ramona (San Diego county) California. The beam was constructed of 4-inch outside diameter heavy-duty pipe with elements 110 feet long. To minimize the sag, the elements were trussed both above and below using black dacron line. The reason for trussing above and below was to stabilize the elements.

To install this monster, Rick made use of a tractor to pull the line attached to the antenna and slide it along the guy wires to the top of his 195-foot tower. The beam is fed with open-line and works very well. At six and one-half years, Rick believes it may be the longest period of time an antenna of that size has survived.

The third antenna discussed was a wire beam, used by Glenn Rattmann, K6NA. Glenn's beam consists of two folded dipoles in a fixed position suspended between two towers, about 136 feet apart. The elements (the dipoles) are separated by 36 feet by booms made of fiberglass and aluminum. These booms are also back-trussed. Glenn also uses open wire feed line which enables him to do all the matching within the shack. Glenn stressed the importance of protecting the fiberglass from ultra-violet rays.

Although not a member of the SDDXC, Lew McCoy, W1ICP, discussed low band operation on small lots. Lew, after a career with ARRL headquarters, is retired and is presently Technical Editor for *CQ* and is the retiring president of the Quarter Century Wireless Association. Lew uses a commercial 160 meter vertical antenna that is 31 feet tall. This works out to be one-sixteenth wave and has a base impedance of 50 ohms. The antenna has six radials and can also be used on 40 and 80 meters. Costing about $400 it is manufactured by Omni-Half.

The forum was moderated by John Alexander, K6SVL, DXAC member of the hosting division, and included seven other panel members: Rod Stafford, KB6ZV, our League president; DXAC members Jack Troster, W6ISQ, Pacific Division, Wayne Mills, N7NG, Rocky Mountain Division, Dick Moen, N7RO, Northwestern Division; Bill Kennamer, K5FUV, DXCC Desk; and visiting DXers, Fred Laun, K3ZO, and Mike Fulcher, KC7V, of the Central Arizona DX Association. John spoke on the latest happenings of the DXAC and thanked Fried Heyn, WA6WZO, for his efforts when he was liaison for the committee.

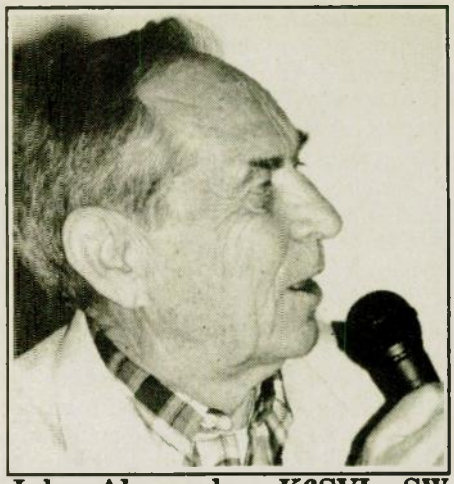
Rod, KB6ZV, spoke briefly on DXCC 2000 and said that John Kanode, N4MM, is the chairman for that committee and is looking for suggestions on improving the DXCC program. There were several of present who would like to see the program continue without change.

DXpedition to Bhutan

The presentation of the DXpedition to Bhutan was narrated by Zorro Miyazawa, JH1AJT, who described the team operated as A51/JH1AJT during February, 1995.

Zorro explained that the Japanese group had tried to go to Mongolia six or seven years earlier. During the period since then, some problems have arisen and at the present time proceedings are suspended.

During the February 1995 operation, however, they operated for 72 hours beginning 1 February at 1800 through 4 February at 1000. They operated on all bands, 10 through 160 meters, including the three WARC bands, and managed to collect 8,200 contacts. Of that number, 5,900 were with Japanese DXers and 970 were contacts with the U.S.



John Alexander, K6SVL, SW Div. representative of DXAC

The operators of that DXpedition, including Zorro, were: Jin Fujiwara, JF1IST; Mitty Yokota, JE1OMO, and Victor Taira, JR6GV. Those of you who managed to work them may want to send your QSL request to Zorro at P.O. Box 8, Asahi, Yokohama 241, JAPAN. You will receive a very attractive QSL card.

In conclusion, Zorro stated that there could be another DXpedition to Bhutan soon.

Contest Forum

The final session of the convention was the Contest Forum which was moderated by Dick Norton, N6AA. Panel members included Fred Laun, K3ZO, Rusty Epps, W6OAT, Bob Cox, K3EST, and Lou Gordon, K4VX. The topic of discussion was the WRTC to be held in the Bay Area this July 10 to 15. These gentlemen were to be judges during the event and Dick posed questions such as how important was it to copy call letters correctly. Obviously, the station working them should make sure that his or her call was copied accurately.

The event will consist of 52 stations with 104 operators, the best in the world. The judges will include 10 from the U.S. and 11 from outside the U.S.

Banquet

The highlight of each Visalia DX convention is the traditional Saturday evening banquet. The invocation was given by Fr. Edmund Benedetti, N7FUV, also HV2HO. At the conclusion of the meal, Dave Bell, W6AQ, our Master of Ceremonies, asked for the youngest amateur present. It turned out to be 10-year-old Jenny Antasek, KD6KKP. Jenny is the daughter of Ray Antasek, WA6TKV, of Oakdale, California

Rich Bongeorno, WU6T, president of the hosting Southern California

DX Club, then introduced members of his club and the officers of the San Diego DX Club and the Northern California DX Club. He then announced the SCDXC DXer of the year, Harvey Laidman, N6HL.

Ken Seals, KA5Q, president of the San Diego DX Club, announced their DXer of the year, John Barcroft, WA6ZJC. John is past president of the club.

Al Burnham, W4RIM, president of the Northern California DX Club, announced that club's selection for DXer of the Year and asked member Richard Carbine, WB6UDS to make the presentation. The award went to Len Geraldi, K6ANP, who is also a member of the Redwood Empire DX Association. They also mentioned that Len finished in the recent Boston Marathon.

Convention Chairman Rick Samoian, WB6OKK, introduced the hard-working volunteers who helped him put the convention together and then turned the program over to the guest speaker for the evening.

The first *real* XZ operation in 30 years

Wayne Mills, N7NG, was our banquet speaker for the evening. Along with several other well-known DXers, including Martti Laine, OH2BH, and Kan Mizoguchi, completed two operations from Myanmar (Burma) last fall, which were considered to be the first "real" operations in 30 years. The call they used was XZ1A.

During the '40s, '50s and '60s, there were many DXers operating from Burma, all of whom were western type DXers, who put the country on the air for DXers. Today, those DXers are gone. Now the slow process begins to establish Amateur Radio in the country.

Wayne said that the first step is what might be referred to as "missionary" DXing. For those in authority, the key is to inform them of the benefits they can derive by establishing Amateur Radio. The process will take sharing, caring, understanding and training, with much patience on our part. Martti, OH2BH, began discussions with the authorities in Burma in 1993.

Bill Kennamer, K5FUV, who had the opportunity to attend one of the operations following the Amateur Radio convention in Beijing, presented some slides of his visit of XY1A.

It was also mentioned that Kan, JA1BK, was in Beijing and had permission to go to North Korea. He had authorization to carry radios, but that was all the information available at the moment.

Sunday morning breakfast

Following the breakfast buffet, Dave Bell, W6AQ, made some additional announcements, and special recognition was given to eminent DXer Iris Colvin, W6QL.

Bob Cox, K3EST, of *CQ*, inducted Lou Gordon, K4VX, into the *CQ* Contest Hall of Fame, followed by Rusty Epps, W6OAT, being inducted into the *CQ* DX Hall of Fame.

George Wise, W7MB, a visiting DXer from the Willamette Valley DX Club, announced that his club was the sponsor this year for the Northwest DX Convention, to be held at the Monarch Hotel in Clackamas, near Portland, the weekend of July 19-21.

Yaesu Cruises

Chip Margelli, K7JA, discussed the Caribbean DXpedition theme cruises sponsored by his company, Yaesu USA. The theme is Amateur Radio, and the cruise includes a number of speakers. The vessel stops at various ports, where the attending DXers may go ashore and operate as DX.

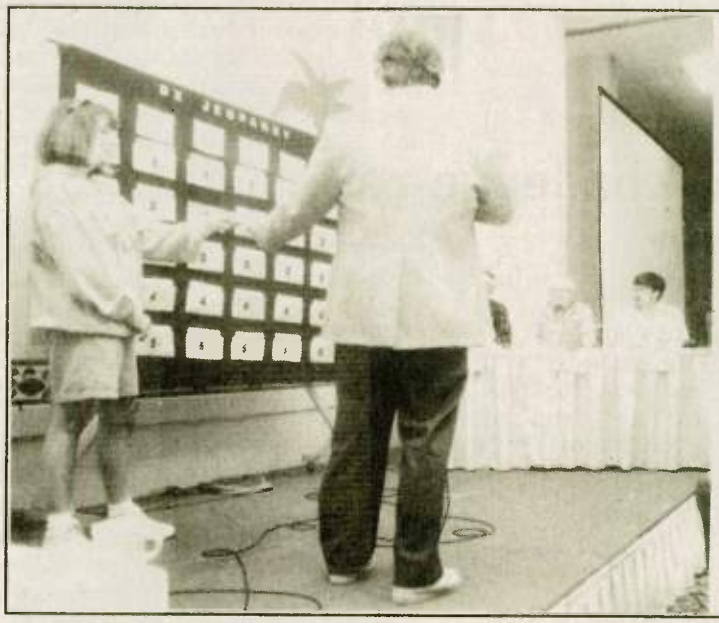
As it was Chip's responsibility to obtain the licenses, an interesting situation arose when Roger Balister, G3KMA, who was a guest speaker, received his call for Saint Martin, TOØOA. Roger said that next time he would settle for FS/G3KMA.

The ship they have used is the MV *Ocean Breeze*. They are presently working on a cruise for 1997, which may be in the Mediterranean, and could include visits to Albania and Malta.

MC Dave Bell, W6AQ, then asked everyone how they felt about a possible change in venue; to have the convention take place in another location, rather than in Visalia. Those present voted to remain, by an overwhelming majority.

DX Jeopardy

The final event of the convention was DX Jeopardy, which is patterned after the famous TV show by the same name. This was the second year this challenge was held. The three finalists were: Jim McDonald, N7US; Doug Westover, W6JD; and Pete Meyer, NØAFW. This was Pete's second year as a finalist.



DX Jeopardy participants answer questions; or is it question answers? *—photos by N6WR*

The man with the questions — or is it the man with the answers?- was John Barcroft, WA6ZJC, with Gwenn Cartier, KD6YYW, assisting. The results at the end of Double Jeopardy (prior to "final jeopardy") were Jim, N7US, with minus 4 points, Pete, NØAWF, with 12 points, and Doug, W6JD with 23 points.

The Final Jeopardy category was: The Countries in Zone 25. Only Pete and Doug were eligible to participate, and neither responded correctly. Pete bet everything and Doug bet only two points, which made him the winner. Incidentally, the correct response was: Japan, South Korea and North Korea. Doug was awarded a Yaesu FT-815 as his prize.

The convention came to its conclusion as the grand prize ticket was drawn for the Kenwood TS-950SDX, which was presented to a *very* happy DXer, Will Wolfshohl, KC6X. WR

NEWSFRONT
(continued from p. 3)

groups of persons.

The Family Radio Service (FRS) is a short distance (approximately a couple hundred yards to a half mile), two-way personal radio service. Its purpose is to provide families, friends and/or associates participating in group outings a way to communicate with members of the group who are out of speaking range or sight but still in the same general area. For example, the FRS could be used by hunters, campers, hikers, bicyclists and other outdoor activity enthusiasts to keep in contact with one another. It could also be used by parents to keep in touch with children playing in the neighborhood or families or friends to keep in contact with one another while at shopping malls, sporting events, amusement parks, etc.

The FCC rules authorize a user to operate an FCC certified FRS transmitter without a license in places where it regulates communications. The FCC certified FRS unit may be identified by the label placed on it by the manufacturer. The radios transmit on any of the fourteen 462-468 MHz channels allocated to FRS.

Action by the Commission 10 May 1995 by Report & Order (FCC 96-215). Chairman Hundt, Commissioners Quello, Ness and Chong. *Tnx FCC*

FCC may challenge zoning antenna restriction

Those concerned about zoning, deed restrictions and PRB-1 issues will be interested to know that the FCC appears to be considering a challenge to all state and local antenna ordinances. The statement appears to be a public answer to property owners who are organizing opposition to an FCC order that prohibits them from stopping the installation of small-size direct satellite broadcast antennas, and appears to widen the scope of the FCC's thinking with regard to its preemptive powers. The statement reads as follows:

"Consistent with the approach we adopted for DBS antennas in the Order and Further Notice, in this Notice we propose to adopt a presumptive preemption approach for all governmental restrictions on over the air reception devices, and a full preemption approach for nongovernmental restrictions. We seek comment on these proposed approaches and on whether there is any procedural mechanism that might better effectuate the intent of the statute than the approach we adopted in the Order and Further Notice. We will incorporate in this proceeding any relevant comments received in response to the Earth Station Notice and the Order and Further Notice in I B Docket No. 95 dash 59, so that participants in that proceeding need not resubmit or duplicate their arguments here."

It sounds as though the FCC is about to challenge a rule that prohibits anyone from installing any sort of antenna or support structure. Nothing is said about a challenge to deed restrictions, but they too may be covered once the scope of the FCC's preemption probe is known.

New Section Manager

Chris Wright, KD4TZN, of Rocky Mount, Virginia, has been appointed Virginia Section Manager by ARRL Field Services Manager Rick Palm, K1CE. Wright replaces Edward Dingler, N4KSO, of Chilhowie, Virginia, who resigned 22 March, due to increased business commitments.

Two-meter jammer loses ham ticket for life

Irvin J. Foret, KB5UJD, of Metairie, LA, one of a group of hams cited for 2 Meter interference in the New Orleans area, has agreed to immediately surrender his Technician Plus Amateur Radio license, and permanently divest himself of all electronic equipment capable of transmitting on the ham bands. In addition, Foret has agreed to refrain for life from applying for any FCC license or permit — regardless of the service; from participating as a third party in communication in the Amateur Radio service; and from transmitting on CB. Foret also agreed to pay $500.

In addition, Foret agreed to "operate fully and completely with all government officials in connection with any ongoing or future administrative or law enforcement investigations" or proceedings involving ham radio operations by others.

The agreement does not prohibit Foret from engaging in otherwise lawful transmissions over land mobile radio facilities as part of his work.

The FCC also said some of Foret's transmissions were unidentified, included music or were obscene or indecent; the alleged indecent transmissions occurring at a time when there was a reasonable risk that children were in the audience. *Tnx ARRL*

MFJ *tunable* DSP *filter*

NEW

. . . Tunable "brick wall" bandpass, lowpass, highpass, notch, SSB, CW filters . . . programmable pre-set filters . . . automatic multiple notch filter eliminates heterodynes . . . adaptive noise reduction reduces noise and QRN . . . for Voice, CW, Data . . .

MFJ's ***tunable*** **super DSP filter automatically eliminates heterodynes, reduces noise and interference** ***simultaneously*** **on SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, SSTV, WeFAX, FAX, weak signal VHF, EME, satellite -- nearly any mode.**

Only MFJ gives you *tunable and programmable "brick wall" DSP filters*

MFJ-784B

$249.95

Patent pending

You get MFJ's tunable FIR linear phase filters that minimize ringing, prevent data errors and have "brick wall" filter response with up to 57 dB attenuation just 75 Hz away.

Only **MFJ gives you 5** ***tunable*** **DSP filters. You can** ***tune*** **each lowpass, highpass, notch, and bandpass filter including optimized SSB and CW filters. You can** ***vary*** **the bandwidth to pinpoint and eliminate interference.**

Only **MFJ gives you 5** ***factory*** **pre-set filters and 10** ***programmable*** **pre-set filters that you can customize. Instantly remove QRM with the turn of a switch!**

You get MFJ's ***automatic notch*** **filter that searches for and eliminates** ***multiple*** **heterodynes.**

You also get MFJ's advanced ***adaptive noise reduction.*** **It silences background noise and QRN so much that SSB signals sound like local FM.**

The ***automatic*** **notch and** ***adaptive*** **noise reduction can be used with** ***all*** **relevant tunable pre-set filters.**

Automatic gain control **(AGC) keeps audio level constant during signal fade.**

Automatic notch filter

MFJ's automatic notch filter searches for and eliminates multiple heterodynes in milli-seconds. It's so fast, that even *interfering* CW and RTTY signals can also be eliminated.

With up to 50 dB attenuation, you'll copy stations otherwise masked by heterodynes.

Voice signals aren't degraded because the notch is extremely narrow.

Turn on *automatic* notch and you'll never hear unwanted heterodynes of tuner-uppers.

You can *selectively* remove unwanted tones using the two *manually tunable* notch filters --an MFJ exclusive. Knock out unwanted CW stations while you're on CW.

Adaptive Noise Reduction

Turning on noise reduction silences background noise. It reduces fatigue and makes noisy signals readable.

Noise reduction works in all filter modes and on all random noise -- white noise, static, impulse, ignition noise, power line noise, hiss.

The LMS algorithm gives you up to 20 dB of noise reduction. Noise reduction is adjustable to prevent signal distortion.

Tunable highpass/lowpass filters

For Voice and Data, nothing beats MFJ's exclusive *tunable* highpass/lowpass FIR linear phase "brick wall" filters.

You can tune the lower cutoff frequency 200 to 2200 Hz and the upper cutoff frequency 1400 to 3400 Hz. This lets you create *custom* filters for Voice, Data and other modes.

Signals just 75 Hz away literally disappear -- they are reduced 57 dB!

NEW MFJ-784B Features

- Tunable *Spotting Tone*™ -- an *MFJ invention* -- accurately tunes even the narrowest CW filter
- MFJ's exclusive *Adaptive Tuning*™ -- Center frequency tuning automatically becomes finer as you narrow bandwidth -- makes extremely narrow filters easy-to-use
- Improved automatic notch with *variable* aggressiveness
- New quieter audio amplifier gives you *full* 2½ Watts output
- Speaker ON/OFF button, phones always active
- Accurate easy-to-use input level indicator
- *Filter Talk*™ function sends precise filter settings in Morse code
- Filter automatically bypasses during transmit for monitoring CW sidetone, voice or data by sensing PTT line
- Improved manual notch in the CW mode
- Manual notch and automatic notch can be used simultaneously
- Noise reduction,automatic notch and tunable manual notch can be used in Memory mode
- Adjustable line level output
- More Mark-Space frequencies and baud rates for data filters
- Improved self-test for all digital circuitry, switches and controls

Unlike other filters, speech is not distorted by unequal time delay.

When signals are weak, you can improve copy by removing noisy high and low speech frequencies that contain little information.

On crowded HF bands, you can "slice-off" overlapping SSB signals to improve copy.

You can highpass filter out hum, pulses, rasp and other irritating low frequency noise.

Tunable bandpass filters

Narrow band signals like CW and RTTY jump out of QRM when you switch in MFJ's *exclusive* tunable FIR bandpass filters.

You can tune the center frequency from 300 to 3400 Hz, and vary the bandwidth from 30 Hz to 2100 Hz -- from super-tight CW filters to wide razor-sharp Data filters.

As you narrow the bandwidth, interfering signals drop out, because, just 60 Hz away, they're down by over 47 dB.

You can use narrower bandwidths to fight tough QRM because these linear phase filters don't distort signals with unequal time delays.

Even with the narrowest 30 Hz bandwidth, you'll never have a problem with ringing.

One position gives you two tunable filters you can use together. For example, tune one to mark, one to space and set the bandwidth tight for an incredibly sharp RTTY filter.

15 *pre-set* filters -- use factory set or program your own

You can select from fifteen convenient *pre-set* filters. Use them for SSB, AM, CW, packet, AMTOR, PACTOR, RTTY, SSTV, WeFAX, FAX or any mode you can think of.

If you don't like our pre-set filters, you can program your own -- *an MFJ exclusive!* Save center frequency/ bandwidth, lowpass/highpass cutoffs, auto/manual notch, noise reduction -- all filter settings -- in 10 *programmable* filters.

Only MFJ gives you the best of both worlds -- *tunable* filters to eliminate nearly any QRM and fast convenient *pre-set* filters customized for any mode.

Plus more . . .

A push-button bypasses your filter -- lets you hear the *entire* unfiltered signal.

2½ watt amplifier, volume control, input level control, speaker jack, PTT sense line, line level output. 9½x2½x6 inches.

Plugs between your transceiver or receiver and external speaker or headphones. Use 12 VDC or 110 VAC with MFJ-1315, $14.95.

MFJ-780, $99.95, "brick wall" DSP data filter. Plugs inside MFJ-1278B or MFJ-1278 Multimode Data Controller.

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You get MFJ's famous one year No Matter What™ unconditional guarantee. That means we will repair or replace (at our option) your MFJ-784B no matter what for a full year

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Automatically eliminate heterodynes, reduce noise and QRM on Voice, CW and Data. Call your favorite dealer for your best price and order your MFJ *tunable* DSP filter today!

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MFJ-989C 3 KW Antenna Tuner

More hams use MFJ-989s than any other 3KW tuner in the world! Why? . . . Because MFJ uses super heavy duty components to make the world's finest 3 KW antenna tuner . . .

In Stock at ham dealers everywhere!
Call your dealer for your best price

$349.95 MFJ-989C

- *New for 1996 -- MFJ AirCore™ Roller Inductor*
- *Super Heavy Duty Components • Made in U.S.A.*
- *Handles 3000W PEP SSB*
- *peak/average Cross-Needle SWR/Wattmeter*
- *Antenna Selector • Balun • Built-in Dummy Load*

More hams use MFJ-989s than any other 3 KW tuner!

MFJ uses super heavy duty roller inductor, variable capacitors, antenna switch and balun to build the world's most popular 3 KW antenna tuner.

The rugged MFJ-989C handles 3 KW PEP SSB and covers 1.8 to 30 MHz, including all MARS and WARC bands.

MFJ's new 1996 AirCore™ Roller Inductor, three-digit turns counter and spinner knob gives you exact inductance control for absolute minimum SWR.

You can match dipoles, verticals, inverted vees, random wires, beams, mobile whips, shortwave -- nearly any antenna. Use coax or balanced lines.

You get everything you've ever wanted in a high power, full featured, antenna tuner -- widest matching range, lighted Cross-Needle SWR/Wattmeter, antenna switch, built-in dummy load, balun, convenient flip-stand -- all in a sleek, compact cabinet.

MFJ builds the world's most popular 3 KW antenna tuner using these **super heavy duty** *components . . .*

MFJ *AirCore*™ Roller Inductor

MFJ's exclusive *super heavy duty AirCore*™ Roller Inductor has an air core that can't burn up! You get ultra high-Q, the lowest loss, highest efficiency and highest power handling of any roller inductor in ham radio.

MFJ's exclusive *Self-Resonance Killer*™ keeps potentially damaging self-resonances away from your operating frequency.

Large, self-cleaning wiping contact gives excellent low-resistance connection without arcing or contact burning.

A *solid* ¼ inch brass shaft with self-align bearings gives smooth non-binding rotation.

Some competing "legal limit" tuners use a lossy, low Q, solid core with erratic electrical contacts and have potentially damaging self-resonant frequencies. This can cause excessive heating and can destroy the core.

Massive Transmitting Capacitors

Look inside . . . you'll see two *super heavy duty* transmitting variable capacitors that can handle 6000 volts. Extra wide (0.27 inch) stator plate spacing gives you arc-free operation.

Specially shaped plates give low minimum capacitance when unmeshed. This and a hefty 250 pf maximum give you an extremely wide matching range -- even on 160 and 10 Meters.

The nearest competing "legal limit" tuner has variable capacitors physically *much smaller* than the MFJ-989C's. Theirs is rated at 4500 volts -- a full *25% less* than the MFJ-989C. Theirs is more likely to arc -- *not what you want in a "legal limit" tuner!*

Super Antenna Switch

The MFJ-989C *super heavy duty* antenna switch is made of *two* individual *ceramic* wafers wired in parallel. Extra wide spaced, heavy duty contacts handle extreme voltages and currents. *We've never burned one up!*

You can select two coax antennas (directly or through tuner), balanced line/random wire, or built-in dummy load.

3 KW *Current* Balun

MFJ's *super heavy duty* 3 KW *current* balun for balanced lines uses *two* giant 2½ inch toroid cores. It's wound with *Teflon®* wire connected to high voltage *glazed ceramic* feedthrough insulators.

The MFJ-989C lets you safely operate high power into balanced feedlines without core saturation or voltage breakdown.

Some "legal limit" tuners have inferior *voltage* baluns with smaller diameter toroid cores and use soft plastic feedthrough insulators that can arc and melt.

More reasons why the MFJ-989C is the world's finest 3 KW tuner . . .

Built-in Dummy Load

A full-size 300 watt non-inductive 50 ohm dummy load is built into the MFJ-989C.

You'll find it handy for transmitter tuning, testing and repairing your rig, setting power level, adjusting your mic gain and more.

Some "legal limit" tuners *don't* have a built-in dummy load. They want *you* to pay for an external dummy load that just gets in your way.

Lighted *Cross-Needle* Meter

MFJ's lighted *Cross-Needle* SWR/Wattmeter lets you monitor SWR forward and reflected power *simultaneously*. Read both peak and average power in two power ranges.

Sleek and Compact

The compact MFJ-989C slides right into your operating position -- you'll hardly know it's there. It's just 10¾x4½x15 inches. *Do you really want a bulky "legal limit" tuner that's bigger than your amplifier?*

Superior Cabinet

The MFJ-989C's *premium*, low-profile all-aluminum cabinet has a sub-chassis that adds strength and RFI protection.

Every cabinet is chemically treated and has a tough, scratch-proof vinyl cladding -- not paint that can scratch or chip off. You won't find a tougher, longer-lasting finish anywhere.

Detailed logging scales and legends are *permanently* silk screened on *real* aluminum front and back panels -- they aren't decals or glued-on paper strips that can peel off.

Superior Construction

Every MFJ-989C uses PEM nuts (*not* self-tapping screws), wing-nut for ground post (*not* a cheap nut), fire-retardant epoxy glass PC board (*not* canvas based), heavy guage wire throughout (*not* small guage), locking compound on nuts/bolts (*not* loose hardware).

No Matter What™ Warranty

Every MFJ-989C is protected by MFJ's famous one year *No Matter What*™ unconditional warranty. We will repair or replace your MFJ-989C (at our option) *no matter what* for a full year.

Others may give you a *limited* warranty on defects in material and workmanship.

But what do you do if your "legal limit" tuner burns up and they say, "Sorry, your *limited* warranty does *not* cover that?"

Outstanding Customer Service

We're here to help keep your MFJ-989C performing flawlessly -- *no matter how long you own it* -- just call 800-647-TECH(8324).

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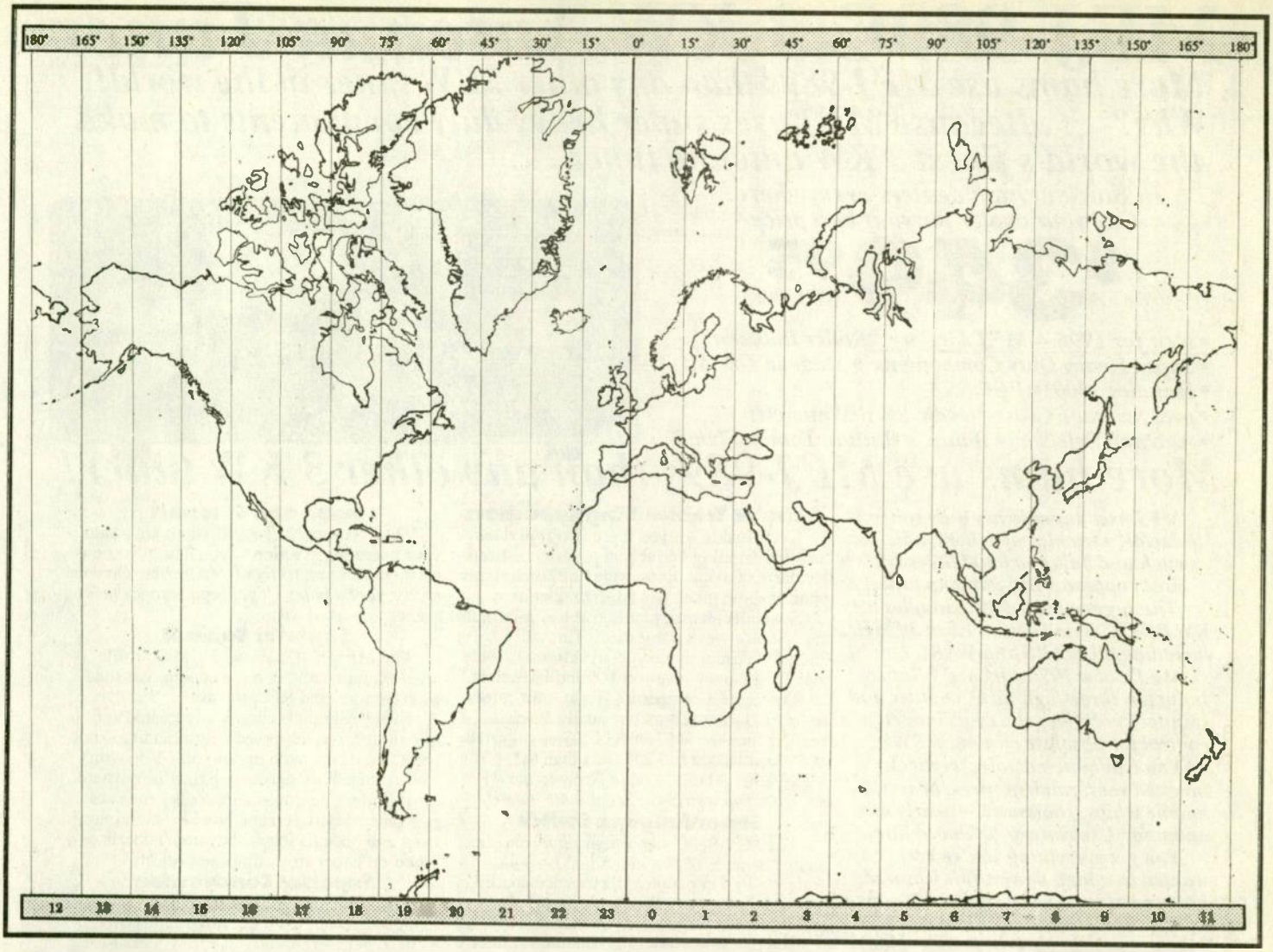


Announcing: Contact All Time Zones

Armond Noble, N6WR

To help commemorate 25 years of ***Worldradio***, we announce a new award to be known as "Contact All Time Zones" (CATZ).

RULES

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

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

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

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

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

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

APPLICATION

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

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

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

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

The application should be addressed to CATZ Award, ***Worldradio***, 2120 28th St., Sacramento, CA 95818.

Those receiving the CATZ award will have their name and call sign reported in the ***Worldradio*** DX column.

From crystal sets to ham radio — a tribute to an Elmer

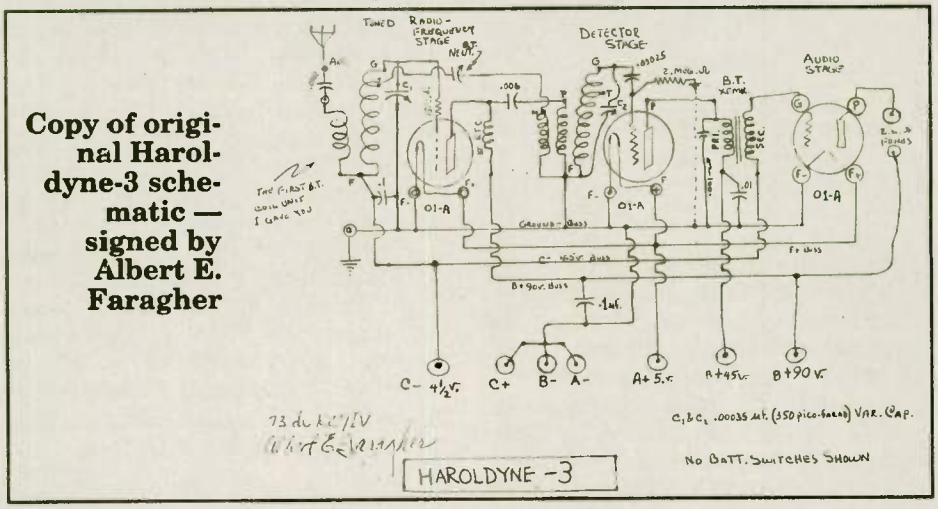
Harold A. Borchers, KBØROB

Good fortune has a way of dropping in on our lives in most unusual ways and at unexpected times. This article reveals some of the events that have changed my life for the better and pays tribute to an Elmer of the highest order.

Sometime near the end of WWII, my father and I built a crystal radio set in our basement. I remember the smell of shellac, the elegance of the helical coil, and the thrill of finding the magical combination between the slider on the coil and the cat whisker on the galena crystal. I do not remember if the station was WLS or WENR or if the music was "In The Mood" or "I'll Never Smile Again." However, I do recall the thrill of having made a real radio from a few components and hearing the wonderful sound burst forth from those old earphones.

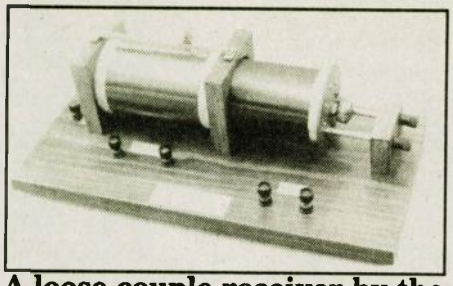
Why, nearly fifty years later, I would again long for that thrill, I do not know. But I did, and after digging through old Boy Scout manuals and pestering a number of experienced radio enthusiasts, I had a set operating and I experienced that old thrill once more — this time with a 150 foot wire antenna up 65 feet. Super signals were received and I began to crave DX. Coils were changed and variable capacitors were added. Much to my amazement, I noted I could also tune to shortwave broadcasts. More reading about the history of early radio led me to information about the legendary, super-sensitive Baldwin earphones, reportedly able to snag even the weakest signals.

Consequently, a search for the mother of all earphones began. An ad placed in Antique Radio Classified brought good fortune in the form of two responses. I received one response from a world authority on earphones, Richard Mackiewicz, who parted with a fine set of Baldwins. We have since become friends, and he has helped me often in my quest to understand primitive radios. Getting those fine old earphones seemed to ignite a spark in me, and soon I had acquired several vintage battery radios (Crosley, Freshman Masterpiece, Aeriola Sr., Atwater Kents). Something inside this old spirit began to simmer. With original antique radios, homebrew regenerators, and my little crystal sets, I was keeping logs on stations all over the U.S. and DX from around the world. I began to wind my own coils, which, I believe, have more than a little magic in their helical design (certainly DNA and induction count as "Magic"!). I wound spider webs, baskets, diamonds, toroids, and solenoids. It was all very therapeutic, but something was missing. My spirit pot began to bubble even more strongly.



Copy of original Haroldyne-3 schematic — signed by Albert E. Faragher

Then Albert E. Faragher, KC9IV, (formerly W9FG) of Aurora, Minnesota, appeared. His response to my classified ad was an elegantly written letter telling me about his set of



A loose-couple receiver by the author, for his Elmer. ***—photo by KBØROB***

Baldwins (acquired in 1929 at age 17). The letter also gave precise instructions on how to insert an old auto coil in the output circuit thereby increasing the sensitivity of modern phones. His diagrams were so superbly drawn that I knew immediately this was no ordinary fellow.

A phone call and a subsequent visit to his home confirmed my belief. Here was the personification of a radio treasure. Little by little, I was to discover more of this ingenious man who was to become my radio Elmer. He had been a WWII OSS operative who used his bravery and genius to save untold lives by installing and repairing radar and communications facilities. His courage and service earned him high military honors and great respect among his comrades. He was a master at radio and TV repair and was employed as a radio engineer for several radio stations in Minnesota and Wisconsin.

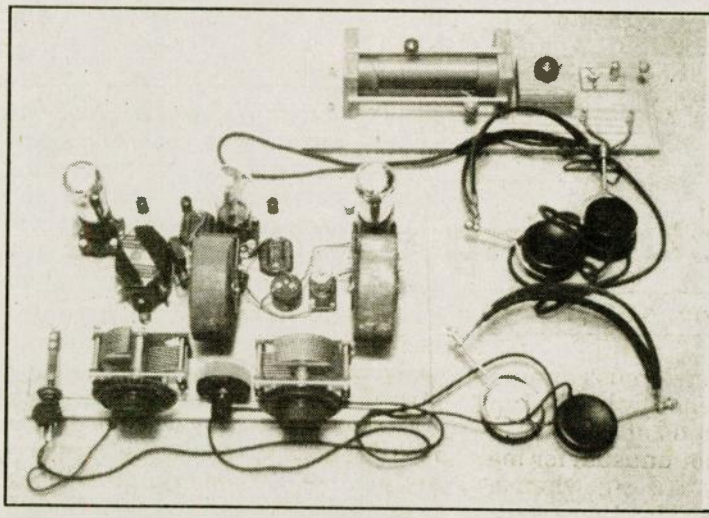
During my first visit he showed me his radio collection while he admired my coils, crystal sets, and homebrewed radios. Then he showed me his radio shack! Sly fellow that he is, he made no attempt to lure me into Amateur Radio. Instead he stood by while I reverently eye-balled ancient tubes, his Baldwin phones, his WWII bug, and headphones that were used while B-17s shuttled him to and from missions. Also noted were QSL cards from around the world and a myriad of other neat radio gadgets. As I departed for home, he presented me with a beautiful crystal detector and a magnificent Bremer Tully toroid coil.

Correspondence, phone calls, and an enduring friendship took root. Within a week, a package arrived with a set of code-practice tapes and a matter-of-fact note — "shoot for the General ticket so we can yak on 80 Meters." What could I do? The inoculation had become a fulminating disease. I began code practice in earnest in the fall of '94, and by the winter of '95, I had enrolled in W9NT's (Gurnee Bridgman, ARRL Assistant Division Director, Dakota Div.) ham class for the Technician Plus license in the winter of 1995. I studied like a demon, and as the March exam date approached, my deepest fears were working against my confidence. I was terrified that I would fail the exam and let Albert down. I imagined the headlines in the newspaper: "Biology Professor Flunks — Eight-Year-Old Passes." When the VE team announced I had passed all exam elements, my joy was unrestrained.

I had my Tech Plus license in hand 20 March 1995. The next morning my hand trembled and my heart pounded as I tuned to 3.7 MHz CW Novice band segment and tapped out "KC9IV de KBØROB." Then came "KBØROB de KC9IV congratulations, congratulations!" The pot was boiling over with joy and the satisfaction of achievement.

I continued code practice and began study on General theory. Regular schedules with KC9IV, plus listening to W1AW code practice brought my speed up to 15 wpm. On 8 June, 1995, two days after my sixtieth birthday, I had that "General ticket." On the morning of 9 June, Albert and I met for our usual CW QSO. I tapped out "Why don't we QSY up to the phone band?" Back came "Congratulations! Congratulations!" Albert and I have been "yakking" ever since.

Not long after that historic QSO, UPS delivered a box full of vintage tubes, sockets, Bremer Tully transformers, another toroid coil, a neutralizing condenser, and all the necessary radio goodies for a fine homebrewed TRF receiver. Enclosed was a beautifully drawn schematic entitled Haroldyne-3. I would hate to have to choose between the Haroldyne-3 and my Amateur Radio license because they both represent precious gifts from my Elmer and friend, Albert E. Faragher, KC9IV. WR



Clockwise: Haroldyne-3 receiver, double-slider crystal set, Baldwin earphones, Brandes Superior earphones. ***—photo by KBØROB***

Radiosport Team Championship

Rusty Epps, W6OAT

WRTC-96, Inc. announces the selection of the 104 team members who will compete in the World Radiosport Team Championship scheduled for 13 and 14 July, 1996. The WRTC competitors will enter the IARU HF World Championship contest as 52 two-person multi-operator, single-transmitter entries. All 52 teams will be located near San Francisco Bay on flat terrain in relatively close physical proximity so as to minimize propagation differences, and all will run 100 watts output to nearly identical antenna systems. By eliminating many of the station and propagation variables normally associated with radio contesting, the WRTC strives to present a meaningful head to head competition in which the winners can rightfully claim to be "the best of the best."

The WRTC competition will begin at 12:00 UTC on Saturday, 13 July and run until 06:00 UTC on Sunday,

14 July. The WRTC teams will operate both CW and SSB on 40, 20, 15 and 10 meters and may be contacted once on each band-mode (i.e., 8 contacts are possible with each WRTC station). The WRTC stations will be easy to identify because they will be using distinctive "1 x 1" call signs specially approved by the Federal Communications Commission for the competition. Those call signs will be W6A through W6Z and K6A through K6Z. In addition to the regular IARU HF Championship awards, there will be a whole family of separate achievement awards available to those who work the requisite numbers of WRTC stations.

Twenty-two teams operated in the first WRTC competition which was held in Seattle, WA in 1990.

1. Defending Champs	K1AR, K1DG
2. Argentina	LU6ETB, LW9EUJ
3. Australia	VK5GN, VK2AYD
4. Belgium	ON6TT, ON4WW
5. Brazil	PY5CC, PYØFF
6. Bulgaria	LZ1SA, LZ2PO
7. Canada #1	VE3EJ, VE3IY
8. Canada #2	VE7NTT, VE7CC
9. Czech Rep.	OK1CF, OK2PAY
10. Finland	OH2IW, OH1JT
11. France	F6FGZ, FSMUX
12. Germany #1	DK3GI, DL1IAO
13. Germany #2	DL5XX, DL1VJ
14. Hungary	HAØDU, HAØMM
15. Italy #1	IN3QBR, IT9TQH
16. Italy #2	IT9BLB, IT9VDQ
17. Japan #1	JE1JKL, JH7WKQ
18. Japan #2	JH4NMT, JE3MAS
19. Japan #3	JH4RHF, JA8RWU
20. Japan #4	JH7PKU, JO1BMV
21. Lithuania	LY2IJ, LY1DS
22. Poland #1	SP6AZT, SP9FKQ
23. Poland #2	SP9IJU, SP9HWN
24. Russia #1	RV1AW, RW1AC
25. Russia #2	UA3DPX, RZ9UA
26. Slovenia	S59A, S56A
27. Spain #1	EA4KR, EA1AK
28. Spain #2	EA7TL, EA9KB
29. Sweden	SM3DMP, SM3CER
30. UK	G3ØZF, GIONWG
31. Ukraine	UT4UZ, UT5UGR
32. USA #1	K1KI, K3UA
33. USA #2	K3LR, WA8YVR
34. USA #3	K4BAI, KM9P
35. USA #4	K6LL, N2IC
36. USA #5	K8CC, K5GO
37. USA #6	KF3P, KR2J
38. USA #7	KRØYKITØ
39. USA #8	N6TV, K7SS
40. USA #9	W2GD, WØUA
41. USA #10	WX3N, K5ZD
42. Yugoslavia	YU1RL, YT1AD
43. Wildcard #1	5B4ADA, S53R
44. Wildcard #2	9A9A, 9A3GW
45. Wildcard #3	DJ6QT, DJ2YA
46. Wildcard #4	I2VXJ, I4UFH
47. Wildcard #5	K4UEE, N6IG
48. Wildcard #6	NP4Z, WC4E
49. Wildcard #7	RU3AA, RV3AJ
50. Wildcard #8	UN2L, UN4L
51. Wildcard #9	WN4KKN, N6TR
52. Wildcard #10	ZS6EZ, ZS6NW

For additional information about WRTC-96, contact Rusty Epps, W6OAT at 651 Handley Trail, Redwood City, CA 94062, U.S.A. or via e-mail at epps@netcom.com. You also may access the WRTC-96 World Wide Web site at:

http:/ourworld.compuserve.comhomepages/n6ip **WR**

An electrifying experience

Warren Ring, AB6QE

One morning last August around 5 a.m., I was awakened by heavy rain outside and the sound of thunder in the distance. It's not unusual for me to disconnect my HF rig when a storm is brewing, so I lay there waiting until the lightning was about two miles away (counting 1001, 1002 . . . between the lightning and thunder) and then I got up, put on my slippers and robe, and went downstairs to pull the plugs.

My shack is an add-on room with a ceramic tile floor. I have a tower behind the house with a Lightning Bolt (really) 2-element 5-band quad antenna, 50 feet up on a Rohn HDBX-48 tower. There is a Ringo Ranger 2-meter omni on a sidearm, and a G5RV center support on the other side.

The tower is grounded with one rod at the base, and all equipment in the shack is grounded to another rod outside the house. The quad and the G5RV are switched through an MFJ-1701, 6-position coax switch to a Yaesu FT-890-AT HF rig. The tower is surrounded by trees that are about 70 feet tall.

I toyed with the idea of using gloves to disconnect the rig by unscrewing the PL-259 connector from the common connection to the coax switch. But I decided not to do so because: The closest lightning strike was two miles away; the lightning strikes were about one minute apart; unscrewing PL-259s with gloves on isn't fun; the tower is grounded; every piece of equipment in the shack is grounded; I was tired and wanted to get back to bed; unscrewing the connector would take only about 5 seconds, and a layer of cloth isn't going to stop a lightning bolt.

Figuring I'd at least use the "one hand" rule, I put my right hand behind my back, and unscrewed the PL-259 with my left hand. With my hand resting on the switch box, I pushed the PL-259 off the switch box with my finger tips, and at that moment, ZAP! There was a flash of light (no sound), and I got a respectable shock in my hand. It felt like about 100 to 200 volts DC. (Years ago I got a 350V DC shock, and I still remember what that felt like.) I was shocked in more ways than one. I thought "How could there be a short? Everything's turned off!" Two seconds later I heard thunder.

It was apparent that I had been hit not by lightning, but with an electromagnetic pulse (EMP) like I've read about when A-bombs go off. I then thought what a foolish thing I had done, but I had never heard of anyone getting shocked by EMP!

Looking back on this incident, I considered something. No conductive part of the quad antenna is closer than about six feet from the tower. The shield on the cable running to the quad antenna is not grounded at the antenna; it goes to a balun out on the loop, so if the quad gets hit with an EMP (or lightning), there's no place for the charge to go but down the coax to the switch box, through my hand if necessary, and to the grounded equipment in the shack.

One person to whom I mentioned this, told me that when he once hooked a spark plug from a 1000-foot rhombic antenna to ground, he could reliably see the plug arc each time lightning appeared on the horizon, even when the strikes were too far away to be heard.

The lesson here is that you don't have to get a direct hit by lightning to get shocked by it. The EMP is to be respected even when the lightning is far away. From now on, I'll use the gloves! My e-mail: Warren.Ring @att.com **WR**

Product Review

S&S Engineering's 40 Meter TAC-1

Bruce Muscolino, W6TOY/3

The S&S Engineering team, Dick and Kathy Szakonyi, seem to attend almost every hamfest I attend; Dick, almost always outside, sitting on the tailgate of his truck, demonstrating his radios to all comers, and Kathy inside, warm, dry, and taking orders and delivering kits. At just such a hamfest Kathy mentioned they were looking for someone to review the 40 meter TAC-1, this review was born!

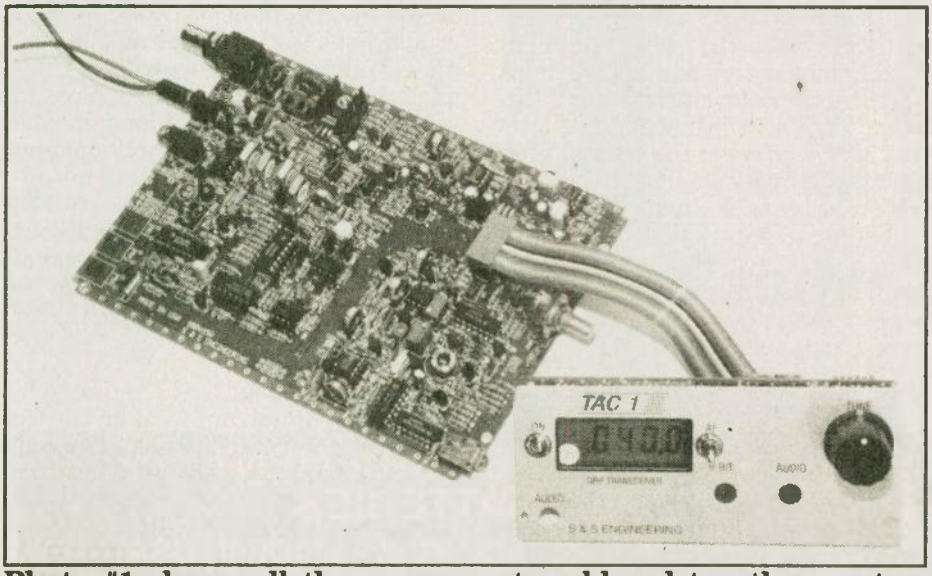


Photo #1 shows all the components soldered together on two circuit boards.

The Kit

Take a quick look at Photo #1, — THIS IS A BIG KIT! There are over 450 components to be soldered on two circuit boards, leading to a total of about 1,200 solder joints, give or take one or two!

S&S's motto is "We work hard to make it easy for you and it's clear they did just that with the TAC-1 kit. The components *and* the instructions have been carefully thought out to simplify construction. As Photo #2 shows, only the parts necessary to complete any given step are out at one time, and all parts are clearly marked and carefully packaged according to when and where they will be used. Even their manual contributes to the S&S philosophy; they've bound it so you can take it apart and use individual pages on the bench while you're building and testing.

The TAC-1 manual is really first rate. The clear and easy-to-understand instructions will help even the most inexperienced builder succeed, but only if they're used. Because the circuit boards used by S&S are of true aerospace quality, and because they use plated-through holes, S&S has also provided a very complete set of instructions on soldering and desoldering. I beg you, READ THE MANUAL CAREFULLY, FROM COVER TO COVER, AT LEAST ONCE BEFORE STARTING TO BUILD THIS KIT. I've read mine several times and still discover something new each time I open the cover.

Photo #2

The manual includes a comprehensive list of tools and test equipment, most well equipped workshops will have nearly everything. However, for the novice builder, several exceptions come to mind — the frequency counter, the oscilloscope, and the static protection equipment. There's no way around the frequency counter (perhaps you can borrow one from a friend), but you can work around the scope using a good digital voltmeter (DVM).

If you don't own one, you should buy a lead bending tool, before you start this kit, because there are an awful lot of leads to bend, and their spacing is pretty tight Without a lead bending tool you'll be bending and rebending the leads of the first few components until you get the dimensions figured out!

Static protection equipment is also not often found in home workshops. As most of you know, many integrated circuit and other semiconductor devices can be destroyed by the uncontrolled application of high voltage to their leads. Walk across a carpet in the wintertime, wearing leather soled shoes, and touch almost anything metallic; the spark you see is, the static charge you've built up, being discharged. Imagine this charge, which can easily reach 35

thousand volts, being discharged through a 5 volt chip! High voltages can and will destroy semiconductor devices. Get the picture?

And, please don't believe the folks who tell you it isn't important; that they've handled thousands of static-sensitive chips without a problem. The damage is not always fatal, sometimes the chip's performance is only degraded. The integrated circuits in the TAC-1 kit are packaged with their leads pushed through aluminum foil, and one is specifically marked as static sensitive. The foil effectively shorts the leads together, protecting the chip until you're ready to install it.

The key to static protection is grounding. You can get a special conductive top for your workbench and ground it. You can ground yourself with a special wrist strap, the ground connection being made through a very high value resistance so you won't electrocute yourself. And finally, you can use an anti-static spray on the carpet in the area where you're working to help prevent static build-up.

Building it

If you read nothing else in the S&S manual, please read the soldering and desoldering instructions very carefully. As I said before, these boards are aerospace quality They are multi-layer and have plated-through holes. Plated-through holes almost guarantee good interlayer connections if you use good soldering techniques, but increase the difficulty of removing components once they are installed.

For example, when I built the display board I installed the display socket backwards — intentionally, I thought I had a better idea! Then I realized I had made a mistake I had to remove the socket and replace it. Even using a heated "solder sucker" I had a tough time desoldering the three pins on each side of the socket that I had soldered. Fortunately, by removing the pins from the socket I was able to grab them with a pair of pliers and pull them out as I heated the joint. "No harm, no foul," as they say, but that does not begin cover the worry about fouling up the kit on one of the very first steps in the manual!

Use the carpenter's trick — measure twice, but cut once! Be absolutely sure the C145 you are about to install where it says "C145," is actually the correct value for C145. You'll save yourself a lot of extra work.

Also, although the boards are aerospace quality they can be damaged or destroyed by careless handling. If you have access to a "soldering station" with a temperature control, use it. If you don't, don't use anything larger than a 25 watt soldering iron with a grounded tip. This will protect transistors and ICs from static damage. Higher wattage irons will only increase the risk of damaging the board with excessive heat.

Figure 3 shows the completed circuit board(s). According to the manual, S&S is of the opinion that it should take you about 16 hours to reach this stage. At almost any point, while I was inserting components, soldering them down, and clipping off excess leads, I would have said this was an optimistic estimate. But now, with a completed radio on the desk, I have to admit it didn't take that long; maybe only 14 hours including check-out and test. This may be the result of my advanced building technique — stuff as many parts as I can solder without getting my iron caught in the forest of leads, and repeat until there are no more loose parts — or because the kit is so well organized.

Once you've completed the soldering you'll also need some denatured alcohol to clean the flux off the circuit boards; you can get it at your local hardware store. Don't skip this step— it is a very important step in the construction of anything electronic, because solder flux is corrosive. Yes, yes, I know, you use resin core solder, like a proper radio person, but all that really means is the corrosive action of the flux (core) is milder and slower than the stuff the plumber charges you $18 per hour to use! It's still mildly corrosive and will attract moisture and dirt to your circuit cards, and may eventually cause your good joints to go bad.

Testing and alignment

Test and alignment was the scariest part of the kit for me! After I finished building the kit, I sort of left it on my bench for a while to let it mature, so to speak! Actually I was afraid to apply power for fear of destroying something! However, eventually curiosity overcame fear, and coincidentally the blizzard of '96 forced me to stay home for the better part of a week. I couldn't walk past the rig any longer and put up with its mocking stares! In preparation for testing the kit I had made up a fused power cord — about $3 worth of parts from Radio Shack, including fuses! I installed a .125 ampere fuse in the fuse holder and crossed my fingers. (Note, that fuse is only good for checking out the receiver.) Lo and behold, everything worked as it was supposed to— the display came up showing "7," and then switched to. "040," just like the manual said! No smoke, no excitement — that came later!

Figure 3 shows the rig set up for testing with the display showing "040."

With the "smoke test" out of the way, I went on to synthesizer alignment. With some encouragement from Dick this went more or less without a hitch. This and other adjustments are generally made by spreading or compressing the turns on one or more toroids. This can seem to be just a little bit "fiddly;" but once you've made the first adjustment it becomes very fast and very effective. Just pay careful attention to whether you should compress the turns or spread them. I found I could use a plastic tuning tool to expand the turns and my fingers to compress them. The TAC-1 synthesizer tunes in steps of 1 kilohertz and 100 hertz. The alignment went quickly, but I never could get the 100 hertz steps exactly even.

The next problem I encountered can be directly traced to not following my own advice about reading the manual The step immediately following the synthesizer alignment calls for adjustment of the receiver audio output for "maximum smoke." The adjustment involves a board mounted trimmer capacitor and your headphones. I plugged in my headphones and turned that poor little capacitor until it almost smoked, but no audio; nothing, zip, nada!

Being sure I had really messed something up, I took the manual to work the next morning fully intending to call S&S and ask for help. Imagine the look on my face as I sat at my desk, idly flipping through the manual, when I found the receiver troubleshooting chart with "no audio" as its first entry. Want to guess what the fix was? "Use stereo headphones"! Yes, I was using my trusty "mono" headphones. Plugging in a set of stereo phones brought all the receiver audio I could stand! Remember what I said about reading the manual? And about reading it again?

I really only had one other scare checking out the rig. About the second time I pressed the key during transmitter checkout there was a bright flash of light in the vicinity of my bench. I immediately thought "Now what did I blow up?" It was my home made fused power cord saving my neck. I still had the 125 mA fuse in line. The transmitter, it seems, draws about 1.25 amperes! Replacing the fuse with one made of "stronger stuff" solved the problem, and the transmitter alignment went without hitch.

Operation

Once alignment was complete I installed the rig in its case and proceeded to put it on the air. Oh, did I say I'd had a problem with the RIT? There wasn't any! I fixed that as I was installing the rig in the case — the pot had come loose and resoldering it solved the case of the missing RIT!

I had the TAC-1 on the air within minutes of installing the last screw in the case. Photo 3 shows the completed rig — notice the 40 Meter sticker on the panel. As you may have noticed, 40 Meters was not the very best of bands in early 1996, but my first contact managed a 439 from that renowned QRP product reviewer Jeff Gold, AC4HF. At 329, he was the loudest signal on the band at my QTH; and he was about the only signal that evening! Since then I have had the time to give the little rig a much more complete workout, and I am really pleased with the results. The TAC-1 is one smooth little radio, something more QRP radios should try to be.

When first turned on, the rig's display shows a "7," probably to remind you this is a 40 meter radio. After a few seconds the display changes to ".040.0", the QRP calling frequency, (neat touch) and the rig is ready to operate. Pushing in on the tuning knob changes the tuning steps from 1 kilohertz to 100 hertz. Because the synthesizer tunes in steps, the audio frequency signal does not change smoothly as it passes through zero-beat; instead the tone changes in small steps (very reminiscent of my ICOM IC-730). The RIT takes care of any minor adjustments in pitch to satisfy the most critical operator's desires.

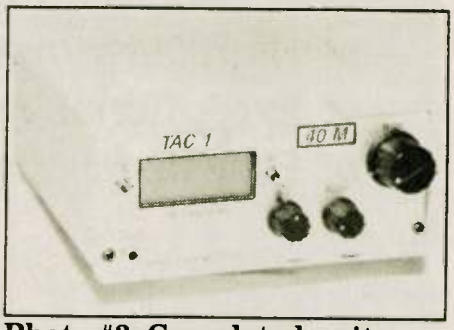
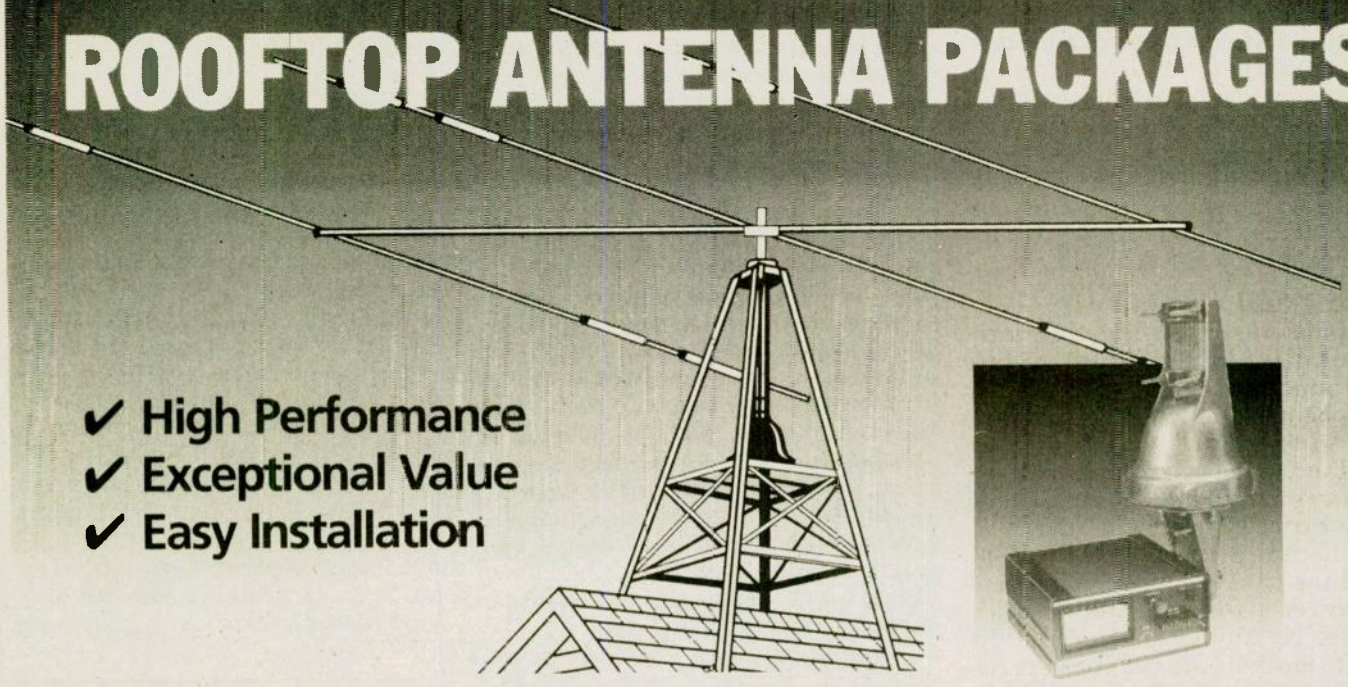


Photo #3. Completed unit

The audio filter works very well — almost no level change in the audio when it is switched in and as a bonus the receiver becomes quieter when it is in-line. My rig, it seems, came with the optional W/K filter (not shown in the S&S catalog). After Jeff, the next two QSOs were with an FS5 and a P40! S&S has a produced a real "keeper"! WR

Would you like to read up on reviews of other products written by people like yourself? What better way than with a subscription to *Worldradio*. Turn to page 9 now!

Hy-Gain Put It All Together...
YOU SIMPLY PUT IT UP.
ROOFTOP ANTENNA PACKAGES



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✔ Exceptional Value
✔ Easy Installation

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HF PACKAGES

PACKAGE #1
TH-3 MK4 3 Element Beam 1500 W PEP
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Silent Keys

Alvin B. Unruh — A ham at heart for 73 years

Alvin B. Unruh, WØAWP, passed away on 25 October 1995, at the age of 89.

At age 16 in 1922, as serious broadcasting began, Alvin B. Unruh, "Abie" ("A B," and finally "Al") started building galena crystal sets in Newton, KS. The Wichita stations, and often Kansas City and sometimes Davenport, IA came in well. Then a neighbor boy showed Abie his spark station.

That did it! Abie and a good friend living a mile away, started learning the Morse Code together, practicing over the air after school with Ford spark coils and crystal sets, being careful to avoid practicing during broadcast hours. It was a "bootleg" operation, but not yet technically illegal.

In early 1923 he asked for money to build a spark transmitter. His Dad said: "Son, spark is out of date. I won't give you any money for that, but if you want to make a radio so we can listen to music, I'll help." Abie agreed, and built a three-circuit, one-tube (UV200) regenerative with plug-in honeycomb coils on the front panel. Every control except the filament rheostat affected tuning, and all of them affected regeneration and volume.

Moving the antenna coils sharpened or broadened tuning. With headphones the family listened to broadcasting, and Abie could hear the amateurs at 200 Meters and below. His friend built a similar receiver. Later, Abie would add a "one step" (single stage audio amplifier) to allow a loud speaker for the family.

The boys continued to practice the code over the air, transmitting by making their receivers oscillate and forming the code characters with a telegraph key in the ground lead — but not during broadcast hours.

By late September 1923, both boys had been examined and received their licenses, Abie's being 9BIO. He was licensed 10 watts with a 4-wire cage inverted L antenna 40 feet high and 55 feet long, in the 176-200 Meter range. Any changes had to be verified by the inspector. (Back in those early days you didn't worry much about what wavelength your antenna had — hardly anyone could measure wavelength anyway).

His transmitter used a "reverse feedback" (self-excited, inductively coupled) circuit with a UV-202 tube (nominally 5 watts). The tank coil was wound on an oatmeal box with #14 rubber-covered house-wire. The plate blocking condenser was made from discarded 5 x 7-inch glass photographic plates interleaved with tinfoil sheets. He had a meter to measure plate current. The components were scattered all over the top of a small table, like a physics lab experiment. Under the table was his power transformer, with its core made from cut-up sheets of stove-pipe iron, its primary wound with #14 wire and the secondary with #22, to give about 500 volts. At first he used raw 60 cycle AC. Holding the key down for a short time made the tube plate bright red (overloaded!). Later he added a full-wave chemical rectifier using 40 pint jars ("slop jars") in a bridge circuit, which also provided some filtering. Several tubes died during his first year.

5ALR in Texas answered his first CQ, but Abie got so excited that in a minute or two he lost contact. (Tuning and holding a station in tune was very tricky in those days, when both transmitters and receivers tended to be unstable and also sensitive to hand-capacity and antenna movement.)

That began an active lifetime of hamming, interrupted later only by demands of work and other activities. After marriage in 1929 he moved to Wichita. It ended only when he could no longer control his keying, a couple of weeks before he, as WØAWP, became a silent key. He made many friends and won almost every ARRL award along with many others. He was a died-in-the-wool ham. He was courteous and generous. It was a pleasure to know him. *—submitted by William G. Pierpont, NØHFF*

James E. McKim, WØCY

Jim McKim, WØCY, of Salina, Kansas, died 14 February, at age 80. A life member of AMSAT, ARRL and QCWA, McKim had been involved in satellites since the launch of Sputnik One in 1957. He was also regarded as a pioneer on the VHF and UHF bands. *—submitted by Newsline*

Special Events

Canal Festival Day

The Madison/Oneida Amateur Radio Club (MOARC) will operate KB2UDX on 29 June, from 0900 to 1730 EDT at the Chittenango Landing Canal Boat Museum in Chittenango, NY, in celebration of the museum's Canal Festival Day. Operation is planned for the General portions of 75, 40 and 20 Meter phone and the Novice phone subband of 10 Meters. For a commemorative certificate, send QSL and SASE to MOARC, Box 241, Verona, NY 13478.

Old Fort MacArthur Days

The United Radio Amateur Club and the Ft. MacArthur Military Museum Association will operate K6AA at the Ft. MacArthur Military Museum, 3601 South Gaffey St., San Pedro, CA. The special event station, in operation during "Old Ft. MacArthur Days," 13 and 14 July, will celebrate the 80th birthday of batteries Osgood and Farley located at Ft. MacArthur. Operation will be during daylight hours (0800-2000 PDT, 13 July and 0800-1600 PDT, 14 July). Frequencies: SSB — 7.260, 14.280, 50.150 and 144.250 MHz; FM voice — 51.060 and 145.520 MHz. For a commemorative QSL card, send QSL and a 9 x 12-inch SASE to United Radio Amateur Club, Los Angeles Maritime Museum, Berth 84 — Foot of Sixth Street, San Pedro, CA 90731

Experimental Aircraft Association Fly-in

Members of the Fox Cities Amateur Radio Club (Appleton, WI) will operate W9ZL from the Experimental Aircraft Association Fly-in and Convention in Oshkosh, WI, 27-29 July 1996. They will be operating from "Pioneer Airport" adjacent to the EAA Aviation Museum. Operations will be on the General phone portions of the HF bands, as well as RTTY and CW as conditions and operators permit. The club also will be giving "on-grounds" convention information (no QSLs please) on 146.52 simplex.

QSL and SASE only to: Wayne Pennings, WD9FLJ, 913 N. Mason, Appleton, WI 54914 for special 8- x 10-inch picture certificate.

Burning of Chambersburg

The Cumberland Valley ARC will operate W3ACH, on 20 July from 1200-2100 UTC, to commemorate the 132nd anniversary of the burning of Chambersburg, PA, by Confederate forces on 30 July, 1864. Operation will be on: 3.870, 7.240, 14.250 and 147.12. For certificate, send QSL and 9 x 12 SASE to CVARC, P.O. Box 172, Chambersburg, PA 17201.

Mahlon Loomis

The Fulton County Doctor Mahlon Loomis Committee will operate W2ZZJ on 20 and 21 July to commemorate the 170th anniversary of the birth of Dr. Mahlon Loomis, the American radio pioneer, who was born at Oppenheim, NY on 21 July 1826. Operation will be from 1300-2000Z (both days) on the General class phone portion of 75, 40, 20, and 15 Meters, and on the Novice 10-meter phone band. Also, on area 2-meter FM repeaters. For a parchment certificate and extensive literature, send QSL, contact number, and a #10 SASE (55c) to W2ZZJ, 5738 STHWY 29A, Stratford, NY 13470.

Deltaville Heritage Day

The Middlesex Amateur Radio Group (MARG) will operation AD4VI, from 1300-1900 on 6 July to commemorate the annual Deltaville Heritage Day. Frequencies to be used: lower General 80M-15M Phone and CW; Novice 10M Phone. For certificate, send 9 x 12 SASE to: Peter Wright, AD4VI, P.O. Box 1025, Deltaville, VA 23043.

City of Corona Anniversary

The Corona Norco Amateur Radio Club will operate KE6TXA on 13 July to mark the 100th anniversary of the City of Corona, California. Known as Circle City from the 1912-1914 Road Races on Grand Avenue (a perfectly circular avenue exactly 3-miles in circumference), race cars exceeded 100 mph. Traffic, however, flows at a much more sedate pace today. Operation will be from Grand Avenue on SSB, 14.250 MHz, 21.350 MHz and 7.250 MHz as well as 146.535 MHz and local repeaters. For a commemorative QSL card, send a #10 SASE to CNARC, P.O. Box 273, Corona, CA 91719

Great Circus Parade

The Circus Train Mobile, K9JKX, will operate 8-9 July from 1400-2030 UTC (both days), from the Great Circus Train as it travels from Baraboo, Wisconsin's, Circus World Musem (housed in the original winter quarters of the Ringling Bros. Circus) to Milwaukee with 20 double-length flat cars carrying more than 60 priceless, fully restored circus wagons for the Great Circus Parade the following Sunday. Operation will be on 20 and 40 Meters, around 7.240 or 14.240 There *may* be extended hours on 8 July. For a certificate, send a 9- x 12-inch SASE with three units of first class postage to: Don Evenson, K9JYX, 401 11th St., Baraboo, WI 53913.

Football Hall of Fame Week

The Canton ARC will operate W8AL, 26-28 July from 1400-2400, to celebrate Pro Football Hall of Fame Week. Frequencies: CW — 7.125; Phone — 7.265, 14.265, 21.365 and 28.425. For certificate, send QSL and 9- x 12-inch SASE to: Donald E. Perry, WQ8J, 968 Culverne Ave., N.W., Massillon, OH 44647. WR

Station Appearance

Patrick M. Butler, AA7RU

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 got my first ticket as a 13-year-old kid back in 1954, mesmerized by those big knobs, meters, and warm, glowing tubes. But I let my license expire when I went off to college five years later — that's all you got before having to renew back then. My parents sold off my gear while I was away (I've never quite forgiven them) and ham radio was just a happy memory for the next thirty years. All I had to show for it was my old Novice straight key.

Then, about four years ago, my XYL held a garage sale and that key was on the block for a couple bucks. As fate would have it an old-timer (Gus, W6LAS) walked by, saw the key, and asked if I were a ham. When I told him I'd been QRT for over 30 years he encouraged me to get back into hamming and started talking about packet, Amtor, Pactor, iambic keyers, and all kinds of things I'd never heard of. A couple of weeks later I took the Novice test in Gus' shack with several of his ham buddies as witnesses.

So now I was back on the air but it was like Rip Van Winkle waking up. Everything had changed. I bought a new rig with buttons and labels so small I could scarcely find them, something called a TNC with a couple dozen little blinking lights, and what hams refer to as an HT, which is like an old Gonset Communicator except that it fits in your shirt pocket.

I had a ball discovering the joys of HF digital operation — even tried SSB for the first time in my life. VHF repeaters were a revelation. But something was missing, what for me had been the essence of hamming: big knobs, meters, and those lovely glass bottles. So when I had the chance to pick up some old Collins gear from the '50s era at an estate sale, I just couldn't resist. This was the kind of equipment I could only dream about on my paper route budget back in those days. The rigs were cosmetically perfect but had been stored in a damp garage for over twenty years. My first QSOs went up in smoke. But with determination, my old VTVM, luck, and a little advice from another old-timer (Yvon, AA6MW), they are now back on the air daily —and I can feel like I'm really "hamming" again.

Clustered around the CRT is the modern stuff. To the left is a Kenwood TH-77A dual band HT. To the right is a Kenwood TS-850SAT with an AEA PK-232MBX perched on top. Above them is a Kenwood SM-230 station monitor, and below you'll see a rarely used Kenwood TL-922A linear. What the unenlightened refer to as "boat anchors" sit to the right. Closest to the modern gear is the Collins 32V3 AM/CW transmitter. It uses a 4D32 final and puts out about 120 watts — which works out to exactly one watt per pound. I had to buy a hand truck to haul it around. Above it sits a homebrew antenna tuner and above that is an old Astatic D-104 lollipop microphone which I use on AM with the 32V3. To the right of the transmitter is a Collins 75A4 receiver with matching speaker underneath. To the right of that, if you've got a sharp eye, you'll see a concession to the modern era, an MFJ iambic keyer with Bencher paddles. It lacks the "soul" of my old Vibroplex — but I was never much good with a bug anyway.

Although each station probably gets equal use, I confess that I'm happiest when I fire up the tubes for a long ragchew on CW. WR

Amateur "Hi"

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

The "power" of ham radio

Robert R. Dockery, WD4CNZ

About three years ago, the East Coast was enduring an ice storm which began near Atlanta and spread up the eastern seaboard states. I was listening to the emergency nets activated at that time when the telephone rang. My son and his friend were on their way from Atlanta up Interstate 85 and ran into the ice storm. He was calling from a tiny town just at the South Carolina-Georgia state line asking for conditions ahead of him. He wanted to know if they should try to find a motel for the night or continue on. I told him to call back in an hour and I would have the information by then.

I contacted the emergency net on 146.61 with Sue Chism, N4ENX, net control with my query about conditions from the state line to Greenville, South Carolina. She made a call and some information came back that so far, the storm was still in the southern part of the state. If my son could outrun the icing, he could continue on. I made my thanks and waited for his call . . . two hours passed and no call.

I contacted the net again asking if anyone was in the southern end of I-85 and if so, could they give me an update on the weather conditions. A station came back to the net saying that traffic was stopped and they were just sitting there getting iced over . . . the station asked: "What kind of car is your son driving?" I came back with the description and he said: ". . . hold one. . . ."

My son's car was just one car ahead of him and he got out and walked up to the window and knocked. Imagine the look on my son's face when this ham asked: "Are you Brian?" "Yes," said my son. "Your dad wants to talk with you on my radio!" (His friend was VERY impressed but my son simply went along knowing what had occurred!) He made it home safely, much to my relief.

I do not remember nor did I write down the call sign of that helpful ham on I-85 that night. I only hope that I can return the favor some day! WR

Off the air

Worldradio
2120 28th Street
Sacramento, CA

"CQ and me"

The article "CQ and me" on page 35 in the May issue brought back a memory or two. Way back in 1943, I was pounding brass on a 210' fleet tug, the USS *Munsee* (ATF-107) out of Waipio Point, just inside the submarine gate in Pearl Harbor.

We were scheduled to tow target after dark for a battleship division south of Pearl Harbor. We had streamed the sled about 100 yards and informed the senior officer present that we were on station and ready.

Everything went well for about an hour when suddenly we could hear the characteristic "whish, whish" of an incoming round. It was coming in our direction but fortunately it overshot its target — *us* WOW! Our skipper saw red. "Light ship" he ordered, and we did. Every porthole was slammed open, every door, hatch, anything that would emit light was opened or turned on.

Now this was wartime and nobody, but nobody wandered about on the high seas with their lights on at night. We did... The 36 inch arc light on the signal bridge was lit off and swept the sky from straight up down to the horizon. The "old man" got on the horn and said "you idiot, where in heck do you think you're shooting??? Point those things somewhere else." He ordered the target illuminated for the benefit of the "shooters." After giving the situation some careful consideration he announced to the battleship skipper, "gunnery practice is concluded. We are returning to port, end of transmission. Cleanshave out!"

That was a long time ago. Our voice call was "Cleanshave" and our CW call "NXGC." WWII and our memories — they go together.

73 and thanks for a great publication.

Jerry Johnson, KEØKI
Ozark, MO

"The Harp Antenna"

I read the article "The Harp Antenna" by Dave Evison, N6GKC (May '96, page 56) with great interest as I live on a small city lot and enjoy building and testing new "small" antenna designs for the low HF bands. I've learned through experience to analyze them first.

The feedpoint impedance presented, ≈325 ohms, did not make sense. As the size of a half wave dipole is reduced, the radiation resistance goes down, not up. Linear loading does however provide less reduction than coil loading. I used EZNEC (by Roy Lewallen, W7EL) to compute the radiation resistance of the continuously loaded linear harp and winged harp designs resonant on 80 Meters at a height of 20 feet off average ground (ε=13, σ=5). The values are ≈1 and 10 ohms respectively.

These low impedances should not discourage anyone from trying these novel designs. I've used short dipoles fed with ladder line and a wide range transmatch successfully for many years. I just don't want anyone to be surprised when they don't get the same impedances as N6GKC.

There may have been special conditions that caused his impedance to be high. I suspect excess loss somewhere since his antenna had a low Q and all low-loss short antennas have narrow bandwidths (i.e., High Q).

Bill Shanney, KJ6GR
Torrance, CA

(The word back to ***Worldradio's*** *editorial staff from Dave, N6GKC, is that Bill, KJ6GR, thought the plots and measurements were made at resonance — which they were not, as the antenna is designed for multiband operation using a tuner. After that clarification, it reconciled their different conclusions. "It was fun!," says Dave — and that's what ham radio is all about).*

Ancient technologies

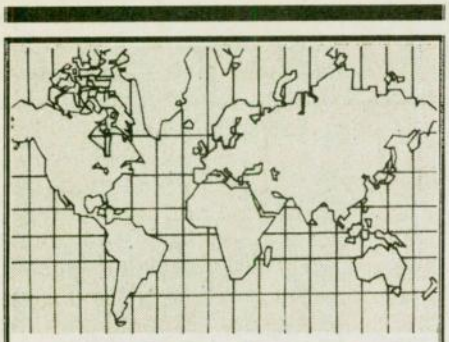
Some of the loudest "No Code" criers would throw out CW because it is: "Ancient technology;" relatively slow, and requires some skill to operate. DESPITE this, CW can reach the other side of the world at minimum cost.

Some of these same people own "blue water" sailing yachts which are also: "Ancient technology;" they are relatively slow, and require some skill to operate — *because* sailboats can reach the other side of the world at minimum cost!

Sailing with the wind predates CW by thousands of years. But both technologies are still viable, popular and economic. In use they contribute the least possible pollution to their respective environments — water, air, and the electromagnetic spectrum.

CW, too, deserves to sail on into the foreseeable future.

Jack Bock, K7ZR
Clinton, WA



DX WORLD

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

W-100-N

There were no applications received during April for ***Worldradio's Worked 100 Nations Award.***

Nauru (C2)

Two stations have been reported recently from Nauru, on 75 Meters. C21NJ has been reported several times on 3.800 MHz from 1100 UTC with C21RK in the 3.792 to 3.800 MHz spot from 1030 UTC.

C21DX has been very active on 40 Meters and has been reported on 7.004 and 7.010 MHz from 0930 to 1500 UTC. Also heard on 40 Meters, but using SSB was C21NJ reported near 7.195 MHz at 0745 UTC on 6 April. Additional activity from this one includes the following 20-meter spots:

C21DX	14.009 MHz	0730 UTC
C21NI	14.246 MHz	1215 UTC
C21NJ	14.190 MHz	0915 UTC
C21RK	14.222 MHz	1300 UTC

Senegal (6W)

According to *425 DX News* Didier, F5OGL, will be active from Dakar, Senegal, beginning in July. He plans all bands, 10 through 160 Meters, using CW, SSB and RTTY.

The Gambia (C5)

425 DX News notes that the C45CW/C56DX operation from The Gambia ended on 18 March after more than 29,000 contacts. The QSL route for this one is via DL7DF.

Sable Island (CYØ)

In addition to the CYØAA Sable Island DXpedition planned for this summer somewhere between 18 June and 2 July there is another one now being planned. *QRZ DX* reports that Murray, WA4DAN, hopes to go to Sable Island during the first week in October. Accompanying him will be Bob, KW2P, and Ron, AA4VK. Plans call for three stations on all bands, 6 through 160 Meters, including those new bands.

Philippines (DU)

Despite the band conditions recently, several DXers have reported activity from the Philippines on 20 Meters:

DU1AK	14.210 MHz	1245 UTC
DU1KT	14.195 MHz	1245 UTC
DU1SAN	14.200 MHz	1615 UTC
DU9RG	14.188 MHz	0230 UTC

Robin, DU9RG, in addition to working 20 Meters SSB, has been reported on 75 Meters near 3.798 MHz after 1130 UTC back on 18 March. He also appeared in disguise on 21.293 MHz at 0900 UTC signing with 4H9RG.

Obviously, when the band is closed you check the MUF and find what may be on 40 or 80 Meters. Two stations were reported on 75 Meters with DU1KT near 3.797 MHz around 1315 UTC and DU9RG as reported above. Forty Meters was represented by DU1COO on 7.002 MHz at 0415 UTC.

Ceuta and Melilla (EA9)

Need this one on RTTY? Then listen for EA9AZ who has been reported often between 14.080 and 14.082 MHz at various times, including 0300, 1300 and 2000 UTC. *The DX Bulletin* reports also show that he was on 20 Meters SSB near 14.261 MHz at 2115 UTC on 23 March.

On 75 Meters I found only one report and that was for EA9IE on 3.794 MHz at 0615 UTC working into Illinois (probably one of those W9DXCC types) 23 March.

French Polynesia (FO)

During the latter part of March FOØDI had been quite active on several bands. He was reported on 10.104 MHz at 0430 UTC; 14.195 MHz at 0400 UTC, and 28.004 MHz at 0215. That 10-meter report was with a California station on 22 March. Other reports from Polynesia include:

FOØBS	14.263 MHz	0830 UTC
FOØFOD	14.206 MHz	0030 UTC
FOØMOD	14.190 MHz	0130 UTC

Jan Mayen (JX)

Per Dahlen, LA7DFA, was to have been active from Jan Mayen as of 1 May signing with JX7DFA.

Franz Josef Land (R1F)

According to *The DX Bulletin* R1FJZ on Franz Josef Land will be leaving in August. If you need this one, especially on one of the WARC bands, go for it now. His 30-meter activity has been on 10.101 MHz 0015 to 0400 UTC. For other band activity try 14.008 to 14.011 after 1100 UTC, 14.195 to 14.210 MHz after 1300 UTC.

Kaliningrad (UA2)

For DXCC purposes, Kaliningrad is considered a separate country. In reality it is just another section of Rus-

sia and is separated by Belarus. Originally it was the German city of Königsberg in East Prussia.

RTTY contacts from Kaliningrad have been provided by UA2AO. Try 14.085 to 14.087 MHz around 1300 UTC. UA2BD has been very active on 80 Meters, operating between 3.503 and 3.506 MHz for about an hour from 0030 UTC, and if that isn't challenging enough for you, try 160 Meters. In April, two calls were reported with signals from Kaliningrad: UA2BD on 1.833 MHz at 0230 UTC and UA2FF on 1.831 MHz at 0315 UTC. The reports were from Tennessee and Maryland, respectively.

Other calls reported included UA2FGU on 14.007 MHz at 1245 UTC and UA2FL on 18.075 MHz at 1300 UTC.

Marquarie Island (VKØ)

Ohio/Penn DX Bulletin reports that Warren, VKØWH, now can be found on Monday, Tuesday or Thursday, operating 40 Meters CW. Listen near 7.009 MHz for this one from 1000 UTC. He usually listens up 3 kHz. Sometimes he appears on the IOTA frequency of 14.260 MHz with his QSL manager, Jim Smith, VK9NS. Warren should be active from Macquarie Island through December of this year.

Gibraltar (ZB)

Forty Meter activity from Gibraltar includes ZB2AZ on 7.006 MHz at 0700 UTC, and ZB2EO on 7.003 MHz at 0730 UTC. ZB2EO has been active on other bands, including 20 Meters between 14.010 and 14.022 MHz after 1100; 10.115 MHz at 2045 UTC, and 18.071 MHz at 1545 UTC. In addition to ZB2EO on 17 Meters this band also included ZB2CR on 18.124 MHz at 1530 UTC and ZB2GR on 18.137 MHz at 1415 UTC. *The DX Bulletin* reports Torsten Dittberner, DL1BX, and Hans-Rainer Uebel, DL7CM, were to have operated from Gibraltar 10-20 May with ZB2 appended with their home calls.

DX Prediction — July 1996

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	*(15)*	*17	*14	*(11)*	*16
12	*(14)*	*13	*13	*(12)*	*(15)*
14	*(18)*	*15	12	*(15)*	20
16	*(20)*	15	*(12)*	17	23
18	22	*(13)*	*(11)*	18	25
20	23	17	*(16)*	16	27
22	19	20	25	13	25
24	*(16)*	22	27	*(11)*	22
2	*(14)*	23	28	*(10)*	*19
4	*15	24	28	*(14)*	*16
6	20	22	25	16	*14
8	18	*20	*18	15	*13

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(16)*	14	*15	12	*13
10	*(18)*	11	14	*(12)*	*14
12	23	*13	13	15	17
14	26	16	*(13)*	17	21
16	28	15	*(12)*	18	*24
18	28	*(13)*	*(11)*	18	*26
20	23	*(17)*	*(22)*	16	*27
22	19	20	26	*(13)*	*26
24	*(16)*	19	28	12	*21
2	*14	19	28	*10	*18
4	*15	*(17)*	26	*14	*15
6	20	16	22	15	*14

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	*(15)*	14	*17	*(11)*	*13
9	*(17)*	*(11)*	14	13	*14
11	22	*(14)*	13	16	17
13	25	16	*(12)*	18	21
15	27	*(13)*	*(12)*	*19	*24
17	27	*(11)*	*(11)*	*19	*26
19	*25	*(13)*	*(16)*	18	*27
21	21	*(16)*	*(24)*	16	*26
23	17	*(17)*	27	15	*24
1	*15	19	28	*12	*20
3	*12	*(17)*	27	*12	*17
5	18	16	23	*14	*15

IOTA

Don't forget to listen for the Barren Islands DXpedition by John, NL7TB, and his crew around 4 July. Before and during the IOTA Contest in July a team of Brits will activate Benbecula Island (EU-010) signing with GMØPCA/P and GMØWDY/P, the latter call for the contest. Jim, G3RTE, and Phil, G3SWH, will activate Les Minquiers Plateau (EU-099), if weather permits, 28 June through 1 July with the calls GJ3RTE/P on SSB and GJ3SWH/P on CW. *425 DX News* reports that Jim, N3GKY, will append his call with DU2/ and operate for three or four days in July from the Babuyan Islands (OC-092).

Also planning to be active in the IOTA contest in July is Yuki, JI6KVR, from the Uji archipelago (AS-067). *Ohio/Penn DX Bulletin* makes note that Eric, F5CCO, plans activity in the IOTA contest from Planier Island (EU-095). IOTA islands reported during the month of April:

EU-009	Orkney Islands	GMØHTG
EU-020	Gotland	SM1MCS
EU-031	Procida Island	IC8/IK8VRS
EU-032	Oleron Island	F5PAC/P
EU-052	Zante Island	IØIJ/SV8
EU-120	Isle of Wight	G7RAU
EU-129	Usedom Island	DL2ARD/P
EU-141	Vardo Island	LA5SJA
AS-008	Miyaki Island	7K3EOP/1
AS-053	Phuket Island	HSØ/IK4MRH
OC-029	Majuro Atoll	V73AK
OC-171	Magnetic Island	VK4FW/4

Reported from Phuket Island above is Nerio, IK4MRH. He is a resident on the island and should be active on several bands, including 10, 15, 20 and 40 Meters.

DXCC Applications

The DXCC Desk reports that the number of unprocessed applications at the end of March 1996 was 148 (12,392 QSL cards). During the month 326 applications (29,394 QSL

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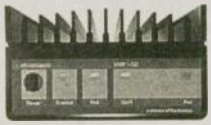

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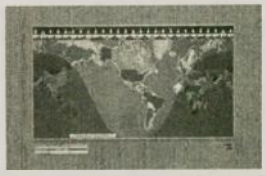

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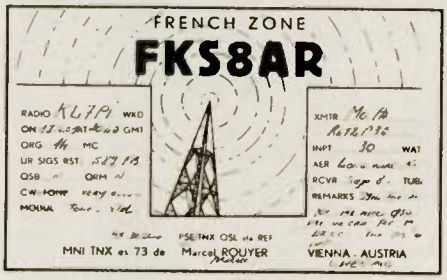
cards) were received for endorsements and new awards. Applications being sent out at the end of the month were received only a couple of days earlier. A few received prior to that time were waiting for paper records to be converted, or were being audited, and so had not yet been completed.

Cards for Scarborough Reef, (BS7), and Pratas Island, (BV9P), are now being accepted by the DXCC Desk. There are now 329 countries on the DXCC Countries List. As of April 1996 it requires 320 current countries for Honor Roll status. Deleted DXCC countries do not count for Honor Roll.

Antique QSL Department

The two antique QSL cards for this month were submitted by John Munroe, W7KCN, for contacts made by the late KL7PI. The first card was for a 20-meter CW contact made back



in 1951 with Austria. The strange prefix of FKS was to signify the French occupational zone of that country following the war. The second card has no date. However, the date is about 1964, the time Gus Browning, W4BPD, was running around the world with his famous World Radio Propagation Study Association DXpeditions. With the improving possibilies of Amateur Radio from Bhutan it should be of interest.

QSL Information

The DX Bulletin reports that KA9RLJ, the QSL Manager for HH2PK, has not received any logs from that station since 1994. If you are looking for a confirmation for a contact with HH2PK this will answer your question as why you are still looking. This is a headache to all QSL managers and they are the ones who get blamed for the lack of QSL responses. Perhaps a long shot, but if you are looking for a contact from Libya from long ago, *425 DX News* reports that Dave Hutchison, W7WQR, still has the logs for his 5A1TV operations between 1965 and 1968.

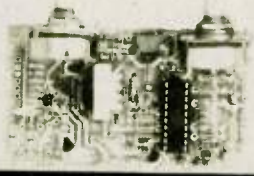
3W5RS	—P.O. Box 303, Vung Tau, VIETNAM
6W1QU	—P.O. Box 2068, Dakar, SENEGAL
6Y5XX	—H. Kozu, c/o J.O.C.V., P.O. Box 8202, C.S.O., Kingston, JAMAICA
A22MN	—Kenneth S. Scheper, 5875 Cedaridge Dr, Cincinnati, OH 45247
C6AIC	—P.O. Box 30/154, Stella Maris, Long Island, BAHAMAS
CN8TM	—Ali Sekkat, Avenue de Fes, Californie, 20150 Casablanca, MOROCCO
CP6AA	—OHØXX, Ste 599, 1313 South Military Trail, Deerfield Beach, FL 33442
UA1MU	—Victor G. Topler, P.O. Box 38, 192241, St Petersburg, RUSSIA
VP8CTM	—P.O. Box 260, Port Stanley, FALKLAND ISLANDS

Next month. . .coverage from the Dayton Hamvention

QSL routes

These QSL routes come from several sources and cannot be guaranteed. Please report any errors.

3A/DJ5MN	—DJ5MN	9U/EA1FH	—EA1FFC
3A2WPX	—3A2HN	9U5DX	—F2VX
3C1DX	—EA6BH	A35RK	—W7TSQ
3D2SY	—JI3CEY	A61AF	—OK1CZ*
3G1X	—CE1IDM	A92DG	—K1SE
4F4IX	—DU4IX	AHØAV/KH2	—JH6RTO
4H9RG	—DU9RG	AL7EL/KH9	—K4HQI
4LØMR	—NP2AQ**	AY1I	—I0WDX
4L5A	—IK3HHX	BOØOKS	—BV2KI
4S7RPG	—G3REP	BY2JS	—DF4JS
4U1SCO	—F5SNJ	C56AA	—GØUCT
5L2PP	—EL2PP	C56CW	—DL7DF
5N9KWO	—WB8QFB	C56DX	—DL7DF
5R8EN	—F6AJA	C6AIC	—DK8OT
5R8JS	—F5IL	C9/UA9MA	—DK8FS
5V7MD	—AB7BB	C94AI	—CT1CKP
6V6U	—K3IPK	CG3CRC	—VA3C
7PØA	—W3HCW	CN1MI	—CT1CKP
7P8FS	—DK8FS	CN2LN	—DJØQJ
7P9MA	—DK8FS	CQ2U	—CT4UW
7Q7DX	—KA9LEX	CQ4DIZ	—CT1DIZ
8P9EN	—VE4GV	CQ5FMX	—CT1FMX
8P9IJ	—VE3VET	CSØRCL	—Bureau
8P9IK	—VE3BW	CS4AHU	—CT1AHU
8P9IR	—DJ1TO	CS5EWA	—CT1EWA
8P9IU	—DL7UTO	CS5FMX	—CT1FMX
8Q7CR	—DF5JR	CT4AHU	—CT1AHU
8Q7YV	—HB9CYV	CT8FMX	—CT1FMX
8Q7ZR	—HB9CZR	CT8T	—CT1DVV
9G5CA	—ZL2IW	CW6V	—W3HNK
9H0DX	—DK9IP	CW8V	—W3HNK
9H3JK	—DK9IP	CY2A	—VE2ZP
9H3TY	—DL7VRO	DF1VU/HC8	—DF1VU
9H3TZ	—DL7VRO	DK5VP/HC8	—DK5VP
9H3WK	—DK9IP	DL4FDU	—NP2AQ**
9H3YY	—DK4DX	DL4VCG/HC8	—DL4VCG
9L1MG	—NW8F	DSØDX	—HL1XP
9L1PG	—NW8F	EA1BT/P	—EA1BT
9M2/G4JVG	—G4JVG	EA1CSB	—EA5OL
9M2JJ	—SMØOEK	EA1FDG/P	—EA1FDG
9M6AS	—JA9AG	EA3BT/P	—EA3BT
9N1HP	—JA1OEM	EA4DMB/P	—EA4ENQ
9R1A	—PA3DMH	EA4EHE	—EA1EHE



EA4ENK/P	—EA5OL
EA7BR/P	—EA7CWA
ED1IFA	—EA1BEZ
ED1ISA	—EA1EAU
ED1K	—EA1EK
ED1MPC	—EA1BT
ED2IDH	—EA5CCD
ED6IDM	—EA6ARM
ED6ZXN	—EA6ZX
ED7SAL	—EA7OI
ED9SSC	—EA9AO
EF1IAT	—EC1BXI
EF5DX	—EC5CWA
EG9AI	—EA4URE
EK9RM	—NP2AQ**
EL2JZ	—EL2FM
EM1ØC	—UY5XE
EX9A	—DF8WS
EY8/NP2AQ	—NP2AQ**
EZØAA	—NP2AQ**
F5CCO/P	—F5CCO
FG5FR	—F6FNU
FK5DX	—WB2RAJ
FP8EK	—K1RH
FS/N2HNQ	—JH4IFF
GJ3RTE/P	—G3SWH
GJ3SWH/P	—G3SWH
GM0PCA/P	—G0PCA
GMØUTT/P	—GMØUTT
GMØWDY/P	—G0PCA
GM5VG	—GM3UTQ
GM6MD	—GM4FDM
H25Z	—5B4ES
HC8A	—WV7Y
HC8N	—AA5BT
HH2PK	—9A2AJ
HH7PV	—AA5DN
HR3RON	—N2EUN
HSØ/IK4MRH	—IK4DCT
IA5/I4ALU	—I4ALU
II2K	—I2KHM ('96)/ —IK2UCK ('95)
II2M	—IK2SGC
II3T	—IV3TAN
II7M	—IK2SGC
IQØJ	—IKØREH
IQ1A	—I1JQJ
IQ9IB	—IT9KDA
IRØI	—IKØOZB
IR1A	—IK1GPG
IR8ANT	—I8ACB
IR9B	—IT9STX
IT9KDA/IT9	—IT9KDA
IT9LQG/IT9	—IT9LQG
IT9SKY/IT9	—IT9SKY
IU1L	—IK1NLZ
IU2M	—IK2SCG
IU7G	—IK7RWD
IU9C	—IT9JOF
IYØGA	—ISØJMA
IYØTCI	—IØKHP
J28DE	—F2WS
J3K	—WB8GEX
J41AFA	—SV1CIB
J41CIB	—SV1CIB
J41DET	—SV1DET
J48AFA	—SV1CIB
J52AHV	—IKØPHY
J56CK	—I4LCK
J56DY	—IK4SDY
J68AD	—YT1AD
JG8BQI/JD1	—JA8CJY
JW1BJA	—LA5VK
JW5VK	—LA5VK
JW6RHA	—LA6RHA
JW7XJA	—LA5VK
JW8KT	—LA8KT
JW9THA	—LA9THA
K4ZLE/VP9	—K4ZLE
K9LTN/HI9	—K9LTN
KC4MN	—WB2YQH
KG4GC	—KQ4GC
KG4NA	—KD4D
KH2S/KHØ	—JH4RHF
L44D	—LU4DFC
LU5E/P	—IK2HTW
LX4A	—LX1NO
LX9EG	—LX1NO
N1LJA/VP9	—N1LJA
NH6D/KH4	—KL7H
NP4AT	—WP4DPG
OAØMP	—OA4WM
OD/F5PWJ	—F5PRR
OD5RQ	—GØDBH
OHØMB	—OHØRJ
OH2/K8MN	—WA8JOC
OI1W	—OH1AF
OM8M	—OM3RM
P29MO	—K3BYV
P4ØR	—K4UEE
P4ØWA	—K9UWA
P43WLP	—K8CX
P49I	—K4PI
PA6WPX	—PA3CAL
PJ2/OH6XY	—OH3GZ
PJ5AA	—W1AF
PJ9C	—K1CPJ
PJ9Y	—OH3GZ
PW4Y	—PY4OY
PY5GU/PYØ	—PY5GU
PZ5JR	—IK3BYV
R1ANZ	—RU1ZC
RA1PC/1	—RZ1PWA
RV6HKB/EK	—RV6HKB
RW2F	—DK4VW
SØ1A	—EA2JG
SØ1M	—EA7EL
SØ2R	—EA2JR
SØ7NY	—EA4URE
S79SF	—JH6RTO
SN6O	—SP6PAZ
ST1AP	—IØLCJ
SV5/SM7DAY/P	—SM7DAY
TA2ZW	—OK1TN
TE9RLI	—JH1NBN
TF3D	—ON4GO
TI9X	—JH1NBN
TJ1GB	—WA6SLO
TJ1RA	—I2EOW
TK/F5RTJ	—F5RTJ
TMØPX	—F5BZB
TM5Z	—F6KIM
TM6T	—F6KBF
TM7I	—F5JYD
TO3R	—F6KLS
TO5M	—K9GS
TP1ØCE	—F6FQK
TU4BX	—IK2NNI
TU5A	—W8AEF
TY5A	—GM4AGL
TZ6VV	—AAØGL
US1I	—N5FG
US1IDX	—N5FG
V31DX	—AA6BB
V44KJ	—WB2TSL
V51CM	—WA2JUN
V51HK	—DL6OBS
V59X	—V51CM
V73W	—WW1V
VC3SK	—VA3SK
VE3ZZ/PA	—G4RTO
VKØWH	—VK9NS
VK2IFB	—DF8AN
VK4FML	—JE1LET

Notes:

*This route applies only for operations by OK1CZ (11-16 April 1996).

** Ron Maples, NP2AQ, has a new address and all cards should be sent via PSC-115 (ESC), APO AE 09213-0115.

Many thanks to the following contributors: Western Washington DX Club (WAØRJY), Western New York DX Association (KB2NMV), Northern Arizona DX Association (W7YS), American Radio Relay League (K5FUV), *425 DX News* (I1JQJ), *DX News Letter* (DL9GOA), *The Ohio/Penn DX Bulletin* (KB8NW), *Island News* (W5IJU), *The Low Band Monitor* (KØCS), *DX News Sheet* (G4BUE), QRZ DX (N4AA), *Inside DX* (N2AU), and *The DX Bulletin* (VP2ML).

Look for N6JM this summer during June and July. Several Canadian IOTA islands are in our plans for operation. Hopefully, I will do a better job with this one than my N6JM/KL7 activation of Fox Island (NA-197) in 1994. 73 de John, N6JM. WR

QSL managers

1995 CQWW SSB Contest

Call	Mgr
HP1EKH	K0UI
HP1XBH	W4YC
HP1XZQ	WP4KTF
HP9I	HP2CWI/B
HR2RDJ	KB5IPQ
HS0ZAR	K3ZO
HS2AC	HS0AC
IA5/OE5D	OE5XBL
IA5S	IK1JJB
IB0/IK8BIZ	IK8OZZ
IB0/IK8DN	IK8OZZ
ID8/IK8VRS	IK8TPJ
ID8/IK8VZF	IK8TPJ
ID9/IT9NGN	IT9HLN
IF9/IT9AUP	IK1TZO
IG9A/R/T/W	IV3TAN
II0P	I0CUL
II0RS	IK1NPL
II3CC	IN3AHO
II3GM	IV3EHH
II4ARI	IK4QIB
II5ONU	I5KKW
II6JJD	I6JJD
II7GM	IK7RWD
II9R	IT9HLR
IJ7/IK7DXP	I7PXV
IJ7/IK7JWX	IK7IMO
IJ9/IT9HAJ	IT9GAI
IJ9HAJ	IT9GAI
IL3/IV3VQN	IV3JWR
IM0RUH	IS0JMA
IO1GTM	I1CJP
IO4A	IK4PVR
IQ0J	IK0REH
IQ1A	I1JQJ
IQ2W	IK2DUW
IQ2X	IK2GZU
IQ4T	IK4HVR
IQ5LDV	I5NZR
IR0GG	I0VPK
IR0HY	I0HY
IR0IA	I0IA
IR0KHP	I0KHP
IR0MA	I0QI
IR0PFD	IS0PFD
IR0PXD	IK0PXD
IR1FHC	IK1FHC
IR1I	IK1RGL
IR2B	IK2THY
IR2RZG	IK2RZG
IR3X	IK3QAR
IR5MEQ	IK5MEQ
IR5R	I5JHW
IR5T	IK5ORP
IR6RS	IK6SNR
IR7J	IK7TAI
IR7LPW	I7UBU
IR7T	IK7XIV
IR8A	IK0YYY
IR8HVJ	IK8HVJ
IR8IHG	I8IHG
IR8SER	I8TVS
IR8VSH	IK8VSH
IR9A	IT9XUC
IR9ESZ	IT9ESZ
IU0MM	IK0NMR
IU0PAW	IK0SHF
IU2MM	IK2WAD
IU6GM	IK6DUN
IY0E	IK0EIF
IY0GA	IS0JMA
IY0GM	IK0SXT
IY0ORP	IK0USA
IY4ARI	IK4DCT
IY4TCI	I0KHP
IY4W	I4ALU
IY5GM	I5JRR
IZ4ARI	I4IZZ
IZ8ARI	IK8JVG
IZ8CSC	IK8AUC
IZ9ARI	IT9BLB
J20SF	F5LBM
J28JA	F2BU
J28JJ	F6HGO
J28JY	F6BFH
J28MC	F5LBM
J28NP	F6BZF
J3/KB0QNS	KF0UI
J3/N3SIY	KF0UI
J37K	W8KKF
J37L	WA8LOW
J39BW	WB2RAJ
J3A/J	K9AJ
J3K	WB8GEX
J3X	W9IXX
J3Y	KA9RHY
J3Z	WD8ATP
J41SAM	SV1DC
J42TEA	SV2BIC
J43AFA	SV1CID
J48CRI	SV8BSA
J48ISL	SV2AEL
J48KEF	SV8AQY
J48Y	SV1BKN
J55UAB	F6FNU
J67AK	NP2EP
JT1EAX	K6VNX
JT1FAL	JR0CGJ
JT1FAP	JA7FWR
JT1FAS	JE2VDG
JT1FAUV/W/	K6VNX
JT1M	JT1BG
JT1Z	K6VNX
JW0K	DL5EBE
JW0KKI	W4FRU
JY1	WA3HUP
JY5SK	WB9YXY
JY74X	JY6ZZ
JY74Z	JY6ZZ
JY8SZ	DL4SCZ
JY8TT	4X6TT
JY8XE	XE1CI
JY8XY	WB9YXY
KA7DHE/KC4	K4MZU
KC4AAG	K4MZU
KC4USB/X	K4MZU
KC6IY	JF6BCC
KC6JZ	JA7FWR/ JE7RJZ
KC6MW	JE8XRF
KC6YK	NH6YK
KC7GJJ/KC4	K4MZU
KF4CCK/HH2	KF0UI
KG4CM	N5FTR
KG4MIL	WB6UGI
KG4MN	WB2YQH
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KH0A	JF1MIA
KH0AM	JE1CKA
KH0CS	JA6PFR
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KH0S	JA1OGX
KH0T	JA1SGU
KH0U	JA1QNV
KH2GR/KH0	JF6BCC
KH6JNF/KC4	K4MZU
KH8AL/HK0	JH1NBN
KK6WW/KH0	JA5EGL
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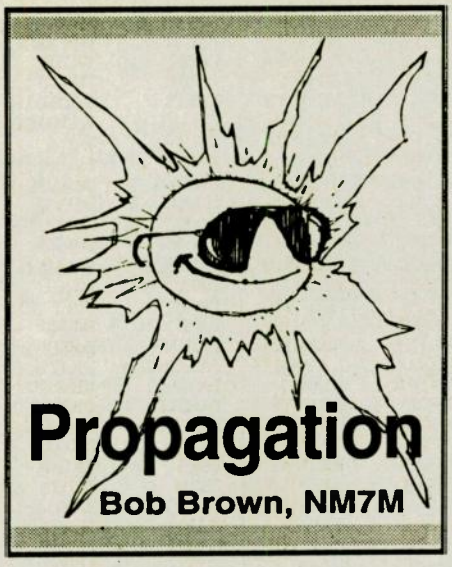
KP4VP	KD8IW
KW2P/CY9	WA4DAN
L2M	LU1BR
L37N	LU2NI
L40V	LU1VV
L4DX	LU4DRC
L5P	LU1PAA
LN1V	LA4LN
LQ0A/LR1C	LU1ARL
LR3D	LW3DSR
LT0A	LU1ARL
LT0N	LU2NI
LT1A/4E	LU4AA
LU4D	LU4DXU
LV0A	LU1ARL
LW7EGO	LU7DW
LX0ITU	LX1NO
LX100GM	LX1JH
LX6SNG	LX1NO
LX95VEC	LX1NO
LX9HF	LX1PX
LY35OU	LY2OU
LY35ZO	LY2ZO
LY95BA	LY3BA
LY95BS	LY3BS
LY95DR	LY1DR
LY95KB	LY3BA
LY95OU	LY2OU
LY95TZ	LY2TZ
LY95ZZ	LY2ZZ
LZ2TU	WB2RAJ
M100G	G3OZF
N2PQE/KH0	JE2HCJ
N7QXQ/HR6	NA7X
NP2N	W0ANZ
NP3/N0BSH	WX9E
OA174QV	OA4QV
OD/N4ISV	N4JRB/ N4JR
OE6Z	OE6CLD
OH0/OH3TY	KM6ON
OH0/OZ1FG	OZ1ZO
OH0AAQ	OH2NRV
OH0KMG	OH2OT
OH0MYL	OH3MYL
OH0X	OH2NRV
OH0BDP	OH2BDA
OJ0/OH8AA	OH6LI
OK1EE/OD5	OK1AR
OK8AHE	DL4RUB
OK8BAF	DJ5CQ
OK8DDD	DL2HYF
OL0OJ/OO	OK1RR
OL2A	OK2RAB
OL5BER	OK1FGS
OL5JP	OK2BJR
OL5WCP	OK1KSF
OL0OJ	OK1AR
OM0AA	OM3CUN
OM5HQ	OM3JW
OM5XX	OM3CQR
OM8ZZ	OK3ZAF
OM9JP	OM8CA
OM9SIAD	OM3TA
ON9CGR	OK2TKW
OS4IZ	ON4IZ
OS4ON	ON4ON
OS6CW	ON6CW
OS6SD	ON6SD
OS7XT	ON5GK
OS9CGR	OM3TKW
OT5A	ON7LR
OT5L	ON6NL
OX3GX	WA3KSN
OX3LX	OZ1DJJ
OX3SG	LA1SEA
OY/OZ5IPA	OZ5AAH
OY2H	I0WDX
OY6A	ON6QR
OZ1RDP	DL9BCP
P40AN	CX3AN
P40CR	CX4CR
P40E	CT1AHU
P40J	WX4G
P40JT	WV7Y
P40W	N2MM
P49I	K4PI
PA/DJ0MC/P	SP9ERV
PA50IJM	PA0IJM
PA50TUE	PI4TUE
PA50VDV	PA0VDV
PA53EKK	PA3EKK
PA53EPG	PA3EPG
PA53EXM	PA3EXM
PA53FWU	PA3FWU
PA53GGB	PA3GGB
PA53GPR	PA3GPR
PA53GRB	PA3GRB
PA56ZNB	PI4VLB
PA6IMD	PA0SOL
PI45UTC	PA3FJV
PI50HGV	PA0IJM
PJ0/KB5DZP	N5FTR
PJ2OE	PA3APT
PJ8AA	N4XO
PJ9B	K2SB
PJ9T	AB4JI
PP0F	PP1CZ
PT6AB	PS7AB
PU0TRI	PU1LOK
PW2N	PY2NY
PW6AB	PS7AB
PX0UP	PY1UP
PX1MD	PY1VOY
PY0ZFB	JH2MRA
PZ5JB	N3BTE
R0/LY2BV	LY2BIP
R100P	PUA6MC
R1FJL	DF7RX
R1FJV	RW3GW
R1FJZ	DF7RX
R1MVI	OH2BU
R1OOR	RU1AE
R2MWO	DL1FCM
R3/W0YR	AA9DX
R3RRC	I1HYW
RA0FA	KM6ON
RA1PC/1	RK1PWA
RA9LI/9	DL6ZFG
RK100C	RK9CWA
RN3D/9	RK3DXW
RO9S	UA9TO
RP0AKO	UA0AD
RP1N	RK1NWA
RP1OPQ	RA1OA
RP1QVO	RK1QWX
RP1TGN	UA1TAN
RP3AM	RK3AWA
RP3APC	RK3AWR
RP3APR	RK3AZG
RP3DKZ	RK3DZD
RP3DPW	RK3DXG
RP3DRO	RW3DW
RP3EOO	RK3EWM
RP3IPR	RA3IW
RP3LPR	UZ3LXJ
RP3MGB	RK3MWF
RP3MKT	RA3MI
RP3QOR	RW3QM
RP3QWK	RN3QO
RP3TNN	RZ3TWF
RP3VAR	RA3W
RP3WKB	UA3WFG
RP3XGK	RK3XWU
RP3XIR	RK3XWS
RP3XMV	RK3XWD
RP3ZKB	RK3ZZ
RP4ADK	RZ4AWE
RP4AMK	UA4ACP
RP4ASB	RZ4AWB
RP4ASK	RZ4AZJ
RP4FGT	RZ4FWA
RP4H	RZ4HZZ
RP4HGO	RZ4HWB
RP4P	RA4PO
RP4W	UA4WE
RP50A	RA3AQO
RP6AAK	RK6AWA
RP6HKR	RZ6HXM
RP6Y	RA6AX
RP9ATP	RK9AWQ
RP9ATZ	RZ9AZA
RP9AWA	UA9APA
RP9CR	UA9CR
RP9JTF	RK9JWZ
RP9SNK	RA9SB
RP9X	UA9XC
RP9XUK	UA9XS
RQ9C	RW9CW
RQ9H	RW9IM
RR9O	RW9OWM
RU0B/P	UA9OBA
RX1OX/FJL	DL6YET
RY6Y	RA6AX
S0/F5HV	F5PFP
S07URE	EA4URE
S0RASD	EA2JG
S21ZZ	JA2NQG
S50E	S59AB
S79MAD	GW4WVO
S79NEO	DL3NEO
S79PT	DJ4PT
S92DW	LX2DW
S92P	F6KEQ
SI1GM	SM1BIQ
SI2GM	SM2LWU
SI5GM	SM5CAK
SI7GM	SK7JD
SM4/YO9FUU	SM7AIO
SN1U	SP1PAA
SN9K	SP9PRO
SO1DIG/P	DL3BQA
SO3NL/1	DL7UTA
SO3QL	DK2QL
SO5LK	SP5PB
SO9XYL/5	SP5IUL
SP0SZ	SP1PBW
SP50KLS	SP2PHA
SP9WAV/1	SP9PAK
SV/I2YYO	IK2MYX
SV/I2YYO	IK2MYX
SV5/G4JVG	G3OZF
SV8/SM0TXM	9EBC
SV9/HA0DV	HA0HW
SV9/HA0ET	HA0HW
SV9/HA0HV/P	HA0HW
SV9/SV0HS	DJ8MT
T20VJ	G4ZVJ
T30EG	KH6JEB
T30JA	JA3JA
T31JK	GW0OJK
T32BE	WC5P
T32ZB	DJ4ZB
T53LB	5Z4YQ
T61MG	KA1DWX
T71SM	T7OA
T77GM	I0MWI
T91CFG	9A2AJ
T91ELD	S51VQ
T94EU	N2MA/U
T94IM	DJ0VZ
T94OF	WA4JTK
T99A	I4QGU
T99MT	K2PF
T99T	DJ0QJ
T91ENS	DJ0JV
TA2/OK2ZW	OK1TN
TA2IJ	KB4GID
TA2ZW	OK1TN
TA2ZZ	JA4HCK
TA4/DL1GT	DK8GP
TA8S	TA1KA
TE2M	TI2YO
TF4WW	SM6CAS
TI1Y	TI2YO
TI9JJP	TI2JJP
TI9YO	TI2YO
TJ1CR	F6AXD
TJ1GD	SP9CLQ
TJ1GG	I2EOW
TJ1JB	KE9A
TJ1JC	N5DRV
TJ1PD	N5DRV
TK0P	F6AUS
TK2C	DF7RX
TK5UC	F6AOI
TK5VZ	IA5VIX
TL8BC	F5IPW
TL8CN	F5MBF
TL8FL	I3CTX
TM0PR	F5JOT
TM0RSE	F6AWN
TM0UN	F6KNN
TM1OTA	F6KBK
TM2RDS	F6AUS
TM2YEU	F5TKA
TM3S	F5PRB
TM3U	F6DZU
TM5CLS	F6IUI
TM5FB	F5XL
TM5ITU	F6IMS
TM5LR	F6KAP
TM5ORB	F1HNU
TM5OVS	F5RPB
TM5PUY	F6KQJ
TM5REW	F5JPA
TM5ROY	F6EXQ
TM6ACO	F6KFI
TM6MXP	F5KFL
TM8AT	F5RUQ
TM8MAY	F6KDF
TN7OT	AL7OT
TO5M	K9GS
TO5ORC	FM5CW
TO7I	F5JYD
TO9IS	FY5KE
TT8BP	IK5JAN
TT8NU	F6FNU
TU20A	UN5A
TU2DP	K4MQC
TU2XZ	KK3S
TU4EY	KE4IK
TY1B	DL2GBA
TY1IJ	DK8ZD
TY5A	GM4AGL
TY5AR	N7BG
TY5MF	KC7V
TY5RF	GM3YTS
TY5SXW	G3SXW
TY5VT	K5VT
TY8G	LA8G
TZ5RS	AA8AD
TZ6LL	DL1FCG
TZ6MR	DL8FCP
UA0BC	RW6HS
UA0FZ	W3HNK
UA0QBA	EV6A

THAT PHOTO AD YOU WANTED SHOWING THE AUTO WITH ITS WHEEL ON YOUR HANDHELD-- WOULD YOU GO FOR A BICYCLE WHEEL?

Next month, the conclusion of the 1995 CQWW SSB Contest QSL routes

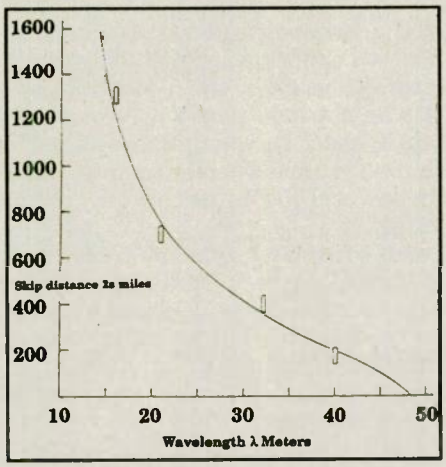


You may recall that in my August '94 column here in ***Worldradio***, I invoked Rodney Dangerfield's lament, "I get no respect." That was for the ionosphere, not me, and related to the fact that the program of a recent Dayton Hamvention did not include any forum on propagation. Now I understand that has been changed, a forum on antennas *and* propagation included on the program. As they say, half a loaf is better than none.

In that article, I gave what I thought were the reasons for the problem, going to the fact that amateurs and experimenters moved into VHF frequencies when they became available and leaving HF propagation and the ionosphere in the lurch. That's true, but only partly so, and I've looked deeper into the roots of the problem. Let me tell you about it; I think you'll find it interesting.

Real radio, things that glow in the dark, goes back to the early days of vacuum tubes. Then, late in '24, Amateur Radio was unleashed on harmonically-related bands below 100 Meters, say 80 Meters through 20 Meters and also 5 Meters. With that, pioneer operators like John Reinartz explored the mysteries of those frequencies and soon gave clear demonstration of their value. Reinartz's particular contribution was in establishing "skip" in 1925, essentially bringing refraction to the fore and making the Heaviside surface more of a layer, with high frequency waves (20 Meters) penetrating deeper into the layer than lower frequency waves (40 Meters).

Then two scientists, A.H. Taylor and E.O. Hulburt, at the Naval Research Laboratory (NRL) not only embraced Reinartz's qualitative result on skip but also provided a quantitative measure of its relation to wavelength from observations of signals on a ship en route from New York to Panama, shown in Figure 1. The data in that figure is for midday and averaged over a year. About the same time, Sir Joseph Larmor published a theory on wave refraction of long waves, say 1,000 meters wavelength, by free electrons. Next, the



NRL scientists applied the idea of refraction in a bold way to higher frequencies, using the results of *oblique* signal propagation in Figure 1 to examine various possible *vertical* electron density variations to see which could be responsible for the signal refraction out to the skip distance.

Figure 2 (right). Parabolic ray paths

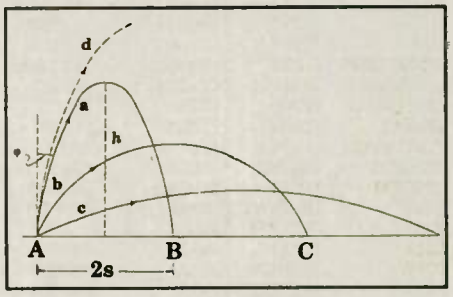
Ordinarily, we think of refraction in a setting where light waves go from one transparent medium to another, say air into glass or vice-versa. Refraction is such a common part of our life, in eye glasses and the like, that it's treated in all the elementary science books in schools and the quantitative side of it, how light advances through different media, is given by Snell's Law in high school physics texts. The NRL scientists simply applied Snell's Law to the refraction of radio waves through the electrons in the upper atmosphere.

Nowadays, with our present knowledge, we use ray-tracing to work out the same problem, going through thousands of small steps to follow a ray up through the electron density profile of the ionosphere. But Taylor and Hulburt were trying to determine the electron distribution from skip measurements, not use it. So instead of dealing with the problem by going step-wise through thousands of thin layers of changing elec-

Figure 1 (left). Quantitative measure of skip relation to wavelength

tron density, they proposed smooth variations for the electron density and found the ray paths by analytical, not numerical, methods.

The most elementary approach they took was to consider a linear or steady rise in electron density with height above ground and when com-



bined with Snell's Law, it resulted in parabolic ray paths, as shown in Figure 2. By taking a wavelength and skip distance (2s) from Figure 1, they could find the launch angle, the rate of rise of electron density and, thus, the peak height (h) of a ray path.

Nowadays, we know the problem is not as simple as they assumed, there being the electron density variations of the E-, F1- and F2- regions in the height range they considered. So the numerical results they came up with are only of passing interest now. The more important thing was their approach to the problem, showing that the propagation of radio waves was another means to explore the upper atmosphere.

And while they were at it, they extended Reinartz's idea of skip to multiple skip zones, as in Figure 3, essentially pointing out the possibil-

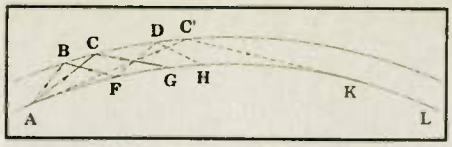


Figure 3 (left). Skip to multiple skip zones

ity of multi-hop paths where only single hop paths were ever considered before. And, as government scientists who'd worked with amateurs and the ARRL on a cooperative basis before, they shared their results in a *QST* article in October '25.

But there were other activities going on at the same time, scientists exploring HF propagation vertically, not obliquely as at NRL. Thus, G. Breit and M. Tuve at the Department of Terrestrial Magnetism, sent radio signals vertically upward in pulses and the matter of interest to them was *when* they came down, not *where* they came down as with oblique propagation. Time and history showed that those scientists had the advantage when it came to exploring the ionosphere, being able to hear echoes from different regions overhead. The NRL scientists, on the other hand, were unable to distinguish any aspect of multi-mode propagation. So sounding methods, as they're called, brought in the results and established the nature of the ionosphere.

At this point, I'm going to digress to take a larger view of what was transpiring in the world of radio propagation. First, of course, I have to note again that amateurs were the pioneering explorers once the higher bands were opened up. Going back to Reinartz, he already had a reputation for his design of a "tuner" and after finding "skip," he was publishing articles in issues of *Radio News* in the summer and fall of '25 about his own experiences in getting oscillators to work in the 5-meter band. It was a whole new world to amateurs, short wavelengths, where all their earlier experience was with waves of 100 Meters in length or longer.

But with the trans-Atlantic contact in late '23, Amateur Radio caught the world's attention and in modern parlance, it gave rise to "information transfer" of knowledge from the amateur community to the corporate world of communications. In short, the success of Amateur Radio operators made it apparent that a trans-Atlantic market could be opened up on the HF bands and corporate giants such as Bell Telephone, RCA, AT&T and IT&T moved in rather quickly to take positions.

As one example, by June '26, Bell Telephone had receivers in England which began monitoring four AM transmitters in New Jersey on 6.7, 8.9, 13.3 and 17.8 MHz. By summer '27, that was increased to five channels, now including 21.6 MHz, and the sixth, 27.5 MHz, was added in the winter of '28. Those tests yielded continuous signal strength information from -20 dB to +30 dB above 1 microvolt/meter for 1 kW radiated, day in and day out, and were analyzed by the hour of day and season. When assembled, that information aided efficient frequency selection for radio-telephone communication across the Atlantic.

A five-year summary of the Bell Telephone observations was published by C.R. Burrows in the "Proceedings of the Institute of Radio Engineers" (IRE) in September '31. The data displayed in that article would easily be recognized nowadays as conditions that any amateur operator on the East Coast experiences, showing the daily, seasonal and solar cycle changes in HF propagation.

All that started just before the peak of Solar Cycle 16, when the smoothed sunspot number was 65, and the cycle peaked in April of '28 with a SSN of 78. While no mention was given to brief disturbances or "outages," such as would be found with SIDs from bursts of solar x-rays, the Bell Telephone article did make note of the need to lower the operating frequencies during disturbed conditions due to magnetic storms. In that regard, the historical record shows 30 major magnetic storms from June '26 to August '29, the period of observation covered in the IRE article.

Of course, we all know now that major storms affect propagation adversely and can be of significant duration, lasting hours or even days, so it comes as no surprise that note was made of their effects in the mid-'20s and beyond. While no statistical data were offered, the Bell Telephone study of signal strengths across the Atlantic did comment on the 27-day recurrence tendency of magnetic disturbances.

Another approach to the propagation question was by the use of earth currents, induced by changes in the geomagnetic field, as indicators of magnetic activity. In that regard, Isabel Bemis, a scientist at an AT&T laboratory in New York, published an article in November '31 showing data records, not summaries, on how earth current disturbances were related to loss of the 18 MHz commercial channel between New York and

London. With the start of recordings in May '28, there was a one-to-one correspondence between circuit "outages" and the occurrence of eight major magnetic storms up to the end of '28.

Of particular note was the data in connection with the huge magnetic storm of July 7, 1928. That showed the 18 MHz field strength dropping by more than 25 dB with the onset of the storm and taking 5 days to return to normal. That storm was even greater in its magnetic and auroral effects than the famous IGY storm of February 11-12, 1958, and stands in the top ten for the magnitude of its disturbance in a list of over 1,500 storms, even to this day.

Returning again to the larger view of what was transpiring in the world of radio propagation, let me say that something went wrong after the initial success of amateur operators — there seemed to be no real, on-going sort of "information transfer" *back* to radio amateurs from the government and industry scientists, say those making observations of propagation across the Atlantic. In making that statement, I am basing my remarks on a study of the material contained in *ARRL Handbooks*, from 1927 up to the start of WWII.

For example, the first section on HF propagation was in the Third Edition, printed in October '27, and consisted of about 650 words of text, two paragraphs of footnotes, and three figures with captions. The Twelfth Edition, printed seven years later in November '34, had essentially the same text, footnotes and figures.

The only changes in the seven years between the Third and Twelfth editions were made by expressing the 20-and 40-meter wavelengths in the Third edition as 14,000- and 7,000-kc frequencies in the Fifth Edition, printed in May '29. Beyond that, there was no difference in how HF propagation was presented in the *Handbook* over those years, in spite of all that must have been experienced by amateurs, individually, and by the radio scientists of government and industry.

To be specific, between '27 and '34, the propagation section had no mention of daily, seasonal or solar cycle variations in propagation, in spite of the fact that the SSN went from near peak levels in '27 to the solar minimum of Cycle 16 in '34. And nothing on the effects of magnetic activity on HF propagation, in spite of the fact that 66 major geomagnetic storms occurred in that period, including one of the greatest since serious recording began in 1868. Something was WRONG! The communications industry was publishing its results in the open literature, particularly with regard to disturbances, starting in '26 and nothing was getting through to the Amateur Radio community. Nothing! It was as though Solar Cycle 16 never happened!

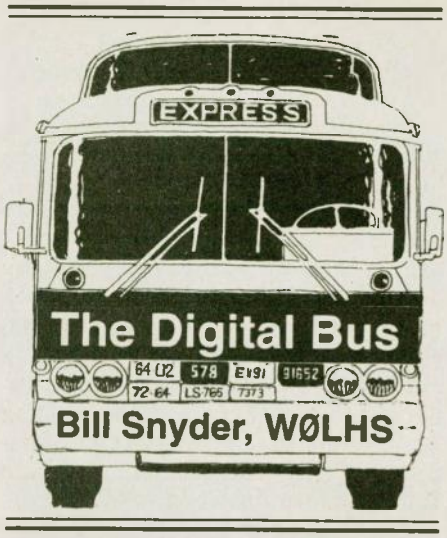
With the Thirteenth Edition of the *ARRL Handbook* in February '36, there was a sudden, discontinuous change in the treatment of HF propagation. The length of the discussion increased to about 2,500 words of text and a new figure was included, now showing a two-hop path, something like that shown in Taylor and Hul-burt's paper in the October '25 *QST* article. The text now included the new nomenclature for the ionosphere, the E-, F1- and F2-regions, and something of their heights and daily variations. The treatment of fading was enlarged, a discussion of radiation angles added but that was it.

But there was no mention of solar activity until the printing of the Sixteenth Edition in November '38 when a sentence was added which dealt with changes in ionization "influenced by cyclic changes in the condition of the sun itself, so that similar variations follow the 27-day and 11- or 22-year sunspot activity cycles." Any mention of disturbances of propagation from magnetic storm activity was not to be found, like that sort of thing never really happened.

About that time, Clinton B. DeSoto's book, *200 Meters and Down,* concluded with a chapter, "Whither Amateur Radio?" in which he pointed to the development of a "communicating" class of radio amateurs, as distinct from those experimentally inclined.

It is impossible to look back and say how those populations compared in numbers but whatever the distribution, the "communicating" class of operators must have felt or experienced the effects mentioned above. So it's hard to escape the conclusion that they did not communicate with their compatriots, those more concerned with technical matters, and "information transfer" broke down within the ranks of Amateur Radio.

And so it went — right up into the '40s. But it couldn't go on like that forever as the 24 March 1940, and 18 September 1941, magnetic storms were even bigger than the one on 7 July 1928, and not only shut down HF radio communication but electric power distribution systems in the Northeast as well. Events like those two were emblazoned across the sky as bright, flashing aurorae so could not be ignored forever. But then WW-II started on 7 December 1941, American radio amateurs were put off the air and all of a sudden, everyone got serious about HF propagation as a lot depended on it. That would make good reading, another tale about Amateur Radio and "information transfer." WR



When I came home from World War II in early 1946, 50 years ago, I joined the local ham club that was in the process of reforming after being out of business for about four years. One of the first things that I did for the club was put out a newsletter that I called "Hams and Haywire." Today one hardly hears the word "haywire" applied to the hobby, but in those days, home-building, especially transmitters, was the thing most every ham had to do to get on the air.

Joe Plesich, W8DYF, sent me two pages torn out of the May, 1947 *QST* magazine which had a double truck advertisement from the Hallicrafter Company with this headline: "WANTED one highly qualified amateur operator to accompany the Gatti-Hallicrafters expedition to the Mountains of the Moon in Africa." Well, they chose two ham operators to go on the expedition, Bob Leo, now W7LR of Bozeman, Montana, and me. When I met Bob in Derby Line, Vermont to have the final interview for the job, we conspired to get them to take us both, and it worked.

On the reverse side of the ad was one page showing the "Contents" of the magazine. The list of articles in that issue had some fascinating titles. Leading the list was "A Table-Top Kilowatt," which I vaguely remember as instructions on how to build the big ether-blaster authored by three great ARRL technical staff members: George Grammer, W1DF, Don Mix, W1TS, and Byron Goodman, W1DX. Another article was titled, "House Cleaning the Low-Frequency Phone Bands." It, too, had George Grammer as its author. A few years later I went to the Seattle ARRL Convention and heard George give a paper on Single Sideband Radio. That was the start of the modern ham phone communication system most everyone has in their shack.

But the title that tickled my funny bone was an article by Neil Williams, W6DTY, with the neat title: "Relax, Men! Use Haywire." I can't recall reading that article, but I probably did, because I used the technique of haywire on everything I built in those good old home-brew days. I would always make the holes in the chassis perfect, the proper washers on every nut and bolt in the thing, but when it came to getting it on the air, I would hurry up and use a little haywire as a expedient. Of course, I never cleaned up the haywire if it worked — it remained until the next re-building, as most hams of that era were constantly doing. Our hobby was more soldering than communicating in those days.

More reminiscing

Last month I got carried away when I discovered a copy of *Radio News* magazine in my archives. It was the February, 1944, issue and it was dedicated to the Army Signal Corps. One of the big ads in the 452 page book was a four-page fold-out from Hallicrafters. It was mostly copy and it was headlined by this line: "THE GIANT OF MILITARY RADIO . . . The Army's SCR-299 Communications Unit." I became very familiar with the SCR-299 radio when I became the radio officer for the 58th Signal Battalion supporting the U.S. Army's I Corps in the Southwest Pacific theater during the big war. We had four SCR-299s to start with.

Although the unit was designed to fit and operated with a whip antenna in the back of a 2½ ton army truck, we pulled the receivers and transmitters out of the truck cabin and remoted the transmitters about a half mile from our message center receiving point. I had 16 radio circuits in our message center and we handled thousands of code groups a day by manual CW.

The transmitter in the SCR-299 was a ham transmitter (HT-4) as the ad says: "first designed exclusively for amateur use and had been manufactured commercially for several years. It was compact and stable. It was capable of delivering 325 watts on voice and 450 on CW (code). It was crystal-controlled but provided optional use of m.o.p.a (master oscillator power amplifier) and was able to work over a wide range of frequencies which was one of the most sought-after qualifications of the Signal Corps."

The HT-4 transmitter was what Bob Leo and I had when we went to Africa with Gatti-Hallicrafters. It was mounted in a Schult trailer dubbed the "Shack on Wheels," by leader Atillio Gatti. He had a knack for naming all the things in his expeditions with advertising-type slogans. The back half of the "shack" trailer contained the photo darkroom where our two photographers developed pictures daily, so when Gatti decided to split the expedition and send Bob and Jim Powers, a newspaper writer who accompanied the expedition, to the fabled "Mountains of the Moon" in Uganda, he had to keep the "shack" with the photographers in Tanganyika. Therefore, Bob had to pull the transmitter and receiver out of the trailer and "haywire" them up in the back end of the ton and half truck that pulled the trailer.

Bob and I are collaborating on a book of our African experiences, and here is a scene that I would like to

have photographed: Bob and Jim having trouble on their way to fulfill Gatti's contract to put the expedition's ham station on the air from the "Mountains of the Moon." They were driving the "haywire" ham station truck, and it was 10 at night, the road was smooth and wide, and they were about 50 miles from Fort Portal, a village near the fabled mountains.

"We were driving along and we heard a funny noise coming from the back of the truck," says Bob, "so we stopped to see what was causing it. We found the left rear wheels in bad shape. Of the six bolts holding the duals on, five were sheared off. Two of them landed only about five feet in back of the truck, so we had some good luck by stopping in time. We borrowed bolts from the front wheels so we could distribute "good" bolts over the four wheels evenly. All of this was quite a job for a radioman without much automotive repair experience, plus a society newspaper reporter from New York City who was of even less value in this predicament.

"An East Indian gentleman in an old beat-up car with an African driver stopped and helped us greatly. We needed the use of their car jack as our one truck jack dug itself into in the dirt due to the excessive weight in the back of our truck caused by the gasoline drums."

Bob and Jim also discovered that the rear wheel bearings and even the axle itself played a part in fixing the problem. "We had parts scattered all over the countryside," Bob says. "With the aid of our two wonderful helpers, we finally got our truck going again by midnight, and we finally limped into Fort Portal about 4 a.m. on Saturday morning after having to stop and clean out a plugged carburetor fuel filter on the way."

I sympathized with Bob and the fuel problem. In our early days on the dusty African "highways," I was driving the last truck in the Gatti-Hallicrafters convoy when the engine quit. It was a plugged fuel filter, and it was my first experience with such a mishap. I had stopped right on the edge of a little African village and the whole village population turned out to watch me try and fix the problem all by myself. I think I put on a good show for the group, but they didn't give me any applause when I got the truck engine going again. They just smiled.

Bob registered in the Ruenzori hotel where he could see the colorful "Mountains of the Moon," known by geographers as the Ruenzori range. Then, with Jim's help, he strung up the antennas, removed the gasoline drums from the back of the truck, struggled to get the power unit running, and flipped on the transmitter. It didn't work!

"It was Sunday afternoon before I finally got the transmitter working," Bob relates, "that was after doing a lot of rewiring, eliminating one driver stage that had quit working, and putting in a temporary keying circuit. We went on the air as VQ5GHE and contacted South Africa as our first QSO, then when the Ws started to come in, worked everything from W1s to W6s. I stayed up till 3 a.m. and worked as many W stations as I could on both CW and phone. It was absolute bedlam and I had never heard so many stations calling us as from there. Many said we were the loudest station they had ever heard from Africa — and our received signals from the states were tremendous, too.

"Due to a mix-up in the licensing paperwork, we were suddenly required to close down ham operations until the proper authorization arrived in Uganda. And so the expedition station had to remain silent for a few days (Jim and I vacationed) until every thing was straightened out."

"An American lady hotel guest stopped by our truck station and asked if I could contact her sister in Oakland, California. I called "CQ Oakland" on 10M phone and back came W6TT. He called the lady's sister on the telephone and the two had a nice chat. The lady was really impressed with the efficiency of ham radio communications."

EAVESDROPPINGS

YOU CAN EASILY TELL I USED TO WORK FOR THE TELEPHONE COMPANY BECAUSE I STILL BACK INTO PARKING PLACES. . . . THE FCC IS ON THE BALL. THEY SENT ME AN APPLICATION FOR RENEWAL OF MY EXTRA LICENSE A COUPLE MONTHS BEFORE IT RAN OUT. . . I PUT MY SNOW BLOWER AWAY FOR THE SEASON THE FIRST OF MAY AND TOOK OUT THE DUST BLOWER AGAIN . . . THE WIND REALLY MADE A METAL PRETZEL OUT OF MY BEAM AND TOWER. . . WE ARE WONDERING WHO GAVE 73 ITS FIRST USE.

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Thanks to KA1RFD, W7LR, and WØML. Write me: Bill Snyder, WØLHS, 1514 12th Street S, Fargo, ND 59103-4134. My packet address is WØLHS @ WØLHS.#SEND.ND.USA.NOAM. 73 and DIT DIT. **WR**

FM & REPEATERS REPEATERS REPEATERS REPEATERS

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The anti-FM bias in VHF/UHF contests

It is summer; it is "contest season" and it's no secret that there is an anti-FM "bias" among VHF and UHF contesters. I noticed this many years ago as I would sit and listen to VHF (and UHF) contesters sit in the "DX portions" of the various bands and ignore any FMer who came along as if he or she suffered from the "plague!" True, some may have been reacting to the neophyte FM operator wandering into territory reserved for the self professed "real hams" but it seemed to peak my curiosity when compared to the way HF contesters operate. Down on the "low bands" a skilled contester will go after any "warm body" if it means an extra point or multiplier. If they have to change mode to do it, then so be it. It's the final score that counts.

But VHF and UHF contesters are quite different. They tend to be more choosy about whom they contact and unless "they" decide to wander up into the "utility" subbands in search of FM contacts, its not unusual for contesters to ignore any that wander into the territory that they consider home.

Over the years I have given the matter quite a bit of thought and I think I have finally figured out how this came to be. To do so, one must travel back more than a quarter of a century to the dawning of the national revolution in ham radio known as FM and later, the FM repeater. The "revolution" that ushered in what I term "utility communications" as opposed to traditional hamming.

Before the advent of repeaters, all hams operating on the VHF and UHF bands were, by nature, experimenters and weak signal enthusiasts. Also, our numbers were quite small in relation to the HF ham radio population. Unless you lived in New York City, Los Angeles, Chicago or a few other populated places; or were content to talk to the same 2 or 3 hams in your town — day after day after day — you used your VHF skill to better your station so as to reach out to be heard by others who were not generally in your direct line of sight.

That's the way it was in 1959, when I got on the air with a homebrew, five-watt 6-meter transmitter built into a discarded Heathkit AT-1 case, Heathkit AR-2 receiver and L&W converter fed by a dipole. After working the two dozen hams in Brooklyn, New York, who could hear me, I went into the frenzy of constant improvement — so that a year later I actually worked New Jersey! For a teenager, it was the "thrill of VHF DX!"

And so it was, even after FM came along. Those who pioneered the "fun mode" readily admitted that they were separatists who wanted little to do with what was "traditional VHF operation." They cared not about DX or contests. They wanted telephone quality, local "utility" communication.

The first FMers were a few people on 2 Meters and 70 CM simplex. Most were two-way radio techs using discarded land mobile equipment. Their only interest was talking with one another on ways to improve the gear that they were using. Visitors to their QSOs were usually not welcome unless the person was of the same technological background.

Then, in the late 1960s, repeaters came along and the idea of "utility ham radio" caught on with the masses. The separatist FMers were cast aside. Today we have about 5,000 or so new hams coming to the service every month to operate almost exclusively on the 14,000+ existing repeaters across the United States — and a constant demand for more new machines to placate the ever growing masses.

But what about the question of an anti-FM bias among VHF contesters and other non-FM users? I think that the animosity toward FM today grows out of the animosity shown to the overall VHF/UHF community in the '60s by the separatist FMers. They wanted it that way and the rest of the VHF/UHF ham radio community obliged. It became a way of life that the ham radio community accepted — and still accepts.

Can it be changed? I doubt it, since most of today's FM operators seem to care only about their close circle of friends on a given repeater. In reality, they are VHF/UHF "communicators" using ham radio spectrum more like a cellular telephone than anything else.

While there are some exceptions, most of the newcomer hams I listen to find any activity outside their once or twice a day ritual QSO to be distracting and outside of their sphere of interest. They are now the majority, they must change their collective attitude before any serious efforts can be made at inclusion of FM into any other aspect of VHF/UHF operations. I really do not see that happening anytime soon as most new hams seem to view the hobby from the perspective of a "ham station on a belt clip."

For a more in-depth look at how this all came about, if your local library has a copy of *The Practical Handbook of Amateur Radio FM and Repeaters* (TAB 1212) by Michael Morris and me. I spent the first seven or eight chapters on this very subject, though from an FM point of view.

Also, look for any VHF and VHF-FM related book of the '60s by Kendall (Ken) Webster Sessions, K6MVH. Sessions was the real "guru" of the "people" side of VHF in that era. He wrote countless books and magazine articles about his exploits and those of other hams who had decided to make VHF the "place" for utility communications. He also detailed the saga of the development of what I can only describe as a totally new subculture in VHF/UHF ham radio — the "Southern California '76er." In fact, Sessions' *The Chronicles of .76* is a sought-after, classic work that holds valid in its description of the "FM mindset" right to this very day. It is must-reading — if you can locate a copy. If you do, please let me know!

ARRL vs. ham community on spread spectrum

There is a growing controversy on our VHF and UHF airwaves. It surrounds a rule-making request, RM-

8737, filed late last year by the American Radio Relay League that asks for a lessening of restrictions in the use of spread spectrum modulation by radio amateurs. The ARRL says its petition to relax spread spectrum rules seeks to address a lack of experimentation by hams in the area of spread spectrum.

Spread spectrum modulation technique distributes transmitted information among several synchronized frequencies within a band at the transmitter and reassembles the information at the receiver. The use of this technology was first approved for Amateur Radio in 1985 for bands above 225 MHz, but there has been little in the way of experimental amateur operation since then. The League's Petition for Rule Making seeks relaxed restrictions on spreading sequences and greater flexibility in spreading modulation. As such, the petition proposes that the FCC permit brief spread spectrum test transmissions and allow international spread spectrum communication between amateurs in the U.S. and those in countries that permit hams to use spread spectrum techniques. The petition also asks for automatic power-control provisions to ensure use of minimum necessary power to conduct spread spectrum communication and limit the potential for interference to narrowband modes.

The petition does not ask for any changes in frequency restrictions on spread spectrum transmissions, the 100W power limit or logging and identification requirements.

On the other side of the argument stand three groups. Most vocal in their opposition have been weak signal enthusiasts and those involved in ham radio space related activities. Both fear that permitting widespread use of signal spreading modulation techniques will cause a significant increase in the ambient noise floor of bands on which the technology is permitted.

"The ARRL Petition in its current form, would create chaos on the amateur service bands if implemented as written," says David Lang, the president of the San Bernardino Microwave Society.

Lang adds: "While amateur development of spread spectrum communications is needed, it can not simply be thrown into the bands on top of well established incumbent band users."

In what has to be a very strange alliance, siding with the weak signal and satellite people are a number of "movers and shakers" in the FM and repeater community. These people are not as worried about signal degradation as they are over outright misuse of and wanton interference to the "utility type" (normal conversations and autopatch calls) communication that their mode encompasses.

"We make this statement of opposition on behalf of our membership within the Amateur Radio Service, for their protection from the petitioner's most frivolous and deleterious filing to date, to protect existing and future narrowband Amateur Radio Service systems and networks from serious compromise," says Dave Shiplett, AC4MU.

Shiplett is the president of the politically powerful South Eastern Repeater Association. SERA is the nation's second largest "umbrella" FM/repeater coordination body representing several thousand repeaters in eight states. Shiplett and SERA make no bones that they are very concerned that expanding spread spectrum into populous bands already crowded with FM and repeaters would make for a rules enforcement nightmare:

"Would there be monitoring difficulties and illicit use of spread spectrum emissions? The answer, quite obviously, is yes. The mode, developed for use by the military and State Department, was not intended as a tool for spectrum conservation, but primarily to facilitate secure transmission. With the virtually unlimited number of encoding combinations that would be allowed by the proposed rules change, it would be exceedingly difficult to decode content for common monitoring or enforcement purposes," the SERA filing to the FCC says.

Responding to comments filed in response to its rule-making petition, the League takes the position that Amateur Radio is a purely experimental service. As such, it requires flexible rules and some trust of the licensees carrying out experiments.

Noting that some commenters called for tighter rules on spread spectrum operation, the League seeks to dispel fears that relaxing the rules on spread spectrum would lead to an increase in the noise floor in bands used by narrowband modes. It terms its petition as being "only a modest deregulatory effort" and says that most opposing commenters ignore the fact that some amateur bands already are occupied by Part 15 spread spectrum devices. Also, that many already operate near ham stations. The League says that additional constraints would hinder hams from keeping up with spread spectrum developments and prevent maximizing spectrum efficiency.

The League calls the proposals "the minimum necessary changes in order to foster spread spectrum technology in ham radio, but many hams are not buying into that claim. Those opposed say that spread spectrum modulation will do far more harm than good to the bands in question and want it isolated high up in unpopulated GHz Amateur Radio spectrum. They say that is where those who want to play with it can do so without interfering with other established modes.

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FCC upholds interference-related fines

The FCC has reaffirmed fines against John B. Genovese, WB5LOC, of New Orleans, Louisiana, and Vernon A. Paroli, KA5OWW, of Gretna, Louisiana. They are charged with interfering with repeater relayed communications of other amateurs in the spring of 1993.

The FCC upheld forfeitures of $500 against Genovese, and $700 against Paroli after a second review of the case. Genovese and Paroli were among four hams issued Notices of Apparent Liability by the FCC's New Orleans office. The other hams were Will Blanton, Jr., N5ROC, of Carriere, Mississippi, and Joseph Richard, III, N5JNX, of New Orleans. Richard had been cited for a similar violation in 1992.

The fines resulted from occurrences of willful and malicious interference to an organized, 2-meter repeater net and were based on information provided by the Amateur Auxiliary, who tape recorded the violations and turned them over to the FCC.

All four were initially fined $2,000 each. These fines later were reduced on appeal. Blanton and Richard were ordered to pay $1,000. Paroli's fine was cut to $700 based on his inability to pay the original fine, while Genovese's fine was set at $500 because of the shorter duration of his transmissions. WR

Search And Rescue Communications

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Some years ago, and I may have related this story in a past column, I had wired a radio in my car using very tiny (like 22 gauge) wire and neglecting to install your basic fuse (it was too much trouble, I thought). To make a long story short, I was driving down Interstate 25 in the middle of Wyoming when smoke began belching from under the dash. You guessed it, the improperly taped splice shorted to ground, the wire became a heating element (unfused, of course), and began to ignite various things between the battery and radio.

It was an exciting few minutes as I managed to get things under control. The up side was that the car didn't burn. The down side was that a lot of things did get somewhat singed, the car smelled very bad for awhile, and the radios were out for the rest of the trip.

As I reflect on this event, one cause comes to mind — my failure to listen and learn while someone tried to teach me electronic principles such as current capacity, reasons for taking time to install fuses, and simply doing a project right the first time. Such is the dilemma of the instructor, motivating students to learn. We've all experienced great teachers and teachers who just didn't quite have it together.

I don't recall if the person trying to teach me about fuses was a good instructor or not. Obviously the intended lesson didn't sink in. All of us are not cut out to be top-notch teachers but each of us can teach. One of the secrets between good and bad presentations is PREPARATION! You cannot, no matter how talented you think you are, walk into a gathering and impart wisdom unprepared.

There are (at least) hundreds of books available that can help you become a better teacher or presenter. Check your local library, especially if you are your group's training director. I would like to give you a few pointers that generally apply to every situation.

First, understand your topic. Make sure that what you intend to present matches with what you were asked to present. Then discover your audience. If you're talking repeaters to a group of new Amateur Radio operators, don't spend 30 minutes on how to tune a duplexer. Next you'll research your topic and create handouts (lots of handouts!). Use any of many presentation software packages to create overhead slides, speaker notes, and handouts.

Bring hands-on demonstration materials if possible. People like to look at real things. Not only does it emphasize what you're talking about, it makes your topic believable because people can see, touch, examine, and contemplate a real object. Watch the clock. Start your presentation on time and *end* on time. Someone once told me that a good presentation improved tremendously if it ended early. Interact with your audience during your presentation and plan for questions after you have finished. If you don't know an answer, say so, and, if possible, either point the questioner to another resource or arrange to find the answer and get it to the person.

When you volunteer to present a training topic, you have agreed to give it your best shot. It may involve making copies (possibly at your expense), spending time researching, producing overhead slides (possibly also at your expense), and being prepared. It's not only a great learning experience for you, but can be valuable to your group as you share emergency skills and help others learn.

(One final note: Be sure your handouts are easy to read and that your materials are spelled correctly! With the plethora of spell checkers in almost every documentation program, you should have all the words spelled correctly, especially on overhead slides. If you don't have the benefit of an excellent editor, seek out someone (spouse, neighbor, office worker) and ask them to read through your materials. Poor spelling and grammar *always* detract from a presentation.)

Let the games begin

One of the best ways to teach is through an exercise or game. Before you just head out and have an exercise, outline what you hope to accomplish, who is going to help you, and exactly what you want to happen during the event. Things might not go as planned, but they'll be a lot worse if you don't have some direction prior to your exercise.

I love exercises and enjoy trying new things. In case you're stuck for something to do during your next meeting, let me share some ideas with you. Remember you'll have to do your homework and prepare these to fit your needs, but perhaps these will get you started.

Grab it and go

At the beginning of your net, the net control station (NCS) tells everyone to grab their gear NOW and head for a specific location. The object is to enforce the immediacy of emergencies and then to share ideas with each other as to what to carry in your response bag. While your people are enroute, you might discuss how to report traffic flow such as during a widespread disaster. You could also discuss how stations should move from your resource net to the on-scene (or tactical net) as they arrive.

Hot potato

As your net gets underway, the net control tells everyone that she/he is experiencing some equipment problems. Every station is asked to take notes as the net progresses. NCS

abruptly calls one station and asks them to continue as NCS. After a short while, you (the trainer) jump in and ask NCS to shift to another station. The object is to teach listening skills, NCS skills, and ability to deal with the unexpected. You can hold a critique following the net to share experiences and techniques.

Phone booth relay

You have created a number of test messages and instructions. Each one is placed in an envelope and hidden throughout your operating area (i.e. the city). When the net begins, stations are asked to go to a location (such as a phone booth) and find the envelope carefully hidden under the phone, or at the hotel front desk, or at the police station dispatch window, and so forth. Each station gets the envelope and follows the instruction. You might have them send a message, switch to a different frequency, go to another location, contact another station and give instructions, etc. The object is to follow instructions, hone on-the-air skills, and interact with other stations. You can develop this exercise into an extensive event depending on how much time you put into advance preparation. A critique is in order to share learning experiences.

The basics

At an in-person meeting, you can have someone demonstrate how to solder antenna connections, how to repair a microphone cord, or how to conduct basic station troubleshooting. This is a great hands-on event and you'll be surprised at how many opinions exist as to "correct" ways to install connectors on antenna feedline.

How it works

Another in-person meeting idea is to have your repeater technician show pictures of the repeater site, tell stories about how it was installed, and tell how it is maintained. Some overhead slides will add to the presentation and demonstrate basics of repeater controllers, duplexers, isolators, circulators, feedline, and the other components that are found at a quality repeater site. Make sure this covers only the basics! The purpose is to familiarize people with terminology, not make them engineers.

Bunny hunt

Have one of your members go somewhere. On a simplex frequency the member makes a 30 second transmission every two minutes. Your group's assignment is to find the bunny. The "bunny" should be prepared to offer clues if it looks like your group members are having trouble finding the location. The object is to teach propagation basics, antenna theory, discover ways to find a jammer or stuck transmitter, and learn basic direction finding technique. A critique can occupy several follow-up meetings as members share ways to find transmitters.

Kerchunk

One member is "lost" and his/her battery pack is almost dead. Your assignment is to find the lost person. You may ask questions and the lost person can key once for "yes" and twice for "no." See how long it takes to find the lost member. You can do this with many lost people on as many simplex frequencies. The idea is to teach how to ask questions and quickly determine needed information. A critique is a must especially if you use many lost people, as your members will not have benefited from listening to others' questioning efforts. You could tape the various frequencies and then share the frustrations later!

Emergency activate

This is the "no notice" event where you get on the group's repeater (or monitoring channel) and announce a simulated event. See how many people are willing to drop everything and respond to their nearest fire station, airport, police station, school, or other public facility. I personally like to let people know in advance that an exercise is planned so they can be ready to respond. The idea is simply to get people on the air and finding various public facilities. You can practice net control techniques, check-in procedures, response procedures, and then meet for pizza afterward to critique the event.

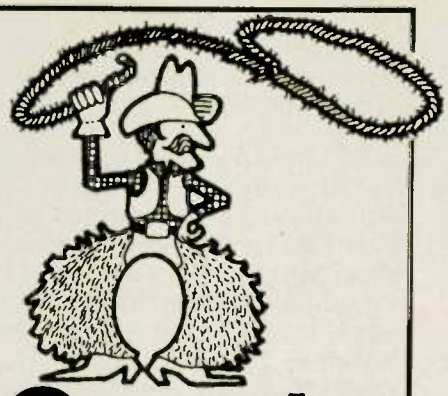
Power failure

During the net, ask everyone to switch to non-commercial power sources. The idea is to test our battery systems and discover if they work. Those that don't have alternative power systems are encouraged to ask others how to get one going. After the switch, encourage roundtable discussion to check on battery life and ensure you could support operations in a power failure environment.

Are you getting the idea concerning exercises? They don't have to be complex and they don't have to be so intricate that you spend months developing the scenario. Keep them simple and focus on one or two learning points. Most of all, have fun. We learn best when we enjoy what is happening. When you critique the event, focus on actions, not people. It's really bad to say "Bob, you're such an idiot when it comes to emergency stress." It would be better to simply ask, during the critique, how various members dealt with the situation and then reinforce the points. You might want to create a summary list for your next meeting and list ideas that were shared during the exercise.

Your goal is to bring your members to a higher level of understanding and preparedness. The idea is NOT to chase them away. You can surely come up with ideas of your own that involve field station setup, compass and map use, responding and damage reporting, station operation, and so on. Let me know what worked for you (via mail or e-mail to jw@desnews.com) and I'll share your ideas in future columns.

Until next month, have a safe summer and enjoy training. Best wishes from Salt Lake City. WR



County Hunter

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What are the odds?

How many of you play the lottery? Come on, be honest! Have you looked at the odds of your actually winning the big bucks? Probably something like 1 in a million chance or worse, wouldn't you say? Yet, we (sorry, you) still play. How would you like to improve your odds? Say "yes," and start hunting counties. Okay, so it's not the big bucks, but go with the odds anyway. A total of 897 amateurs have contacted all 3,076 U.S. counties and there are maybe 2 million amateurs worldwide; that's 1 in 2,229 odds. If you're a U.S. amateur, your odds are 1 in 708 (847 of 600,000). That means for every 708 U.S. amateurs, one of them has contacted all counties. So, stop saying it's impossible to contact 3,076 counties. Instead, stop playing the lottery and pick up your mic or slap your paddle on the rewarding pursuit to contact all 3,076 counties. Now then. . .

Joe and Mary Parsons

Over the years, I've had the pleasure of knowing Joe, W5UJO, and Mary, KC5UO, Parsons. Joe and Mary are two of the warmest people I know; they are exceptional amateur operators and distinguished county hunters also. It must be some kind of kismet that we meet every 8 years. Here's a snapshot of Joe and Mary and what I learned at those visits.

Joe and Mary — 1979

I first met Joe and Mary in 1979. Joe and Mary, KA5AZT, at the time, were traveling through Delaware on their way to a vacation in Canada. They stopped at the home of my good friend, Marie Graber, W3MDJ. I had known them for about a year having made several contacts on the YL system. Joe, originally from Alabama, was licensed in 1950 and mostly interested in ragchewing on 75 Meters until Mary dragged him to the YL system in 1979. Mary, originally from Oklahoma, has been licensed since 1978 and immediately became active on the YL System.

The YL System was their life, as far as Amateur Radio goes. . . that and DXing. They were making mobile contacts on the YL system during their trip. I asked them why they weren't county hunters; they could be making contacts from every county they drove through . . . and the frequency difference was just 4 kHz (from 14.332 to 14.336 MHz). They told me they had "no interest in county hunting or operating mobile on the county hunter nets." I pressed them, but eventually gave up. I was 16 and they were adults — who was I to argue? Besides, I was happy to meet my first "Texans!"

I learned that Joe and Mary were married in 1965 and had children from previous marriages; Joe had one son and Mary had two daughters. In 1979, I met their son, Philip, who was 10 at the time. I pressed Philip to get his Amateur Radio license, but eventually gave up on that one too.

Joe and Mary — 1987

It was eight years since our previous meeting and we had a lot of catching up to do. This time, we met at the Mobile Amateur Radio Awards Club (MARAC) county hunter convention in Denver, CO. Yep, they were now full-fledged county hunters (for which I take full credit in planting the seed!). I introduced them to Ann, my future wife (Ann's no-call sign badge said "future wife" because we didn't know if fiancee had one or two es).

Joe Parsons, W5UJO, and Mary Parsons, KC5UO, visiting with friends at the 1994 southwest mini-convention in Phoenix, AZ.

I learned that Joe and Mary were selected as Top Flight Operators on the YL system for their consistent good service as system controllers. It was 1980 when Mary decided to join the ranks of the county hunters and 1981 when she upgraded her license to Advanced Class and received her new call, KC5UO. Joe discovered county hunting when he came home from work one day and heard Mary listening to "22, 22, bang bang, rifle shots" on the radio. "What the heck is going on. . . bang bang, rifle shots?" he thought. Needless to say he wasn't impressed.

After Mary dragged Joe to the Charleston, SC, MARAC convention in 1983, Joe took the plunge and started collecting counties too. Just about the time Joe started collecting, Mary finished contacting all 3,076 counties and received USA-CA #447 dated November 29, 1983. Two years later, Mary completed contacts with 3,076 counties a second time and received 2nd time around award #42, dated 8 Jan 1986. Joe was closing in on USA-CA and enjoying meeting county hunter friends at the annual

MARAC conventions and regional mini-conventions.

Joe and Mary — 1995

Deja vu! It had been eight years since our previous meeting and we had a lot of catching up to do. This time we met at their house in Mesquite (outside of Dallas), Texas. They showed me a picture of Philip, 27, and I showed them a picture of my wife, Ann, and our daughter, Carlie, then a year old. My how things change.

Some things don't change and that's our mutual love for county hunting. Joe is now completely enthralled in "the county hunt" and is President of MARAC. He's been President for 2½ years; elected in Seattle in 1993 and re-elected in Hamburg, NY, in 1995 for his second two-year term. Joe and Mary have only missed three annual MARAC conventions since 1983; missing Kansas City, MO, in 1984, Valley Forge, PA, in 1990 and Hampton, VA, in 1992.

Joe holds MARAC board meetings in Dallas with vice president, Jerry Weaver, WD5JGS, and Treasurer, Diane Landreth, KI5TV. Joe is very proud of the MARAC's updated information packet, available from Dourrie Magers, KE5WL, in Sherman, TX. If you're a regular reader of this column, you know I highly recommend it for beginners.

A major change for Joe since our last visit is his retirement from Southwestern Bell after 36 years of loyal service. Joe retired in 1988 from the special service division, where he was involved with data interface units for computer terminals. Retirement gives Joe more time to play radio. Mary, on the other hand, continues doing what she enjoys, tending to the house and raising kids, though now there are grand kids.

Both Joe and Mary have contacted all U.S. counties four times. . . that extra time has paid off for Joe. Mary completed her third time and received #42, dated 13 February 1992. Since she received #42 for the 2nd time and 3rd time around, she decided it would be nice to also receive 4th time around #42. So she completed all the contacts and waited six to seven months until #41 was awarded, then she submitted her records and received 4th time around #42, dated 23 October 1995. Mary also received the Master County Hunter Award ("bingo") and is working on her 5th time award and the 5 star award. Mary has received 75 "last county" awards for her mobile operations. By the way, Mary has also contacted ALL DXCC countries.

In the eight years since I saw Joe in Denver, he received awards for contacting all counties four times. He received *CQ* Magazine's USA-CA #553 dated 9 November 1987; the 2nd time award #108, dated 1 March 1991; the 3rd time award #62, dated 16 August 1993; and 4th time award #38 dated 3 July1995. Because Joe didn't wait to submit his record book like Mary, he received a lower number than Mary for the 4th time. Like Mary, Joe also received the Master County Hunter award and is pursuing the 5th time around award and the 5 star award. Joe has also given 60 county hunters their last county in a state.

Kenwood Inc., should be proud of the Parsons' brand loyalty. Joe and Mary operate a Kenwood TS-850 transceiver and Kenwood 922 amplifier in the house (with a Wilson System 1 tri-bander at 55 feet in the backyard), a Kenwood TS-120 and Hustler antennas in their pickup, and a Kenwood TS-450 with W9UCW mobile antennas in their van. They almost always use a 600 watt amplifier in the van.

They shared some past mobile stories with me also. One of the interesting aspects about operating mobile on the county hunters nets is accidentally coming across other county hunter mobiles on the road. Joe and Mary stumbled upon Walt Morris, K4ELK, whose car was broken down on a roadside park. They also ran into (figuratively, not literally) Bob Margolin, K1BM, on two separate occasions, while they both were running counties in Arkansas.

Joe and Mary were involved in community work also. During the Mexico City earthquake, Mary helped 150-200 people a day by telling relatives their loved ones in Mexico were okay. In all, she made over 1,000 phone calls. Joe has helped the community as a member of the Texas Baptist disaster relief unit, and has assisted cities rebuild after tornadoes and hurricanes destroy.

Toward the end of my last visit with Joe and Mary, they turned on the TV and checked to see if they had won the lottery. Much to their dismay, the lottery machine only matched two of their six numbers. Even after contacting all counties four times, the odds still favor them contacting all counties a 5th time before they win the big bucks in the lottery. Unfortunately!

Joe and Mary — 2003

Speaking of odds, the odds favor another visit with Joe and Mary on our eight year cycle in 2003. I've enjoyed our friendship over the past 16 years and our infrequent contacts spread here and there in between. The question of the decade is this, "When I have my 4th visit with Joe and Mary in '03, will my computer think it's 8 years after my 1995 visit or 92 years prior to my 1995 visit? These days, the odds don't look good!

1996 MARAC convention

This year's annual MARAC convention is planned for 3-6 July, 1996, in Phoenix. The host is Bill Nash, WØOWY, and the other Phoenix-area county hunters. If you're in the Phoenix area during the week of the 4 July, contact Bill for more information on a good opportunity to share hunting stories with fellow county hunters.

Congratulations!

Congratulations are in order for the latest recipients of *CQ Magazine's* USA-CA for contacting all 3,076 counties.

#896 KB5DQ — Paul Ridley 10 March, 1996

#897 W5AL — Len Parson 22 March, 1996

County name origins

From *The American Counties*, by Joseph Nathan Kane. Susquehanna County, PA, was established in 1810. Susquehanna is derived from the contraction of two Indian words; "sisku" for "mud" and "hanne" for "river." If you visit, don't drink the water.

Until September, happy hunting and happy trails. 73, Ace N3 aha! WR

Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

July is the month in which all Americans are reminded of their independence and freedom. MARS members have freely chosen to use that freedom to volunteer to serve their country and all the people in it. While morale and welfare traffic has been the best known mission of Army MARS (and is still an important mission), the primary mission of Army MARS remains that of providing communications support during emergency situations — local, state, national, international. That primary mission can only be carried out, however, under the legal mandates that are part of every Federal agency. This has been a point of confusion in several instances.

One area of emergency support that is not limited by these mandates is the sending of information to DOMS, about any unusual occurrences from the outset with a continuing flow of information until the cessation of those occurrences. This is the most vital area of MARS emergency support.

Now the emergency support planners have valid information on which to base those plans. Now the emergency support planners have two-way capability of communication from the sites of the occurrences. They never had this advantage until Army MARS instituted its EEI program. With an unparalleled geographic network of highly trained operators, there is no corner in the country that is out of reach. In addition, Army MARS is available 24 hours per day 365 days per year.

The MARS activities at the Dayton Hamvention were somewhat different this year than in the past. The booth was present, of course, and the very popular and successful joint MARS meeting was held. At the joint meeting, all three MARS Chiefs spoke with comments ranging from a realistic assessment of current MARS situations to the realistic vision of things to come. With so many projects looking to the future, no one can say that MARS is a static, perhaps outmoded, program. On the contrary, the MARS missions have expanded as has been defined by the Federal Emergency Response Plan and as has been carried out most recently in the Army MARS participation in Grecian Firebolt 96. It is much too soon to address the accomplishments of that exercise.

What happened to the Army MARS In Progress Review (I.P.R.) conference? It has always been held as part of the Dayton Hamvention. That is a natural question for interested parties to ask. Army MARS and its leadership felt that with so many projects nearing completion and so many others still in the concept stage, that an I.P.R. held at a later date would be much more productive.

Chief Robert Sutton, in his message about the Dayton activities, stated: "The annual Army MARS Worldwide I.P.R. Conference commonly held in conjunction with the Hamvention will be postponed to a later date this year. The postponement will result in a more productive meeting based upon the completion of the following prior to the I.P.R. Conference:

1. Higher priority interservice interoperability issues.
2. June 96 GF96 exercise including capturing lessons learned.
3. Final draft of the DA Pam which will replace the FM. (Note: DA Pam = Department of the Army Pamphlets; FM = Field Manual)
4. New or revised MOUs with major disaster relief agencies." (Note: MOU is a Memorandum of Understanding.)

Many interservice interoperability issues were discussed and resolved at the recently held Joint MARS Chiefs Conference. The resolution of these issues will have great impact on "the way we do business" to quote Chief Sutton. There is a wide variety of operations that would be simplified and that would be made more efficient by the adoption of interoperational practices.

These issues range from very simple resolution to very complex. On this basis alone, delay in the I.P.R. conference is advisable so that all elements of discussion are clear before any commitments are made.

Armed Forces Day coincided with the Dayton Hamvention this year. This annual merger of amateur and military radio operations using cross-band techniques has always been well received with good participation. This year was no exception. While the concomitant results of this 24-hour exercise promote good will between the two groups, it must not be forgotten that such operation could be critical in a variety of emergency support roles. It is important that these techniques be learned and practiced by all of us. With some of the modern equipment in use, the process is very simple. What better way can there be to celebrate Armed Forces Day and to honor those men and women in uniform serving this great country?

During last year's Armed Forces Day, Army MARS had the first afloat station to participate in the program. Again this year, the Corps of Engineers vessel *The Mississippi* participated using the Army call of AEUI. Normally this vessel has the mission of keeping a 355 mile navigable channel open on the Mississippi River from Cairo, Illinois to Rosedale, Mississippi. She is a 241-foot, twin Diesel powered towboat with a beam of 58 feet, and a height from the water line to the pilot house of 52 feet. This current *Mississippi* is the fifth ship to bear this name.

We in Army MARS, enjoyed working this unique station. This asset could be most valuable for serving emergencies involving the Mississippi River area for which she is responsible.

In last month's column, I mentioned that part of the restoration at Fort MacArthur in San Pedro, California, included the Army MARS station which operated there as AA6WAH.

In conjunction with the restoration of the MARS station, a special event operation will take place from the station on 13 and 14 July, using several amateur bands. All amateur operators and MARS members are encouraged to support this very special event. See the Special Events column on page 25 for frequencies. Give this station the support that it deserves.

Independence, freedom, all the attributes that make this country great are alive and well in the Amateur ranks and in the MARS communities. Let's keep that flag flying and the spirit of America alive.

MARS — proud, professional, and ready. WR

Visit Your Local RADIO CLUB

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

ALASKA

South Central Radio Club. 8023 E. 11th Ct., Anchorage, AK. Meets 2nd Fri./monthly, 7 p.m., UAA Business Ed. Bldg., Rm. 220. KL7CC, (907) 338-0662 for info. Club rptr: KL7CC/R 146.97(-) PL 103.5 Hz. 2/97

ARIZONA

Arizona Repeater Association. P.O. Box 35758, Phoenix, AZ 85069-5758. Operates 20 VHF & UHF rptrs. in AZ. Meets 4th Thurs./monthly, 7:30 p.m., 1515 E. Osborne, Phoenix. Info: (602) 631-4879. 9/96

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. 5/97

Old Pueblo Radio Club, (OPRC). P.O. Box 42601, Tucson, AZ 85733. Meets 2nd Wed./monthly, 7:15 p.m., Northwest Neighborhood Center, 2160 N. 6th Ave. (South of Grant). 2/97

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Dept. of Emergency Mgmt., 130 W. Congress. Net Thurs. 7:30 p.m. 146.82(-), 146.88(-), 147.08(+), 448.550(-) & 145.15 Packet. 3/97

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(-). 5/97

Amateur Radio Club of Anderson, (ARCA). Meets 2nd Thurs./monthly, 7:30 p.m. Amer. Legion Post #746, 1709 Bruce Dr., Anderson, CA. Net every Tue., 7:30 p.m. on 146.64. 4/97

Clovis Amateur Radio Pioneers, (CARP). P.O. Box 514, Clovis, CA 93613. Meets 1st Fri./monthly, 7:30 p.m., Clovis Sr. Cntr., 840 4th St. Info: (209) 298-7707, KE6TCY 147.675(-) PL 141.3 net Thur. 7 p.m. ARRL SSC 3/97

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. 1/97

Downey Amateur Radio Club Inc., W6TOI. Meets 1st Thurs./monthly, 7:30 p.m., So. Middle Sch. cafetorium, 12500 S. Birchdale, Downey, CA. (Summer exception: contact Doug, N6WZI, (310) 929-1441). VHF net W6GNS rptr. 146.175(+) Thurs., 7:30 p.m. 5/97

East Bay Amateur Radio Club, Inc. Meets 2nd Fri./monthly, 7:30 p.m., Albany Sr. Cntr., 846 Masonic Ave., Albany, CA. Info: S. Primbsch, (510) 741-8227. 145.110 MHz. 6/97

Fresno Amateur Radio Club. Meets 2nd Fri./monthly, 7:30 p.m., Ernie Pyle School, 4140 N. Augusta, Fresno, CA. 146.94(-) 223.94(-). 11/96

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. 6/97

Garlic Valley Amateur Radio Club (GVARC). Meets last Sat./monthly, 8:30 a.m., Dimitri's Gilroy Inn, 1st and Wayland St., Gilroy, CA. Info: Hal, AC6LK, (408) 779-7787. Net Tues., 7:30 p.m. Club rptr. K6THR, 147.825(-). 6/97

Golden Empire Amateur Radio Society, (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, rptr. 146.85(-). Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Rm. 110B, Chico. 9/96

Golden Triangle ARC, (GTARC). Meets 4th Mon./monthly, 7:30 p.m., Sharp Health Care Activities Rm., 25500 Med. Ctr. Dr., Murrieta, CA 92562. 6/97

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12(+). For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 846-6513. 12/96

Marin Amateur Radio Club (MARC). W6SG. Box 151231, San Rafael, CA 94915-1231. Meets 1st Fri./7 p.m., Kaiser Hosp., Bldg. 2, San Rafael, CA. (Summer exceptions; contact Pete N6IYU, 924-1578). Sun. AM Club at Red Cross, San Rafael. 8/96

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Lake View Cafe, 2099 E. Orangethorpe, Placentia, CA, at 91 Fwy/Lakeview. Info: Ray Davis, KD6FHN, (714) 551-2010 or (714) 551-1036. 2/97

North Hills Radio Club. P.O. Box 41635, Sacramento, CA 95841-0635. Meets 3rd Tue./monthly, 7:30 p.m., Carmichael Elks Lodge, 5631 Cypress, Carmichael, CA. Nets Tue., Wed., Thur., 145.190(-)(162.2) and 224.400(-). Poc. Tim Lewis, KD6FWD, (916) 722-7037. 3/97

North Shores ARC. Meets 1st Tues./monthly, 7:30 p.m., So. Clairemont Rec. Cntr., 3605 Clairemont Dr., San Diego, CA. Info: (619) 274-8468. 9/96

Orange County Amateur Radio Club. Meets 3rd Fri./monthly, 7:30 p.m., Orange County Red Cross, 601 N. Golden Circle, Santa Ana, CA. 146.550. Contact Bob Buss, KD6BWH, (714) 534-2995. 1/97

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. Herb Clarkson, KM6DD, (310) 377-6342. Rptr. 145.38(-) PL 100. 11/96

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. 9/96

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. & Stockton Blvd., Sacramento, CA. Info net at noon on rptr. W6AKR 146.91(-). Steve Cates, KC6TEV, (916) 391-7341 or Les Ballinger, WA6EQQ, (916) 393-4775. 10/96

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. 10/96

San Gabriel Valley Radio Club, Inc. P.O. Box 88, Monrovia, CA 91017-0088. Meets 1st Tue./monthly, 7:00 p.m., Arcadia County Park, 405 So. Santa Anita Ave., Arcadia, CA. 147.765(-) PL 131.8. Info: (818) 285-9281. 12/96

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. 5/97

Shasta Cascade Amateur Radio Society, (SCARS). 2124 Airstrip Rd., Redding, CA 96003. 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. 7/96

Sierra Foothills ARC. P.O. 3262, Auburn, CA 95604. Meets 2nd Fri./monthly, 7:30 p.m., Firehouse, 226 Sacramento St. Auburn. 28.415, 2/220m, Thurs. 7:30 p.m., 145.430(-) (PL 94.8) & 223.86(-). 3/97

Simi Settlers Amateur Radio Club (SSARC). P.O. Box 3035, Simi Valley, CA 93093. Meets 2nd Thurs./monthly (except Dec.), 7:30 p.m., Seventh Day Adventist Church Hospitality Rm., 1636 Sinaloa St., Simi Valley. Contact Ron, KD6VLM, (805)584-6737, 147.930(-) (PL 127.3). 11/96

Siskiyou County Amateur Radio Assoc. Meets 1st Sat./monthly, 10 a.m., rotates between Bob's Ranch House in Etna, CA and The Tree House in Mt. Shasta. For info: Al, WA6IHK, (916) 467-3255. 10/96

So. Sierra ARS. Meets 2nd Thurs./monthly, 7:30 p.m., Veteran's Hall, 125 East F St., Tehachapi, CA. Contact: Caroline, KD6KMN, (805) 822-5995. 147.06/224.42. 12/96

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. 7/96

Southern California Six Meter Club. P.O. Box 10441, Fullerton, CA 92635. USB Net Tue., 8 p.m., 50.150. FM Rpt. Net Thurs., 8 p.m., 52.86/52.36 tx. FM Smplx, call freq. 50.300. Net Sun., 10 a.m. 50.40. 4/97

Southern Humbolt ARC, (SHARC). Meets 4th Tues./monthly, 7 p.m., Best Western Humboldt House Inn, Garberville, CA. Talk-in on 146.79(-). 4/97

Stanislaus Amateur Radio Assoc., Inc. (SARA). P.O. Box 4601, Modesto, CA 95352. Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus Co. Admin Bldg. 145.39(-) (PL 136.5), 224.14, 440.225 (PL 136.5). 3/97

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. 11/96

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. 10/96

Vaca Valley Radio Club. Meets 2nd Wed./monthly, 7:30 p.m. (Board mtg., 7 p.m.) Vaca Fire Dist. Stn., Vine St. in Vacaville, CA. Rptr. WD6BUS 145.47(-) PL 127.3. Alan McCarthy. (707) 446-0200. 5/97

Victor Valley Amateur Radio Club. P.O. Box 869, Victorville, CA 92392. Meets 2nd Tues./monthly, 7:00 p.m., Presidio Recreation Cntr., 11100 Apple Valley Rd., Apple Valley, CA. Talk-in 146.94(-), PL 91.5. Net Sun. 7 p.m. 146.94(-). 12/96

West Coast Amateur Radio Club, (WCARC). P.O. Box 2617, Costa Mesa, CA 92628. Meets 3rd Thurs./monthly, 7 p.m., Fountain Valley Sch. Dist. office, 17210 Oak St., Fountain Valley, CA. 145.440(-) PL 136.5. For info: Joe, KA6LPZ, (714) 963-4426. 9/96

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. 5/97

West Valley Amateur Radio Assoc. P.O. Box 6544, San Jose, CA 95150-6544. Meets: 3rd Wed./monthly, 7:30 p.m. (except Dec.) Cambrian Sch. Dist. Office, 4115 Jackson Dr., San Jose, CA. W6PIY/R. Net Tue., 8:30 p.m. 147.39(+), 223.96(-). 10/96

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. 7/96

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. 10/96

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. 12/96

CONNECTICUT

Middlesex A.R.S., (W1EDH). Meets Tuesdays, 7 p.m., Adult Day Care Cntr., 32 Miner St., Middletown, CT. VE classes/exams; ARRL Service Club. Ctc: M. Harper, W1FYM (860) 633-6295, P.O. Box 5, S. Glastonbury, CT 06073. 3/97

FLORIDA

Gulf Coast ARC. P.O. Box 595, New Port Richey, FL 34656. Meets 4th Mon./monthly, 7:30 p.m., 3852 Prime Place, New Port Richey. WA4GDN rptrs. 146.67(-) & 145.33(-), serving all of Pasco County. 8/96

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. 3/97

Port St. Lucie ARA. Meets 1st Fri./monthly, 7:30 p.m., St. Andrews Church, Prima Vista Blvd., Port St. Lucie, FL. Contact: Roy Cox, KE4QJG, (407) 340-4319. Call in 146.955(-). 9/96

Saint Petersburg Amateur Radio Club. Meets 1st Fri./monthly, 7:30 p.m., Red Cross Bldg., 818 Fourth St. North, St. Petersburg, FL. Nightly net 6:30 p.m., 147.06(+). Rptrs. 147.06(+), 224.66(-), 444.475(+). Info: C. Wagner, KE4EYI, (813) 894-2393. 1/97

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. 6/97

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. 12/96

GEORGIA

Dalton Amateur Radio Club, Inc., (DARC). P.O. Box 143, Dalton, GA 30722-0143. Meets 4th Mon./monthly, 7:30 p.m., Magistrate Court Bldg., corner of Waugh St. & Thornton Ave., Dalton, GA. Info: Harold Jones, N4OTC, 706/673-2291. 3/97

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets 2nd Tue./monthly, 7 p.m., Army Reserve Center, 470 W. Lanikaula St., Hilo. Talk-in on 146.88(-). 6/97

Emergency Amateur Radio Club, (EARC). P.O. Box 30315, Honolulu, HI 96820-0315. Meets 4th Thurs./monthly, 7 p.m., Lincoln Elem. Sch., 615 Auwaiolimu, Honolulu. Nets: nightly 7:30 p.m., 146.88 & 146.80. Rptrs: 146.76(-), 146.80(-), 146.88, 146.98(-), 146.94(-). Info: (808) 595-6245. 7/96

Koolau Amateur Radio Club, (KARC). 45-145 Mikihilina St., Kaneohe, HI 96744. Meets 2nd Sat./monthly, 9:30 a.m., Hdomaluhia Pk., Kaneohe, HI 4/97

ILLINOIS

CHI-NET Amateur Radio Club. North & Northwest Chicagoland & Suburbs. Specializing in PACKET Radio and 220 Phone to further the fulfillment of Amateur Radio. Meets last Thurs./even mos. Info: (708) 307-8198 or Packet on 144.99 MHz or Voice on 224.24 MHz. 11/96

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(-). 11/96

Hamfesters Radio Club, W9AA. P.O. Box 42792, Evergreen Park, IL 60805. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.410 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.65 MHz. Info: (312) 974-3291. 1/97

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. Info: (309) 685-6698. Rptrs: 146.85(-) & 147.075(+). 5/97

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(+). 11/96

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(-). 11/96

MAINE

Androscoggin Amateur Radio Club. Meets 1st Wed./monthly, 7:00 p.m., Auburn Police Station, 1 Minot Ave., Auburn, ME. 11/96

MASSACHUSETTS

Quannapowitt Radio Assoc., Inc. 6 Savin St., Burlington, MA 01803. Meets 4th Fr./monthly, 8:00 p.m., (May & Nov. meets 3rd Fri.), at Lynnfield-Wakefield Methodist Church, Wakefield. Info: Jim Chamberlain, N1AKG, (617) 944-5098. 1/97

Wellesley Amateur Radio Soc., & Babson Wireless Club. Meets 1st & 3rd Thurs./monthly, 7:30 p.m., Tomasso Hall, Babson College Forest St., Wellesley, MA (Sept.- June) Talk-in 147.03(+). Info: J. Driscoll, NV1T, (617)444-2686. 12/96

MICHIGAN

Adrian Amateur Radio Club, W8TQE. Box 26, Adrian, MI 49221. Meets 1st Fri./monthly, 8 p.m., Civil Air Patrol Bldg., Lenawee Co. Airport, Cadmus Rd., Adrian. ARES net Sun., 9 p.m. 145.37(-). Info: Tom Parsons, N8QEW, (517) 263-5568. 3/97

Chelsea Amateur Radio Club, Inc. Meets 4th Tue./monthly, 7 p.m., Society Bank, 1478 Chelsea-Manchester Rd., Chelsea, MI 48118. 12/96

Eastern Michigan Amateur Radio Club, (EMARC). Meets 1st Tue./monthly, 8:30 p.m., Woodland Developmental Cntr., Kimball Township (Range @ Smiths Creek Rd.). Contact Frank Forsyth, N8XTO, (810) 987-3540. Talk-in: 147.30(+). 9/96

Edison Radio Amateurs Assoc. Meets 2nd Fri./monthly (Sept.-June), 7 p.m., Edison Western Wayne Div. HQ, 8001 Haggerty, Belleville, MI (So. of Ecorse Rd.). Net each Thurs., 8 p.m. on 145.33(-) and 442.80(+) rptrs. 3/97

Genesee County Radio Club, Inc. Meets 3rd Tues./monthly, 7:30 p.m., Genesee Area Skill Center, Torrey Rd., Flint, MI. (810) 634-6077. 2/97

MISSISSIPPI

Jackson Amateur Radio Club, Inc. Meets 3rd Thurs./monthly, 7 p.m., Am. Red Cross Bldg., Riverside Dr., Jackson, MS 39202. 10/96

MISSOURI

PHD Amateur Radio Assn., Inc. P.O. Box 11, Liberty, MO 64068. Meets last Tue./monthly, 7 p.m., Gladstone Comm. Bldg. (816) 781-7313, Volunteer Examiner Coordinator. 2/97

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 2nd Sat./monthly, bkfst. 8 a.m. & mtg. 8:30 a.m., Country Inn, SE cor. W. Sunset, Valley Verde. Club info: Jim Frye, NW7O, (702) 456-5396 or Leona Wallace, WA6OHB, (702) 247-6450. 7/96

Wide Area Data Group, Inc. P.O. Box 3132, Sparks, NV 89432. Meets 1st Sat./monthly, 9 a.m., Jack's of Reno, 5485 Equity Ave., Reno. Info: (702) 356-8200. Call in on 147.30(+) MHz. 5/97

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. 11/96

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. 11/96

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(+). 10/96

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. 5/97

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. 8/96

NEW YORK

Amateur Radio Assoc. of the Tonawandas, (ARATS). P.O. Box 430, No. Tonawanda, NY 14120. Meets 3rd Tues./monthly (except July & Aug.), 7:30 p.m., Sweeney Hose Co., 499 Zimmerman St., No. Tonawanda, NY. Talk-in: 146.955(-) rptr. W2PVL. 10/96

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. 12/96

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: Amie, WB2YXB, (718) 343-0172. 2/97

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. 12/96

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. 3/97

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! 9/96

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. 4/97

Westchester Amateur Radio Assoc., (WARA). Meets 1st Wed./monthly, 7:30 p.m., Am. Red Cross Bldg., 106 N. Bway, White Plains, NY. Club net: 145.495(-) rpt. Tues., 7:30 p.m. Info: Dan Grabel, N2FLR, (914) 723-8625. 2/97

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) 741-6606 for details. Talk-in WB2ZII/R 147.06(+) PL 114.8/2A. 10/96

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) 963-1021. 146.865(-), 440.15(+). 10/96

NORTH CAROLINA

Stanly County Amateur Radio Club. Stanfield, NC. Meets 4th Thurs./monthly, 7 p.m. Talk-in 146.985(-) for location. Wed. net 9 p.m. 146.985(-). Fri. tech net 9 p.m. 147.390(+). Phone: (704) 888-4815. 5/97

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(-). 9/96

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7 p.m., Municipal Bldg., Clyde, OH 43410. NF8E rptr. 145.35(-) and 442.625(+) MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS. 3/97

Firelands Area Rptr. Assn., (FARA). Meets 4th Tue./monthly, 7 p.m., Erie County Admin. Bldg., Sandusky, OH. WB8LLY rptr. 146.805(-). Net Sundays, 8 p.m. Info: FARA, P.O. Box 442, Huron, OH 44839. 11/96

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. 11/96

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 147.03(+) rptr. BBS 145.53. 8/96

Northern Ohio Amateur Radio Society, (NOARS). Meets 3rd Mon./monthly, 7:30 p.m., Gargus Hall, Rt. 254, Lorain, OH. Info: rptr. K8KRG 146.70, DX alert rptr. 145.15. 10/96

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: Brenda, KB8IUP, 866-5928. 11/96

Van Wert Amateur Radio Club, Inc. P.O. Box 602, 1220 Lincoln Hwy., Van Wert, OH 45891. Meets 1st & 3rd Sat./monthly, 8 p.m. Call-in: 146.85(-). 2/97

Western Reserve Radio Assoc. P.O. Box 81252, Cleveland, OH 44181-0252. Meets 2nd Wed./monthly, 7:30 p.m., Jenkins Community Cntr., Main St., Olmsted Falls, OH. Info: B. Beckman, N8LXY, Pres., 146.73, 444.900 MHz. 6/97

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. 147.36(+) MHz. Info: (503) 385-9497. 6/97

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. 11/96

Central Oregon Coast ARC. 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 997-4074. 1/97

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. 310, Roseburg, OR. Info: W5PII/R 146.90(-) or (503) 673-1310. 697

Valley Radio Club of Oregon. Meets 1st Fri./monthly, 7:00 p.m., Lane County Red Cross chapter house in Eugene. Info: (541) 683-0987 or write: VRC, c/o 159 E. 16th Ave., Eugene, OR 97401. 12/96

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. 10/96

Mercer County Amateur Radio Club, W3LIF. P.O. Box 996, Sharon, PA 16146. Meets 4th Tue./monthly, 7:30 p.m., Shenango Valley Med. Ctr, Farrell, PA. Net, Thurs. 9 p.m. on 145.35(-) W3LIF, Digi. 145.01. 3/97

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 PBBS 145.09. 1/97

Warminster Amateur Radio Club, WA3DFU. P.O. Box 113, Warminster, PA 18974. (215) 672-9985. Meets 1st Thurs./monthly, 7:30 p.m., Benjamin Wilson Sr. Cntr., Warminster, PA. Net on 147.69(-), 147.09(+), Wed. 8:30 p.m. and 28.450 Sun. 9 p.m. 5/97

RHODE ISLAND

South Coast Wireless Society. P.O. Box 1516, Westerly, RI 02891. Meets 4th Tue./monthly, 7:00 p.m., Pawcatuck Neighborhood Center. Info: Bill, KA1ZZR, (401) 596-5849. 6/97

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. 7/96

Brownsville ARC (CHARRO). Meets 2nd Tue./monthly, 7:00 p.m., Confederate Air Force Hangar, Brownsville Airport in TX. Talk-in on 147.040(+). 12/96

VIRGINIA

Southern Peninsula Amateur Radio Klub, (SPARK). Meets 1st Tue./monthly Salvation Army Community Bldg., Hampton, VA. Repeaters 146.73(-), 449.55(-). VE Exam Info: (804) 898-8031, W4RTZ. 2/97

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. 2/97

WASHINGTON

The Mike & Key Amateur Radio Club. Meets 3rd Sat./monthly, 10 a.m., Salvation Army Renton HQ., 720 Tobin St., Renton, WA. Talk-in on 146.82(-) rptr. Doors open at 9:30 a.m. 5/97

Skyvalley Amateur Radio Club, KC7LOC. Meets 3rd Sat./monthly, 8 a.m., Dutch Cup restaurant off Rt. 2 in Sultan, WA. Info: (360) 793-3433. 4/97

WEST VIRGINIA

Jackson County Amateur Radio Club. Meets 1st Thurs./monthly, 7:30 p.m., United Nat'l Bank of Ripley. Net Mon. 9 p.m. on 146.67(-) WD8JNU/R. For info: D. Tenant, N8ZYB, Rt. 1, Box 188, Mt. Alto, WV 25264. 6/97

Tri-State Amateur Radio Assn. Meets 3rd Tues./monthly, 7 p.m., The American Red Cross, 111 Veteran's Memorial Blvd., Huntington, WV. 5/97

WYOMING

Sheridan Radio Amateur League, 146.82. P.O. Box 7042, 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. 7/96

The Youth Forum

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

Young amateur assists emergency communications

March 17, 1996 was no ordinary day for Vince Bernotas III, N2WXE, and his fellow members of the Burlington County (New Jersey) ARES/RACES organizations. Thirteen-year-old N2WXE spent that day providing life-saving communications for a 100-mile dirt bike race in the Pine Barrens area of southern New Jersey.

Vince single-handedly manned one of 15 checkpoints on the race course. When a racer hit a tree near N2WXE's checkpoint, the young amateur began coordinating and relaying vital emergency communications to other amateur stations and law enforcement agencies. Vince also assisted in finding the racer, who was paralyzed and believed to have a life-threatening spinal injury.

Through net control station (and Burlington County ARES/RACES Coordinator) Doug McCray, K2QWQ, Vince relayed and coordinated communications to an awaiting ambulance, fire truck, New Jersey State Police car and helicopter, and a "Life Flight" helicopter. The situation was further complicated when the ambulance and state police car experienced radio failure.

When asked if he was scared during the ordeal, N2WXE quickly replied with a confident "no." He said serving as a net control operator for the Hams 'R' Us Kids Net prepared him to handle the emergency skillfully.

Incidentally, the racer injured in the accident is recovering well and is no longer suffering from paralysis.

Vince Bernotas III, N2WXE, was first licensed at age 10. He holds a Technician Class license and plans to upgrade in the near future. Vince lives with his parents Vince II, N2WXF, and Debbie, N2WXG, at McGuire Air Force Base, New Jersey.

Joe Duffin, W2ORA, of the South Jersey Radio Association, contributed information to this article.

New York Observatory seeks input from young amateurs

The Kopernik Space Education Center, located in western New York, provides the public with an observatory and many educational opportunities in science and astronomy. Young people have always been a primary focus of the institution.

In addition to observatory facilities, Kopernik offers the public and area students and teachers courses in astronomy, computers, and earth science. Amateur Radio was recently added to the curriculum, thanks to some local amateurs and a grant from IBM. Last year, more than 2,000 students, ranging from kindergartners to high school seniors, participated in Kopernik programs designed to supplement regular classroom opportunities.

Along with the new curriculum comes Amateur Radio club station KB2UYF. The station is currently equipped with only VHF, UHF, and packet capabilities. Plans for a fully-functional amateur satellite tracking station are in the works.

Kopernik's amateurs and staff members hope to involve young people around the country in KB2UYF's inaugural activities through a contest facilitated by Amateur Radio. Students in grades K-12 are asked to answer the following question: *"Most of the time during the year the moon appears to be white in color. But in the fall each year it changes to a beautiful orange or yellow disk in the sky. Can you tell us why this happens?"*

Answers should be sent to Kopernik's packet address: KB2UYF @WF2A.#WNY.NY.USA.NOAM. Entrants should include their name, grade in school, school name, city, and state. Contest sponsors say they can't promise elaborate prizes to the winners, but they do promise to QSL all participants.

The center also welcomes astronomy-related questions. Questions may be sent to KB2UYF's packet address. Kopernik staff members will research and reply to the inquiries.

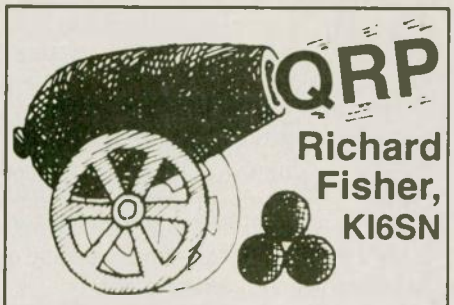
John F. Kray, KA2CNG, of Vestal, New York, contributed information to this article.

Columnist inquiries still welcome

Worldradio is still accepting inquiries and writing samples from young amateurs interested in taking over "The Youth Forum" column duties. As reported in a previous issue, I will be leaving for college soon and, regrettably, will be unable to continue writing the column.

Young amateurs interested in continuing the column must be willing to undertake a serious commitment. While writing "The Youth Forum" is very rewarding, it is also a great responsibility. For me, each column usually takes a couple of hours to write, not to mention many more hours of editing, research, phone calls, etc. However, the reward of a column which (hopefully) provides a needed service to the amateur community is well worth the work.

Letters of inquiry and writing samples (essays, journalistic articles, etc.) should be sent to me at my home address or to ***Worldradio*** Editor, Lou Ann Keogh, KB6HP, at the magazine. Materials should be forwarded immediately. For further details, contact the editor or myself, or see the May, 1996, edition of "The Youth Forum." WR



Richard Fisher, KI6SN
1940 Wetherly St., Riverside, CA 92506
e-mail: KI6SN@aol.com

... and ye shall receive

About a year-and-a-half ago, a QRP column featuring a tiny milliwatt transmitter wired to a porcelain-based DPDT knife switch sent a noticeable rumble through the halls of Homebrew U.

More than 200 requests for a free data sheet about the renowned "Oner" transmitter and Armstrong T/R switch jammed the KI6SN mailbox almost before the column's ink had dried. Presumably, lots of these little rigs and switches have been teamed to pierce the airwaves since that November,1994, piece.

One question, though, keeps popping up in the notes accompanying the information requests: "Would you feature a good, simple receiver to accompany the Oner and T/R switch?" Gladly.

There are some in the QRP community who might argue that "good" and "simple" are mutually exclusive terms when considering today's homebrew receivers. Rest assured that's not the case, however, with a beautifully designed direct conversion circuit offered in kit form by T-Kit, a division of TEN-TEC, Inc.

The "Any Band" DC SSB/CW Receiver (Model 1056) is an exponential improvement over the classic "Neophyte" DC design, which used as its foundation the NE602 double balanced mixer. Much has been done to advance that circuit's fundamental design since it debuted in a Feb. 1988 *QST* article by John Dillon, WA3RNC.

For its cost, ease of construction, features and performance, T-Kit's "Any Band" receiver kit brings "good" and "simple" into fine alignment.

The T-Kit — priced at $29, plus shipping — includes a high quality 6-inch wide by 2.25-inch deep circuit board, complete set of components and step-by-step instructions. The builder needs only to provide the enclosure, headphones, power source and antenna.

All parts are board-mounted, so there's virtually no chassis wiring.

Band coverage is determined by choosing specific values for five fixed capacitors and three inductors charted in the 24-page construction manual. Single band coverage is possible for any amateur band from 1.8 MHz to 28 MHz.

Here at KI6SN, the receiver was built to cover 40 Meters. So capacitors and inductors for 160, 80, 30, 20, 17, 15, 12 and 10 were set aside for use in some other project.

The heart of the "Any Band" design is the NE612AN double balanced mixer, a fraternal twin to the much heralded and widely used NE602. Each have become staples of direct conversion design.

The receiver is varactor diode-tuned using an MV209 and two front-panel potentiometers — one for "bandset" and another for "bandspread." This configuration will remind many oldtimers of common regenerative receiver design of decades-gone-by.

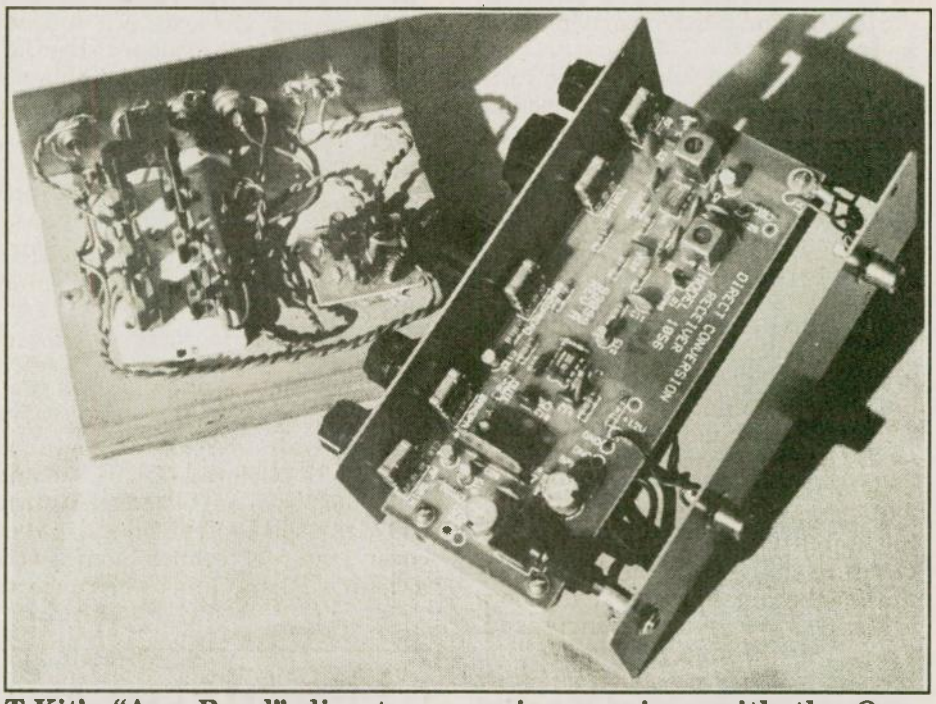
Hefty audio output is provided by a Signetics TDA2611A. Driving headphones to ear-splitting volume is not a problem. And a speaker has been used at KI6SN with great success.

There is also an RF gain control, handy for preventing front-end overload from strong local signals.

Perhaps the most interesting element of the "Any Band's" design is implementation of an LM358 dual operational amplifier as an adjustable bandpass filter. Residing just ahead of the audio amplification circuitry, incoming signals can be modeled with a twist of a front-panel potentiometer. The operator can "narrow" CW signals to fight off QRM. SSB reception sounds best at wider bandpass settings.

There is a provision for transmitter sidetone injection and audio muting during transmit. And if you care to use a frequency counter with the radio, there's a place on the PC board to pick off the requisite output.

Like most DC receivers, the "Any



T-Kit's "Any Band" direct conversion receiver with the Oner transmitter and Armstrong T/R in the background.

Band" copies both sides of a CW signal, and either upper or lower sideband. It is quite sensitive and the trademark purity of DC reception comes pouring through.

The circuit has low current drain and is great for 12-volt battery operation.

As a construction project, the "Any Band" is suitable for all builders — from the rank beginner to the rocket scientist. T-Kit's instruction manual is reminiscent of the Heathkit line, offering detailed check-off, step-by-step directions followed by a small dose of theory and troubleshooting hints.

The KI6SN version went together in an afternoon without a hitch. All parts were included, clearly marked and top quality.

Alignment took about three minutes. No exotic test gear was needed.

Since the parts are board-mounted, the greater challenge for many builders may well be cutting chassis holes to properly align the shafts of the "Any Band's" five front-panel potentiometers (RF and AF gain, bandset/tuning, bandspread and bandpass filter controls), along with a headphone jack on the back of the board. Power and antenna jack styles are left to the builder's preference.

For several months, the "Any Band" has been used here with great satisfaction.

T-Kit warns that "variable-oscillator stability (susceptibility to temperature change and mechanical vibration) becomes progressively more critical as frequency is increased. From 160 through 30 Meters this receiver will serve as well as many of the simpler superhets of several decades ago. From 20 Meters on up, more attention must be given to how you package and handle the receiver." Mounting the board rigidly in most cases will eliminate such effects.

At 40 Meters it takes several minutes for the "Any Band" to settle down. Drift, at first, is noticeable. Once stabilized, though, QSOs have been monitored for extended periods without having to tweak the bandspread.

The ARRL's W1AW code practice and bulletins are easily copied most nights with the 40-meter "Any Band" from this Southern California outpost. East Coast stations of all power levels regularly pound in, as well.

Coupled with the Oner and Armstrong T/R, the "Any Band" has yielded dozens of wonderful contacts at KI6SN. As any seasoned ragchewer knows, home built receivers often become QSO conversation pieces in themselves. An added benefit, indeed.

This receiver is also quite nice as a band monitor while doing other things around the station. "Reading the mail" on both the CW and SSB portions of 40 Meters has become a pleasant pastime here thanks to the T-Kit.

For more information about the "Any Band" receiver, or to request a catalog of TEN-TEC projects, write: T-Kit, 1185 Dolly Parton Pkwy., Sevierville, TN 37862-3710. Or call toll free: 800/833-7373.

If you'd like to catch up on information about the Oner and Armstrong T/R switch featured here in November 1994, drop a self addressed, stamped envelope to the U.S. Postal address at the head of this column.

QRP by the book

The Four Days in May QRP Symposium, in conjunction with the 1996 Dayton Hamvention, served as the launch pad for two important QRP books and software for the low-power enthusiast.

Electronic Data Book for Homebrewers, by Paul Harden, NA5N, premiered with the addendum *QRP Yellow Pages*, by Rich High, WØHEP. This combined text is produced through the Colorado QRP Club and published by 5 Watt Press of Aurora, CO. Its 180+ spiral bound pages cover a range of technical topics with a *Yellow Pages* quick reference to manufacturers and suppliers of special interest to QRPers. The book is $15, plus $2.50 shipping for domestic orders; $4.50 shipping for foreign orders. Write: 5 Watt Press, 740 Galena St., Aurora, CO 80010-3922.

Introducing QRP, by Dick Pascoe, GØBPS, also debuted, featuring a QRP perspective from the United Kingdom, its history and treatise on popular low power gear.

New software called QRPPAL, created by Bruce Milne, WB2QAP, had an FDIM premiere, too. It's a shareware logging program tailored for QRPers, with a lot of extra features described as "an Internet web site in a box."

Each of these new issues had special FDIM distribution. Further details about pricing, ordering and availability will be carried in an upcoming ***Worldradio*** QRP column.

MFJ Assistance, please

Vahan Yazarian of Berkeley, California, writes that he's puzzled:

"I am studying for my novice exam and already have an MFJ-9040 QRP transceiver.

"At present I wish to listen to CW . . . for practice. However, the (automatic gain control), I think, causes a fade in volume followed by a THUMP. Adjusting the AGC pot merely changes the sound to a click."

Yazarian wonders if any MFJ aficionados have encountered this problem, and if they've found a cure. His mailing address is: 1918½ Blake St., Berkeley, CA 94704-2602. WR

John G. Troster, W6ISQ

Milton E. Chaffee, W1EFW, SK

Our friend and colleague, Milt Chaffee, W1EFW, died on 8 April. This is sad news indeed as we all knew him to be an enthusiastic QCWA Board member who could always be counted on to provide a good word and cogent phrase to our discussions. He had been in ill health, but had made arrangements to attend the San Antonio Board meeting, which would have been his last meeting before retiring from the Board. He was missed by all of us.

Milt's enthusiasm for Amateur Radio was 100%. He was a CW traffic man, and had served ARRL as section traffic manager in Connecticut. He also was assistant section manager for New England from 1957 through 1964 as well as an elected ARRL director. A quote from the *ARRL Letter* of April 12 recognizes Milt's service in these areas: Connecticut Section Manager Betsy Doane, K1EIC, called Milt's passing "the end of an era." ARRL Executive Vice President David Sumner, K1ZZ, added, "Milt was a stalwart traffic handler who set and maintained the standards for the rest of us for more than 40 years."

Lew McCoy, W1ICP, QCWA president, asked for a minute of silence at the beginning of our Board meeting in San Antonio. Lew then expressed the feelings we all had: "Milt was a very conscientious man who responded to all assignments with enthusiasm. He always did what he said he would do, and did it right. We are going to miss Milt." During our business meeting, the Board voted a $500 contribution to the scholarship fund in memory of Milt Chaffee.

Board Mtg in San Antonio

There we were, "deep in the heart of Texas," all wearing yellow roses, to witness the annual BOD Arm Wrestling Championship matches. Word had it that if McCoy won the ten-gallon hat with the big turquoise studded band for being the champ, he would celebrate by taking everyone to a hot (chili hot) Tex Mex restaurant. The gauntlet was flung and previous champs were dethroned fast, McCoy included, in the first round yet, by Gladys Chase, W1VPF. In the finals it was QCWA Secretary John, W4HU, versus Big John, K8LBZ. The battle raged fro and to. Big Jawn roared and moaned and grimaced. HU John turned red and perspired. But then, alas, someone said something about Cleveland QCWA Chapter number 1, and Big LBZ Jawn lost his concentration. Result: HU John, flattened the former champ and now he assumes the title of Big HU John. LBZ is now just Plain Jawn. That's pretty much the way it happened, at least as I recall.

Some readers may consider the preceding a frivolous way for directors to spend a few hours in San Antonio in the name of the club, and maybe I fell asleep for a bit and dreamt it all. But then where did Big HU John get that turquoise studded ten gallon sombrero he wore on the Alamo tour? We can all wait for Big HU John's official Secretary's report in the Summer *QCWA Journal* to find out.

The assemblage let John Huntoon, W1RW, win the annual poker game because this was his final meeting as a BOD member. As we said last month, we will miss John for his thoughtful work and prescience (Ivy League word) on Amateur Radio matters. John generally brought a level-headed assessment and discussion to the problems at hand. Thank you, John!

Thanks too, to Wes Randles, W4COW, our treasurer for many years. This was his last meeting as an officer of QCWA, but he assumes the post of QCWA Historian. He's got a great story he could begin with, his witnessing Douglas McArthur stepping off his landing craft — twice — on his "I Shall Return," to the Philippines.

In truth, the board, as at all its meetings, covered a lot a ground. Leland (tench-hut) Smith, W5KL, reported the QCWA Scholarship Fund is now approximately $150,000. The greater the fund, the more interest accrued, the more scholarships we can award deserving college students. In case you haven't noticed, we increased dues to $20 per year, or $50 for three years (best deal). As president McCoy pointed out, that increase in dues is equal to one hamburger and a shake per year. General Manager "BJ" Walsh, W7LVN, reported that HQ is issuing more 70 and 75 year pins than ever. Can there be an association between QCWA and longevity?

There was a bitter disappointment this year. Walt Brink, W3WPY, didn't bring his leather encased pepper mill filled with pungent black peppercorn. Not to laugh. Those shoulder slings you see everywhere these days are not just for books, babies, computers, spring water, and the like, slung over their shoulder. Walt carries his leather pepper mill over his shoulder. But alack and alas, not this time, and all was the duller for it. No pepper on the steak for anybody.

John F.W. Minke, III, N6JM, *WR* DX World columnist

From time to time, we've bio-ed some of the QCWA members who write for ***Worldradio***, and this month we corralled John Minke. John writes the lead column on matters of DX. He acquired this assignment in an interesting way which we'll tell you about later.

John's a native of Tenafly, New Jersey. He reports that a telescope was set up in his high school chemistry classroom pointing northeasterly toward Major Armstrong's huge experimental FM antenna tower a few miles distant, on the top of the Jersey Palisades overlooking Henry Hudson's River. Let me digress a momento. I too, in those youthful years, could look north out of my attic window in South Yonkers, NY, and see the same tower several miles northwest on the other side of the river. Those of you skilled in numbers can cypher this to mean that John and I lived opposite each other across the Hudson, albeit a half a generation apart.

Also, former QCWA Director Arch

Doty, K8CFU, lived in North Yonkers directly across from that tower. There you have it, John, Arch and I, and the tower triangulated. Also of further note on the role of that tower in Amateur Radio circles, last August we did a piece about Fred Hargesheimer, WØEBG. He actually *worked* at Major Armstrong's experimental FM station in 1939. Fred said when he was assigned to do tower work, he took his lunch up with him so he would not have to round-trip the 400-foot tower at lunch time! By the way, the tower is still in use.

Back to business. No, that auspicious landmark didn't inspire John to heights to become a radio enthusiast. Instead he went to high school and played football like other kids in Tenafly. But he did enjoy listening to broadcast-band DX stations during the wee hours. So he knew what DX was all about. His real passion at that time was railroads and those wonderful, powerful, belching steam engines which were still in service at that time in the late '40s.

After high school graduation, John headed for Clarkson College in Potsdam, NY, near the Canadian border. There John majored in Mechanical Engineering, but by his own confession, he was not concentrating, and flunked out! Uncle Sam heard about John's problem and a month or so later, John's presence was requested by the U.S. Army at Fort Dix, NJ.

He went though Basic Training at Fort Dix and was immediately placed in Radio School there, where he learned the code and basic radio operation skills. Upon completion of the course, he was assigned to a unit of the First Army Command Net Station, AAB36, at Fort Dix. He was also assigned duties at MARS station AA2WAQ, and began to learn about Amateur Radio through other MARS operators who worked the Viking II at the base ham station K2WAO. He became fascinated. He already knew the code, so he bought a book about Amateur Radio, studied it, went to Philadelphia and took the exam for a General license. In June '54, he became K2IKS.

In '55, John bid farewell to the Army and returned to Clarkson College to take up Electrical Engineering. This time he focused and graduated in '59 with a degree in Communication Electronics. He went to work for Hazeltine Corporation in Little Neck, Long Island, NY, as a field engineer. They immediately sent him to McClellan Air Force Base outside Sacramento, CA, where he was assigned to the Ground Electronics Engineering Installation Agency to install VHF/UHF ground to air facilities.

Clarkson College was close to the Adirondack Mountain ski spots, so John naturally kept up his skiing skills in the nearby Sierras. In December '61, John spent the New Year's weekend on the slopes at Soda Springs and met Mari. John found himself focused again, and six months later they were married!

John resigned from Hazeltine in 1964, and went to work for the California Department of Water Resources in Sacramento to design electrical pumping and power plants in the 80,000 HP range. This was strictly Electrical Engineering, the stuff he hated in College, but this is what the job was and he found himself becoming involved in the huge California aqueduct program which pumps fresh water over the mountains from San Francisco to the Los Angeles Basin. You can see the gigantic pipes and pump station when driving on California Interstate Route 5; so, next time you drive over the "Grapevine" on I-5, take a glance or two, to appreciate some of John's handiwork.

He says he regrets not having joined sooner.

Being a good transplanted Californian, John soon got the call WA6JDT, and in '65 became ARRL Section Communication Manager for the Sacramento Valley, a position he held until '73. In 1968 he had upgraded to Extra Class and became W6KYA. In '77, when he could choose his own call, he picked N6JM.

John and Mari bought a house in Carmichael, CA, and John put up a tower with a TH3 on top, his first beam, and went on the air with an HT-32 and SX-101. He had bought this equipment in college but hadn't had a place to use it.

In '66 they moved to their present house, and he upgraded his antenna to a TH6. He also bought a Yaesu FT-560, his first transceiver. Later he switched to an Icom IC-740, and subsequently added an Icom IC-735, which he won at the 1991 DX Convention in Vancouver! He has never used a high power amplifier.

And now we can disclose how John acquired his present position as DX columnist for ***Worldradio***. In '76, he approached Armond Noble, Publisher of ***WR***, about writing an Awards Column. Armond welcomed the idea and John went to writing. Then in '78, Charles Signer, WA9INK, who had written the ***WR*** DX column, became part of a team to go DXpeditioning to Clipperton Island. Armond needed a replacement DX writer and asked John to do it. He's been at it ever since.

John and Mari have four children: Peggi, married and living in Gresham, OR; Randy in the U.S. Navy as an aviation ordinance tech living in Hanford, CA, but now assigned to the USS *Nimitz* recently returned from patrol off Formosa (John joined to ride the *Nimitz* from Hawaii back to San Diego); Kristi, married and living in Florida; and Rachel, of Orangevale, CA, a professional singer who is also working for her elementary school teaching credential.

John had been eligible to join QCWA for some time before he actually put his name on the line at the ARRL National Convention in Portland in '88. He says he regrets not having joined sooner. Any of you gals and guys out there who haven't joined yet, take note! John is also a member of OOTC and a Life Member of ARRL. He has since retired from the California Department of Water Resources. He's given up skiing and backpacking so he'll now have time to expand his other hobby, tracing family history. In July, he'll complete the circle and return to Tenafly for his high school reunion. And again gaze north at Major Armstrong's FM tower?

We're happy to count John as One of Us, the Honor Society of Amateur Radio, the Elite, the Many, the QCWA.

Until the next one, 73 + 25. Jack, W6ISQ WR

Traffic

Geri Sweeney, N4GHI

1996 Olympics:

How marvelous life can be. The sailing events for the Summer Olympics, held off Savannah, Georgia, needed a few 'sailing' Amateur Radio operators. Of course, John, N6ANQ, (my OM) and I immediately volunteered. We will be involved in the trials for the 470 class (about 14') sailboats. There will be a 2-meter net and amateurs on the signal boat. A place to plug in our RV will be provided. We will be there one week in May for the trials and then return for the Olympics in July. This sounds like a fantastic adventure and we can't wait.

And how does that fit in with a traffic column? It directs one's attention to the friendships traffic handlers make. I've spoken with Karen Aaron, AD4KA, the Cycle 2 Fourth Region Net Manager, on many Saturday afternoons, for several years. She has a sparkling voice that radiates happiness. You feel brighter and more cheerful just by having been in her presence. And, as often happens, after years of radio contact with a fellow traffic handler, you finally get the opportunity to meet. She lives in Savannah and is helping with the sailing events.

Ted Sharp, K6UYK

And speaking about meeting a traffic handler . . . It was a really a pleasure to finally meet Ted after handling hundreds of his messages. Ted was in Maryland for medical treatment. 6RN manager, Rob Griffin, AB6YR, arrived to attend a business meeting and present Ted with a plaque. Amateurs here were invited to attend the ceremony. Ted related just a few of his many adventures in Amateur Radio and traffic handling. His wonderful wife, Betty, was also a pleasure to meet. Ted left for the Virgin Islands to visit with his daughter and should return to this area in June.

ARL forty six

John and I sent a friend in San Diego a happy birthday message earlier this year. In return, we received a card from her saying: "Saturday night I received a very surprising phone call. A birthday message by phone, and it was sung to me. Thank you. It was fun talking to the radio operator. She said it was her first performance." When a radiogram works out like this, it's worth all the time traffic handlers devote to this wonderful hobby.

FSD plans for the year

February's *Section Leader* (an ARRL publication), mentioned the Field Service Department (FSD) (of the ARRL) plans for 1996. While it discussed promoting ARRL visibility at hamfests, it did not mention promoting traffic handling at hamfests. Since the ARRL generally has a table at many hamfests, why not induce the person in charge of getting the table to invite some traffic handlers in the area to help out? Messages could even be taken for an evening net.

An excellent way to promote, and increase skills, of traffic handlers would be for FSD to make a video of a traffic net for their video library. Some amateurs in North Carolina make such a presentation every once in awhile at hamfests in their area; and, those who have seen it give it rave comments. The video could be shown at radio club meetings and/or hamfests. My efforts to have our staff in FSD include such an item in the FSD budget were met with, "It's too expensive." And, yet, the same *Section Leader* says, "The primary mission of the Public Service branch is to strengthen the relationship between our public service (National Traffic System, and Amateur Radio Emergency Service) volunteers,. . . increase the skills of our volunteers, ..."

If you are asking, "What library?," I refer you to *Field Forum* (ARRL publication) of April, 1996. Under "New ARRL A/V Library Procedures," six titles are listed for Recruitment (I assume this is Amateur Radio recruitment). Three titles are listed under "Shuttle Amateur Radio Experiment," five titles are listed under "Disaster Preparedness," four titles under "Operating Modes," two under "Educational," two under "DXpeditions," two under "More DXpeditions and Contest Operating," and finally, two under "Contesting." Only one title had the words National Traffic System in it. Its description was, "An overview of Amateur Radio disaster preparedness. An introduction to the Amateur Radio Emergency Service, RACES, and the NTS. We absolutely need one video on what traffic handling is all about and how a traffic net works. Since our staff in the FSD rarely checks into any nets, it would make sense for them not to attempt such a project themselves. It wouldn't be very expensive to encourage a proven, existing group to video their presentation.

What's happening?

Don Callik, W7GB, is the Section Traffic Manager for Eastern Washington. He says, "I've tried for two years to get a keyboarder to be digital STM and have met with no success. I've gotten discouraged with digital modes. E-mail makes a nice backup method, but only that — a backup to be used sparingly.

The Pacific Northwest has many fine phone and CW nets. There are many opportunities on any of these nets to help. As STM and manager of the state's main phone traffic net (WARTS), I do nets. They are well run and user friendly, which means we have a lot of fun. To a no-coder wanting to do traffic and have fun at the same time, I'd say "learn the code well enough to use it and get on HF where real traffic handling happens."

Don's comment that e-mail should be only a backup reminds me of a few things: 1) Our basic traffic handling tenet is that we are ready to help in times of emergency. 2) Times of emergency quite often don't include phone lines. 3) That's why many of us have a generator sitting about.

Don lists some of the HF nets in the Northwest. WOW! I count seven CW and seven SSB nets. If you are in the Pacific Northwest, you're in luck. Listen in and check in. Don ends with, "CW — where the excuses stop and the achievements begin." Sending code is like playing a musical instrument. After you learn the basic scales, you get hours of contentment as you play.

Net name	Freq.	Time	Location
NTN	3970	Noon	
WARTS	3970	6	(WA)
NWSSBN	3945	6:30	

CBN	3960	7	
MTN	3900	5:30	(MT)
FARM	3937	7	(ID)
THN	3995	10:20	
OSN	3587	6:30	(OR)
"	"	10	"
WSN	3590	1:45	(WA)
	"	4:45	(WA)
IMN	3647	8	(ID/MT)
BCEN	3652	7	(BC)
WCN	3702	7	(coast)

Mail

Several folks sent info on slow speed nets. Note, the list grows. My aim is to have at least one slow speed CW net listed in Regions 1 through 12. This would provide any amateur a place to practice CW and learn traffic handling procedures.

One letter from Walter Ebbett, KB6QIB, in California, noted my terminology was a bit off. Walter says, "I hope we have no slow traffic nets. Only slow speed CW traffic nets . . . hi." As with most traffic handlers, his experiences (mentioned in the letter) lead me to believe he would be a neat guy with whom to chat. Currently Walter is NCS on NCN2 (Northern CA) on 3705 at 9 p.m.

Karl Fraser, KK1A, also wrote to mention the NCN2. Karl mentions that it is an ARRL Section Net and runs at about 7-10 wpm. All you folks down in Orange County could probably drop by — since you don't have a CW net.

Harry Thomas, W3KOD, net manager of the PPTN (a slow speed CW net), wrote to say thanks for adding it to the list. He also answered why we use 'es' for 'and.' He says, ". ... is American Morse for the ampersand (&)." Thanks Harry.

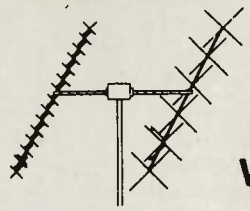
Arley Garvin, WB5NKC, in Oklahoma City sent some worthwhile reflections. First, he feels that CW is alive and well. He feels the problem is lack of training. Thus, Arley and Pat Garvin, WB5NKD, started a training net on 3693 at 6:30 p.m. The net has a curriculum of 166 training messages, which were obtained from the Alabama and Indiana nets. Cyril Herwig, KAØEOS, is starting a 10 wpm slow speed net on the same frequency at 8 p.m. Arley says that if a Section does not have a net, it's because Elmers have been pushing the digital instead of starting CW training nets. Arley mentions that during the weeks after the 19 April 1995, bombing of the Murrah Building, AT&T lines were not available to many in the Oklahoma City area. Same point — emergency — no phone lines. Finally, Arley says that the SalvationArmy and Red Cross had a large number of Amateur Radio volunteers to help them.

CW slow speed nets: Region

Net Name	Time	Freq.	Region
NCN2 (CA)	9 p.m.	3705	6
WCN (coast)	7 p.m.	3702	6
FSN (FL)	8 p.m.	3715	4
MSN (MD)	7:30 p.m.	3717	3
MSSN (ME)	6-10 p.m.	3685	1
CSN (NC/SC)	6 p.m.	3715	4
ES (NY)	6 p.m.	3590	2
OTN (OK)	6:30 p.m.	3693	5
PTTN (PA)	6:30 p.m.	3610	3

Let me know of any *slow* speed traffic nets in your area. WR

Amateur Satellites



Terry Douds, WB8CKI

344 E. Fifth Ave., Lancaster, OH 43130
e-mail: wb8cki@amsat.org

Hello again everyone. I thought I would take some time this month to answer some mail in the column, because some of the questions that have been arriving have been the questions nobody wanted to ask, because everyone already knew the answers. I am sure you know what I mean.

First, a question arrived concerning my last sentence in my May column when I said "see you in July." Many of you may not realize that this column is bimonthly, rather than monthly. If you want more, send your letters to the editor. It's nice to know so many of you enjoy the column!

A question came up on CompuServe's Hamnet that I am sure many of you may wonder about. Jay Craswell, WBØVNE, asked the Amateur Satellite Message Board about Oscar 13's modes. He said he had read the satellite schedule, saw a reference to MA 0 to MA 70, and wondered what it meant. To begin, to those of you unfamiliar with Oscar 13, it has different transponders available on it for use in different satellite modes.

The Mode B transponders (435 MHz up, 145 MHz down) are most often talked about, but there were also Mode L (1.2 GHz up, 435 MHz down) and Mode S (436 MHz up, 2.4 GHz down) transponders on board as well. Mode S is still active, but Mode L ended with the loss of the 435 MHz transmitter a few years ago. The letters MA stand for mean anomaly, and it is a way to predict the phase of the satellite, or where it will be during a certain point in the orbit.

Based on mean anomaly, each day is broken into 256 segments. These segments are denoted in an operating schedule that is put out via the beacon on the satellite, as well as via packet, Internet, G3RUH bulletins, etc. In Figure 1, I've shown an example of a current schedule from Oscar 13 as it is being written. It shows that initially, as the orbit begins at MA0 to MA70, it is in Mode B. Starting at MA70 and moving thru MA120, it is in Mode BS, where both Modes B and S are active.

Beginning at MA120, for the next 2 clicks, ONLY the S beacon is activated. Beginning at MA122 thru MA140, the bird is in Mode S. Then the pattern reverses itself, moving back to Mode BS for MA140-MA180, and then to Mode B for the remainder of the orbit, from MA180 to MA 256. Omnidirectional antennas are used from MA230 to MA25.

The notation of Alon/Alat 180/0 has to do with the orientation of the satellite towards the earth, and this is our favorite position. You will notice it says that on June 17 it will be moving to 220/0 - this is necessary to allow maximum sunlight to illuminate the solar panels (which will change as the seasons change), keeping the batteries operational.

AO-13 Transponder Schedule

01 April1996 to 17 Jun 1996

Mode-B	: MA 0	to	MA 70	
Mode-BS	: MA 70	to	MA 120	
Mode-S	: MA 120	to	MA 122	<- S beacon only
Mode-S	: MA 122	to	MA 140	<- S transponder; B trsp. is OFF
Mode-BS	: MA 140	to	MA 180	Alon/Alat 180/0
Mode-B	: MA 180	to	MA 256	Move to attitude 220/0, 17 Jun
Omnis	: MA 230	to	MA 25	

Figure 1

We obviously do not see the satellite for the entire orbit, so by utilizing your tracking software and watching the phase of the bird, you will know when you can operate, and where. Believe me, when it says it is changing, IT DOES! I've had numerous QSOs come to a screeching stop when the bird switches from Mode B to Mode S! If you look at the orbit as you look at the modes, you will find that Mode S (alone) usually comes up when the satellite is almost at apogee, the farthest point away from the earth in its orbit. This is due to the fact that the antenna on board the satellite has very high gain one, and is extremely directional. We need to see as much signal towards us at that time, and the antennas will be almost directly in line at that point.

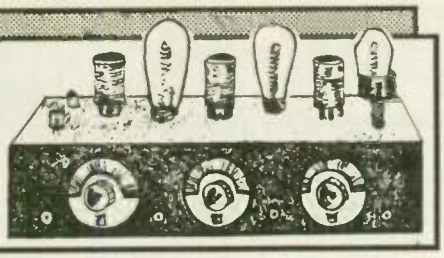
This information on scheduling and satellite phase will be important to all of those planning to operate on the upcoming Phase 3D satellite, since it has so many transponders on it — scheduling will be a tricky item, I'm sure.

Since I've mentioned Phase 3D, I should mention some of the sadder news concerning the upcoming launch — it will not be as early as we had hoped. If you have stayed current with the news in the past few months, you may have heard about the numerous problems with commercial launches from a few different sites (other than NASA and the European Space Agency [ESA]). Well, it seems that Intelsat lost one of their new Geosynchronous birds, and they really need to replace it — ASAP!

As they say, money talks, and they have a bunch of it waving in front of the ESA to get their satellite on board the Ariane 502 that we hoped to take into space. Obviously, if the ESA can get lots of millions of dollars versus the measly little $1 Million from the AMSAT organizations, why not? What it means for AMSAT is that we have a guaranteed launch NO LATER than July 1997 - but as early as Fall 1996 — on board an Ariane 4 booster. The advantage of this is that the Ariane 4 is a well-tested booster with a proven track record - versus the Ariane 5, where we would be high-tech test pilots - HI! It causes a few problems with propellant usage, since the Ariane 4 doesn't go as high as the 5 will, but those have been worked out, so all in all it looks as though the launch will go off in grand fashion. The only real problem we will have is that there will probably be a lull between the demise of Oscar 13 in December, and whenever we get the new bird up.

Well, I'm running out of space for this month, so as always, drop me a line, either by e-mail or traditional means, and I'll get back to you personally — and remember that no question is too basic or silly — learning to work on the satellites often takes some help and direction, and many of us are ready and willing to offer assistance. I hope to hear from you soon, and see you on the birds! WR

Old-time Radio



The wrong kind of DX

Fred J. Dietrich, NM6J

Introduction

I finally had it! My Novice license, WNØIFY. It was February, 1952, and I was 14 years old, and very excited.

I had an ARC 5 receiver for 80 Meters, and built a 2-tube transmitter, a 6V6 oscillator and 1625 final. In 1952, Novices could operate only on 80 Meters, CW only, and crystal controlled. My frequency was 3712 kHz (kilocycles, in those days). My antenna was a long-wire running about 3 feet above the ridge of the roof of my parent's house in Hannibal, Missouri.

I called CQ and called CQ but could only get local guys to come back to me. Just couldn't get any DX (like from another state) at all. I called, and called, and called, week after week.

My first DX (?)

After a few weeks, I got an unpleasant surprise in the mail one day. A notice from an FCC monitoring station in Bay St. Louis, Mississippi, informing me that I was radiating illegally on 7425 kc. Remember, no Novice operation on 40 Meters, and this was out-of-band anyway. I thought, "hmmm. I wonder why they said that?"

I kept on calling CQ without luck, and a few months later got another FCC notice, this time from Livermore, CA. Real DX! It had the same message, to whit, "radiating illegally on 7425 kc." Then I thought, "hmmm, maybe there is something wrong with my transmitter. It had a simple tuned circuit in the output stage, with the antenna coupled with a loop.

The problem and solution

I began looking into the transmitter, and talking to my ham buddies in town, and finally concluded that my final was tuned up on 40 Meters, the second harmonic of my oscillator. I rewound another coil, with more turns, and finally got it tuned on 80 Meters. My buddies told me that I had a much stronger signal, and I suddenly began working guys in Illinois, and Kansas, then Colorado, and Ohio, and finally both coasts. Hurrah! I could now work stateside DX like all of my buddies were doing.

The wrong kind of DX

If my transmitter had had a PI network, maybe that wouldn't have happened, I don't know. In any case, I learned that it isn't always possible, with no test equipment, to know what frequency you are operating on. The best clue is how you're getting out (on the band you are supposed to be on, of course!)

Conclusion

I used that rig for only a year or so. I left for college and didn't operate again until I was in graduate school. Then I had a homemade Heathkit DX 100 that worked quite well on several bands. I always remembered my early "DX" though, and vowed to be careful in the future not to get into that kind of trouble again. It must have worked. In the 43 years since, I have not heard from the FCC again. WR

Wires & Pliers

Mighty Fine Junk Box Attenuator

Use your MFJ SWR Analyzer as a signal generator

Dave Evison, N6GKC

I just couldn't resist using phonetics to name the simple and inexpensive attenuator described in this article. The cost of parts to construct the little attenuator should run less than $10, fabrication requires no special tools, and the entire project can be assembled in a couple of hours. The average ham junk box will supply most — if not all — of the needed parts.The Mighty Fine Junk Box Attenuator will expand the usefulness of the already very versatile MFJ SWR Analyzer.

Virtually every ham radio contact contains the exchange of S-meter readings. But S-meter signal strength indications are far from rocket science. Trying to determine on the air antenna performance by comparing S-meter readings from different stations is almost humorous (at least in terms of dealing with meaningful data) — but we all do it!

Using your MFJ SWRAnalyzer, together with the Mighty Fine Junk Box Attenuator, you will be able to verify or determine the actual S-9 signal level associated with your rig's S-meter. Although my small laboratory contains several commercial signal generators, I've always wanted a small, battery operated signal generator to use on Field Day outings or during antenna range testing.

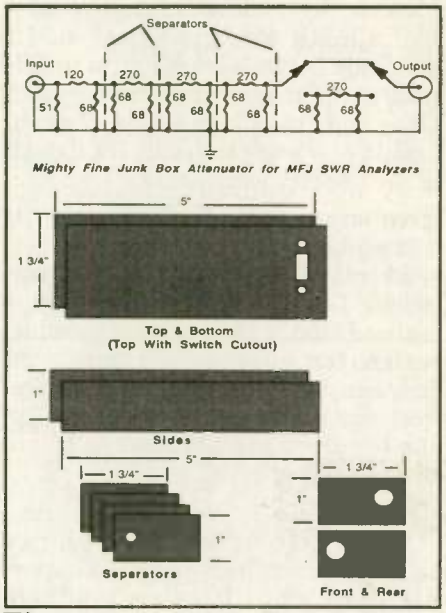


Figure 1.

One evening I decided to take a look at the waveforms produced by my little MFJ SWRAnalyzers (Models MFJ-207, 204B, 209). I've been using these handy little instruments for some time now, and I was just curious.

A wide band oscilloscope displayed a very clean, leveled output. Additional measurements revealed a leveled output of 300 mV RMS into 50W.

Well, I knew I had just found my portable generator, so I designed and built the attenuator described here.

When the attenuator is coupled to any of the MFJ SWRAnalyzers mentioned here (refer to interconnection photo and Figure 3); it will provide either 50 uV for calibrating S-meters, (the generally accepted signal level for S-9), or 5uV for sensi-

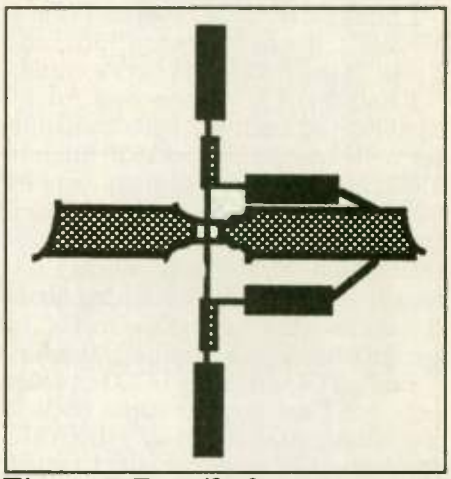


Figure 2. Detail of parts mounting.

tivity testing. A typical test setup is shown in Figure 4.

Trying to attenuate below 5uV is really not practical because of RF leakage both in the little MFJ units, and within the attenuator itself.

The values for the first attenuator section, shown in Figure 1, were experimentally determined to "trim out" the cumulative error for the other four sections.

The resistors are garden variety 5% ¼-watt resistors. While one generally associates precision resistors with attenuator construction, measurements of the final product were excellent. The operation was checked and attenuation measured using a spectrum analyzer.

The attenuator housing is constructed from 2-sided PC board, cut with a hack saw, and soldered together (see Figure 1 for details).

Parts layout is shown by the close-up photo of the attenuator. Detail of parts mounting is also shown in Figure 2.

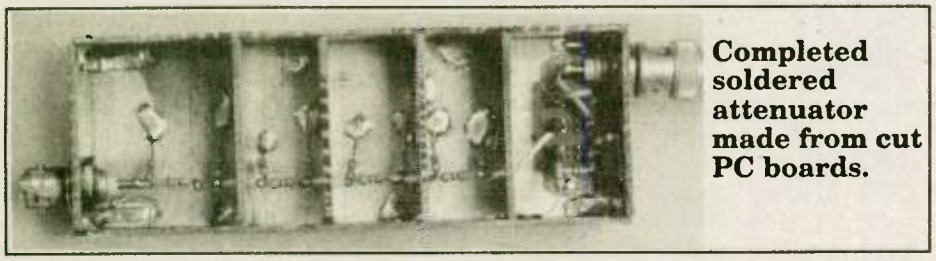
Slightly "counter sinking" the port on each side of the separators will minimize short circuits when resistor leads pass through the ports. Don't remove any more copper than necessary.

When using the Mighty Fine Junk Box Attenuator, keep in mind that the MFJ units are not RF-tight and significant leakage is present. Wrapping aluminum foil around the meter may help minimize leakage for greater accuracy during sensitivity measurements.

In addition, meaningful measurements require that your rig has a good shielded case, and ensure that it's grounded. Fourteen Megahertz is the frequency most often used by radio manufacturers for S-meter calibration.

Once you have determined where your S-meter indicates when you supply the 50 uV test signal, you can interpolate your readings accordingly.

I'm sure you will find that this little attenuator will expand the usefulness of your MFJ SWR Analyzer. And, of course, you will be able to provide more accurate signal strength reports. WR



Completed soldered attenuator made from cut PC boards.

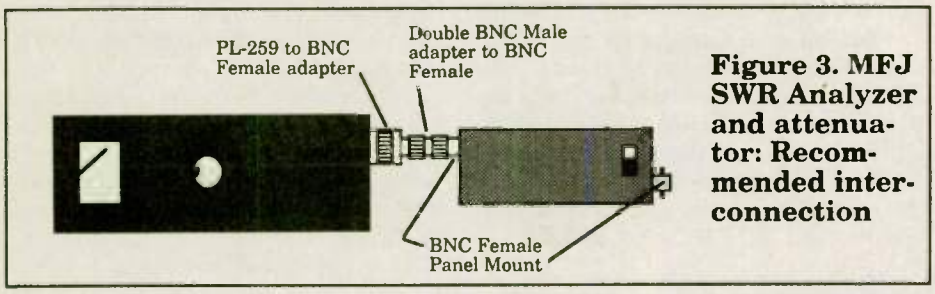


Figure 3. MFJ SWR Analyzer and attenuator: Recommended interconnection

The attenuator and MFJ SWR analyzer interconnection. ***—photos by KZ6O***

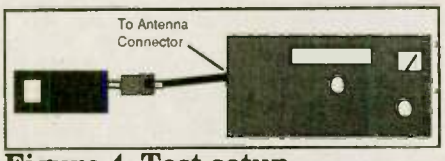
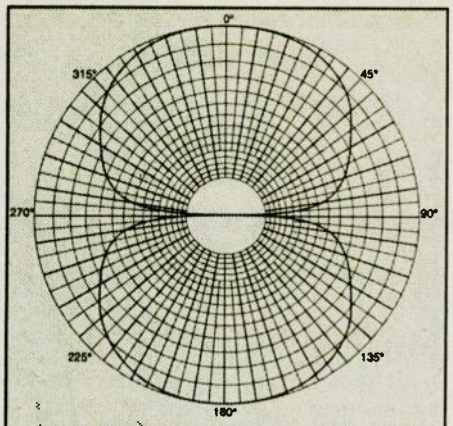


Figure 4. Test setup

Have a safe and happy 4th of July!



AERIALS

Kurt N. Sterba

There are my critics who write in and say that I beat the same drum, that I am repetitious. They say I'm getting to be a grumpy old man. I do not disagree. For, each time I see some egregious (thanks Lil, for that neat word) mistake I must comment for the sake of those who may have just recently joined the discussion here. These new amateurs may not have heard the correct version elsewhere (and the more I'm around this, the more I believe that such an occurrence is less and less likely) and this column may be their first such exposure.

It would seem within the bounds of good reason to take the word of the manufacturers about technical matters because they are engaged full-time in such pursuits. Alas, that is not the case in reality.

The latest issue to come to light is truly a regrettable one. In times past I have offered to go over any literature for the slight fee of $100. Now, that truly is a small sum to charge to save someone from not only embarrassment but even worse, loss of technical credibility.

Would it not be better to send me that tiny pittance when the lack of such could be a review by the ARRL Laboratory in which the malfeasance is shouted out on the pages of the membership journal?

A manufacturer has come out with a rather noteworthy product. It is a device which, when placed between the rig and the antenna tuner allows the operator to make all adjustments to resonance with the tuner WITHOUT putting a signal on the air. The operator twists the tuner's knobs for a null (minimum) of the "white noise" in the receiver, which is tuned to the frequency of interest. The white noise is generated by the device. This is, of course, similar to the Noise Bridge which was brilliantly pioneered by Palomar Engineers some years prior.

In the instructions for this derivative new device it says, "Adjust your tuner for a null in receiver noise by ear or by S-meter and you have **1:1 SWR!**" So far so good, sort of. Here is where the wicket gets sticky. "Your antenna is now *matched* to your transceiver!" (Allow me to digress: the word transceiver is misspelled five times on one page of the instructions — you wouldn't find that in Palomar's literature.)

Tragically, the bit about the antenna being matched to the transceiver is simply not true, never has been and never will be.

Assume 50 ohms for the transmitter output, and likewise for the cable. The antenna could be anything. Let us assume that there is a big mess up there at the feedpoint. For example, for fun's sake, say that your transmitter is on 40 Meters and you have forgotten to throw the switch and you are on your 20M antenna. HAH!

If the range of the tuner were great enough you could match at the cable input what would be the complex impedance there. The SWR bridge, positioned prior to the tuner, would indicate the sought after 1:1. But, and it's a rather important "but," the condition at the antenna feedpoint has not changed a whit.

The antenna has NOT (contrary to the instruction sheet) been matched to the transceiver. The SWR loss of the feedline has not changed. (To digress again: a few months back I mentioned that a rather important chart regarding feedline losses was NOT in the *ARRL Antenna Book*, (where it certainly belongs) but it was in the ARRL Handbook. I thought I would either get, "You old crock, it's on page 618, get some new glasses," or, "Whoops, thanks, we'll get it in the next edition." Neither occurred.)

Anyway, the proof of all that is this: Put a wattmeter in the line AFTER the tuner.

(I'll bet you were never told to do that in any other column or book you've read, right?) The wattmeter in that position is the one that really tells you what the situation actually is. You can twist knobs all you want and the condition remains.

What the "antenna tuners" REALLY do is match to the input impedance of the line which is the result of the mixing of the feedline's characteristic impedance and the (who knows what) impedance of the antenna.

Now, there are truly antenna tuners, also called (and more properly) "couplers." They are, for example, in AM broadcasting where the tuner/coupler is right at the antenna, no feedline at all, and in aircraft where the coupler is right at the antenna, no feedline at all.

Speaking of more correct terms, wouldn't you agree that the British term "valve" is certainly more truly descriptive of the actual function than our "tube?"

And now back to "sort of." The 1:1 SWR so proclaimed is true at, and only at, the junction of transmitter and tuner. True, the tuner is doing its job of going inductive, if the feedline is capacitive, or vice versa and it is matching the resistance and it is kicking the reflected power back up the line, where it again is like the salmon swimming against the stream (of reverse power). The condition at the feedpoint has not changed. So, the statement that the SWR is 1:1 is only partly true as it only describes one

position in the entire antenna system.

One of my critics, we'll call him "feline," writes letters about my columns and says that he already knows all this and why don't I go into some more sophisticated areas, which he named. Well, buddy, a whole lot of them haven't even got the fundamentals down yet, let me work on that first.

Here is another example of warning those whose readership we take seriously. I feel it is indeed my obligation to comment on a column in another magazine. It would be a dereliction of duty towards those who have put their trust in me not to do so

I'm talking about the CobWebb. This antenna is for 20 through 10M and is eight feet on a side. It looks like a Quad, but tipped over so all the wires are parallel to the ground. It sells for $318.

The columnist said, "a very broadband antenna on all bands, yet it still exhibits good efficiency; performance is claimed to be the equal of full-size dipoles on each band."

What is this new magical antenna? How did they get it into an eight-by-eight square? Watch closely. A 20M dipole is about 32 feet long. Divide that by four and you have eight feet. They have bent the dipole into a square.

And, sports fans, it will NOT be the equal of a full size dipole. Now let's look at the value for dollar at $318. For comparison we'll look at a Gem Quad for $240. The Gem Quad gives you TWO structures, not just one. And, these are about 16 feet on a side. You could get a Gem Quad for about $80 less and have two of the other antennas, plus have a lot of material left over if you did chop it down.

Another writer, in the same magazine said that the MFJ-259 reads out the feedpoint impedance. No, it will read out the RF Resistance — big difference.

And then *23 Skidoo* resurrected that loser called the Hentenna. This article, mentioned that it has the same dimensions as a slot antenna; however, they have neglected to mention, as your Uncle Kurt instead does, that the slot is not very efficient. Also, when anyone writes that an antenna is broadband with a low SWR it is time to worry about efficiency. The antenna is a blown-open folded dipole with ½ wave elements and the ends being 1/6 wavelength. Or you could look at it like a long skinny quad.

This Hentenna also is plagued with some sliding bar matching system. And for no good reason! For 20M the dimensions would be about 33 ft. long and the two end sections being about 11 feet.

In the *23 Skidoo* diagram the formula for finding where the shorting bar is connected is given as F=½ wave/4.28, which would work out to about 7.710 feet from one end. I shan't mention that to many of us, a capital F stands for frequency and feedpoints are shown as "ff." But anyway, if they had made the dimensions instead: 23.74 feet long and 11.97 feet wide they could have just fed it in the middle of the short end with 50-ohm coax. It would have been easier to match, used 1/3 less wire and been more efficient. Skinny is not good.

The *23 Skidoo* article called building this antenna "a chance to experiment." Sorry, but just copying what someone else has done is not "experimenting."

And, the article went on to say, "Some gain is evident, as much as a three-element Yagi maybe." Kaptain Kurt says, "Maybe Not!" Let us examine closely. First, this is a bi-directional antenna. So, does that mean six dB in each direction? Six dB, (as we have said before) is a power gain of four. And, the only way an antenna throws more power in a particular direction is to rob it from another direction. How does this antenna do that? This is certainly not stacking gain as the sides are too short to accomplish that.

It would be instructional to examine the gain of a 3-element Yagi. In the forward direction the half-power point of the lobe is about 50 degrees. The reflector element and the director element have so shaped the power that the main power is in one-seventh of the circle.

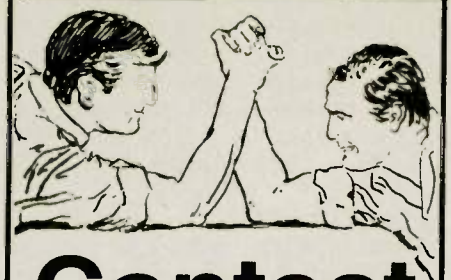
You could look at a radio wave emanating from a single-element vertical as dropping a stone into a pond and watching the waves move out equally in all directions. The real beam antenna configurations harness most of the "water" into a narrow wedge.

And now we move to the third magazine, *QST*. Turn to page 191 of their April issue. "The Ultimate HF Vertical Antenna" is an absolutely, completely, and totally incredibly brilliant spoof. A tip of the Kurt chapeau. I can only give it my highest possible compliment saying, I wish I had written that! (Maybe I'll run the UHFVA in the next Sweepstakes.) GREAT job, guys.

To return to an earlier topic, I would hope that rather than just taking my word for it, or anyone else's word for it, or any book's word for it that YOU actually put the wattmeter on the antenna side of the tuner and see what happens. Take good notes.

In closing, I find it really disheartening that the so-called coaxial dipole is still being written about and with that grotesque claim of 1.5 dB gain over a dipole. If you hear someone say such a thing, just cross your eyes, put on your Red Skelton imitation and say, "How doo it doo that?"

(KNS promises that his next month's column will be highly practical and will regard something you can build and enjoy the results.) WR



Contest Corner

Don Durk, KA1DWX
786226.1414@compuserve.com

Angst

Webster's Dictionary calls it "a feeling of anxiety, apprehension or insecurity." Who suffers from angst? Folks calling "CQ contest" on the same frequency for l-o-n-g periods of time; hams in big contest pile-ups for those rare ones; guys and gals looking for a clear frequency on which to call "CQ test;" rag chewers during contests; net operators during contests; split frequency ops all the time; tuner-uppers (I plead guilty!). Oh well there's always meditation or pills!

So here we go folks. What do you do when a rare DXpedition from the other side of the world is listening on a split frequency which is busy with a net or ragchew? You're modest-to-strong on this band, and find a hole to use, but there is a weak station from another continent working the contest on it? You've occupied one frequency successfully for 20 or 30 minutes and another station from your area starts running on it? Or worse yet, some big gun from another continent starts running on it? Ten Meters or 15 Meters is dead but you are working across the pond — do you tell everyone? IM1DX called "CQ contest" for 10 minutes with no takers; you work him, and 10 minutes later he still has no callers — do you packet it? Do you 'round' when after the fourth or fifth try you've got 90% of the call? What about if it's his/her number 1? Do you say "QSL" when you've got a four, five, or six letter call and he/she has 75-84% of it solid and is 'close' on the rest? Do you work a station not in the contest and try to convince them that they are in the contest or say "Hi Harry, by the way what is your power and zone?" Well we are probably all guilty of some of the above. The answers to some of these questions will give you a feeling about your own situational morality.

Now for some clearer contest "no-nos." Do you shoot your non-4 call in when the station asks for 4s only, and no 4s answer? Worse yet, do you give your call over and over and over ad nauseam? Do you come back when the station asks for the caller with the Z in the call, when you don't have a Z in your call? Do you ask the DX for their QTH or QSL manager when you can get it yourself with some modest effort? Do you find a CQing frequency by checking the prior scores of the guy whose already using the frequency?

Some of my personal "no-nos": Refusing to devote several hours to family, friends and community during a contest (Some hard-nosed contesters call this poor attitude); also, failing to really try to cure a neighbor's interference problem before the contest.

Some suggested penances: Let the low power station keep the frequency. Dig hard and find and work the weakest signals (note — this is not the way to get your rate up!). Let the net keep the frequency or say "no problem" when a station wants to keep a schedule. Donate to the ARRL scholarship funds; take your friends and family on vacation or out to eat. Catch up on those backed-up QSL chores; send some dinero to a DXpedition — after all there are several ways to win in contests!

If you're doing the IOTA test, dig up my June column for details of the EI5DI IOTA program available from his home page on the Net.

Late June 'tests

(see June *Worldradio* magazine for details)

•ARRL Field Day

22 June 18:00-23 June 21:00

(Operating class{A-Club or non club portable; B-1 or 2-person portable; C-mobile; D-home station, commercial power; E-home station, emergency power}+section)

July 'tests

•RAC Canada Day CW/Phone 'test

1 July 00:00-24:00

(RS(T)+number or prov/terr(12) for Canadian stns 160 — 2 meters. Score — Pts (w/Canadian stn 10 pts; non-Canadian 2 pts; RAC suffix Canadian stns 20 pts) x mults (1 mult per mode per band for provinces and territories). Single op/all band; single op/lo pwr/all band; single op/1 band; multi op/1 transmitter (note packet or other assistance means ur multi op). Trophies. RAC, Unit 6, 614 Norris Ct., Kingston, Ontario K7P 2R9, Canada.

•YV SSB DX 'test

6 July 00:00-7 July 24:00

(RS+number) Q 1x per band.

80-10 Meters. Score-Pts (1 own country; 3 per Q for other countries in same continent; 5 for Q w/other continents) x mults(DXCC+YV call areas). Plaques and certs. Separate log sheet for each band. Radio Club Venezolano, Concurso Indepedencia, PO Box 2285, Caracas 1010-A, Venezuela.

•CQWW VHF WPX 'test

6 July 18:00-7 July 21:00

(Call+ grid square) Q 1x per band, not per mode. 50 MHz and up. Score — pts(1 pt for 50 and 144 MHz, 2 pts for 220 and 432 MHz, 4 pts for 903 and 1296, 6 pts for 1296 or higher) x mults (prefixes + grid squares per band). Single op fixed; multi op class 1{Any band above 50 MHz} portable; multi op class 2{only 4 bands} rover. See *CQ* for details.

•DARC Digital Corona 'test

7 July 11:00-17:00

(RST+number) Q 1x per mode — RTTY, AMTOR, CLOVER and PACTOR. 28 MHz only. Score — pts(1 per Q) x mults (DXCC/WAE list and each call district in JA,W and VE). Single op or SWL. DF5BX

•IARU/WRTC SSB/CW

13 July 12:00-14 July 12:00

(RS(T)+ITU Zone or IARU member society abreviation if HQ station)

Q 1x for each mode per band if mixed mode, or 1x per band if single mode entry. 1.8 — 30 MHz (not 10/18/24 MHz). Score — pts(1 pt for Qs in ur ITU zone or w/ IARU HQ stns; 3 pts for Qs in ur continent but different ITU zone; 5 pts for Qs in different continent) x mults (total ITU Zones plus IARU HQ stations on each band). A. Single op, SSB only, CW only or mixed mode B. Multi op, single transmitter, mixed mode. Cer-

tificates and achievement awards to those making at least 250 Qs or 50 or more mults. IARU HQ, Box 310905, Newington, CT 06131-0905.

WRTC (World Radio Team Championship) is nestled within the IARU contest. Fifty-two two-person teams will operate from similar stations within the San Francisco Bay area. Using 100 watts and operating for 18 of the 24 hours available for the IARU, they will strive for the status of hamdoms finest contest operators. (For details refer to the May ***Worldradio*** issue, p.7, WRTC-96 for an excellent recap by Norm Brooks, K6FO). See pg. 18 of this issue.

•QRP ARCI Homebrew CW Sprint

14 July 20:00-24:00

(RST+state/province/country+ARCI number if a member, or pwr out if nonmember) Q 1x per band.160-6 Meters. Fqs. 1.830, 3.560, 3.710, 7.040, 7.110, 14.060, 21.060, 21.110, 28.060, 28.110, 50.060. Score — pts(5 W/ ARCI member; 2W/nonmember same continent; 4W/nonmember different continent) x mults (All band total state/provs/countries) x power mult (>5W=1x; <5W=7x; <1 W=10x; < 250mw=15x).

Add bonus points for homebrew equipment for each band on which it is used (+2000 for hb xmtr; +3,000 for hb rcvr;+5,000 for hb xcvr).Single band; all band; high band(20/15/10/6); low band (160/80/40). N6GA or e-mail to CamQRP @cyberg8t.com

•HK Independence SSB or CW 'test

20 July 00:00-24:00

(RS(T) +number)

Q 1x per band, 80-10 meters. This is not a mixed mode test. You must be all CW or all SSB. Score — pts, non HK (1 for own continent; 3 for other continents; 5 for HK stns) for HK stns, (1 for other HK Qs; 3 for other South American Qs; 5 for continents and San Andres Island) x mults (DXCC per band+HK call districts per band+1 for HK).

A. Single op, single band; B. Single op, multi band; C. Multi op, multiband,1 transmitter; D. Multi op, multiband, multi transmitter. 10 minute rule.

Trophies and awards. Liga Colombiana de Radio-aficionados, PO Box 584, Santa Fe de Bogota, Colombia.

•RSGB Lo pwr CW FD 'test

20 July 09:00-12:00; 13:00-16:00

(RST+number+pwr)

Q1x per band 40 and 80 only. Score — pts 15 per Q w/portable (/p) stns;10 per Q w/ qrp fixed stations; 5 for other Qs. No mults. Logs in 15 days to G3UFY.

•AGCW-DL QRP Summer 'test

20 July 15:00-21 July 15:00

(RST+number+category-QRO>25W out; MP, 25W out; QRP<5W out; VLP,1W out) Q 1x per band, 80-10 Meters. 9 hr rest time required. No QRO to QRO QSOs.Score — pts (1 with other continent;w/DX, 2 pts; extra pts for Q w/ VLP/QRP/MP if they submit log) x mults (ea DXCC per band=1 mult but will count double if log from other party is submitted). The contest manager will calculate the score. DJ7ST.

•SEANET CW 'test

20 July 00:00-21 July 24:00

(RST+number)

Q 1x per band 160-10 Meters (no WARC). SEANET countries A4, A5, A6, A7, A9, AP, BV, BY, DU, EP, HL, HS, JA, JD1, JY, KH2, P29, S79, VK, VQ9, VS6, VU, V8, XU, XV, XW, XX9, YB, ZK, ZL, ZL9, 3B6, 3B8, 4S7, 4X, 8Q7, 9K2, 9M2, 9M6, 9N, 9V.Score — pts (1 pt per Q w/SEANET country except your own country then no point but ok for mult) x mults (total number of SEANET countries z 3). 9M2FK, PO Box 13, 10700 Penang, Malaysia.

•YV CWDX 'test

27 July 00:00-28 July 24:00

(RST+number)

See July 6th listing for SSB.

•RSGB IOTA(Islands on the Air) SSB/CW 'test

27 July 12:00-28 July 12:00

(RS(T) + number+IOTA reference # if Island Station) Recheck '96 rules for mods. Q 1x per mode per band.80-10 Meters (No WARC Bands). Score — pts (15 pts for Q w/ IOTA stn; Qw/ own country or same IOTA 2 pts; other Qs 5 pts) x mults (total IOTA references for CW and SSB on all bands).Single op CW/SSB/mixed; single op ltd (12hrs or less) CW/SSB/mixed; multi op 1 transmitter (note —use of packet or other assistance means you are multi op). Note: For IOTA directory try W4BAA/G3KMA. Trophies and certs. G3UFY.

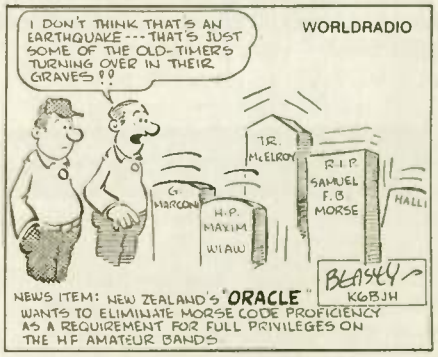
August 'tests

8/3 Weekend
•ARRL UHF 'test
•NAQP CW 'test
•QRP ARCI SSB Sprint
8/10 Weekend
•10-10 SUMMER SSB 'test
•YO DX 'test
•NM Chili Chase
•MD/DC QSO Party
8/17 Weekend
•WAE CW 'test
•NAQP SSB 'test
•SARTG RTTY 'test
•KCJ (Keymen's Club of Japan) 'test
•NJ QSO Party
8/24 Weekend
•ARRL 10 GHz 'test
•SEANET SSB 'test
8/31 Weekend
•NY QSO Party
•Summer QRP Party

September 'tests

•FISTS INT'l Straight Key CW
9/7 Weekend
•WV QSO Party
•LZ DX 'test
•ALL ASIAN SSB
•IARU REG 1 SSB FD
•DARC Digital Corona 'test
9/11-9/13
•YLRL Howdy Days
9/14 Weekend
•Radio Club Panama 'test
•ARRL Sept VHF 'test
•SAC CW
•NA CW Sprint 'test
9/21 Weekend
•NA SSB Sprint
•ARRL 10 GHz 'test
•SAC SSB
•WA State QSO Party
9/28 Weekend
•CQWW/ADRS Journal Digital 'test

WR



Hamfests July

Do you have a hamfest coming up? Send your information to our 28th St. office at least 2 months in advance of your event. We'll send prizes!

Arizona

The AMATEUR RADIO COUNCIL OF ARIZONA will hold a hamfest from dawn to dusk on 19 & 20 July and dawn to 2 p.m. on 21 July at the Fort Tuthill Coconino County Fairgrounds in Flagstaff. Features include manufacturers, dealers, exhibits, huge swap, camping, activities, VE exams on Saturday, No-code Technician Class, Saturday night dinner and more. Reserve early. This is a must-attend event. For information, contact ARCA, P.O. Box 32756, Phoenix, AZ 85064; 602/440-2039. Talk-in on 146.98(-) 100 Hz PL required.

California

The LIVERMORE ARK will hold a swap meet on 7 July, 7 a.m. to 12 noon at Las Positas College, 3033 Collier Canyon Rd. (Airway Blvd. exit to north of 580 highway) in Livermore. Features include new, used, surplus ham, computer gear, misc. electronics and testing equipment, refreshments. Admission and parking is free. No VE exams. Sellers pay $10 space fee. Contact Noel Anklam, KC6QZK, at 510/447-3857 eves. or leave message days at 510/783-2803. Talk-in on 147.045(+) (PL 94.8) and 145.350(-) (PL 100 Hz receive and send).

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The CALAVERAS AMATEUR RADIO SOCIETY (CARS) will hold a swap meet on 27 July, 8 a.m. to noon at Utica Park, (opposite Exxon Mini-Mart) on Highway 49 in Angels Camp. Refreshments. Admission is $5 for sellers, free to buyers and browsers. For information, contact Jim Wurtz, K6PAR, Box 381, Angels Camp, CA 95222; 209/736-0592. Talk-in on 145.17(-) (100 Hz) or packet: K6PAR @KD6JZZ.

Illinois

The FOX RIVER RADIO LEAGUE will hold a hamfest, 14 July, 8 a.m. (vendor setup after 7 p.m. Saturday or 6-8 a.m. Sunday) at the Waubonsee Community College (Route 47 and Harter Rd.) in Sugar Grove. Admission is $4/advance, $5/gate. Tables $10. No sale of food and beverages is permitted in flea market. A food vendor will be on site. Free parking. For information, contact Diana, WD9API, at 708/293-7485 or send check and SASE to Fox River Radio League, P.O. Box 673, Batavia, IL 60510.

Michigan

The STRAITS AREA ARC will hold a swap and shop on 6 July, 8 a.m. to 1 p.m. at the Emmet County Fairgrounds 4-H Building in Petoskey. Features include exhibits and refreshments. Admission at the door is $3, tables are $5 (splits allowed). For more information, call Harry Leiber, N8OIV, 616/347-7771. Talk-in on 146.68(-).

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The MIDLAND ARC will hold a hamfest on 27 July, 8 a.m. to 1 p.m. at the Midland Community Center in Midland, MI. Features include amateur electronics and equipment (both new and used), Amateur Radio license exams, and door prizes. Admission is $4, tables $10. Food is available. For information, send SASE to: MARC Hamfest, P.O. Box 1049, Midland, MI 48641 or call 517/832-3053 evenings and weekends.

Minnesota

The INTERNATIONAL PEACE GARDEN HAMFEST will be held 12-14 July at the International Peace Gardens, north of Dunseith. Flea market transmitter hunts, mobile judging, camping. Dave Snydal, 25 Queens Crescent, Brandon, MB, Canada R7B 1G1 or John Engel, 616 8th St., SE, East Grand Forks, MN 56721. Talk-in on 146.85(-) or 146.52(S).

Mississippi

The JACKSON COUNTY ARC will hold a hamfest on 5 July, 5-9 p.m. and 6 July 8 a.m. to 3 p.m. at the MS Civic Center, located on the Jackson County Fairgrounds. Admission is $2 (under 12 free). Tables are $5, flea market space $2/vehicle. VE testing at 9 a.m. Saturday (contact Bob Pierson, N7NE, 1216 Hickory Hill Dr., Gautier, MS 39553; 601/497-3096). RV parking available on site. Prizes every hour. Bring copy of license to be eligible for ham-related prizes. Contact "Kim" Kimmerly, N5XGI, Hamfest Chairman, 19000 Busby Rd., Vancleave, MS 39565; 601/826-5811, for table and flea market reservations. Talk-in on the W5WA repeater, 145.11(-) or 146.88(-).

Montana

The 62nd GLACIER WATERTON International Hamfest will be held 19-21 July at the Three Forks Campground between Essex and East Glacier, Montana. A weekend of amateur activities in the heart of the Rocky Mountains. For details, contact Bill Vodall, Box 75, Kevin, MT 59454; e-mail hamfest@tlatech.com or Internet: http://thor.tlatech.com/hamfest.

New York

The GENESEE RADIO AMATEURS, INC. (GRAM) will hold a hamfest on 28 July, 6 a.m. to 4 p.m. at the Alexander Firemen's Grounds located on Route 98 just south of the Village. Features include breakfast, lunch, chicken barbecue, flea market, overnight parking. Admission is $3/advance, $5/door (under 12 free). Vendors tables are $15 for 8' (contact Deb Johnson, 716/757-9213). Flea market spaces are $1 and $2. Make checks payable to GRAM. Send SASE to Barb Carlson, 26 Burke Drive, Batavia, NY 14020; 716/343-5580. Talk-in on 146.52(S) or 145.31(-).

North Carolina

The NORTH CAROLINA ALLIGATORS GROUP will hold a firecracker hamfest on 6 July, 8 a.m. to 1 p.m. at the Salisbury Civic Center in Salisbury. Dealers can check into center 3-9 p.m. on Friday or 7 a.m. Saturday. Admission is $3/advance with SASE or $4/door (free to XYLs). Prizes drawn twice hourly. Tables inside are $5. No charge for outside flea market spaces. For information, contact Walter Bastow, N4KVF, 3045 High Rock Rd., Gold Hill, NC 28071; 704/279-3391 (until 28 June), then 803/266-7900. Talk-in on 146.73(-).

Ohio

The TRIANGLE ARC will hold the Columbiana County Hamfest and Computer Show on 7 July, 8 a.m. to 3 p.m. at the Columbiana Co. Fairgrounds in Lisbon. Acres of outside flea market space ($1 per vehicle). RVs and campers welcome after 4 p.m. on the 6th. Admission $5/gate. Talk-in on 146.70(-) and 146.805(-) repeaters.

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The VAN WERT ARC will hold a hamfest on 21 July, 8 a.m. to 3 p.m. at the Van Wert County Fairgrounds Commercial Building. Features include exams, indoor and outdoor sales, food. Admission is $4/door. Overnight parking $10. For table sales, contact Bob Barnes, WD8LPY 419/238-1877 (after 5 p.m.); for exams, contact Bob High, KA8IAF, 419/795-5763 (before 5 p.m.). Send SASE to Van Wert ARC, P.O. Box 602, Van Wert, OH 45891. Talk-in on 146.85(-).

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The ASHTABULA COUNTY ARC will hold a hamfest and computer show on 28 July, 8 a.m. (vendors 6 a.m.) to 2 p.m. at Nappi's Party Center, 2255 West Ave., in Ashtabula. Admission is $4/advance, $5/door (children 12 and under free). Indoors and air-conditioned spaces for vendors and large paved flea market area outside. Overnight parking available, prizes and food service. Flea market space $4, indoor 8' tables $8 ($6 for each extra); electricity available. For information and reservations, contact Ken Stenback, AI8S, 722 Lyndon Ave., Ashtabula, OH 44004; 216/964-7316 evenings (before 9 p.m.) and weekends.

Oklahoma

The CENTRAL OKLAHOMA RADIO AMATEURS will hold "Ham Holidays '96," on 26 July from 5 p.m. to 8 p.m. and 27 July, 8 a.m. to 5 p.m. at the Oklahoma State Fair Park in the Arts and Crafts building. Features include VE testing, flea market, technical and non-technical programs, fox hunt. Admission $7/advance, $9/door; tables, $10/advance, $15/door. Address all inquiries to Ham Holidays '96, P.O. Box 95942, Oklahoma City, OK 73143 or e-mail: n1lpn@aol.com Talk-in on 146.67(-).

Do you have a hamfest coming up? Send your announcement 2 months in advance and we'll put it in our hamfest section.

Pennsylvania

The HARRISBURG RAC will hold a hamfest on 4 July, 8 a.m. to 1 p.m. (vendors 6 a.m.) at the Bressler Picnic Grounds, Exit #1 of I-283. Admission $4, (XYL, YL and children free). Tailgating $5 per space; tables in pavilion $15/$12 in advance. No overnight parking. For table reservations, call Tom Hale, WU3X, Box 418, Halifax, PA 17032; 717/232-6087. Talk-in on 146.76(-).

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The NORTH HILLS ARC will hold a hamfest on 14 July, 8 a.m. to 3 p.m. at the Northland Public Library, 300 Cumberland Rd., Pittsburgh. Free admission and free parking. One free automobile-sized space per tailgater; each additional space $5. Handicapped and wheelchair accessible. Refreshments will be available. For additional information, contact John Sibenac, KE3PI, 216 Kinvara Dr., Pittsburgh, PA 15237; 412/487-2740. Talk-in on 147.09(+) W3XX repeater.

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The MID-ATLANTIC ARC, Inc., will hold a hamfest on 14 July from 8 a.m. (vendors 7 a.m.) rain or shine, at the Kimberton Fire Co. Fairgrounds in Kimberton. Admission $5, tailgate space $5 (no advance sales), tables $15 each (in advance only) for 1-4 tables and includes admission; $13 each for 5 or more. For information, contact Bob Haase, W3SA at 610/293-1919 and 610/293-7688 fax or e-mail wb3joe@voicenet.com. Talk-in on 146.83(-) and 443.80/+ PL 131.8.

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The MURGAS ARC will hold a hamfest on 7 July, 8 a.m. (vendor setup 2-9 p.m. on Saturday or 6 a.m. Sunday) at the Luzerne Co. Fairgrounds, Rte 188, Dallas, PA. Admission $3/advance, $4/door, XYL and children free. VE exams at 10 a.m. (walk-ins preferred). Refreshments available. Abundant indoor space with power available. One free flea market space per car! Contact Bob Michael, WB3FAA, 717/288-3532 or Mike Benish, K3SAE, 717/388-6863. Talk-in on 146.52(S) or 146.61(-). WR

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

TR-2000 microphone headset kit

An established manufacturer of communications headsets for aircraft transceivers has introduced the Model TR-2000, specifically designed for Amateur Radio applications.

The Model Tr-2000 features a *noise-cancelling* electret microphone with a "tailored" frequency response. A rise in the upper mid-range and a smooth bass roll-off are said to enhance communications effectiveness. The flexible microphone boom is spring-loaded to provide a *mechanical memory* for the user's adjustment. Dynamic, *moving-coil* ear speakers are utilized, providing excellent clarity of received signals.

Large, plush earmuffs, comined with the mircophone's noise-cancelling feature, reduce external noise, allowing the unit to perform well under conditions of high background noise,in both transmit and receive modes.

The Model TR-2000 is compatible with the majority of contemporary radios-fixed station, mobile and handheld, HF, VHF and UHF, as well as many "vintage" rigs.

Assembled and tested (less connectors) for $64.95, or as an easy-to-assemble kit with step-by-step instructions for $44.95, the Model TR-2000 is available with a 30-day, money-back guarantee from the manufacturer, Warren Gregoire & Associates, 229 El Pueblo Pl., Clayton, CA 94517. For additiona information about the product, telephone toll-free at 800/634-0094 or 510/673-9393.

Constructor's Hardware catalog

SESCOM, INC., introduces its 1996 Constructor's Hardware catalog. This updated version features new and innovative electronics packaging solutions, along with hard-to-find items. In the last six years the SESCOM sheet metal product line has expanded from the three basic aluminum boxes to the nine styles now available.

SESCOM has added two Box-It™ aluminum enclosures to the product line. Box-It™ enclosures feature flat panels for easy punching and are assembled with extruded rails that secure the edges of the boxes. Screws attach the end panels to the extruded rails. The Mini Box-It™ is a light gauge 0.040" aluminum, for those small and inexpensive projects. The Large Box-It™ is also low cost, but is constructed of a heavier 0.050" aluminum and is available in larger sizes. SESCOM Box-It™ enclosures are a new alternative to its very popular Metal Cabinet series.

The SESCOM Constructor's Hardware catalog is available free of charge by faxing 800/551-2749 from the U.S., Canada and Mexico (dial 95 first); 1800/12-8491 from Australia; 0800/96-7106 from the United Kingdom or 702/565-4828. SESCOM

can also be reached by calling 800/634-3457 (from the U.S. or Canada) or 702/565-3400. Write SESCOM at 2100 Ward Dr., Henderson, NV 89105-4249

IC-T7A dual band compact handheld

Icom introduces the IC-T7A dual band compact handheld for a single band price. Measuring only 2¼" wide by $4^{13}/_{16}$" high by $1^{1}/_{8}$" deep, the IC-T7A's miniature size is accomplished in part by the use of a single PA power module (MRF-5007) for both UHF and VHF.

The IC-T7A is designed for easy operation. The keypad is well spaced and is operated by one touch (no separate function switch). Simply press and release a key for its first function. Push again and hold for one second, and the secondary function is activated. Change bands by depressing the band key to toggle between two meters and 440MHz. Press and hold the same key to activate the scan mode. The Icom ICT7A also features a single volume control knob, a "thumb touch" lock switch to lock/unlock the keypad and a large function display that shows frequency and other information such as battery voltage remaining each time you turn the unit on. The display also has a built-in help function to instruct you what to do when in the SET mode. The LCE) is backlit.

Store and scan up to 70 channels in any combination of VHF/UHF frequencies. Scan all memory channels or selected memory channels. You can also scan each band's memories, or scan within programmable limits.

Fifty encode and 50 separate decode frequencies are provided. A tone scan function allows you to easily find the subaudible tone needed to access a repeater or decode a tone squelch signal. Nine DTMF memories are included for auto dialing (16 digits each).

Other features include four watts of ouput on VHF and three watts on UHF, a microphone simple remote control function, auto power OFF function, and optional cloning software for programming memory channels, set mode contents, etc.

For information on availability, please contact your local amateur radio dealer or Icom America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, 206/454-8155.

Compact mobile transceiver

Standard Radio has announces their new C5900DA, consisting of 50, 145 and 440 MHz bands in a 3-band, dual display FM mobile transceiver with a back-lit microphone and display. It has wide receive coverage on all bands, and uses a built-in triplexer for one antenna.

Power output is 45W on 6; 50W on 2; 35W on 70cm with 3W and 10W selectable. The radio comes with 160 memories, 80 each side (upgradeable to 400 — 200 each side), with an accessory memory chip CMU161.

A snap-off front panel permits mounting the radio in the trunk or under the front seat. Packet ready for 1200-9600.

A new feature is the ability to DTMF control the radio from an HT, allowing remote cross-banding, memory and VFO frequency changing. The CTCSS encode/decode board is built-in, nothing extra to buy, and DTMF allows auto-dialing with 12 memories, six per side. The C5900DA is equipped with a programmable TX time-out-timer and auto power-off. Automatic opposite band mute, reduces audio -20dB when a signal appears on the main band.

Suggested retail price is $1,049. Contact STANDARD Radio at P.O. Box 48480, Niles, IL 60714. Phone 312/763-0081, fax 312/763-3377 or visit us on the web at http://www.stdradio.com WR

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AUTO-CALL MAGAZINE, official journal of the Foundation For Amateur Radio, a federation of over 80 clubs in the greater Baltimore/Washington DC area. Great coverage of FCC, ARRL, VEC, Public Service and club activities in the area. A must for those even passing through the area. For a sample copy write FOUNDATION FOR AMATEUR RADIO, P.O. Box 7612, Falls Church, VA 22046-7612. F896

WANTED REPLY COUPONS of all types, IRCs & others. Buy, sell, trade. JIM NOLL, P.O. Box 3410, Escondido, CA 92033. 396-397

FREE HAM GOSPEL TRACTS. SASE, N3FTT, 5133 Gramercy, Clifton Heights, PA 19018. 894-1096

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HAM RADIO REPAIR! Reasonable charges. JIM RUPP (WARRC), 998 Whipple, Grayland, WA 98547-0697, 360/267-4011, AB7DR. 696-697

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WANTED FOR MUSEUM: Apple-1 and other pre-1980 micro-computers, also early micro-computer journals, newsletters and advertising literature. KK4WW, P.O. Box 341, Floyd, VA 24091, 703/231-6478 or 703/763-2321. 196-197

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WANTED: HAM EQUIPMENT AND RELATED ITEMS. Donate your excess gear — new, old, in any condition — to the Radio Club of Junior High School 22, the Nation's only full-time, non-profit organization working to get ham radio into schools around the country as a teaching tool, using our EDUCOM (Education Thru Communication) program. Send your radio to school. Your donated material will be picked up ANYWHERE or shipping arranged and this means a tax deduction to the full extent of the law for you as we are an IRS 501(c)(3) charity in our 16th year of service. It is always easier to donate and usually more financially rewarding but most important, your gift will mean a whole new world of educational opportunity for children nationwide. Radios you can write off, kids you can't; make 1996 the year to help a child and yourself. Write, phone or fax the WB2JKJ "22 Crew" today: The RC of JHS 22, P.O. Box 1052, New York, NY 10002. Call 24 hours 516/674-4072 or fax 516/674-9600. Join us on the WB2JKJ classroom net, 7.238 MHz 1200-1330 UTC daily and 21.395 MHz from 1400-2000 UTC. Meet us this month at the Fort Tuthill Hamfest. 796

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ISLAND HUNTERS read the Island News. Sample #10 SASE to VANCE LEPIERRE, W5IJU, P.O. Box 701, Fernandina Beach, FL 32035. 6-1196

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Advertisers' Index

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 October, please have the information to us by mid-July.

p/r pref. = pre-register preferred but w/i OK
p/r = pre-register only — no w/i

Worldradio, 2120 28th St., Sacramento, CA 95818. Please mark the envelope "VE Exams."

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

w/i pref. = w/i preferred to p/r
w/i = walk-in only

Date	City	Contact	Notes
Arizona			
7/13/96	Tucson	Joe, K7OPX 520/886-7217	
Arkansas			
7/20/96	Gassville	Phil, AB5ZU 501/425-7406	p/r pref.
California			
7/21/96	Berkeley	Gary, N6YBS 408/255-9000	w/i only
7/25/96	Colton	Harold, AB6RN 909/825-7136 days or 909/685-6073 eves	
7/27/96	Culver City	Scott, K6PYP 310/459-0337 or Dave N3BKV 818/559-2572	p/r pref.
7/20/96	Cupertino	Emmett, AE6Z 408/243-8349	p/r
7/27/96	Escondido	Harry, WA6YOO 619/743-4212	p/r
7/27/96	Fairfield	Dick, AB6EY 916/791-0268	w/i pref.
7/02/96	Fremont (TP)	Greg, KJ6EP 510/791-6818	w/i only
7/21/96	Fresno	Charles, W6DPD 209/431-2038	p/r pref.
7/27/96	Garden Grove	John, N6CTV 714/534-8633	p/r pref.
7/07/96	Hanford	Carleton, AA6GZ 209/924-4221	w/i only
7/13/96	Jackson	Ray, AA6EW 209/296-3412	p/r pref.
7/01/96	Lancaster	Adrienne, WA6YEO 805/948-1865	p/r
7/07/96	Oakland	Allen, AA6UX 415/752-8783	p/r pref.
7/27/96	Pomona	Don, WA6HNC 909/949-0059	p/r
7/13/96	Redding	Evan, WU6Q 916/547-3665	p/r
7/13/96	Redwood City	Joe, KB6OWG 408/255-9000	w/i only
7/03/96	Sacramento	Jim, AB6OP 916/334-4887 or Larry, KD6OLN 916/361-2476	p/r pref.
7/13/96	San Pedro	Elvin, N6DYZ 310/325-2965	p/r pref.
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7/13/96	Santa Barbara	Phil, KG6KB 805/962-8957	p/r pref.
7/13/96	Santa Rosa	Claude, 707/527-8593	p/r pref.
7/20/96	Stockton	Mark, W6DKI 209/465-7496	w/i
7/28/96	Sunnyvale	John, KG6XF 408/255-9000	w/i only
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7/13/96	Denver	Glenn, WØIJR 303/366-9689	p/r pref.
7/97	All Colorado	24-hr recording 303/360-7293	
Florida			
7/20/96	Melbourne	Bill, WB9IVR 407/724-6183	p/r pref.
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7/20/96	Marietta	Joanne, AC4JQ 770/955-3171	w/i
7/01/96	Marietta	Delaine, KM4FV 770/993-9758	w/i
Idaho			
7/03/96	Athol	Bob, N7GHV 208/683-2094	p/r
7/13/96	Boise	Lem, W7JMH 208/343-9153	p/r pref.
7/13/96	Priest River	Russ, AA7XM or Chris, AA7XN 208/264-4534	p/r
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7/16/96	Aurora	James, N9UZC 708/879-3042	w/i
7/20/96	Loves Park	Dennis, W9SS 815/877-6768	p/r pref.
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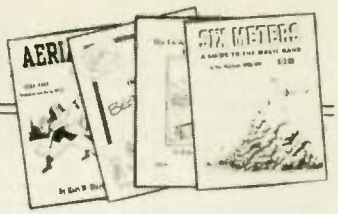

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