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Three generations of fun

BY AL MILLER, VE7KC/ AA7RS

A.M. (Tony) Craig, VE7XQ has been a close friend going back to the 1940s, when he was an airways dispatcher and I handled his messages on the CW circuits. When I also learned how many hams he had in his family, I thought it would be of interest to ***Worldradio***.

Originally licensed as an Amateur in 1937, he was endorsed for all operations on all bands in 1939. This certainly helped Tony get a job with Yukon Southern Air Transport. They based him at Fort St. John. The company equipment there was a home-brewed monstrosity on a fixed frequency. Tony was able to persuade the company president to be allowed to use his own ham transmitter and receiver as the base station instead of theirs!

In 1942, he was moved to Vancouver, and at the end of the war was one of the first Amateurs to return to the air with the call VE5XQ. He holds a Commercial Radiotelephone Certificate, and in 1959 upgraded his amateur license to Advanced Amateur.

Fast forward a few years to March of 1976, when son Murray heard that his mother and sister were going to write their exams; he beat them to the draw by two or three weeks. Murray is VE7COY.

Daughter Beverly J. Harris wrote her exam in early April of that same year, and was issued VE7BQH. Panic ensued — the DOC had issued her an existing license! That problem was quickly solved; Beverly is now VE7CKA.

Tony's wife Marion took her exam a week later than Beverly, and was issued VE7COX, which she held until 1993, when the call VE7CPA was transferred to her name.

Oldest son Terry waited until 1983 to join the Amateur fraternity, and holds the call VE7FXQ.

Son-in-law Phil Harris, VE7XPH, grandson Sean Harris, VE7SXO, and granddaughter Briana Harris, VE7XBH were all persuaded to attend the Langley (BC) Amateur Radio Club's course and bring the family ham count to eight.

The Craigs are still working on the other three grandchildren, hoping to persuade them all to take the time to get their licenses too.

"Amateur Radio has played an important role in my life," says Tony. "Apart from the fact that it was a key factor in my getting started in the airline industry, it also made me aware that it had great potential to provide help and assistance in many, many ways.

"This hobby has fulfilled a desire to experiment with electronic components that gave tangible and sometimes intangible evidence of its potential. Amateur Radio has provided communications to and from local and distant places in the world that was not previously possible.

"It has allowed communications during times of local or national disaster when regular sources were not available. It is a valuable teaching tool for many organizations, schools, clubs, and groups who train those severely handicapped individuals who otherwise might never have a window to the outside world."

To Tony Craig, Amateur Radio has so many facets and modes that it is unsurpassed by any other form of recreation. Since his retirement in 1978, he has made it a project to promote Amateur Radio to all those who will listen. Obviously, almost everyone in his immediate family has been convinced. WR

From left to right: (front row) Lacy the dog and Briana Harris, VE7XBH; (middle row) Tony M. Craig, VE7XQ; Marian Craig, VE7CPA; Beverly Harris, VE7CKA; (back row) Murray Craig, VE7COY; Terry Craig, VE7FXQ; Phil Harris, VE7XPH; Sean Harris, VE7SXQ. ***— photo submitted by Al Miller, VE7KC/AA7RS***

Laissez les bons temps rouler

If you don't know what that means, its time for you to visit Louisiana . . . Baton Rouge, that is. Most anyone in this part of the country will translate that as meaning "Let the good times roll."

If you haven't been to our Hamfest in Baton Rouge lately, you have certainly missed a good time. Hamfest '94/ARRL State Convention will be on May 21st and 22nd at the Great Hall, a convention and exhibition facility that is considered by many to be the finest of its type in this area.

One of the main thrusts of Hamfest '94 will be to raise the awareness level of the Courage Handi-Ham System. Some very special guests at Hamfest '94 will be Sister Alverna O'Laughlin, WAØSGL, from Handi-Ham HQ in Golden Valley, MN. Also, Linda Reeder, N7HVF, an overcomer from Salt Lake City who holds an Extra Class license.

In addition to an array of vendors, flea market, forums and lest we forget, good old Cajun cooking, but none of the above will compare with our southern hospitality. Y'all come!

New insurance for amateurs

Tom Harvey, WB9CZR, longtime amateur and veteran insurance broker, has introduced HAMSURE, a new insurance program for amateurs' radio and computer equipment. Featuring the absence of an electrical exclusion, HAMSURE's policy covers all accidental losses emanating from outside sources including flood and earthquake. HAMSURE can be reached at 800/443-6242 or 708/349-0514 evening and weekends.

From the "small world" category

TED PETRUCCI, W2EYZ

A few years ago I ordered an antenna relay from a firm in New Hampshire. Soon after I got off the phone, I realized that I had failed to ask what sort of connectors were supplied with the relay.

When I called the second time, the lady on the telephone wanted to know if I had attended Evander Childs High School in New York; her husband wanted to know. Curious, I said that in fact I had gone to that school, and asked her husband's name. When she responded that his name was Sammy Lackoff, it was my turn for a shock. Sammy was a member of our radio club in 1933. We were buddies, and had been licensed at the same time.

There is a little more. When I asked if they had a dog these days and did they name it Meskie after his boyhood pet, it was Sammy's turn to be shaken up. He couldn't believe that after nearly sixty years, we not only found each other, but that I remembered the name of his dog.

We haven't seen one another since 1934, and Sammy's call is now W1NBB, but the world can still be a small one in Amateur Radio.

A warm welcome to a new columnist

Bill Pasternak, WA6ITF, a long time friend who has taken on a new chore for ***Worldradio***. Among his many other Amateur activities, you may know him through "Newsline," the on-the-air news bulletin which he has edited lo, these many years! Then again, you may be acquainted with Bill for the columns he has written for various publications over the years, or his fine video tapes promoting Amateur Radio.

Cajoling has triumphed, and he has graciously agreed to write a monthly column-after swearing to "never again" take on the task. Some history of FM and repeaters will be included to let us know how we came to our present series of systems and rules, some of what is presently happening, and what he sees as the future for FM and the direction repeaters will take in the future.

Long-time hams as well as the newly licensed will benefit from Bill's thorough knowledge. Our warmest welcome to WA6ITF. See page 38. WR

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

Our goal is to be a valuable resource of ideas and experiences beneficial to the Amateur Radio community. We publicize and support the efforts of those who bring the flame of vitality to this avocation.

You readers are participants — an alliance of active radio amateurs concerned with reality, using radio as a communications tool to develop the skill, quality and full potential of Amateur Radio.

We emphasize the positive aspects of this great activity, and desire your contributions dealing with dramatic, personal and humanitarian uses of Amateur Radio.

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STAFF

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Editor ..... Lou Ann Keogh, KB6HP
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PUBLISHER'S MICROPHONE

At Cooperstown, New York is a facility called The Hall of Fame. Hah, that is for those who on a good day would succeed in striking the ball properly but once in every three attempts.

Now we present the real Hall of Fame. Here are those who hear the roar of the crowd without having to run in a counterclockwise direction and turn square corners every 90 feet. The latest to become Worldradio SuperBoosters (Lifetime Subscribers):

- Paul Scipione, AA2AV, Metuchen, NJ
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- Dr. Curt Chezem, WN7K, Eugene, OR
- Stephen Weber, W6QON, Toledo, WA
- Simon Carraway, NL7VR, Anchorage, AK
- Bill Hargis, WB5RQY, doing good things for his country at an APO Europe.

A gentle reminder: ***Worldradio*** is always looking for interesting articles. What you have done or an activity you are involved in will be of interest to others. Photographs are most welcome. The payment you receive for your article might enable you to buy a new rig. (If it doesn't have more than one or two transistors. And, you get it used, from a good friend.)

Forbes magazine of 28 March, 1994 reported "Since 1986 the number of engineers graduating each year in the U.S. has dropped by some 19%, or almost 15,000 fewer engineering graduates. And, while the U.S. has twice the population of Japan, we graduate 25% fewer engineers than Japan."

Remarks by Norman Augustine, CEO Martin Marietta Corp.

Could it be, the reason for such, is that in the early school years too much time is spent on courses about how to feel good about yourself and not enough on math and science?

The U.S. certainly had its overwhelming share of natural disasters in the very recent past. Amateur Radio always rises to the forefront of assistance. It is no accident that the stations that seem to be best prepared both in equipment and operating ability, are those that have MARS training.

Every time I come across a certain type of article in the newspaper I write the same thing, to no avail, unfortunately. The scenario is a pleasure craft sinking at sea and a man and wife (sometimes children) spending a month (or more) at sea in a rubber raft. Such anguish could have been prevented if there had been a small HF 5-watt transceiver that could have been thrown into the raft along with the other grab-what-you-can items.

While there are some QRP transceivers on the market they would be rather impractical for the panic times as the batteries trail behind, hopefully still connected.

One company, a while back, came out with something close. However, the battery was some exotic number manufactured by one company and probably never heard from again. Any serious emergency radio should be powered by the kind of batteries you can buy in even the most remote locations — flashlight batteries!

ICOM, back in the days of crystal controlled 2M radios had a fine looking transceiver, with a handle on top, and the batteries inside. That could serve as a model for a starting point.

What is the market for such a radio? Well, Gordo, WB6NOA could tell all his boaters that they need such a thing. Even if nothing more serious than the electrical system failing (that's serious enough, I guess), with another radio (self-contained power) they could call for assistance.

Do many readers remember the "Gibson Girl?" That was a transmitter put into the life rafts of WWII aircraft. The antenna was a wire and a kite (or balloon) the power was from a crank turning an internal generator and an automatic SOS was transmitted. A plate and a wire were thrown into the ocean for the ground. On the side of the unit was engraved the Morse Code and there was a pushbutton rubber-covered key.

I think a great many amateurs who engage in mountain climbing, river rafting, desert hiking and the like, where there is an element of danger (and a call for medical help is a real possibility) would like to have a small radio that would fit into a pack.

Travelers would like such a radio because already burdened with other baggage, cameras or whatever pass up the idea of hauling the regular size rigs.

Speaking of travel, Roy Allen, III, N3CDP, Norristown, PA, suggested that we do mention our other magazine (to which he also subscribes) as he feels many would be interested. It is *International Travel News*, entirely devoted to overseas travel only. NO articles on USA, Hawaii, Alaska, Canada, Mexico or the Caribbean. I'd be pleased to send a free sample copy to any ***Worldradio*** globetrotters. — *Armond, N6WR*

NEW!

FT-11R/41R
2m/70cm Handhelds

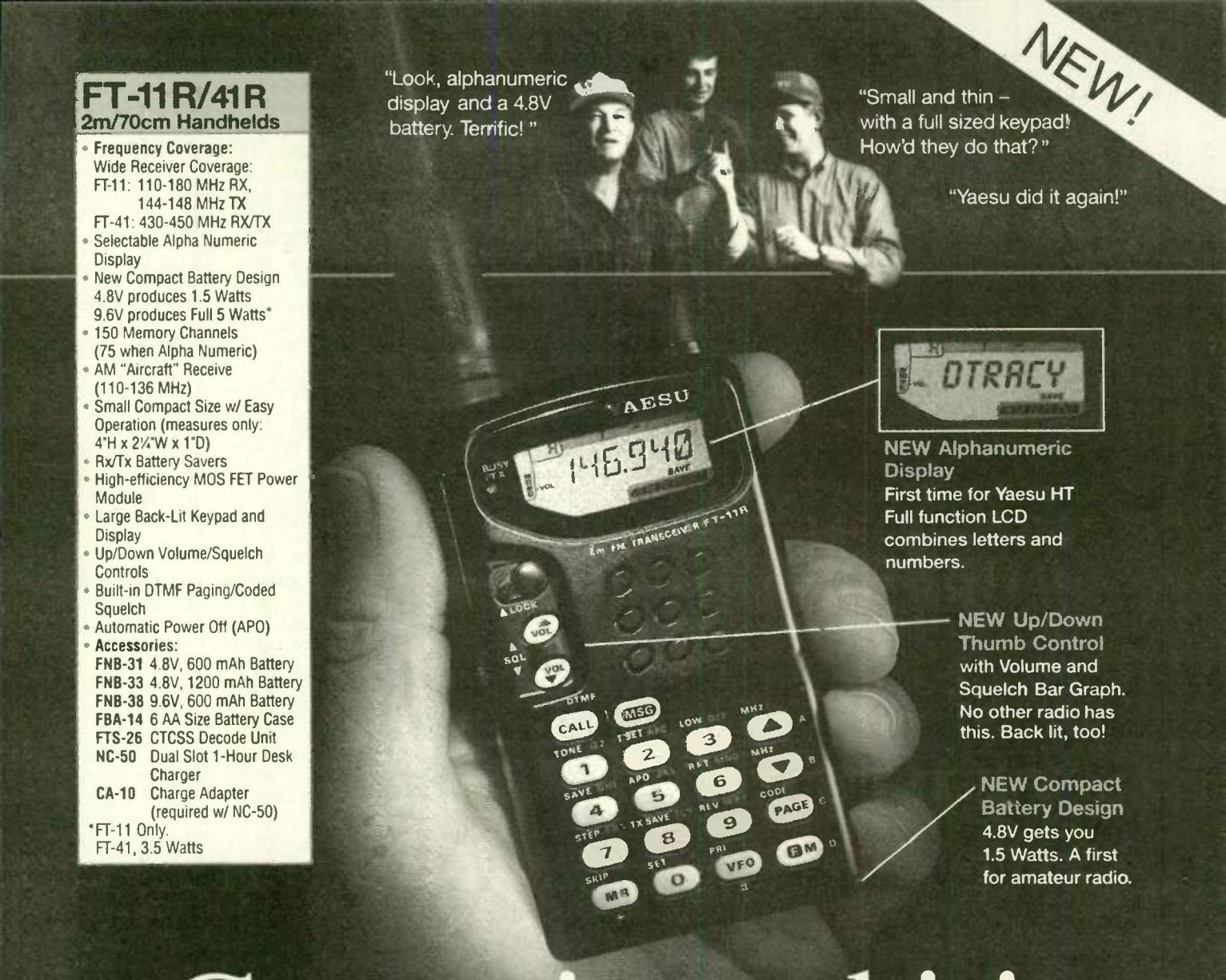
- **Frequency Coverage:**
  Wide Receiver Coverage:
  FT-11: 110-180 MHz RX,
  144-148 MHz TX
  FT-41: 430-450 MHz RX/TX
- Selectable Alpha Numeric Display
- New Compact Battery Design
  4.8V produces 1.5 Watts
  9.6V produces Full 5 Watts*
- 150 Memory Channels
  (75 when Alpha Numeric)
- AM "Aircraft" Receive
  (110-136 MHz)
- Small Compact Size w/ Easy Operation (measures only: 4"H x 2¼"W x 1"D)
- Rx/Tx Battery Savers
- High-efficiency MOS FET Power Module
- Large Back-Lit Keypad and Display
- Up/Down Volume/Squelch Controls
- Built-in DTMF Paging/Coded Squelch
- Automatic Power Off (APO)
- **Accessories:**
  FNB-31 4.8V, 600 mAh Battery
  FNB-33 4.8V, 1200 mAh Battery
  FNB-38 9.6V, 600 mAh Battery
  FBA-14 6 AA Size Battery Case
  FTS-26 CTCSS Decode Unit
  NC-50 Dual Slot 1-Hour Desk Charger
  CA-10 Charge Adapter (required w/ NC-50)

*FT-11 Only.
FT-41, 3.5 Watts

"Look, alphanumeric display and a 4.8V battery. Terrific!"

"Small and thin – with a full sized keypad! How'd they do that?"

"Yaesu did it again!"



Get a grip on this!

World's smallest size HT with a full sized keypad
Measures only: 4"H x 2¼"W x 1"D

"Small" is relative, isn't it? It could mean size – which in this case it does. And, it could mean "reduced", which it doesn't! Nothing missing from the hot new FT-11R HT from Yaesu except bulk! You're going to wonder just how all the features of this full-function radio fit in. Until you remember Yaesu pioneered 2-way radio micro technology.

To see what this really means to you, check out all the new features. Like the alphanumeric display. This Yaesu HT first, lets you tag your favorite frequency by name, call sign or number. Or, the new "voltage stingy" battery. It's an industry first for amateur radio. Smaller and compact, the 4.8V battery gives you 1.5 watts on TX. And, if that's not enough, there's an optional drop in, dash mount battery charger.

You see it's not a small time performer. Just small sized. The FT-11R. Another small example of Yaesu superiority. See your dealer today!

YAESU

Performance without compromise.℠

Call sign plan extended

The FCC has granted an ARRL request to extend the comment deadline in its "vanity" call sign proposal, in PR Docket 93-305.

The comment deadline was extended to 21 April, 1994; the reply comment deadline was extended to 23 May, 1994.

The Commission's Notice of Proposed Rule Making was released 29 December, 1993, with an original comment deadline of 7 March, 1994. The League said more time was needed for response because of the importance of the proposal to amateurs and therefore the need to ensure fairness in whatever system was adopted.

In granting the League's request the FCC said "it is desirable that the record be as complete as possible and that it reflect the views of the amateur community."

An ARRL ad-hoc committee on this proposal includes Directors Steve Mendelsohn, WA2DHF; Frank Butler, W4RH; Tom Comstock, N5TC; John Kanode, N4MM; and Brad Wyatt, K6WR. Members should address their comments to "Docket 93-305 Committee," and send them to ARRL HQ.

New volunteer agreement

The ARRL and the Field Operations Bureau (FOB) of the Federal Communications Commission have signed a new agreement concerning the use of amateur volunteers.

The agreement is a revised and expanded version of one entered into in 1984, and spells out the roles of amateurs, as trained and registered Official Observers, as well as the role of the FOB. The volunteers continue to be known as the ARRL Amateur Auxiliary to the Field Operations Bureau ("AA").

While the new agreement continues to place initial information gathering at the local level, i.e., in conjunction with regional offices, it specifies a more centralized system for presenting information to the FOB in cases where enforcement is requested. This will be done between the office of the Chief, FOB, and the League's Washington office.

The new agreement also adds an FOB agreement to protect the identities of Amateur Auxiliary members, to the extent allowed by law, when the FCC institutes an enforcement proceeding involving information provided by the AA.

The FOB also agrees to assist the ARRL in the training of volunteers and in publicizing the objectives and accomplishments of the program.

This will be done between the office of the Chief, FOB, and the League's Washington office.

— Thanks to *ARRL Bulletin*

Whole lotta shakin' goin' on!

The Northridge Quake is passing into memory but the consensus comment among DCS22 members is "it was bad, but it could have been much worse!"

On receiving the 6.8 wakeup call at 4:32 a.m. 17 January, DCS-22 members began to appear on the repeater, only to have the repeater disappear moments later.

Heroically, repeater owner Bob Mushet, K6JHX, made his way to the repeater site and got the link back on in less than an hour, allowing DCS22 and others to help identify the areas of damage. The most welcome news was that no one in our area was injured.

Rather than recount what we all know about the quake, here is a collection of personal experiences from the event:

Rick Leyton WB6WFH, a Chatsworth resident, awoke in mid-air, wondering if this was an "out of body experience!" His abrupt "landing" back on the bed convinced him it was an experience of another kind.

The Shaw family, John NW6A, Terri N6TOS, and kids got to work right away, having had their chimney come crashing through the roof. John reports having gotten an early start on his spring cleaning, especially in his garage.

The Kerrigans, Les W6FTO, Karen N6PPA, and daughters, were just about on top of the epicenter. Everyone came through OK but like many others, the house was a mess.

John Simpers N6XOD, of Granada Hills was the first communicator on scene at the stricken Granada Hills Community Hospital. He put in countless hours and passed several high priority messages that allowed the hospital to serve the masses that had come looking for treatment.

Bill Parisi, KC6UIF, spent the day in his handyman role, repairing leaks in water systems and assisting homeowners with damage control, at no charge. Jim McDermott of Malibu-based McDermott Plumbing did the same.

Thom Bancroft, KD6LQN, and Carolyn Mallory, KD6LQM, also awoke to their chimney coming through the roof. In spite of the damage, they went out and did a survey of their neighborhood. They came back and reported the conclusion that theirs was the most severely damaged home in the area!

There are many stories we could share from that morning. Please don't feel slighted if yours is not here. (In at least two confirmed cases of ladies who were in the "Throne Room" at the time the quake hit, be grateful your story is not here!)

Perhaps the least welcome news about the quake was that this was not the long anticipated "Big One." Let's take the lessons learned from this and get ready.

— *The Smoke Surf and Slide,* publication of Los Angeles County Sheriff's Disaster Communications Service, District 22.

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

Armed Forces Day 1994

The annual Armed Forces Day Communications Test is set for Saturday, 21 May 1994 and marks the 45th anniversary of this event which emphasizes a continuing climate of mutual assistance and warm esteem between the military and Amateur Radio communities. The traditional military-to-amateur cross band operation and broadcast of the Secretary of Defense message are the featured highlights and include operations in CW, SSB, RTTY, and digital modes.

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

Cross band contacts — The military-to-amateur cross band operations will be conducted for the 24-hour period commencing 21/1300Z (UTC). Note: some military stations may not operate the entire 24-hour period depending on propagation, signal paths, and station parameters.

Military stations participating in cross band operations

AAE
Army HF/MARS Radio Facility
Fort Sam Houston, TX

AAH
Army HF/MARS Radio Facility
Fort Lewis, WA

AAR
Army MARS Radio Facility
Fort Bragg, NC

AAZ
Army MARS Headquarters Station
Fort Huachuca, AZ

AIR
AF MARS Radio Station
Andrews AFB, MD

NAM
Naval Comm Station
Norfolk, VA

NAV
Navy/Marine Corps MARS HQ
Cheltenham, MD

NAV-8
Navy MARS Region 8 HQ
Honolulu, HI

NBL
Submarine Base New London
Groton, CT

NMH
Coast Guard Radio Station
Alexandria, VA

NMN
Coast Guard Communications Station
Portsmouth, VA

NPG
Marine Corps MARS Station
MCAS Twenty-Nine Palms, CA

NP
Navy MARS Region Headquarters
San Diego, CA

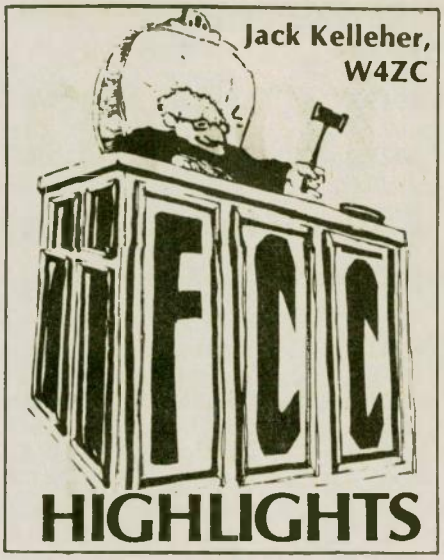
NZJ
Marine Corps MARS Station
MCAS El Toro, CA

WAR
Army MARS Radio Station
Fort Detrick, MD

Military stations will transmit on the below listed frequencies and announce the specific amateur band/frequency range being monitored. Where emission is listed as "various" in the below table, the military station will frequently announce what mode is being used and monitored.

Freq. (kHz)	Emission	Station
4005.0	Various	NAM
4008.5	Various	NPG
4015.0	Various	NMH
4018.5	LSB	WAR
4021.5	Various	AAH
4025.0	LSB	AIR
4030.5	LSB	AAE
4033.5	LSB	AAR
4036.5	LSB	AAZ
4040.0	Various	NAV
6835.0	Various	NBL
6908.0	CW	AAZ
6911.5	Various	AAR
6970.0	Various	NMN
6988.0	Various	AAH
6995.5	CW	AIR
6998.5	CW	WAR
7301.5	Various	NAV-8
7309.5	CW/digital	AAR
7312.5	Various	AAH
7315.0	LSB	AIR
7346.5	Various	NMH
7358.5	RTTY/LSB	AAE
7361.5	Various	WAR
7365.0	Various	NAV
7375.0	Various	NZJ
7382.5	Various	NPL
7393.0	Various	NAM
7422.5	LSB	AAZ
10255.0	Various	NAM
10259.5	CW/digital	NAV

(please turn to page 11)



ARRL seeks primary status segments in 902-928 MHz.

In mid-1993 the FCC proposed to accommodate wind profiler radars at 915 MHz, and in a separate action, proposed to expand the AVM (Automatic Vehicle Monitoring) Service into a new Location and Monitoring Service in the entire band. In the latter proceeding the FCC invited comments on whether they (the commentors) believe it possible to establish reliable LMS systems considering the number and diversity of other users of this band. If not, commentors should offer potential solutions, such as removing Part 15 users and amateur operations from the band, restricting where such users could operate in the band, or placing stricter limitations on operations. (An editorial in the June 1993 issue of *QST* traces the history of allocation and use of this band since 1947).

ARRL has filed a Petition for Rule Making with the FCC asking that the Amateur Radio Service be granted Primary Status in the 902-904 and 912-918 MHz portions of the band. ARRL wants amateurs to have primary status because new developments in the band could make ham usage more difficult there, and a primary allocation would help preserve amateur operations; and because the FCC has previously stated that amateurs should use 902-928 MHz to serve amateur needs that formerly used 220-222 MHz.

Amateur status in 2300-2450 MHz band may be in jeopardy

A preliminary plan from the National Telecommunications and Information Administration (NTIA) for reallocating Government frequencies to non-government uses does not go far enough in protecting the needs of amateurs, the ARRL says (See the *ARRL Letter* 2-24-94).

Specifically affected would be the 2300-2450 MHz band. The preliminary plan would transfer some of that band to new nongovernment uses, which would not necessarily result in the loss of frequencies for amateurs, but amateur sharing could be more difficult than it now is with government users.

NTIA proposes to leave 2400 to 2402 MHz and 2417 to 2450 MHz as now allocated, in part to permit continued amateur and especially amateur satellite operation. 2390 to 2400 MHz and 2402 to 2417 MHz would be made available for new nongovernmental services as early as August 1994, and 2300 to 2310 MHz would be made available later, under the NTIA plan. The plan is how NTIA proposes to implement a reallocation of spectrum from government to nongovernment use, as mandated by Congress last year.

In 1992 NTIA issued a notice of inquiry asking spectrum users what their future needs would be. The League responded with a list, including "continued or upgraded access to 2300 MHz for both terrestrial and satellite uses.

The League said that recent advances in techniques, such as packet radio and other digital modes, as well as an explosion in the number of licensed amateurs, was causing more and more of them to move up in frequency.

ARRL's Technical Relations Manager, Paul Rinaldo, W4RI, says the 2300 MHz issue is important "because it's spectrum. Amateurs have always tended to move up in frequency. The 2 meter band filled up, now 222 MHz is filling up, and so on. Other services tend to drift up as well."

Rinaldo says that while amateurs currently cannot demonstrate great usage of the 2300 MHz range, neither can other services. "This range is vital to amateurs," Rinaldo says "because of its short-range propagation characteristics, which are essential to network-

Amateur Radio Call Signs

Amateur Radio operators often ask the FCC what call signs have been assigned lately. This list shows the last call sign in each group to be assigned for each district, as of the first of January 1994.

For more information about the callsign 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	AAØQI	KGØLO		KBØLYV
1	AA1IV	KD1TZ	N1RMF	KB1BGS
2	AA2RH	KF2UA	N2YBR	KB2QXD
3	AA3HG	KE3MC	N3RPA	KB3BBC
4	AD4QG	KR4NY		KE4KAL
5	AB5TB	KJ5VI		KC5FON
6	AC6AP	KN6YT		KE6FIE
7	AB7BL	KI7WH		KC7BDO
8	AA8OI	KG8HH		KB8RSM
9	AA9KI	KF9UM	N9WHC	KB9IXF
North Mariana Is.	AHØW	AHØAQ	KHØCK	WHØAAY
Guam	WH2D	AH2CU	KH2JB	WH2ANK
Johnston Is.	AH3D	AH3AD	KH3AG	WH3AAG
Midway Is.		AH4AA	KH4AG	WH4AAH
Hawaii		AH6NF	WH6SV	WH6CRD
Kure Is.			KH7AA	
American Samoa	AH8I	AH8AG	KH8BB	WH8ABB
Wake Wilkes Peale	AH9C	AH9AD	KH9AE	WH9AAI
Alaska		AL7PO	WL7QW	WL7CHL
Virgin Is.	WP2G	KP2CC	NP2HG	WP2AHU
Puerto Rico		KP4WM		WP4MNW

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ing and which will be needed for very high speed digital links as they become available to amateurs."

Radiation hazards controversy continues

Early in 1993 the FCC proposed updating its guidelines for evaluating environmental RF radiation, in keeping with the revised guidelines adopted in 1992 by the American National Standards Institute (ANSI) and the Institute of Electrical and Electronics Engineers (IEEE). At that time the FCC said that the new guidelines differ significantly from the 1982 standards which they replace. For example, two tiers of maximum permissible exposure levels are recommended:

One level is for controlled environments (locations where there is exposure that may be incurred by persons who are aware of the potential for exposure as a concomitant of employment; by other cognizant persons; or as the incidental result of transient passage through areas where exposure levels may be above those for uncontrolled areas).

The other level is for uncontrolled environments (locations where there is exposure of individuals who have no knowledge or control of their exposures. The exposures may occur in living quarters or workplaces).

The maximum permissible levels of exposure are more stringent for an uncontrolled environment than for a controlled environment

In the January 1994 column we reported on comments to the FCC from the Environmental Protection Agency which said, among other things, that there are "serious flaws" in the new standard and that it contains unsupported claims. EPA recommended that radio amateurs be considered to be "members of the public," and thus apparently subject to more stringent RF exposure limits (presumably the uncontrolled environment exposure limits).

The EPA cited RF exposure recommendations from a different source, the National Council on Radiation Protection and Measurements, which recognizes that biological effects may come from heating effects, non-heating effects, or a combination of the two.

During February 1994 the ARRL, in its comments on the FCC's proposal, said that the proposal was premature, and more properly should have been introduced as an FCC Notice of Inquiry. ARRL said that the ANSI-IEEE standards were not properly delineated and not a proper basis for evaluating communications facilities.

"The Commission's handling of this proceeding," the League said, "is not conducive to a fair determination of which RF exposure standard, if any, should replace the 1982 ANSI standard, on which most of the current communications systems in operation in the United States are based."

The League said that an FCC Report and Order in 1987 which concluded that amateur stations should be exempted from such RF exposure guidelines, because amateur stations operate only intermittently, and at low power levels, still applies. Only rarely, the League said, would amateur stations exceed even the proposed, more stringent 1992 ANSI/IEEE standard.

(author's note: Investigations of RFI hazards date back to 1960, when the American Standards Association approved a Radiation Hazards Standards project under the co-sponsorship of the Department of the Navy and the Institute of Electrical and Electronics Engineers. My recollection is that, originally, the program was to investigate possible detonation of ordnance due to RF [Project HERO — Hazards of Electromagnetic Radiation to Ordnance]. More recently [circa 1980] much research has been undertaken on human exposure in the frequency range 0 to 300 GHz.)

The domino effect

When the FCC acted on P.R. Docket 92-389 it set 11 February, 1994 as the date to revise Part 97 Regulations to ban all relay devices from the band segment 222.0-222.15 MHz. As a re-

segment 222.0-222.15 MHz. As a result, the Southern California 220 MHz Spectrum Management Association (220-SMA) adopted the following band plan at its 22 January meeting.

222.00-222.05	EME/CW/SSB/ACSB/AM
222.06-222.08	FM Voice Simplex
222.10	SSB Calling Frequency
222.12	FM Simplex
222.14	Digital (non-Aux Link)
222.16-223.38	Duplex Pair inputs
223.40-223.52	FM Voice Simplex
223.54-223.70	Digital
223.72-223.74	Aux. Link/Control
223.76-224.98	Duplex pair outputs

In voting on this revision the 220-SMA was forced to displace two long-established repeater systems that have operated below 222.150 MHz. Both the W6GAA and WA6ZRC repeaters are temporarily being forced off the air. The 220-SMA Frequency Board has said that it is working to clear inactive frequencies — if any exist — and that re-coordination is conducted in accord with a first in, first processed procedure. **WR**

Armed Forces

(continued from page 7)

Freq. (kHz)	Emission	Station
12997.5	CW	AIR
13965.0	USB	AAZ
13986.5	TTY/digital	AIR
13992.5	CW	WAR
13994.5	USB	AAE
13997.5	Various	NMN
14393.0	USB	NAV
14385.0	Various	NBL
14385.0	Various	NPL
14403.5	USB	WAR
14408.0	USB	AIR
14440.0	USB	AIR
14465.0	Various	NPG
14468.5	Various	NMH
14480.0	Various	NZJ
14488.5	USB	AAH
14820.0	Various	NAV-8
18212.5	USB	AAH
20105.5	USB	AAR
20375.0	Various	NBL
20625.0	Various	NPL
20937.5	Various	NPG
20941.5	CW	AAE
20975.0	USB	AAH
20995.5	USB	WAR
21825.5	CW	AAZ
24783.0	Various	NMN
24805.0	Various	NZJ
27790.0	USB	AAZ
27810.0	USB	AAR
27992.5	USB	AAE

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

The CW broadcast will be transmitted at 25 WPM beginning at 0230Z. It will be transmitted by the following stations on the listed frequencies (in kHz): AAE, Fort Sam Houston, TX: 7358.5, 20941.5; AAH, Fort Lewis, WA: 6988.0, 10151.5, 14488.5, 18212.5; AAR, Fort Bragg, NC: 7309.0; AIR, Andrews AFB, MD: 6995.5, 12997.5; WAR, Fort Detrick, MD: 6998.5, 13992.5; NAM, Norfolk, VA: 7393.0; NAV, Cheltenham, MD: 10259.5; NAV-8, Honolulu, HI: 14820.0; NBL, Groton, CT: 14385.0; NMH, Alexandria, VA: 7346.5; NMN, Chesapeake, VA: 6970.0.

Digital broadcasts will be by RTTY (100WPM, 170 Hz shift) at 0330Z, packet at 0430Z, and AMTOR at 0530Z. They will be transmitted by the following stations on the listed frequencies: AAE, Fort Sam Houston, TX: 7358.5; AAH, Fort Lewis, WA: 6988.0, 10151.5 14488.5, 18212.5; AAR, Fort Bragg, NC: 7309.5; AIR, Andrews AFB, MD: 13986.5; WAR, Fort Detrick, MD: 13992.5; NAM, Norfolk, VA: 7393.0; NAV, Cheltenham, MD: 10259.5; NAV-8, Honolulu, HI: 14820.0; NBL, Groton, CT: 14385.0; NMH, Alexandria, VA: 7346.5; NMN, Chesapeake, VA: 6970.0.

Submission of test entries — Transcriptions of the RTTY, CW and digital modes receiving tests should be submitted "as received." No attempt should be made to correct possible transmission errors. The time, frequency, and call sign of the military station copied as well as the name, call sign and address of the individual submitting the entry must be indicated on the page containing the test message. Entries must be postmarked no later than 28 May, 1994 and submitted to the respective military commands as follows:

Station copied

AIR
Address — **USAF MARS**
Armed Forces Day Celebration
89 CG/SCOJM Alabama Ave., Ste. 3
Andrews AFB
Washington, DC 20331-6345

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

NAM, NAV, NPG, NAV-8, NBL, NMH, NMN, NPG, NPL, NZJ
Address — Armed Forces Day
Navy-Marine Corps MARS
Bldg 13, 9190 Comm-O Road
NCD Cheltenham
Washington, DC 20397-5161

Is UTC Confusing?

NORM BROOKS, K6FO

We are being constantly reminded to keep our logs in Universal Time (UTC).

By keeping the logs at both ends of a communication in the same time, both QSL cards will say the same time and date. If you keep your station clock set to your local time, it's confusing to figure the correct UTC date and time.

In the USA, our local time is later than UTC. The greatest confusion arises in the fact that *the next day in UTC starts when it is still late afternoon or early evening here.*

To keep from being confused, I keep a small, inexpensive digital watch posted at my operating position. I have it set on UTC. I then set the watch to operate where it flashes the time and date alternately. It takes only a quick glance at the watch to see not only the correct UTC time, but a reminder of the UTC date as well. **WR**

Hawaiian Exposure

JEANNIE STONER, WH6DZ

It was -40° Fahrenheit in Canada's Northwest Territories when we received a packet message from VE8 Completely Frozen. "Which airport is closest to your QTH? We're coming to Hawaii." At the same time, AL7LX, from Nancy Lake, Alaska, called me on 20 meters to say she and AL7LW were also leaving the cold for Paradise.

While traveling in the Far North last summer, Paul, W3FO, and I were welcomed into each area by cordial local hams. Brenda, AL7LX, was one of the rotating net controls on "The Motley Group" net in Alaska. We talked to her and her OM, Larry, AL7LW, for months, but our paths never crossed. Carl, VE8CF, also checked into The Motley Group from his home QTH of Inuvik, NWT. We had an eyeball with Carl and his XYL, Carol-Anne when we spent three days in Inuvik. Like us, Carl knew AL7LX and AL7LW by voice, but had never met them. Soon, it would be time for all of us to come together.

Once the temperatures dipped to minus double digits in the Far North, and the skies launched a barrage of white flakes on the expansive frontier, the world suddenly was reduced to the size of an island, albeit, the size of the Big Island of Hawaii. On 10 February, we picked Carl and Carol-Anne up at Hilo airport. After spending only one day on the island of Oahu, they already had snorkel equipment, a boogie board and suntan lotion in their backpacks. They were ready to enjoy the surf and sun that Hawaii boasts about. Brenda and Larry were waiting for us at the Hawaii Volcanoes National Park, where the six of us exchanged hugs, alohas, and "So this is what you look like."

From our meeting place in the Park, we drove the 23 mile, twisting, winding Chain of Craters Road. The scenery changes dramatically during this drive, from an elevation of 4,000 feet at National Park Headquarters to the volcanic eruption site at sea level. Fern and ohi'a forests give way to stark, moonscapes of blackened lava as we approach the brilliant blue ocean. Chain of Craters Road ends abruptly where it is obscured by the most recent lava flow of February, 1993. This is it. The end of the road. From this point, movement by vehicle is no longer viable. Since Paul and I live beyond the end of the road, this is where we don our backpacks and begin our hike across the four-mile lava field into the QTH.

Packing in

Our guests were real troopers and did not mind backpacking in their overnight supplies. Everyone's steps became more cautious, though, as we crossed the active lava tube. Understandably so, as this crusted-over conduit beneath our feet carries hot molten lava from the active Pu'u O'o volcanic cone six miles above us, to the ocean entry where steam explosions display spectacular fireworks. We could feel the heat and see the steam escaping through the cracks in the rocks as we gingerly continued our journey.

Half-way across, AL7LW offered to swap backpacks with me. Whoa! Chivalry is not dead, I thought. Since Paul and I each normally backpack one-third of our weight in provisions, I was only too willing to relinquish my pack. The ear-to-ear grin quickly faded, though, when I hoisted Larry's day pack onto my back. It was as heavy as my full-size frame pack! Later, I discovered that I not only carried Larry's overnight supplies, but his camera, HT, spare batteries, two bottles of wine, a large loaf of Hawaiian sweet bread, and two jars of jelly. So much for the Redhead thinking she pulled one off on the frontiersman from Alaska. . .

The next day, AL7LX checked into a few of her favorite Alaska nets as she reported that she was portable on the southeast flank of the world's most active volcano, Kilauea. That drew some attention! Of course, we quickly got the impression that with Brenda's effervescent personality, she normally created a flurry of enthusiasm whenever she got on the air, no matter where she was. Brenda and Larry had already been on the Island a week by the time we met them. And, judging from their bronze skin, they had found every ray of sunshine they had come searching for in Hawaii. Brenda could not resist bragging about her suntan while engaged in a QSO with our charming friend, W6JSB. Now Cecil is impatiently waiting for me to send a photo of the blue-eyed blonde Alaskan with the copper-colored legs.

Carl, VE8CF/KH6, operating from Royal Gardens. —*photos submitted by Jeannie Stoner, WH6DZ*

Grand tour

Their visit to our QTH included the grand tour of Royal Gardens. The subdivision we live in was once 2,600 acres of pristine forest. At least until Kilauea Volcano began erupting in 1983. Now, it is a virtual ghost town where half of that acreage is covered by lava and only four people remain. Although there are no access roads in or out of Royal Gardens, there are still several miles of negotiable roads within the subdivision. These roads rival the streets of San Francisco in their steepness, so the three running vehicles purposely trapped inside are invaluable to us residents. Trips to the local

repair shop are impossible, so Paul takes very good care of our 1978 Toyota, Nellie. As we drove around the subdivision, we showed our guests the abandoned houses and cars, and the streets that have been cut off by various lava flows. One of the destinations of our tour was a house owned by Coco, NH6GG, which is completely surrounded by lava. The house is totally inaccessible, except by arduous hiking across a'a lava, a very rough surface of cinder and clinker.

Mute Quad

Several years ago, Coco and Joyce, WH6BIR, had to be evacuated by helicopter when lava flows were quickly encroaching upon the house, burning and toppling trees in the yard. They were able to rescue their cat and most of their possessions. Unfortunately, there was no time to disassemble their 4-element HF quad and it stands next to the now deserted house as a monument to QSOs past.

During the driving tour, Larry became concerned when he realized that not once did Paul heed the STOP signs in Royal Gardens. Larry was curious to know if this driving habit of ignoring STOP signs carried over when we left Royal Gardens. Though totally isolated from the "outside world" where such nuances as traffic must be taken into consideration, we find the area a unique piece of Paradise. Where else could you sit in a natural sauna, formed from lava rock and palm leaves? All you have to do is wait for the lava to flow all around you and enjoy the steam bath! Brenda and Larry also sampled the numerous home-grown tropical fruits, such as papaya, mango and sour sop. If you've never heard of sour sop, check into the Alaska-Pacific Net sometime and ask AL7LX if the fruit lives up to its name.

And from VE8

After Brenda and Larry left to return to their beach front condo, Carl, VE8CF, and Carol-Anne stayed in Royal Gardens. Unfortunately, the Alaskans took the sun with them. For the next four days, an unusual low pressure front dumped torrential rains on us. We could not even leave the house to add our leftovers to the compost pile without getting drenched. Like most houses in Hawaii, ours is single-wall construction. It gets real damp, real quick.

With an annual rainfall of only four inches, it obviously, doesn't pour buckets of rain in Inuvik. Compare that to the times when we get four inches of rainfall in two hours in Hawaii. No

Brenda, AL7LX/KH6, engaged in QSO with Cecil, W6JSB.

wonder Carl commented that he had not seen rain like that since his visit to VK-land. But, then, Hawaii doesn't get 69 inches of snowfall annually like Inuvik. Nor do the temperatures ever drop to -40°F in Hawaii. So, how come both Inuvikans huddled in long-sleeved shirts, jeans and socks when the temperatures here lunged to a low of 68°? Read that, 68° ABOVE zero.

Carl entertained himself over the four days by reading our back issues of ***Worldradio*** and, of course, getting on the air. Hearing a VE8/KH6 is not an everyday occurrence on any HF band. He savored the pile-ups from DX locations such as Australia, Japan, Chile and Brazil and appreciated Hawaii's lower latitudes' propagation. He even made a contact on 10 meters with KC4ZWK, who lives in Hilo — 30 miles as the 'Io hawk flies. Now that's DX! Carol-Anne volunteered to help W3FO with KP duty, observed whales romping along the coast, marveled at a lava break-out less than two miles from the QTH, and spoiled our cross-eyed Siamese, who happens to be named KP.

Since this is Paradise, we all knew that the seemingly elusive sun that our Northern guests came in search of would appear eventually. Once it did, Carl and Carol-Anne spent the next four days of their vacation touring the Big Island. They spent one afternoon having an eyeball QSO with Paul, NH6LH, and visiting his unique alternative energy home. They camped, kayaked, snorkeled, and even managed to pick up a slight tan to show off on their return to Inuvik. WR

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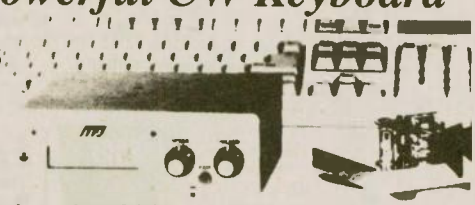

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Separate full size radiators . . . End loading . . . Elevated top feed . . . Low Radiation Angle . . . Very wide bandwidth . . . Highest performance no ground vertical ever . . .

Operate 10 bands -- 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters -- with this MFJ-1798 vertical antenna and get *full size performance* with no ground or radials!

Full size performance gives you high efficiency for more power radiated. The result? Stronger signals and more Q-5 QSOs.

Full size performance also gives you exceptionally wide bandwidths so you can use more of your hard earned frequencies.

Full size performance is achieved by using separate full size radiators for 2 through 20 Meters and highly efficient end loading for 30, 40 and 75 /80 Meters.

You get very low radiation angle for exciting DX, automatic bandswitching, omni-directional coverage, low SWR and it handles 1500 watts PEP SSB.

MFJ's unique *Elevated Top Feed*™ elevates the feedpoint *all the way to the top* of the antenna. It puts the maximum radiation point high up in the clear where it does the most good -- your signal gets out even if you're ground mounted.

It's easy to tune because adjusting one band has minimum effect on the resonant frequency of other bands.

Self-supporting and just 20 feet tall, the MFJ-1798 mounts easily from ground level to tower top -- on small lots, backyards, apartments, condos, roof tops, tower mounts.

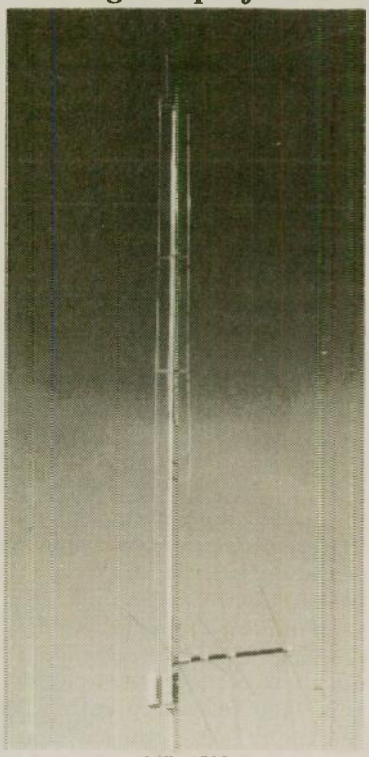
Separate *Full Size* Radiators

Separate full size quarter wave radiators are used on 20, 17, 15, 12, 10 and 2 Meters. On 6 Meters, the 17 Meter radiator becomes a 3/4 wave radiator.

The active radiator works as a stub to decouple everything beyond it. *In phase* antenna current flows in all parallel radiators.

This forms a very large equivalent radiator and gives you incredible bandwidths.

These radiator stubs provide automatic bandswitching -- there is absolutely *no loss* due to loading coils or traps.



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End Loading

On 30, 40, 75/80 Meters, end loading -- the most efficient form of loading -- gives you highly efficient performance, excellent bandwidth, low angle radiation and automatic bandswitching.

MFJ's unique *Frequency Adaptive L-Network*™ provides automatic impedance matching for lowest SWR on these low bands.

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You can mount it from ground level to roof top and get awesome performance.

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Built to Last

Incredibly strong solid fiberglass rod and large diameter 6061 T-6 aircraft strength aluminum tubing is used in the main structure.

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MFJ's *tiny* 36 inch diameter *high efficiency* loop antenna lets you operate 10 to 30 MHz *continuously* -- including the WARC bands!

It's ideal where space is limited -- apartments, small lots, mobile homes, attics, motor homes.

Enjoy both DX and local contacts when you mount it vertically. You get *both* low angle radiation for excellent DX *and* high angle radiation for local close-in contacts. Handles 150 watts.

Super easy-to-use! Only MFJ-1786 *Super* Remote Control has *Auto Band Selection*™. It auto-tunes to your desired band, then beeps to let you know. No control cable is needed.

Fast/slow tune push buttons and built-in two range *Cross-Needle* SWR/Wattmeter lets you quickly tune to your exact frequency.

All *welded* construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter *round* radiator -- not a lossy thin flat-strip -- gives you highest possible efficiency.

Each plate in MFJ's *superb* tuning capacitor is welded for low loss and *polished* to prevent high voltage arcing. It's welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches and a continuous *no-step* DC motor for *smooth precision* tuning.

A heavy duty 1/8 inch thick ABS plastic housing with ultraviolet inhibitors protects it.

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

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Designed as a *high performance* antenna for 80 and 40 Meters, the MFJ-1792 features a *full size* quarter wave radiator for 40 Meters - - that's a full 33 feet of ruthless radiating power.

End loading -- the most efficient form of loading -- is used for 80 Meters. It's accomplished by a virtually lossless 4½ foot capacitance hat and a high-Q coil wound with Teflon® wire on a *low-loss* fiberglass form.

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High strength 6061-T6 aluminum tubing, super strong solid fiberglass insulator, *Frequency Adaptive L-Network*™, heavy duty *swing* mount. Handles 1500 watts PEP. Requires guying and radials, counterpoises or ground screen.

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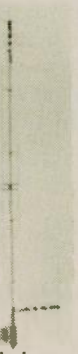

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The Phield Day phenomenon

STEVE KATZ, WB2WIK/6

Part I of II

Quick! What happens on the last weekend in June that results in sore throats, sore muscles, sunburns, insect bites and smiles on the faces of thousands of hams all over the U.S. and Canada? Yep — it's Field Day, the annual event that pits humankind against the elements of nature (as well as the elements of yagis, quads and other varieties of antennas) from the Florida Keys to the Aleutian Islands, from Prince Edward Island to San Diego, and just about everywhere between.

Field Day is arguably ham radio's most popular operating event. While some of the DX contests might show a greater number of logs and scores entered, the number of folks involved in Field Day surpasses all the regular "contests." While it's not a DX contest with worldwide participation, Field Day is treated like a contest for many who choose to operate. Although it's technically an exercise in portable, emergency operations intended to keep us ready and trained for the occasional real emergency (fire, flood, earthquake, or whatever), what fun is it to spend all that time setting up portable stations without some degree of competition entering into the formula?

The competition

If you have even a gram of competitiveness in your veins, you'll want to operate Field Day not just to keep fit and ready for emergencies, but to win this pseudo-contest for your chosen category. And categories abound in Field Day! From single-operator stations to those running 27 transmitters simultaneously; from stations powered by diesel generators to those powered by solar energy; from lonely mountaintop operations to those set up at crowded beaches or shopping malls, FD really has a category for everyone. And while the ARRL, the sponsoring organization for FD, does not make a big point of who the "winner" is in this event, we all know who we are because the scores are listed from highest to lowest in each category in the "results" issue of *QST* (usually the November issue each year, which hits magazine stands and mailboxes only four months after FD weekend), and we all turn directly to the scores to see how we did against the competition.

What separates the high-scoring stations from the low-scoring ones, other than their scores? Let me tell you: It's planning, plus a lot of hard work!

I was Field Day Chairman for the 1992 Field Day operated by the Conejo Valley Amateur Radio Club (Thousand Oaks, CA), and our group, using the callsign K6CAB, turned in the highest score in the nation in any category, beating all competitors by a wide margin. How did we do it? What's the secret?

The secret

Well, there is no secret. Luckily for me, this club had been operating Field Day for many years and had a great deal of experience in winning this popular event. So, rather than having to take them from a "losing" club to a "winning" one, all I had to do was keep them "winning," something they were already quite used to. Being a newcomer to this large radio club, having moved to the area only a few years ago from "back east," it was an honor to be chosen as their FD Chairman. The honor was probably bestowed on me because everyone else knew what a monumental job it was and I was too dumb to take a giant step backwards when volunteers were called for. I like to think they chose me because I'm an experienced contester who won a lot of operating events over the years, but probably the "too dumb" explanation is more accurate.

Anyway, being from "back east," and having different ways of doing things, I decided to organize our FD my own way and did not pay much attention to the way things were done in the past. Thankfully, I had terrific cooperation from everyone involved and that made the job much easier than it might have been otherwise. I developed my "12-point plan," outlined here, to help organize our major Field Day undertaking, and recommend something similar to anyone trying to mount a FD effort.

The steps to take

I. Get organized! By circulating a "sign-up sheet" at a couple of our club meetings several months in advance, plus making dozens of telephone calls to members who cannot make the meetings, I determined who was going to be part of our FD activity. I started out with 36 names, which grew to more than 60 by the time FD was upon us. (You can't have too many people at FD, unless space restrictions at your chosen site prohibit a big crowd. The more people, the better! While not everyone is a great operator, there will always be something for everyone to do.)

II. Understand the rules! I read the FD rules in a May *QST* from the previous year (although I thought I knew them, having operated FD many times in the past), then I re-read them. Then I read them a few more times, until I knew them inside-out; then, I made copies of the rules for all participants, and this would become part of a major mailing to all operators who signed up. FD has many nuances not found in other "contests." It allows a lot of flexibility in some areas, but is strictly prohibitive in others. A unique "no-no" in FD is that Class A and B stations (the vast majority of entrants, who are setting up in the field, in the true spirit of FD) are not allowed to use permanently installed amateur radio antennas. So let all thoughts of setting up in the backyard of your local DXCC "Honor Roll" member — you know, the guy with the twelve 200' towers in his yard and stacked beams for everything from DC to light — and operating "portable" but using his antenna farm, leave your mind. And, although FD allows band changes, transmitter changes, changes in the number of transmitters operating and so forth, it does not allow rapid-fire band changes of a particular transmitter: Once a

transmitter (below 30 MHz) is used to make a contact, it must remain on that band for at least 15 minutes, whether any additional contacts are made or not. In the "battery powered" classifications, batteries may not be charged while in use powering radio equipment, and may not be charged from commercial AC mains.

Know the rules

It takes a while to understand all the rules, but once you know them, they're easy to follow and add to the fun of FD. Pay close attention to the bonus points allowed in Field Day, as they can easily make or break a winning score. For example, a 5-transmitter station (e.g., 5A or 5A-Battery) can literally add 1,400 points to their score simply by accumulating bonus points per the rules. This 1,400 bonus points is equivalent to 700 phone QSOs made at this station if operating in the "150 watt" (maximum) power category. (Or, it's equivalent to 350 CW QSOs made at this power level.) This is a lot of QSOs that would normally take a long time to make, but the 1,400 equivalent points can be made with just a little bit of work and planning. Our "25A-Battery" station at K6CAB in FD '92 made 3,000 bonus points, which is more than the total score achieved by many FD stations. Fully understand the benefits of operating with low power, and the advantage of making CW (and digital mode) contacts: There is a score multiplier of "times 2" for running with 150 watts maximum power on all bands, and a "times 5" multiplier for using 5 watts or less. And in all cases, CW contacts are worth twice as many points as phone QSOs. Example: If you run 250 watts output and make 300 QSOs on phone and 75 QSOs on CW, your total score will be 450 points, plus any bonus points you earn. Not much of a score. If you make exactly as many contacts per mode while running 5 watts maximum output power, your score will be 2,250 points, plus any bonus. Now, if you make all your contacts on CW (a total of 375), and run 5 watts or less, your score will be 3,750 points plus any bonus. 3,750 points is a whale of a lot more than 450, which is the "original" score as detailed earlier. Read the rules, and fully understand them! Should everyone in FD run 5 watts to get the big multiplier? Probably not — more on this in Section V.

Location

III. Select a FD location! And select it wisely. Your selection will be based on a number of factors including accessibility, proximity to population, available propagation, use permits and so forth, but bear in mind that 200 bonus points may be earned per the "Bonus Points" rule 2(B) and 2(C) if you make your FD site available to the general public and get visitors to sign a register. Still, a "killer" location, which will produce big signals on the bands, is probably more important than the 200 bonus points. If you intend to make VHF/UHF part of your FD operation, you'll surely want to operate from a hilltop overlooking a major populated area; but unless all your operators are trained mountaineers, it would be unwise to select a craggy peak for operations. At K6CAB, we used a hilltop with about 1600' elevation but wonderful accessibility to both our operators and the public. Higher locations were available closeby — in fact, we could have been up over 3,000 feet if we relocated only two miles to the southwest — but accessibility would have been a problem, and we'd not have had the big turnout we had. Make your site selection a "committee" decision. And, if you operate from public property, remember to apply for and secure all necessary permits months in advance. Obtaining liability insurance for your club and its members goes a long way in securing permission to operate nearly anywhere.

Committees vital

IV. Form committees, and assign band captains! Every part of a large group effort will require a captain, chair person or committee head. One person cannot do everything well. In our case, we solicited volunteers from the general membership of the club to head up such things as Catering/Refreshments; First Aid; Publicity/Public Relations; even ordering and taking delivery of the port-a-potties which would be used as our field toilet facilities. Then we assigned "Band Captains" for each and every band-mode. "Band-Mode?" Yep, band-mode. In FD, each band can be split into two distinct operating bands: phone, and CW/digital. If your group chooses to operate, say, 40, 20, 15, 10, 6 and 2 meters, this could be as many as 12 bands, since phone and CW/digital could be run on each band simultaneously (if you wish, and have enough operators and equipment). Now, some bands might have sparse enough activity to not warrant separate Band Captains for each mode: For example, 160 meters or 70 cm might be bands that will not warrant separate captains per mode. But the "big" bands, like 40-20-15-10 meters, probably should have separate band-mode captains. And don't forget two meters! Two meters will raise contacts almost anywhere, especially on FM simplex, and on packet. Making even one packet contact earns a FD station a 100-point bonus, per "Bonus" Rule #8, and since packet is a digital mode and counts the same as CW, each packet contact is worth two voice contacts. Think and rethink what you want to do with the man, (and woman) power you have available, so that you can. . . .

Strategy

V. Develop a strategy! Now's the time to fine-tune your Field Day operating plans. Which bands, modes? How much power? What will be the source of your power? Remember, to qualify for the 100 bonus points-per-transmitter per Bonus Points Rule #1, you must use generators, batteries, solar panels, or whatever, but cannot use commercial mains. Does it pay to run 5 watts maximum on all bands? If you have good, experienced operators and excellent antennas, I'd say "Yes!" If you have mostly neophyte operators and smaller, no-gain antennas, maybe not. The advantages of QRP (5 watt max.) operation, besides the obvious scoring multiplier advantage, include minimized in-band and cross-band QRM generated by on-site transmitters, and prolonged battery or generator fuel life. QRP operation is very plausible with 100% battery power, and an all-battery operation is sh-h-h quiet, compared with listening to the drone of gasoline or diesel generators running 24 hours a day. An all-battery operation might be possible at 100-150 watts per transmitter, but you might need very large batteries, or lots of spares. Then, contacts do not come as easily when you're only running 5 watts, and some rigs cannot even be turned down to this power level, especially on phone. For example, the ubiquitous TS430/TS440 type rigs, which can be turned down to almost no output at all on CW, cannot be adjusted down in power on SSB; some ops attempt to reduce power by turning down the "mike gain," but this does not work very well and results in undermodulated, mushy sounding signals that have very little talk power and occasional "spikes" of way over 5 watts. If you plan to run QRP, use rigs that are intended for this. Ten-Tec rigs can run QRP, as can most of the very new-generation gear (TS850S, FT990, TS950S, FT1000, IC761, IC781, etc.), but a lot of the older rigs, including some very good ones, have no provision whatever for low-powered phone operation. Good, older rigs that are great for QRP work include the Ten-Tec Argonaut, Yaesu FT301S, Kenwood TS130V, TS140V and so forth. If the rig does not have a high-powered final amplifier at all and is only rated at 10W PEP maximum, this would be a good choice. But your strategy should be based on lots of factors, not just how much power to run. Make your strategy a "committee decision," and get as much input as possible. In our case at K6CAB, there was only one obvious choice: Get as many operators together as possible, and run as many transmitters as we can put on the air! We had such a large operator pool to choose from, it wasn't hard to assemble a "25A" (25 transmitters operated simultaneously) station, plus we had a Novice station on the air full time, to boot!

Special station

Speaking of a Novice station, by all means do whatever you have to do to get one up and running! Make a real effort to get Novice and Tech-class operators involved in your FD, and have them assemble their own station at your FD site. Using the callsign of one of the Novice-Tech ops, they can make as many FD contacts as they wish and their score will contribute directly to your group's total without adding another transmitter to your "count." See FD rules, #5, "Entry categories."

VI. Select your equipment and antennas. I went over some of this in Section V, but this is a serious matter that deserves a lot of attention. Antennas will be especially important if running in the 5 watt power class, as low power into an unworthy antenna won't generate many contacts under crowded FD band conditions. With 150 watts, you can get by with lesser antennas; but in any case, the biggest and best antennas that can be installed in the available space and time allowed wall always prove beneficial. Plan to make use of available antenna supports at your site, if there are any — as long as these do not include permanently-installed amateur antennas.

— Next month we finish just in time for last minute stops for your Field Day fun!

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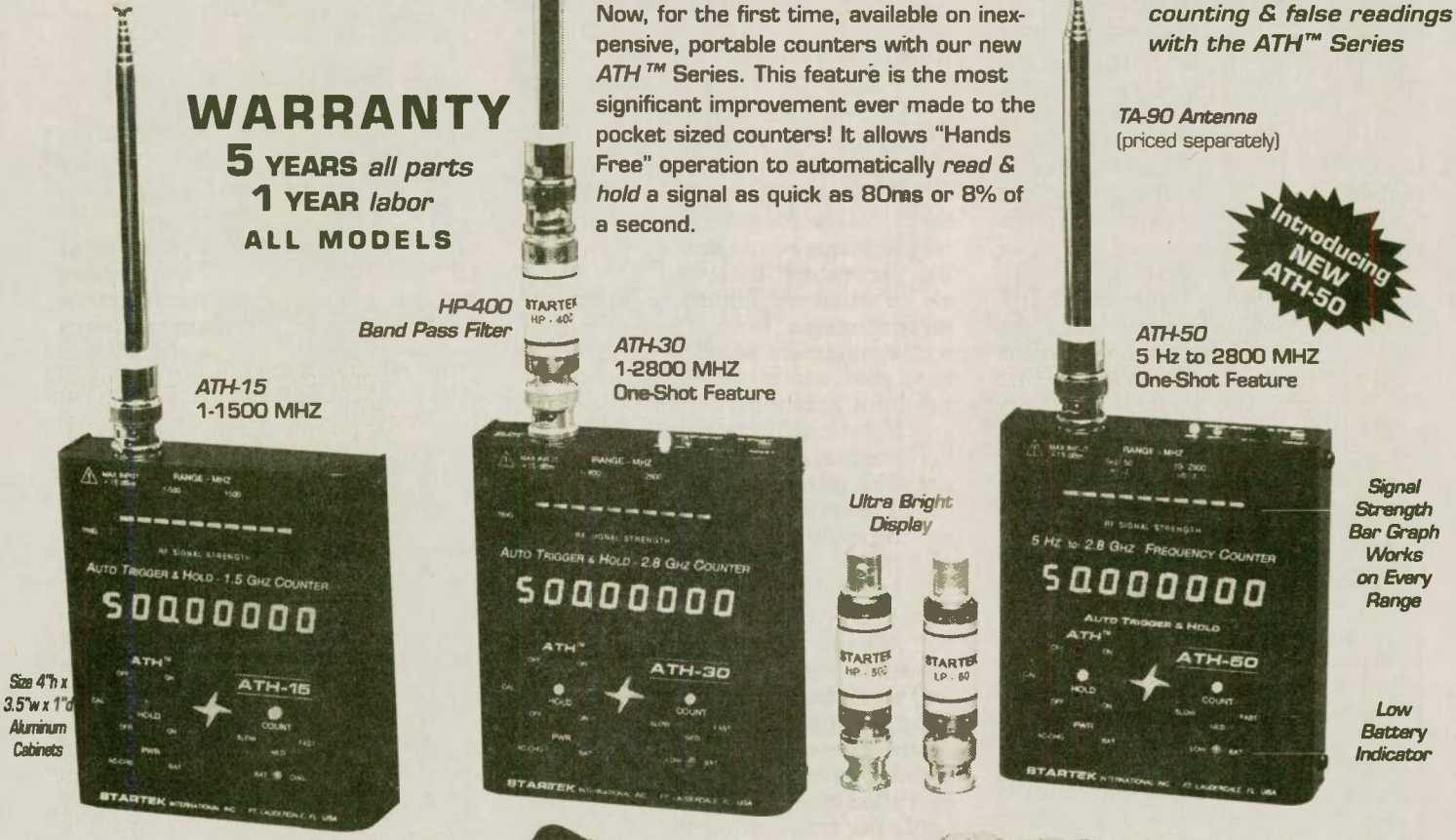

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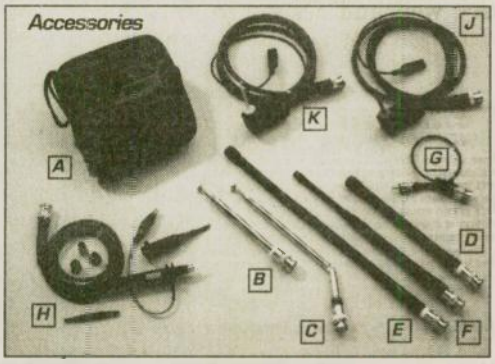

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Moku Ola DXpedition

GREG POOL, WH6DT

On 16-17 April 1994, the Coconut Island DX Association and the Big Island Amateur Radio Club will again put tiny Moku Ola Island on the air. Last year over thirty local amateurs helped operate station KH6AFS/CI beneath a Sterba Curtain and the glow of 1,500 watts.

Uncle Sam Kumakahi, KH6AFS, had always wanted to activate Moku Ola, locally known as Coconut Island. Spearheaded by Dean Manley, KH6B, Paul Lieb, KH6HME, Bill Carlson, AH6GN and Joyce Carlson, WH6BIR, the group drew up plans and got the official documents to allow a full day on the island operating the best station possible.

Fishing poles and sinkers

The day began before dawn, when the morning sky warned us of the rain to come. As the sun rose, the active Mauna Loa volcano and dormant Mauna Kea volcano caught the first light and provided the group with a most beautiful setting in which to work.

Ham Kaneshiro, AH6HB, told the story of how he to used to pay a nickel to a family who would row you over to Moku Ola in a boat, where visitors would then picnic on the acre of grass, lava rock and coconut trees.

The trees were the best thing for the Curtain. On one end of the island stood KH6AFS and on the other Harold Yoshikawa, WH6CQA. Both had their fishing poles, and with strong casts from years of pulling ulua from the Pacific, each threw their sinkers over the tree. From there, the antenna KH6B had put together weeks before was simply pullyed-up and tied down. They fed it into the Embassy building where we set up for a long day of operating and eating.

Before the gear was readied, though, the power for the operation had to be secured. KH6HME and KH6B had made a sweep of the island long before arriving. KH6HME headed the Electricity Committee and KH6B held the Antenna Committee's high post.

KH6HME rigged up a homebrew cable harness with proper fusing to take advantage of the only two 120 VAC outlets on the island. When properly phased, it provided the 240 VAC for the linear amplifier.

12-element Sterba Curtain

KH6B planned the antenna placement far in advance. Along with AH6GN, he picked two coconut trees that were far enough apart and properly oriented to allow broadcast at 55 and 235 degrees. The antenna design came straight out the ARRL Handbook: a 12-element Sterba Curtain for 21 MHz, with 450 ohm ladder line for phasing. He used plastic handles off photographic chemical jugs for the spacers.

AH6GN donated his Kenwood TS-940S and linear amplifier for the day, and as soon as the ladder line came into the Embassy, Moku Ola was on the air. To heal AH6GN's RF burns while tuning up, we threw a ground wire over the sea wall, into the blue Pacific.

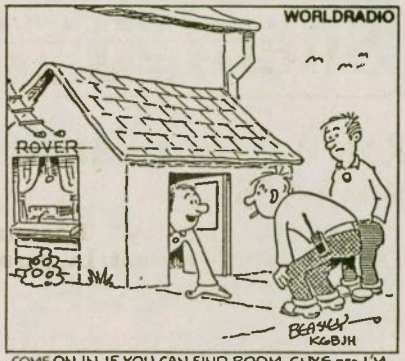
Exact coordinates

The operating began on 20 meters, switched to 40 M for the Hawaii Friendly Net, and moved on to 21.313 MHz for most of the day. The steady downpour of afternoon showers did not dampen the mood or signal, and the pile up of stations continued into the evening.

From 1730 to 0500 UTC, we made over 450 contacts from all over the world. Many requested the IOTA number for Moku Ola, OC-019. And we were careful to give only the exact coordinates when asked, "Where exactly is Moku Ola Island?" 19.75° N and 155.07° W. . .of course!

Island of life

Guests arriving at the Embassy were greeted by AH6HB, AH6GN and Bill Crowl, WH6DN, who granted visitors a passport with the proper visa and endorsements from Coconut Island's Ambassador to Hawaii, KH6AFS, and the Vice Chancellor for Foreign Affairs, KH6B.



COME ON IN IF YOU CAN FIND ROOM, GUYS --- I'M STRICTLY QRP HERE!

The passport explained that Hawaiians visit Moku Ola ("island of life") for ceremonial purposes. Indeed, while we operated a party of mourners arrived for a ceremony on the opposite side of the island. In remembrance they cast colored flowers into the water and the currents surrounded us with the petals.

Send your mahalo

A potluck followed in the evening with all enjoying what would be a dry run for Field Day at Wailoa State Park in Hilo that June. Already we were talking about where we could put KH6B's Curtain in the array of scheduled antennas.

We dropped the Curtain after sundown and packed up the gear. Moku Ola's solitude left us in awe and wonder: the magic of radio wave propagation, the generous operators from around the Pacific, the aloha spirit of all those who dropped in for the day, the electric bill left for the city of Hilo. . .

Upon checking the mailbox next week we would already find over 50 QSL cards waiting to be answered. This year should be no different. KH6B will have a 20 m Curtain waiting for you and the visiting delegation will operate voice in the General portions of that band. Send your QSL information and mahalo to: KH6AFS/CI, Big Island Amateur Radio Club, P.O. Box 1938, Hilo, HI 96721. WR

Silent Keys

Ralph C. Barnum, KAØMTS

Ralph C. "Barney" Barnum, KAØMTS, of Mt. Pleasant, IA, passed away on 9 February 1994 at the age of 95.

He was born on 12 October 1898 in Redwood Falls, MN.

A 1917 graduate of Mankato High School, he attended the Harvard Radio School at Cambridge, MA before entering the US Navy as a wireless radio operator. He served on convoy duty aboard destroyers in the Atlantic during WWI.

He then attended Carlton College at Northfield, MN.

Barney opened and operated the country's first coast-to-coast hardware store at Mankato, MN, then began opening stores for Gambles-Skogmo in the Iowa communities of Marshalltown, Iowa Falls, Farmington, Brighton and Kalispel, MT.

In 1940 he arrived in Mt. Pleasant, IA to own and operate the Gambles store for 25 years until his retirement in 1965.

He became a ham radio operator in 1929 as W9DMC and continued his interest in radio for 65 years. He was a member of Mt. Pleasant ARC, ARRL and QCWA.

Barney was a member of the First United Methodist Church of Mt. Pleasant, a 50-year member of the Mt. Pleasant Masonic Lodge No. 8, York Rite and Scottish Rite Masons, and KAABA shrine. He was a member and past president of Mt. Pleasant Rotary Club. Barney was a world traveler, having visited 43 countries.

Survivors include a son, Bill Barnum, KD4ZU of St. Petersburg, FL; a daughter, Phyllis M. Barnum of Lake Oswego, OR; five grandchildren and seven great grand children.

— Information submitted by Dave Schneider, WDØENR

Earl L. Van Vorst, W6MSW

Earl L. Van Vorst, 76, longtime resident passed away 14 January at his home in Paso Robles.

Mr. Van Vorst was born 1 June, 1917 in Renesselear, NY. He moved to Ventura, CA, in 1926 where he lived until joining the Navy just prior to World War II.

He was stationed on board the destroyer ship *USS Ralph Talbot*, as chief radio operator, anchored in Pearl Harbor on 7 Dec., 1941 when the Japanese bombed the harbor. He remained in the Navy, participating in several Pacific battles including Wake Island and the evacuation of Midway, until his discharge in 1945.

He was employed for 29 years by the Federal Aviation Administration. For 24 of those years he maintained the radar sites for the Paso Robles Airport. He retired in 1974.

Van Vorst was an amateur radio operator for 59 years. He obtained his license in 1935 and was still active at the time of his death. He helped establish outside communications following the 1964 Alaskan earthquake.

He was a member of Paso Robles Masonic Lodge 286, serving as Master of the lodge in 1962. In 1985 he received the Hiram Award for dedication and service.

He is survived by his wife Arline of Paso Robles; daughter, Mary and son-in-law Ken Clarke of Paso Robles; daughter, Karen and son-in-law Alan Dusi of Poway, CA; four grandchildren; two step-sons, Mike Neville of Paso Robles and Jerry Neville of Wisconsin and several step-grandchildren. He was predeceased in 1991 by his wife of 47 years, Edith Van Vorst.

— Information submitted by Mrs. Arline Van Vorst WR

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Product Review

Backpacker-II

During Dayton '92, I had the pleasure of meeting and talking at length with Bill Hickox, K5BDZ, President and CEO of Tejas (pronounced Tay-Hoss) RF Technology. Bill was attending Dayton to plug his new QRP transceiver, the Backpacker-I, based upon the very successful Roy Lewallen, W7EL, design (see An Optimized QRP Transceiver, August 1989 *QST*). After several days of discussion, I managed to con Bill out of a 40 meter version of the Backpacker-I for product review.

This little QRP rig performed quite well, and when the 20 meter Backpacker-I kit arrived from Tejas, similar results were obtained. This indicated that Bill's re-work of W7EL's initial design was sound and the operational characteristics between radios was duplicable. Something, heretofore lacking in many QRP kits and homebrew projects in the last several years.

Since my review of the Tejas Backpacker-I, Bill has continued to refine his design and now produces the Backpacker-II in kit form (only) for 40, 30, 20, 17 and 15 meters. The rig is still a single band radio, but improvements in the mixer circuitry and overall gain distribution provide a much more "bullet-proof" receiver than its predecessor.

The Backpacker-II now uses a Mini-Circuit Labs TUF-1 double balanced diode ring mixer in the receiver front end. This is a smaller, 4 pin version of the Mini-Circuit Labs SBL-1 mixer used in the Backpacker-I. Some space is saved on the board by using the TUF-1. Gain in the audio stages was redistributed to help alleviate problems with feedback that some builders of the Backpacker-I experienced. An LM380n-8 audio amplifier is included and provides more than enough audio for headphones and will drive a small speaker quite well.

The basic design idea of using low noise OP AMPs in place of discrete transistors was carried forward, along with the separate VFO/HFO/Mixer design. This concept increases VFO stability on transmit and allows for stable operation above 30 meters. In addition, this scheme allows the builder to change bands by simply replacing the HFO crystal and some other components (11 in all) without touching the VFO! This means that dial calibration is maintained from one band to another.

Noticeable changes include a larger case (1/2 inch wider and deeper — dimensions: 7 X 6 X 2.75 w/d/h) and upgraded panel artwork. The larger case allows the builder to include options like the Tejas 92001-A deluxe mini-keyer, SWR/power meter, small rechargeable battery pack, etc. inside the transceiver package.

The manual that accompanies the Backpacker-II kit is very well done. Produced on a laser printer (earlier manuals were done on a dot matrix printer), the manual has ample explanations of how the rig works, design information and philosophy, and construction/alignment information. This is not a "Heath-type" instruction manual, so keep this in mind when ordering a kit. Even though the building instruction set is detailed enough for the less experienced builder the Backpacker-II still qualifies as a homebrew rig for QRP ARCI contests.

PC boards are single sided boards made out of G-10 glass/epoxy compound. In the event a builder makes a mistake, it is much easier to unsolder the offending component and reposition it on a single sided board than a double sided board with plated-through holes.

Front panel layout is very ergonomic with the on/off-AF gain control at the extreme left, followed by the three position CW filter control, main tuning knob, spot switch and RIT controls. The headphone jack and key jack are located on the lower left and right sides respectively. The back panel is sparse, featuring the 2.5mm split-tongue coaxial power plug and the RCA phono connector (for the antenna port). Plenty of room to add switches, knobs, and option controls.

After initial check out of the Backpacker-II on the test bench, I was ready to begin testing this rig on 30 meters against a proven performer, namely my Argosy II. Initial indications showed that the Backpacker-II could hear everything that the Argosy could hear. Since I am thoroughly familiar with using direct conversion receivers, reception of both sidebands using the Backpacker-II was not a traumatic experience.

Dial calibration was off by 15 kHz. After opening up the cabinet, the trimmer cap on the VFO board was adjusted to bring 10.100 MHz in on the "100" mark of the tuning dial. Calibration at the high end of 30 meters (10.150

MHz) was off by 3.8 kHz after this adjustment. Since the BP-II tuning covers from 10.000 to 10.200 MHz, this means that the dial lost 3.8 kHz of accuracy in only 25% of its total span. This is not spectacular accuracy by any means. However, the user can adjust calibration by playing with the spacing of the turns on the VFO coil. I chose not to do this as this was a review radio and the time spent tweaking the VFO coil would be better spent in evaluation of the operation of the rig.

The sidetone generator emits a very good replica of a square wave. I find this harsh note very tiring over a long period of time. In addition, the sidetone volume control (located on the RX board) cannot be adjusted low enough for my personal taste. I like to have my sidetone extremely low and in the background. Possibly replacing the PCB pot that controls the sidetone with a different value would allow the tone to be adjusted to just a "whisper."

The Tejas rig performed well, and in certain instances, was able to pull a station out of the co-channel interference by simply flipping the RIT control over to the other sideband. While this can be done on the Argosy, I had to switch back to "CW" in order to key the transmitter. This made for non-user friendly operation. (Note: my Argosy selects the lower sideband when in the CW mode for 80/40/30 meters. This means that while I can select the upper sideband for receiving, I have to switch back to CW and the lower sideband to transmit.) By using proper zero beating technique with the Backpacker-II, all the operator has to do to listen to either sideband, is to run the RIT control over to which ever sideband he wants to hear. In the instances of QRM on one sideband, a quick twist of the RIT control can take you from no copy to solid copy.

Impressions of the Tejas Backpacker-II: Good clean audio. No bumps, thumps, or naughty sounds in the earphones while using full QSK. Full break-in as good as the Argosy-II. No AM breakthrough (I have WBAX in my "back yard," so AM breakthrough is a way of life when using DC receivers at K7YHA). Nice reports on my transmitted signals. Clean, click-free transmitted signal when viewed on the scope. If I could hear a station on the Argosy-II, I could also hear the same station on the Backpacker-II. Lightning fast sideband selection using the RIT control. Weight (23 ounces) and power requirements (approx. 25 mA receive, 300 mA key down on transmit) are in line with portable and backpacking parameters. The 1.9 watts of RF output (into a calibrated dummy-load/wattmeter) provided many QRP contacts during the evaluation.

Bottom line on the Tejas RF Technology Backpacker-II QRP transceiver: excellent value for money. Improved receiver performance without cost increase. Well designed and engineered for many years of reliable service. Ideal for the traveling ham who needs a no-compromise QRP rig to take along. Price: $159.95 plus shipping/handling from Tejas RF Technology, P.O. Box 720331, Houston, TX 77272-0331; 713/879-9300 or fax 713/879-9494. WR

You know you are a ham when. . .

1. The mail arrives and you read your radio magazines before you balance your bank statement.
2. The lawn needs mowing but you put it off to get that rare DX station.
3. You turn a family outing that was supposed to be a Sunday drive, into a stop at a HamFest
4. You find yourself thinking "dididit dah dahdahdah didahdahdit" while waiting your turn at an intersection.
5. Each passing lightning storm makes you shudder to think what is happening at the home QTH.
6. You send out more QSL cards than greeting cards.
7. You use your HT more than you use the telephone.
8. You or someone in your family is named ELMER
9. You pick up the telephone and find yourself giving your callsign to the other party, who doesn't know what you are saying.
10. You go to a neighborhood party and upon introduction someone says, "Oh yes, you're the house with all the antennas!"
11. Tubing down the local creek you send out a call as Maritime Mobile.

—submitted by Joel Slazyk, AA2PP, ARATs' Coherer, a publication of ARA of the Tonawandas, NY

SPECIAL EVENTS

Beatification of Father Damien

To commemorate the beatification of Father Damien, who served the lepers at Kalawao Settlement, Molokai, Hawaiian hams are planning a variety of special activities. The beatification will take place in Brussels, Belgium on 15 May. Operating from all major sites associated with Father Damien, the special event will open on 15 May and continue for a month. For a QSL card commemorating this historic occasion, QSL directly with the operator or send your QSL card, SASE, and name of operator contacted to AH6KY; Apt. 608; 84-265 Farrington Highway, Waianae, HI 96792.

Golden Spike commemoration

The Ogden ARC will operate W7STB on 10 May to commemorate driving of the Golden Spike, Promontory Summit, UT. Operation will be from 0001-2100Z on one of the following: 3.970, 7.270, 14.280, 21.375 and 28.415 MHz. Send QSL and SASE to Ogden ARC, P.O. Box 3353, Ogden, UT 84409.

Armed Forces Day

The DuPage ARC will operate W9DUP from the First Division Museum at Cantigny, Wheaton, IL to celebrate Armed Forces Day 1600-2300Z on 21 May. Frequencies will be SSB on 7.250, 14.290, 28.400 and 145.25 repeater; CW on 7.040. For certificate send QSL and SASE to Jack Carr, NV9S, DuPage ARC, P.O. Box 71, Clarendon Hills, IL 60514.

City of Monterey Park 78th birthday

The Monterey Park ARC will operate K6GIP 1600Z-2300Z 21 May during the annual Playdays Festival celebrating the 78th birthday of the City of Monterey Park. Listen near 3.985, 7.285, 14.285, 21.385 or 28.385 SSB. Local talk-in will be on 144.350 simplex. For certificate, send QSL and a 9x12 SASE to Monterey Park ARC, P.O. Box 403, Monterey Park, CA 91754.

Rooster Day

The Broken Arrow Amateur Radio Club will operate a special event station on 14 May from 1500 UTC to 15 May at 0300 UTC. This operation is to commemorate the Broken Arrow Chamber of Commerce sponsored "Rooster Day." We will be operating with the call sign of AB5EE and we will be operating 10 meters Novice band along with all HF bands in CW and SSB. We will be operating on VHF FM also. For certificate send QSL and 9x12 SASE to the Broken Arrow Amateur Radio Club, P.O. Box 552, Broken Arrow, OK 74013.

Sacramento Jazz Jubilee

The North Hills Radio Club will operate K6IS on 28-30 May from 1700Z-0400Z to celebrate the 21st annual Sacramento Jazz Jubilee. Approximate frequencies will be 3.880, 7.265, 14.275, 21.375, 28.375, 145.19(-), 147.420. For a certificate, send a QSL, contact number and 9x12 SASE to North Hills Radio Club, P.O. Box 41635, Sacramento, CA 95841-0635.

Lewis and Clark anniversary

The St. Charles ARC will operate WBØHSI on 21-22 May from 1300Z-2100Z from the Lewis and Clark Rendezvous on the shores of the Missouri River commemorating the departure of the Lewis and Clark Expedition on 21 May 1804. Frequencies will be 7.265, 14.265, 21.365, 28.465, 146.67, AO-13 Modes B and J, as propagation and QRM permit. For certificate, send 9x12 SASE to St. Charles ARC, P.O. Box 1429, St. Charles, MO 63302-1429.

Marconi Memorial Tower site

The Ocean-Monmouth Amateur Radio Club will operate KB2OPQ from 14 May 1600Z to 15 May 1600Z to commemorate the Marconi Memorial Tower site. Operation will be on the following subbands: CW will be up 10khz from bottom of the Novice subbands; 10.145, 14.045 and 18.080 MHz.; bottom of the General 80-15 and Novice 10 meter phone subbands. For certificate, send 9x12 SASE to OMARC, P.O. Box 75, Bradley Beach, NJ 07720. WR

OFF THE AIR

Interesting and informative

This letter is in response to the article by Don Newcomb, WØDN, Why radials? *(Worldradio, March '94)*. I found this article quite interesting and informative. It confirms some things about vertical antennas and radials that I have discovered experimentally.

I have used ground mounted vertical antennas on the lower bands for many years. When I moved to Virginia in 1978, I put up a HyGain 14AVQ in the backyard, without any radials, only a ground rod. This antenna worked OK. I managed to work 135 countries with it over a period of several years.

I replace the 14AVQ with a HyGain 18HT. With the 18HT, I installed 32 radials, each 65 feet long. The radials were buried about 1" deep in the ground and spaced equally around the base of the antenna. I used a gas powered edger to cut slits in the sod and pushed the radial wires into the slits. (This process generated some really strange looks from the neighbors; oh well.) The soil in my yard was very rocky and I suspect its conductivity was very poor.

I was astonished at how much better this antenna worked than the old one, especially on 40 meters. It turned out to be a genuine "pile-up buster" on 80 and 40. It didn't seem to matter how big the pile-up was on a really rare one. I was almost always able to get through on the first or second call on these bands. With the old no radial setup, I considered myself lucky to ever get through a pile-up.

Then there was the morning I worked a VK3 station on 40 meters. He gave me a 579 report. I was running my rig barefoot (180 watts). After my QSO, the VK was call by a W2. The W2 was running a kW into a dipole, he said. He got a 559 report. Interesting.

One night, 80 meters was wide open to Europe. I worked several stations on CW. Then a very interesting thing happened. A pileup started to form, on ME. I never thought that a KA4 in Virginia was considered rare DX. It turned out that this simple vertical/radial setup was putting a very strong signal into Europe that was attracting a lot of attention.

Anyway, these experiences provide some empirical support to the things Don Newcomb said in his article.

MICHAEL J. KIRCHNER,
KA4FFK
Clifton, VA

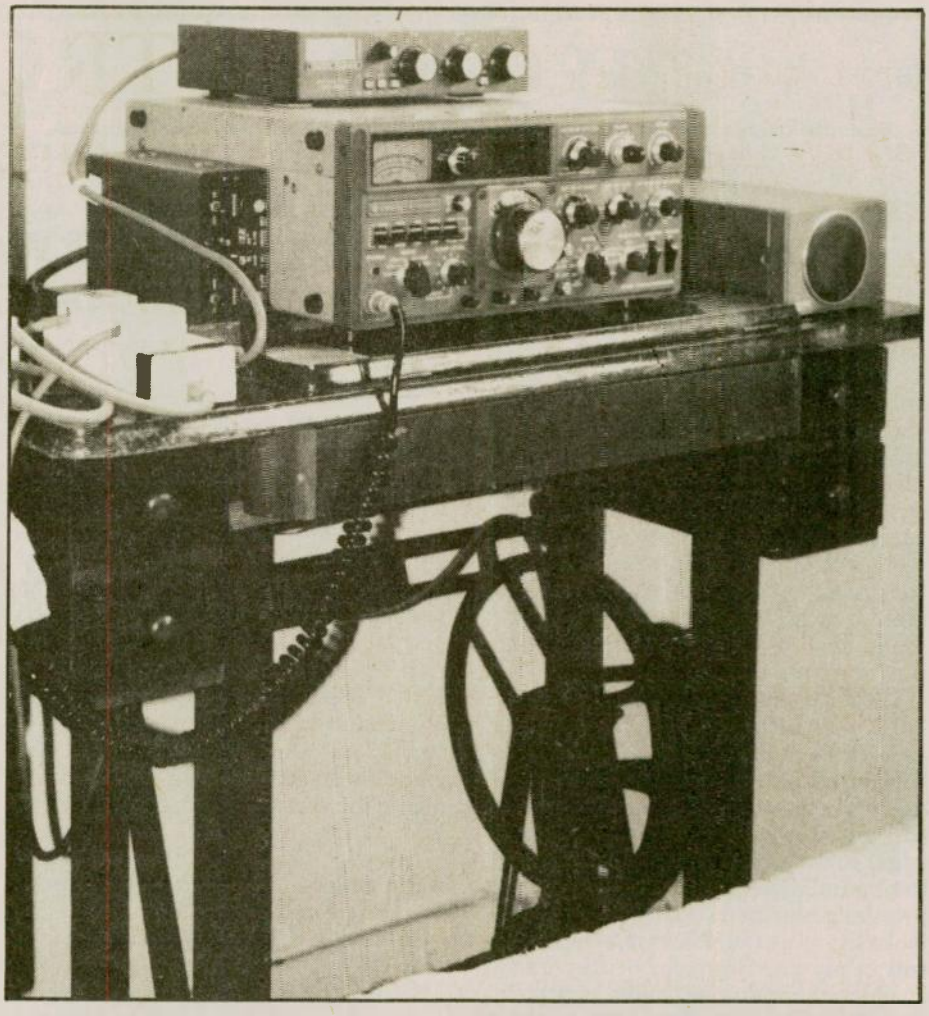
WHEN PURCHASING GOODS, SAY YOU SAW IT ADVERTISED IN **WORLDRADIO.**

Willy Yzelman, 9V1WY

STATION APPEARANCE

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

Winners will also receive a top quality, Laserjet-printed copy of the DXCC and WAS BeamHeadings list (a $15.95 value) compliments of Jack Hurray, W&JBU.



Sew, you want to set up a ham shack?

Here is a photo of my Singer Sewing Machine Mobile rig which is comprised of an 820S rig, antenna tuner, low pass filter, electronic keyer mounted sideways and an extension speaker.

The overall physical length of my "forest of aluminium" is a 28 inch monoband whip antenna mounted on a window ledge of a fourth level flat roughly forty feet off the ground.

With this set-up mounted on an old sewing machine, I had occasion, one day, to enjoy a QSO with an W7/aeronautical mobile and a VK2/maritime mobile. You can well imagine their astonishment when I told them that I was sewing machine mobile!

I am 67 years of age and have been a ham for the last six years and enjoying the hobby immensely. 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!

This "my friend talks so much. . . ." "How much does he talk?" story comes from Joe Moraski, KY3F.

It was a normal afternoon drive home from work. As usual, I was talking to my friend on our local club repeater. Living in a rural area means that part of the afternoon ritual was the stop at the local post office to see what sort of things were in the box.

Now my pal is a nice fellow and all that, but he will talk on the radio for long periods of time even to the point of repeater time-out. Pulling into the post office parking lot I turned it over to him, and I stopped the car in a convenient space.

Well, after about fifteen seconds I could tell that he wasn't going to come up to for air any time soon. So I jumped out, ran in and got my mail, and was back in the car before he stopped talking. (Now, I know lots of your folks have done that sort of thing so don't start in about how rude I am.)

So, what do I get in the mail? My brand new Extra Class license that I had been waiting for, with my brand new Extra Class callsign printed on the outside of the computer generated envelope.

The way I figured it, as soon as I took delivery of that license I was no longer N3EIS, I was now KY3F, and he was still talking! I actually changed callsigns during a QSO.

With all the explanations about just who it was coming back to him on the next turnover, and all of the jokes later on about him talking so long that people could upgrade while he was holding the repeater, he never did say anything about me leaving him talking while I ran in to get my mail. WR

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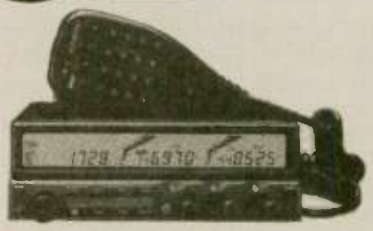

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TH-28A

TS-50S

TR-751A

DX WORLD

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

W-100-N

Congratulations to the following DXer for completing ***Worldradio***'s Worked 100 Nations Award:

471 YC8FEJ Iwan Mandlam 24 Feb 94

We have had several applications from Indonesia over the years since this award was first introduced in 1978. Iwan completed his all on 15 meters SSB.

Sri Lanka (4S7)

Most of the reports for this one are for 20 meters SSB, which include the following:

4S7AVR	14.193 MHz	0200 UTC
4S7CA	14.185 MHz	1245 UTC
4S7DA	14.180 MHz	1215 UTC
4S7DF	14.196 MHz	1215 UTC
4S7EA	14.182 MHz	0200 UTC
4S7RO	14.193 MHz	0145 UTC
4S7VK	14.205 MHz	1200 UTC

Other activity on this band included 4S7WP on CW near 14.012 MHz at 1245 UTC and 4S7RM on RTTY at 1300 UTC on 14.084 MHz.

Other bands reported were 40 and 15 meters with 4S7RO on 7.004 MHz at 0130 UTC, 4S7CZ on 10.101 MHz at 0800 UTC, 4S7IP on 21.270 MHz at 0900 UTC and 4S7EF on 28.445 MHz around 1000 UTC.

Zambia (9J)

Very active on the bands from Zambia is 9J2BO. Look for this one between 3.511 and 3.523 MHz after 0400 UTC, 7.021 MHz around 0600 UTC, 14.022 to 14.030 MHz around 1530 UTC, and 21.010 to 21.026 MHz after 1400 UTC. We have two other reports with him on 24.900 MHz at 1530 UTC and 28.011 MHz at 1500 UTC.

Another station not quite as active is 9J2HN who has been found near 3.794 MHz at 2000 UTC, and between 18.072 and 18.150 MHz after 1930 UTC.

On 15 meters SSB 9J2GA was reported on 21.260 MHz working Europeans one Sunday afternoon at 1600 UTC.

On 10 meters 9J2PI was worked around 1000 UTC by Europeans on 28.480 MHz.

The DX Bulletin reports that Holger Hannemann, DL7VTM, Lutz, DL7VLA, and Birgit, DL7VRO, have been assigned special callsigns 9I2Z, 9I2A, and 9I2M, respectively, for their trip to Zambia scheduled 14 March through 6 April. This was to be a concentrated effort on all bands, 10 through 160 meters, CW, SSB and RTTY, with some Oscar 13 satellite activity thrown in. They were also to be active in the WPX contest.

Balearic Islands (EA6)

The Balearic Islands are a group of islands off the coast of Spain in the Mediterranean Sea and count as a separate DXCC country. For IOTA purposes the group of islands are assigned the reference number of EU-004.

Reported often from this group of islands during the month of February has been EA6NB who prefers low-band activity. Look for him near 1.832 MHz after 0500 UTC, 3.510 MHz after 0530 UTC and 7.014 MHz after 0500 UTC.

Another active station is EA6ZY, who for several years signed with G6ZY/EA6. Look for this one near 3.522 MHz around 2330 UTC, 14.027 MHz at 1730 UTC, 18.074 MHz at 1430 UTC and 24.895 MHz at 1600 UTC.

Other calls reported recently include:

EA6BH	7.004 MHz	2300 UTC
EA6MQ	21.086 MHz	1615 UTC
EA6VS	28.086 MHz	1500 UTC

The last two are obviously reports for RTTY.

The subject of the Balearic Islands always reminds me of the unusual situation when I worked them several years ago. It seems upon my completing a DX contact on SSB, this station broke in with "You didn't get the call right." Upon my finally getting the call straight, I asked the helping Amateur to identify. It was an EA6!

Canary Islands (EA8)

Just in case you haven't worked the Canary Islands, do we have a collection for you to check out.

At least two calls have been reported for activity on 160 meters. Look for EA8PP who is on often between 1.829 and 1.846 MHz after 0400 UTC and EA8CN on 1.834 MHz after 2100 UTC.

On 75 and 80 meters we have found the following calls:

EA8AB	3.527 MHz	2300 UTC
EA8AF	3.509 MHz	2230 UTC
EA8AFJ	3.798 MHz	0430 UTC
EA8BR	3.794 MHz	0245 UTC
EA8BUC	3.505 MHz	0545 UTC
EA8BYR	3.786 MHz	0130 UTC

Forty meters offers some activity with EA8AB found between 7.003 and 7.012 MHz after 2300 UTC, EA8TB on 7.003 MHz at 2300 UTC, and EC8AZM on 7.022 MHz at 0100 UTC.

Popularity with the WARC bands is increasing with the following reported on these newer bands:

EA8AF	10.106 MHz	2030 UTC
EA8AB	18.072 MHz	1445 UTC
EA8BYR	18.130 MHz	1645 UTC
EA8UF	18.079 MHz	1600 UTC
EA8ZO	18.113 MHz	1715 UTC
EA8AF	24.900 MHz	1700 UTC
EA8BR	24.960 MHz	1745 UTC

The remaining activity from other calls reported includes activity on other bands not included, using CW, RTTY and SSB.

EA8BWN	14.025 MHz	2230 UTC
EA8AKL	14.087 MHz	1945 UTC
EA8TD	21.010 MHz	1715 UTC
EA8BWN	21.029 MHz	1845 UTC
EA8AM	28.436 MHz	1730 UTC
EA8BTA	28.490 MHz	1430 UTC

The Canary Islands count as AF-004 for IOTA.

Moldava (ER)

With the new prefix of ER, Moldava has been divided into 5 call areas, ER1 through ER5. Prefixes ER6 through ER9 are reserved for special purposes, with ERØ for non-resident DXers operating in Moldava.

If you wish to send your QSL cards direct to Moldava, you may do so via Moldava QSL Bureau, P.O. Box 6637, Kishinev 277050, MOLDAVA.

Ethiopia (ET)

According to *The Long Island DX Bulletin* Rolf, ET3RA, checks daily for openings on 15 meters near 21.250 MHz after 1600 UTC. We have found this station also active near 14.197 MHz at 0600 UTC and near 21.302 MHz at 1000 UTC.

Also very active from Ethiopia is ET3YU. Look for this one on CW in the lower reaches of 20 meters between 14.010 MHz and 14.021 MHz from 2100 UTC. He has also been reported on RTTY near 14.093 MHz at 2130 UTC the end of January.

Another call appeared on 20 meters SSB recently signing with ET3SID.

Check between 14.199 and 14.250 MHz after 1400 UTC. The reports for this one come from Europe.

Two other calls were reported, those of ET3BH on 24.941 MHz at 1430 UTC and ET3JR on 21.015 MHz at 1300 UTC.

Kirghiz (EX)

The prefix EX is one of the new call signs from the former Soviet Union, now assigned to the Republic of Kirghiz. The old prefix was UM.

EXØM is on 40 meters CW very regularly and can be found between 7.005 and 7.010 MHz after 1130 UTC. This station was also active in the CW portion of the ARRL International DX Competition.

Other calls from Kirghiz include the following:

EXØV	14.192 MHz	1300 UTC
EX8F	7.005 MHz	1215 UTC
EX8W	14.003 MHz	1345 UTC
EX9M	7.012 MHz	1245 UTC

Vatican (HV)

HV3SJ holds the store at the Vatican, often found on 15 meters both CW and SSB. Listen between 21.005 and 21.012 MHz after 1400 UTC and near 21.285 MHz between 1500 and 1700 UTC. Also check 7.002 MHz after 2145 UTC if you need him on 40 meters.

There was an HV4SJ reported on 14.012 MHz at 1400 UTC working Europeans one Tuesday afternoon recently. This was really HV3SJ with sending errors.

The only other call reported was that of HV1NAC in early January at 1330 UTC on 21.270 MHz.

Marshall Islands (V7)

Out of the Marshall Islands we have V73C who has given a new one to many of the deserving DXer. He has been found often on 75 meters near 3.800 MHz after 1100 UTC or up on 15 meters between 21.307 and 21.314 MHz after 2200 UTC.

If you prefer the CW mode look for V73C between 7.005 and 7.019 MHz after 1000 UTC or on 10.103 MHz at 1230 UTC.

Two other calls have been reported during this last period and include V73EX on 14.257 MHz at 0430 UTC and V73JT on 28.380 MHz at 2200 UTC. For IOTA purposes the Marshall Islands have been broken down into five separate groups of islands: Enewetak Atoll, Ralik Chain (Kwajalein), Ratak Chain (Majuro), Taongi Atoll and Ujelang Atoll.

Brunei (V8)

Only three calls have been reported recently from Brunei. V85AA and V85PB have both been found near 3.789 MHz after 1500 UTC.

On CW V85KX has been reported on 3.511 and 7.003 MHz after 1500 UTC.

Montserrat (VP2M)

Stu Stephens, K8SJ, recently spent two weeks in January on vacation and signed with VP2MFA. Stu reports that activity was much better than last year's visit as he spent more time staying up late at night. Conditions in the afternoon from Montserrat were poor.

The bulk of Stu's contacts were on 40 meters, where he worked some 1150 contacts. On 80 meters he collected 706 contacts with 498 on 30 meters. He worked a total of 3411 contacts with all of them on CW except 4 through the local repeater on 2 meters. Sixty-four percent of his contacts were with stateside DXers.

Albania (ZA)

A handful of stations in Albania keep the action going on the bands, mostly CW. Between 7.001 and 7.005 MHz ZA1J can be found often after 0100 UTC. Also on the lower end of the same band we have ZA1N around 0130 UTC and ZA1Z at 2200 UTC.

On 15 meters ZA1E has been found on both CW and SSB. Look for this one between 21.026 and 21.029 MHz, and 21.268 MHz after 1200 UTC.

The present structure of callsigns from Albania includes those of single letter suffixes. However, a station signing with ZA1MH has shown on the bands recently and has been reported on SSB near 3.770 MHz at 2230 UTC and on RTTY at 2000 UTC on 14.088 MHz. This station has also been on the WARC bands and was working Europeans one Thursday morning around 1100 UTC on 18.123 MHz.

Stations operating with their home calls (ZA appended with the operator's own call) such as ZA/K5KWG and ZA/OK2PSZ have also been active.

UK bases on Cyprus (ZC4)

The only activity recent from this one was that of ZC4ML. He was reported on 7.003 MHz at 2000 UTC, 10.109 MHz at 2200 UTC, 18.125 MHz at 1200 UTC and 21.065 MHz at 1300 UTC. Unfortunately, the reports were from Europe and the east coast of North America, with nothing into the western reaches.

During the latter part of February there was a ZC4BGC on 28.469 MHz around 1100 UTC.

St. Helena Island (ZD7)

A vast amount of activity recently from St. Helena Island has been on RTTY. The most reported station has been ZD7DP who can be found on 15 meters between 21.083 and 21.087 after 1800 UTC.

Also on 15 meters RTTY we have the following additional calls:

ZD7AY	21.085 MHz	1730 UTC
ZD7BD	21.084 MHz	1845 UTC
ZD7DO	21.084 MHz	1845 UTC
ZD7FM	21.085 MHz	1930 UTC
ZD7SM	21.082 MHz	2000 UTC

On 20 meters SSB we have the following calls reported:

ZD7BJ	14.192 MHz	2115 UTC
ZD7DP	14.226 MHz	2145 UTC
ZD7GWM	14.195 MHz	1800 UTC
ZD7KT	14.195 MHz	2130 UTC
ZD7XY	14.180 MHz	2200 UTC

There was just one report for 10 meters found with that of ZD7VC on 28.469 MHz at 1100 UTC on a Sunday morning the latter part of February.

The reference number of AF-022 is assigned to this island.

IOTA

Dick Schott, KA2PHQ, plans on another IOTA tour this spring. Dick says that he will operate from eight different IOTA islands May 1 through 28. In addition he will also operate from six to eight islands that qualify for the Canadian Islands Award. Dick's selection of islands include the following:

NA-010	Cape Breton Island
NA-014	Campobello Island
NA-028	Prince Edward Island
NA-038	Îles-de-la-Madeleine
NA-081	Tancook Island
NA-068	Miscou Island
NA-127	Brier Island
NA-128	Île d'Orleans

The islands qualifying for the Canadian award will be around Nova Scotia. The above islands also count for the award. We plan on printing an up-to-date list of Canadian islands with reference numbers in our October column.

If you worked V31DL during the last five days in December you have Glovers Reef Atoll (NA-180) to your credit. Jim Marvy, NØVYL, the operator, says

he wished he had known more about the IOTA program prior to his trip there. Jim reports that it is a great place to set up a radio. We wished we had worked you Jim as we seem to keep missing that one.

In March several IOTA types were to have operated from St. George Island (NA-085). They would have been operating with their own calls appended with 1J4.

Here is a selection of island activity that has been reported during the month of February.

AS-077	Kyushu Island	JI6KVR
	21.260 MHz	0845 UTC
AS-083	Kara Sea Coast East	
	UA9K/RA9LI	
	14.258 MHz	1130 UTC
NA-037	Shemla Island	AAØNN/KL7
	14.260 MHz	2330 UTC
NA-069	Pine Island	W4/GUØALD
	21.257 MHz	1515 UTC
NA-073	Ambergris Cay	V31MV
	3.795 MHz	0415 UTC
NA-075	Saltspring Island	VE7BKL
	14.011 MHz	1745 UTC
NA-110	South Carolina group	
	AA4V/1X7	
	21.259 MHz	1615 UTC
OC-046	Windward Group	FOØPT
	14.260 MHz	1730 UTC
OC-169	Lifuka Island	A35MR
	14.260 MHz	1715 UTC
OC-191	Niuatoputapu Island	A35MR/P
	7.003 MHz	0600 UTC
SA-064	Aisen Province group	CE7AOY
	28.464 MHz	1530 UTC

Jim Smith, VK9NS, recently activated two island groups in the Pacific signing with A35MR, which included Lifuka Island (OC-169) and Niuatoputapu Island (OC-191). Jim requests that you use separate envelopes for each island activity.

Did you work Peter I 3YØPI? Don't forget that it will also count for IOTA. The reference number for this one is AN-004.

On the long range planning stage there will be a DXpedition to Herschel Island the end of July by a group of six DXers. They will be signing with VY1AU. Herschel Island is on the Yukon coast which is about 150 miles west of Inuvik. Unfortunately, we will not be available to work them and will arrive in Inuvik a week after they leave. They do not plan to be active during the IOTA contest.

We are also considering some IOTA activity this summer and hopefully, one that never has been activated before. Stay tuned!

IOTA gatherings

With the increase in interest in IOTA activities DX conventions are beginning to include the program in their agenda. In June, HAM-COM 94, running with the ARRL National Convention in Arlington, Texas, is presently forming such plans. If you wish to participate in the program or plan to attend please contact Don Simmonds, K5BDX, at (817) 457-7000. Lanny Phillips, W5BOS, and Joel Rubenstein, KA5W, are also on the IOTA committee.

Then there is the big one this fall - the RSGB 1994 International HF and IOTA Convention, with special attention to the 30th anniversary of the IOTA program. This event will be held at the Beaumont Conference Centre, Old Windsor, Berkshire, 7-9 October. We sure would like to go, but that Alaska trip is going to sap our finances. It should be a lot of fun.

DXCC desk

The ARRL has announced that Tom Hogerty, KC1J, has been transferred to a new position of Special Projects Manager, and now reports to ARRL Executive Vice President, David Sumner, K1ZZ. Tom had led the DXCC Desk into the era of computerization, which changed the out-dated mode of paper record keeping into full computerization of DXCC membership records. His new responsibilities will include applying what has been learned into improving ARRL Headquarters services in general.

Bill Kennamer, K5FUV, will assume the vacated position of DXCC Manager. Bill has been with the League since June 1992 when he joined the staff as DXCC Specialist. Bill is the founder of *QRZ DX*, a weekly DX newsletter now edited by Bob Winn, W5KNE. Bill presently edits the "How's DX" column in *QST*.

DXCC backlog

The DXCC Desk reports that the number of unprocessed DXCC applications at the end of January was 449 (40,710 QSL cards). During the month the DXCC Desk received 909 applications (60,054 QSL cards) for both endorsements and new awards.

Applications being sent out at the end of the month were received two weeks earlier. There were several applications received prior to that time and were waiting for the old paper records to be converted.

DXCC changes?

The DX Bulletin makes note of the last operation from the Penguin Islands the end of February by ZSØX, operator by Baldur, DJ6SI, and company. Along with Walvis Bay, the Penguin Islands were to revert to Namibia at 2200 UTC on 28 February. These countries will now most likely be deleted from the DXCC Countries List.

The Turkish Republic of Northern Cyprus issue comes up now and then. There was a petition before the DXAC which was reported to have been tabled.

There is an American operating from there who claimed to have a valid license. He used the prefix 1B appended with his call. What is interesting were his comments on the issue in one of the weekly DX bulletins. This individual writes, "The world is full of political problems and if we let them interfere with our hobby our Countries List will probably shrink from 300 to 30" And he went on further to say, "Let us be consistent. You should tell the DX Advisory Committee what to do. After all, you are the tax-payers; they are the government elected by you to serve you." We don't recall any DXAC member ever being listed on our November ballot. This gentleman is confused.

Worked sectors award

We received notice on an award from Ukraine, called Worked Sectors Award. The award requires confirmed contacts from 100 different sectors of the world, (AA-AR. . . RA-RR). There are endorsement stickers for every 50 additional sectors up to 250.

We are unaware what they mean by sectors and if anyone does, let us know. For those who do know and wish to apply, prepare a list of your contacts confirmed by QSL cards, certified by two licensed radio amateurs and send to Miroslav Lupiy, UT7WZ, P.O. Box 3258, Lviv 7, 290007, UKRAINE. The fee is 5 IRCs, with endorsement stickers at 2 IRCs each.

Peter I Island review

The Peter I Island DXpedition is now history with the team leaving the island at 2200 UTC on 20 February after almost three weeks of operating. Personally, we feel the team deserves much credit for a well-organized *and*

DX Prediction — May 1994

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.

CENTRAL USA

UTC	AFRI	ASIA	OCEA	EURO	SO AM
8	*(18)*	15	*18	14	*15
10	*(21)*	12	*16	*(13)*	*16
12	27	*15	*15	18	20
14	30	19	*(14)*	20	25
16	32	17	*(13)*	22	*28
18	*32	*(15)*	*(13)*	21	*31
20	27	21	26	19	*32
22	22	23	31	16	*31
24	19	23	33	14	*26
2	*17	22	33	*11	*21
4	*17	20	31	*17	*19
6	23	18	27	16	*16

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
10	*(14)*	*19	*17	*(12)*	*19
12	*(19)*	*15	*15	*(16)*	*(17)*
14	*(23)*	*18	*14	19	*(23)*
16	*(25)*	17	*(14)*	21	27
18	27	*(14)*	*(13)*	20	30
20	27	20	26	18	*32
22	22	23	31	15	*30
24	*(19)*	*26	33	13	*25
2	*(17)*	*28	33	*(11)*	*21
4	*17	*27	32	*16	*18
6	22	*25	27	18	*16
8	*(18)*	*23	*19	15	*15

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SO AM
7	19	15	*21	*(12)*	*16
9	20	*(12)*	17	15	*17
11	26	*16	15	19	19
13	29	18	*(14)*	*21	*24
15	32	15	*(14)*	*22	*28
17	32	*(12)*	*(13)*	*21	*31
19	*29	*(15)*	*(20)*	*20	*32
21	24	*(18)*	29	18	*31
23	20	21	32	15	*29
1	*18	21	33	*13	*24
3	*14	19	32	*15	*20
5	21	18	27	*15	*18

well-controlled operation. From being on the top of the Most Wanted List, many of the deserving DXer has this one in the bag. They were plagued at times with bad weather and no doubt fatigue often set in. You try working pileups day after day after day! Perhaps that is why after working a bunch on 40 meters CW one evening they sent "QRX 5" and never returned. Many have worked 3YØPI and several modes and bands to prove to the success of the DXpedition.

Here at N6JM running 100 watts with a IC-735, we were able to work them on 30, 20 and 17 meters in that order. We worked the first DXpedition several years ago on 15 meters SSB only, so we didn't make a big effort to work this one. We worked them on CW, which we were after. The 17 meter contact was SSB. On the WARC bands all we used was a sloping dipole for 40 meters. Our first two contacts were the first couple of days of the DXpedition, which made us feel good as we rarely have worked a DXpedition that early in the game. Where we could have really used them would have been on 10, 40 and 80 meters. That would have been an effort on my part.

If you want to talk about weather, then listen to this, 3YØPI experienced several major storms, when up to about three feet of snow had fallen, the tents almost disappeared. The winds approached 80 mph and the temperature often dropped to minus 35°C. The high amount of snow caused two of the four generators to fail. Fortunately, they were able to repair them and bring them up on line.

What is disturbing to us, however, and beyond the control of the DXpedition team, was during the first weekend of the operation. We tuned to the CW operating frequencies which were taken over by FOC.

For those of you who are not familiar with FOC let me explain. FOC, or Firstclass Operators Club, is an elite group above the rest of us. They just happened to have a contest that weekend and chose to congregate on the transmitting frequencies of 3YØPI. Surely, these FOC types were aware of it. After all, are not they Firstclass Operators? Are they better than the rest of us and need not move? We heard requests for some of them to please QSY but were just ignored. Good show, FOC. You have made a lasting impression on us.

Now, some are going to say sour grapes to N6JM as he is not a member of FOC. That may be true. But, don't you think FOC — Firstclass Operators Club — would be ladies and gentlemen and be true to their name and QSY off the transmitting frequencies of 3YØPI?

We don't want our readers to get the idea we are after the FOC types here.

The following weekend during Sunday morning we were listening in on 10 meters and right on top of the 3YØPI transmitting frequency this N9 from Indiana kept giving his call. No, he wasn't trying to work 3YØPI, he was looking for 10-10 numbers. He didn't care if other fellow amateurs were trying to work the 3YØPI, he was only interested in 10-10 numbers. As we are a dues paying 10-10 member we were rather disappointed to see this happen in the name of 10-10.

So, then we tune to the CW portion of the band and what do we find on the 3YØPI transmitting frequency? South American CB types. Aw, what the heck. . .

Anyway, off my soapbox. Please help the Bransons (Joanie and Jerry) by not sending multiple QSL cards. If you were of the many who had worked 3YØPI on more than one band and mode, please enter the log data only on one card. You may enter your first QSO on one side with the other information on the reverse, or attach an extra sheet to the card with the data. And, be patient, the 3YØPI team racked up in excess of 61,000 contacts, so it is going to take some time to get the cards out. Please don't forget your donation to help finance this DXpedition. If you could afford to buy that fancy radio you surely can afford to send a few or more bucks.

MINIPROP PLUS

Shel Shallon, of W6EL Software, has released version 2 of his MINIPROP PLUS for HF propagation prediction, which has several new features. This is the current release in the MINIPROP series of propagation prediction programs that have been used by the U.S. and foreign governments, shortwave broadcasters, SWL, DXpeditions, and DXers worldwide since 1987.

MINIPROP PLUS version 2.0 includes optional adjustment of MUF predictions for the geomagnetic K index, making the excellent propagation predictions that distinguished MINIPROP PLUS version 1.0 even better.

On any path specified by the user, and for any date, MINIPROP PLUS predicts the received signal levels for every half hour of the day on each of seven user-specified frequencies between 3 and 30 MHz. In addition, MUFs (maximum usable frequencies), radiation angles, beam headings, path lengths, sunrise and sunset times, and other useful information are reported to the user. A new feature in version 2.0 is the adjustment of MUF predictions for the geomagnetic K index.

Another new feature is a world map showing the frequency suggested for use between any location and each of 57 areas of the world at any time and date. This is an addition to the world map display showing great circle path between any two stations and the location of the solar terminator (gray line) at any time of day. The maps and program's menus, dialogue boxes, and data displays are in full color on suitably equipped computers.

Other features new to MINIPROP PLUS version 2.0 are automatic updating of the map displays to the current time every five minutes and a batch mode of operation that makes it easy to run multiple predictions without keyboard interaction.

An on-disk atlas provides the latitudes and longitudes of more than 370 locations; the atlas includes all DXCC countries and can be edited by the user. MINIPROP PLUS will also print a customized table of beam headings from the user's location to all the locations in the atlas.

MINIPROP PLUS is for IBM and compatible computers with at least 512K of RAM, DOS 2.11 or greater, and CGA/EGA/VGA or Hercules graphics. A math coprocessor is recommended but not required.

We have not had the chance to evaluate Shel's new version of his famous MINIPROP PLUS series. I believe I had stated a few issues back that our computer needs to be replaced, and just have not done so. It is just a matter of priorities in our cash flow. Not only that, our present computer is slow and is not set up for color graphics.

MINIPROP PLUS is priced at $60.00 postpaid in the United States and Canada, and $65 elsewhere. For further information please contact Shel at W6EL Software, 11058 Queensland Street, Los Angeles, CA 90034-3029. The prices quoted are in U.S. dollars.

Operating habits

Kerry Miller, WD5ABC, has been disturbed by the growing number of lids, which are now showing on the CW bands. Kerry writes, "If a DX station answers a partial callsign, I hear dozens of stations answer him even if he ends with the prosign 'KN.' To me, if he gives the last two letters as 'AB' and mine are 'BC,' I shouldn't transmit! Is that so hard, or are these guys just not copying anything until he sends their callsign?"

We really have no answers for that one. Most likely, they aren't listening. Maybe it is this new breed into packet radio where your computer picks up the info tunes your radio to the frequency and just about transmits for you. Of course, it does require some listening on the part of the operator. Maybe that is too much to ask.

Kerry was wondering if we ever considered a table of contents with our column. Well, there is a table of contents in the front of each issue of ***Worldradio***. However, our column isn't that large that we need a table of contents.

QSL information

Dave Stutz, NH6MG/TG8, says that he cannot respond to QSL cards sent to his *Callbook* address and should QSL to him direct in Guatemala (see QSL Routes). Dave requests that return postage or IRCs, or a donation of a recent communications magazine to be share with this local radio club, be included with your QSL request. Dave plans on remaining in Guatemala on a permanent basis.

Earl Goswell, N7NZ, is looking for a QSL route for 7J1ALE. Earl sent a QSL to him via the bureau two years ago and wonders if there is a better route.

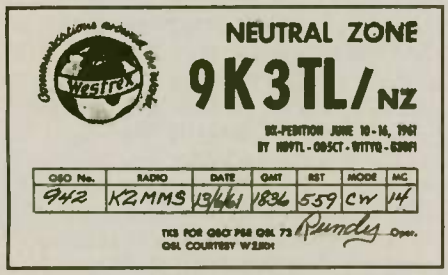
Antique QSL department

The following is a domestic QSL card that was sent to us by John Parrott,

W4FRU. What is so unusual about this card is that it is rather large — 7 inches by 14 inches! I guess it was designed to tack up on the wall of shacks. Either that, or a large QSL card to go with the California kilowatt. The date of the contact was 1938 and no other date was given nor the frequency. The call YR5AR belonged to Preot Stefan P. Rusu, who was one of the first hams in Romania and later

became YO2RA. The QSL card was sent to John by a Wlassits Nandor, a friend of YO2RA who became a Silent Key in 1985. We don't know what became of the holder of the 1938 call of W6CQI and there is no listing in the present *Callbook*.

Jules Wenglare, W6YO, provides us with our second antique this month. J8CD was the call of Dr. Ryozo Nagataki, of Pyenyang, Korea. At that time Korea was controlled by Japan.



Jules was operating as W8OSL in western Pennsylvania for that October 11, 1937, contact with J8CD. The card was routed via the JARL QSL Bureau, then operated by J2GX, who many years after the war would be known as JH1WIX.

Routes

The following includes the calls for managers who handle QSL chores for the DX calls listed. In some cases, addresses that normally would not be found in the *Callbook* are included. Be sure to check both listings. In some cases we have listed the manger's address in the second list after being shown in the first list. And, when addressing your envelope use your own judgment on including call letters in the address.

*The DX staff at **Worldradio** would greatly appreciate reports on errors of the QSL routes given. As in QSL routes given in all publications we all do our best to give correct routes, but cannot guarantee that they are. Thanks!*

QSL routes

1B/KU6J	--KU6J
3A/I1YRL	--I1YRL
3A/I1ZB	--I1YRL
3A/I1QOA	--I1YRL
3D2KM	--VK4CRR
3V8W	--DK2WV
3ZØMPT	--SP8SLA
4K5ØØDWZ	--UD7DWZ
4L1AB	--UF6AB
4L1HX	--IK2MRZ
4L7AA	--I7JFQ
4M1I	--I2CBM
4M4A	--W1AF
4M5V	--W1AF
4N2AJ	--9A2AJ
4N4/9A2AJ	--9A2AJ
4N4AO	--9A2AJ
4N4TG	--9A2AJ
4N4YS	--9A2AJ
4O7ØAB	--YU1AB
4O7ØDR	--YU7DR
4U1ITU	--KE4CQ (See Note 1)
4X/S59PR	--9A2AJ
4Z85TA	--4X6LM
5B4ADA	--9A2AJ
5B4ADR	--9A2AJ
5K1R	--HK1LDG
5U7Y	--JG3UPM
5V7GL	--EA5WX
8P6CZ	--VE2RY
8P9FC	--GM3AVA
8P9GD	--KU9C
8P9GE	--K2PF
8Q7AB	--DK1RP
8Q7CR	--DF5JR
8Q7XE	--DF2XE
9A/4N4TG	--9A2AJ
9A1HBC	--9A2AJ
9A3SM	--9A2AJ
9G1YY	--IK7MCJ
9I2A	--DL7VRO
9I2M	--DL7VRO
9I2Z	--DL7VRO
9J2PI	--KBØKVA
9M6LS	--N5FTR
9M8FH	--N5FTR
9M8KT	--JA4ENL
9M8LL	--N5FTR
9M8YL	--N5FTR
9Q5KM	--ON6KM
A35CC	--JR2KDN
A35JJ	--JR2KDN
A35MR	--VK9NS
A35SQ	--W7TSQ
A41KJ	--N5FTR
A92FV	--G8OAB
AH3D/KH0	--JA1HGY
AH8F	--G4ZVJ
BZ4DHI	--I1YRL
C21/WK3D	--JR2KDN
C41A	--9A2AJ
C42A	--9A2AJ
C6AGV	--WA4CRV
C6AHL	--K3DI
C6AHN	--KC4SZE
C91J	--W8GIO
CE7AOY	--CE7ZK
CF1YX	--VE1YX
CF3CGB	--VE3CGB
CS8CBI	--CT1CBI
D2/AA4HU	--W3HCW
D2EV	--DL3KBQ
DL9GMM/3N0	--DL9GMM
DPØGVN	--DKØMIT
DU3/AH8F	--G4ZVJ
ED6XXX	--N6RA
ED6YX	--EA5OL
EK8ZZ	--DL1VJ
ER1A	--FD1JOE
ER1DA	--FD1JOE
ER1PE	--I8YGZ
ER3MM	--I8YGZ
ET3BH	--SM3EVR
ET3RA	--HB9CVB
EU1AW	--UC2AWS
EU1DX	--UC2ADX
EU1EU	--LY1BA
EXØSY	--UMØMIG
EX7MM	--DF8WS
EX8W	--UM8MY
EX9HQ	--DF8WS
EY8MM	--DL8WN
EZ5A	--W5BWA
EZ5AA	--W5BWA
EZ5DX	--W5BWA
EZ5EA	--W5BWA
EZ5EZ	--W5BWA
EZ8BO	--UH8EA
FK8GM	--WB2RAJ
FO/DJØVT	--DJØVT
FOØHAR	--WD5N
FOØHAR	--WD5N
FOØPT	--DJØFX
FR/F5PXQ	--F5KDZ
FR/GØIXC	--GØIXC
FT5XJ	--F5NLL
FT5YE	--F1AAS
FT5YF	--F3CJ
GDØSLY	--WA3CGE
GD7HEJ	--GD3AHV
GJ3ULT	--G3XTT
H21A	--9A2AJ
HI8/N2AUK	--N2AUK
HS5AID	--JA4ENL
HS8EFF	--KO4GT
HV4SJ	--IØDUD
IZ1L	--IK1LBL
J28FX	--F5MGZ
J52AK	--IV3TIQ
J6/DL5XAT	--DL5XAT
J6/DL9XAT	--DL9XAT
J68AK	--W8QID
J68AS	--N9AG
J69MV	--J6LMV
JT1M	--JT1BG
K5MK/TI7	--K5MK
K6JAH/6Y5	--K6JAH
KC6SF	--JR1FVV
KK6WW/KHØ	--JA6EGL
KF7UO/KH4	--K7IHI
KG4DD	--N5FTR
KH8/W9GW	--W9GW
KI7AM/DU8	--VE3XN
KK6KO/KC4	--KK6KO
KK6WW/KHØ	--JA6EGL
L9CNS	--LU9EV
LX4A	--LX1NO
N3NNU/HR1	--K2YJL
OA4EI	--OA4ANR
OL1A	--OK1DWX
P29BT	--N5FTR
P29VH	--VK4CRR
P30ADA	--9A2AJ
P31A	--9A2AJ
P34A	--9A2AJ
P39ADA	--9A2AJ
P40GD	--K8GG
P40MR	--VE3MRS
P40N	--K1TO
P40TR	--VE3MRS
P40W	--N2MM
P46S	--W1AF
P49I	--K4PI
P49V	--AI6V
PJ/K3OUC	--W1AF
PJ5/K3UOC	--W1AF
PJ8H	--W1AF
PS0F	--W9VA
PV2A	--PT2BW
PYØS	--JA2JPA
RK3KPK	--DF4XW
RQ9HM	--UW9HM
RS3A	--DF4XW
RX9FM	--UV9FM
RX9XD	--UV9XD
RZ3DA/MM	--EA8BWW
S21ZX	--JA4ENL
S59L	--YU3DX
T23JJ	--JR2KDN
T30D	--VK4CRR
T30DP	--VK4CRR
T36JJ	--JR2KDN
T30RT	--VK4CRR
T32BB	--DF6FX
T32TP	--VK4CRR
T33CS	--G4WFZ
T33KK	--SM7PKK
T93M	--DL8OBC
T94KW	--HA8HW
T94OP	--OZ3ACP
T96RNR	--HA8HW
T9S	--DL1QQ
TA2ZI	--WB6EQX
TL8MS	--DL6NW
TM5ICF	--F5PTI
TO2T	--F2YT
TU2KC	--F6LBL
UK8ZAC	--UI8ZAC
UO5ODA	--FD1JOE
UR9SJ	--RB5SJ
US9KW	--UB5KW
UT4UWC	--GØRWR
UX9FF	--DF8BK
UX3FF	--LY1FF
V29NR	--YU1NR
V31BR	--N5FTR
V31BW	--WB5B
V31DV	--KF8HR
V31DX	--KA6V
V31EN	--KF8NN
V31EO	--KF8NN
V31GM	--KF8NN
V31II	--KF8NN
V31JZ	--NN7A
V31ML	--N5FTR
V31MV	--KF8NN
V31PP	--WA5TKC
V31TP	--WCØW
V31WW	--KF8HR
V47KP	--K2DOX
V47N	--VE3CME
V51WL	--ZS6WLN
V73C	--AH9C
V73XP	--JR3PUG
V85AH	--VK4CRR
V85NL	--JA4ENL
V85SS	--JA4ENL
VA3YJ/8	--G3RBP
VE3ODC/V2	--VE3ODC
VK4VD	--VK4CRR
VK8AN	--VK4CRR
VK9CE	--VK4CRR
VK9LD	--VK4CRR
VK9MM	--VK4CRR
VK9NJ	--G3SWH
VK9XO	--VK9CRR
VO2BC	--VE3YYR
VP2E/K5ME	--K5ME
VP2EST	--KT8Y
VP2MCU	--KC5AK
VP2MCY	--KC5AK
VP2MFA	--K8SJ
VP2MPO	--KE9XY
VP5/K9IMM	--WB9NOV
VP5/NS9L	--WB9NOV
VP5/W2HKM	--W2HKM
VP5B	--WB9NOV
VP8BFH	--WA3ZKZ
VP8PTG	--G4RFU
VP8RX	--JA4ENL
VP8RY	--JA4ENL
VQ9TN	--K5TNP
VQPMZ	--K8XF
VQ9TN	--K5TNP
VU3DEN	--VU2DVC
XE1/NE8Z	--K8LJG
XFØC	--XE1BEF
XH9Z	--KF7SH
Y93T	--9A2AJ
YJ8RN	--N9DRU
YO4OO/4U	--9A2AJ
YU7ØKN	--YU1KN
YSØASI	--WA4FVT
YS1XS	--WD4PDZ
YT7ØTY	--YU7KMN
YU3PR/4U	--9A2AJ
YU3PR/4X	--9A2AJ
YU3PR/YI	--9A2AJ
YU3PR/5B4	--9A2AJ
YU4OO/5B4	--9A2AJ
YU4OO/4X	--9A2AJ
YU7ØKN	--YU1KN
YV/K3UOC	--W1AF
YW5LT	--W1AF
YZ3BAR/5B4	--9A2AJ
Z21BA	--N5FTR
ZA/OH6XY	--OH3GZ
ZC4AB	--GØPWR
ZC4KS	--GØPWR
ZD8Z	--VE3HO
ZF1A	--W8BLA
ZF1CQ	--W8BLA
ZF2BS	--AA6KX
ZF2CF	--N6RPL
ZF2MC/ZF8	--N7MCA
ZF2MC	--N7MCA
ZF2ND	--KF6OG
ZF2RT	--WAØPUJ
ZF2RU	--KL7YL
ZF2SQ	--WAØJTB
ZF2SY	--K2UFT
ZF2VX	--K5VT
ZF2WB/ZF8	--WB5MUH
ZF2WL	--NØYPC
ZK1ADI	--WI8S
ZK1AT	--WB6EQX
ZK1AWI	--WI8S
ZP5XYE	--JA7ZF
ZPØA	--ZP5XHM
ZSØX	--(See Note 2)
ZYØSK	--PS7KM
ZYØSP	--PT7AA
ZZ1CZ	--PP1CZ

3XØDEX --Michel Hamoniaux, B.P. 104, F-22650 Ploubalay, FRANCE

4K1F --Nikolai Komissarov, KF2KT, 1862 Woodbine St, Ridgewood, NY 11385

4K2BY --Nikolai Komissarov, KF2KT, 1862 Woodbine St, Ridgewood, NY 11385

5R8DA --P.O. Box 14, Antalaha 206, MADAGASCAR

5R8DS --P.O. Box 404, Antalaha, MADAGASCAR

5T5MS --Mohammed, P.O. Box 327, Nouadhidou, MAURITANIA

8R1AK --Edmond, P.O. Box 10863, Georgetown, GUYANA

9A1A --Croatian Contest Club, P.O. Box 108, 41001 Zagreb, REPUBLIC OF CROATIA

9A2AJ --Tom Polak, Brace Domany 6/19, 41000 Zegreb, REPUBLIC OF CROATIA

9G1UW --Werner Groen Construction Pioneers, P.O. Box 781, Accra, GHANA

9V1VJ --Andy, P.O. Box 0024, Raffles 9117, SINGAPORE

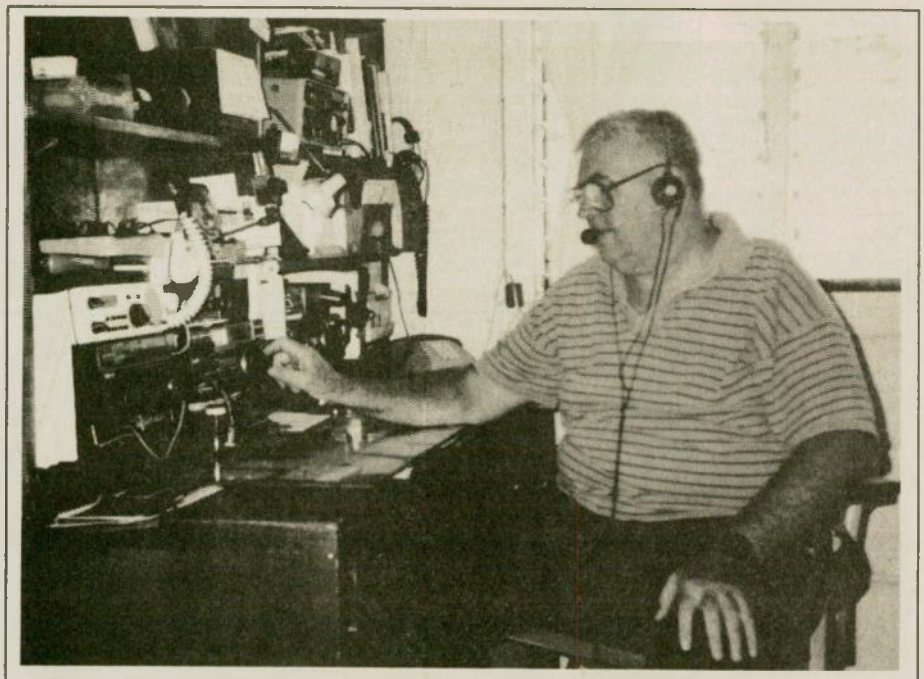
FY5GF --Ignace, P.O. Box 6005, Cayenne, F-97306 GUYANA,

GUØ/K7RDH --Bob Hatter, 101 Moore Ave SW, Vienna, VA 22180-5968 via France

HTØO --P.O. Box 122, Jinotepe, NICARAGUA

J28JJ --Jean Jacques Chatclard, P.O. Box 1076, Djibouit, REPUBLIC OF DJIBOUTI

J52AG --Erik Sjölund, SMØAGD, Vestag 27, 19556 Marsta, SWEDEN



Father Joseph A. Cavanagh, V63JC, is very active from Pohnpei Island (OC-010) in Micronesia. Cav is the director of the Pohnpei Agriculture and Trade School. During his free time Cav is on the air running a 440S into an Amertron 811 amplifier. His antenna farm consists of a TA-33 tri-bander for 10, 15 and 20 meters and a Butternut vertical for 40 and 75 meters. He also has wire antennas for 12 and 17 meters and hopes to be on 160 meters in the near future. Look for Cav on 20 meters near 14.200 MHz or on 40 meters around 7.184 or 7.200 MHz with the 40 Meter DX Group that meets at 0730 UTC on Mondays. He will make schedules for those who wish to work him on 75 meters. — *photo courtesy of KI7NL*

KC6KT --Taisuke Kondou, JR6IQI, 165-101 Otsu, Otubo-cho, Imari-city, Saga 848, JAPAN

KC6UA --Taisuke Kondou, JR6IQI, 165-101 Otsu, Otubo-cho, Imari-city, Saga 848, JAPAN

NH6MG/TG8 --Dave Stutz, Apdo #79, Huehuetenango, GUATEMALA

PYØA --Roberto Stuckert, PT2GTI, P.O. Box 09647, 700001-970 Brasília, DF, BRAZIL

PYØB --Roberto Stuckert, PT2GTI, P.O. Box 09647, 700001-970 Brasília, DF, BRAZIL

PYØFM --Peter Zoch Sprengel, PY5CC, P.O. Box 007, 83260-000 Matinhos, PR, BRAZIL

TZ6JC --Michel Hamoniaux, B.P 104, F-22650 Ploubalay, FRANCE

V31RM --Sigi Presch, Wilhelms-muehlenweg 123, D-12621 Berlin, GERMANY

V31UO --Sigi Presch, Wilhelms-muehlenweg 123, D-12621 Berlin, GERMANY

V31VT --Richard, P.O. Box 3777, Omaha, NE 68103

V51Z --Chris Burger, P.O. Box 4485, Pretoria, 0001 REPUBLIC OF SOUTH AFRICA

V63JC --Fr. Joseph A. Cavanagh, P.O. Box 39, Pohnpei, FM 96941

VEØMMZ/C6A --John, P.O. Box 152, Station P, Toronto, ON M5S 2S7, CANADA

VR6CB --Clarice, P.O. Box 11, PITCAIRN ISLAND, via New Zealand

VR6ME --Mark Ellmos, P.O. Box 24, PITCAIRN ISLAND, via New Zealand

XUØHW --Laci Szabó, P.O. Box 24, H-4151 Püspöklandány, HUNGARY

XU7VK --Laci Szabó, P.O. Box 24, H-4151 Püspöklandány, HUNGARY

XU9HA --Laci Szabó, P.O. Box 24, H-4151 Püspöklandány, HUNGARY

YCØARO --Orin Snook, c/o Fluor Daniel Jakata, 10 Twin Dolphin Dr, Redwood City, CA 94065

YI1AL --Ali, P.O. Box 140, Swelh, JORDAN

YI1EYT --Imad, P.O. Box 27110, 12603 Baghdad, IRAQ

YS1JRG --John, P.O. Box 32, San Salvador, EL SALVADOR

ZA1MH --Mike, P.O. Box 19, Tirana, ALBANIA

ZA/K5KWG --Bailey M. Holman, P.O. Box 19, Tirana, ALBANIA

ZD8DEZ --Dez Watson, GØDEZ, 12 Chadswell Heights, Lichfield, Staffordshire, WS13 6BH, ENGLAND

ZL6RFA --NZART Branch 27, c/o 45 Robe Street, New Plymouth 4601, NEW ZEALAND

ZS9Z --Chris Burger, ZS6EZ, P.O. Box 4485, Pretoria, 0001 REPUBLIC OF SOUTH AFRICA

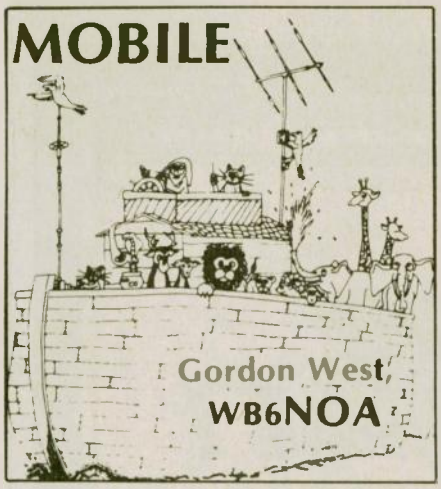
NOTES:

1. This route applies for contacts made on or about 30 January 1994.

2. All CW and SSB contacts made with ZSØX should be sent via DJ6SI, Baldur Drobnica, Zedernweg 6, D-50127, Bergheim, GERMANY. RTTY contacts go via Heinrich Lumpe, P.O. Box 1142, D-3088 Barsinghausen, GERMANY.

Many thanks to the following contributors: NH6MG/TG8, KA2PHQ, W4FRU, WD5ABC, W6EL, KI7NL, N7NZ, K8SJ, NØVYL, HamNet SysOp (W3VS), Salt City DX Association (KB2G), Western New York DX Association (KB2NMV), Western Washington DX Club (WAØRJY), The American Radio Relay League (K5FUV), *CQ Ham Radio*, *The Low Band Monitor*, *Long Skip* (VA3JS), *The Long Island DX Bulletin* (W2IYX), *DX News Sheet* (G4DYO), *QRZ DX* (W5KNE), and *The DX Bulletin* (VP2ML).

After a few attempts to get those elusive QSL cards, one oftens accepts the fact it just is not going to happen and gives up. In our last batch of cards from the QSL bureau there was one from UH8BZ for a contact I made with him in November 1981. I had sent a follow up request to this guy six years later , but just wrote it off along with the many other QSL cards I never receive. A little over 13 years is a long time to wait — but I have heard of worse! 73 de John N6JM. WR



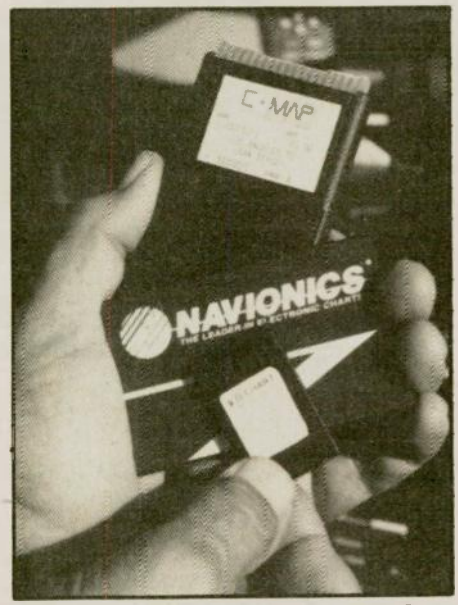
Road maps on the screen

A few months ago many of you saw national television coverage of an electronic charting device that fits in your car or motorhome, and gives you street maps and your position on an LCD screen. But the $2,000 price tag probably turned you off quickly to this idea, especially after the fact they tell you it's going to be several hundred dollars for individual map areas.

Does $679 for a mobile or marine chart reader sound more like the ticket for you? If this is a little closer to your budget, read on — electronic chart devices could very well show you the way to get home.

Electronic chart displays are a two-part set-up. The actual chart display uses an LCD screen, and the whole box measures about 7 inches high, 7 inches wide, and about 3 inches deep. This is the brains of the charting system, plus the readout. It runs on 12 volts, draws less than 1 amp, and may feature both built-in area cartography as well as provisions for slip-in cartridges for precise area maps and charts.

The other part of this two-part set-up is the GPS antenna sensor. Signals are received from the now-completed GPS constellation of mid-earth-orbit (MEO) satellites at 1575 MHz, and these satellites beam down signals which are decoded by the GPS receiver inside the saucer-sized antenna unit,



These are the tiny charts that plug into the chart recorders.

and then converted over to numerical latitude and longitude coordinates, as well as a blinking X on an electronic chart. Accuracy of your position will be within 300 feet 95 percent of the time, and within 100 feet at least half the time you are receiving the signals. The GPS antenna unit must be outside your vehicle for best reception to the orbiting satellites, although you can get relatively good reception with the antenna unit inside a big back window of a car. It will work quite nicely inside a fiberglass motorhome roof, but won't work at all if there is any type of metal shielding it from a 360-degree view of the sky.

The receiver/antenna units cost around $600, and they output a datastream identified as NMEA language #0183. For a comprehensive book on how to take NMEA #0183 and interface it to any type of portable computer, call NMEA (National Marine Electronics Association) at 205/473-1793. There is a small charge for this fascinating technical document.

If you already own a lap-top computer, you don't necessarily need a separate electronic chart display. Several companies are developing software of electronic charts that cover popular driving areas of the United States. As an example, two of them are: Trimble Navigation, Sunnyvale, CA, 408/481-6056; and Delorme Mapping, Freeport, ME, 207/865-1234.

There will be hundreds of more automobile mapping companies soon to announce cartography on computer disk, but the charting of highways is a monster job and is in its infancy.

But charting of the oceans has already been accomplished, and mariners have no problem buying electronic chart cartridges for cruising any specific spot in the world.

Two companies with 800 numbers are C-Map USA, Sandwich, MA, 800/424-2627; and Navionics, Inc., Woods Hole, MA, 800/848-5896.

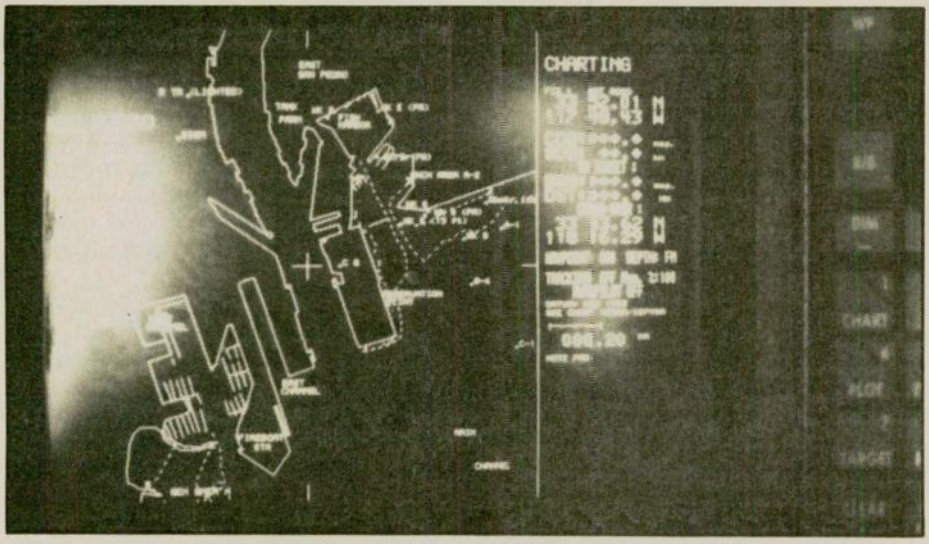
Both of these companies produce electronic marine charts on cartridges that simply slip into a marine electronic chart device. Each cartridge runs about $150, but covers hundreds of square miles of cruising. The detail of the chart is a lot closer than the 100-foot accuracy that GPS can provide. In selected areas of the country's coastlines (namely the East Coast for now), the U.S. Coast Guard provides differential GPS corrections which are received by an external low-frequency receiver to increase GPS accuracy down to a 20-foot circle!

But there is one marine unit that has some excellent applications to inland as well as ocean cruising with everything built in — the Lowrance Electronics Global Map 1000 electronic chart display with "canned" cartography. This $679 unit ties into a compan-

ion $600 GPS receiver, and for under $1,400 you have a complete system to put in your car, in your motorhome, or aboard your boat. On land, major expressways and freeways show up on the screen. Out on the water, you plug in marine chart cartridges for a detailed view of the ocean, harbors, and bays. Who knows, when C-Map and Navionics get through charting the oceans, maybe they'll develop some cartridges that will cover roadways, too.

But until they do, you do your driving with the Lowrance unit turned onto its own built-in cartography. You don't get small streets, but you did get the big ones. It will take you a few days to adjust your unit so your position agrees with the local street maps. The built-in cartography was digitized many years ago, so you don't get the newer freeways or expressways. And

Freeways are part of the built-in maps.



Close-up of electronic charts showing boat positions as an + in the channel.

in our test unit, they were all about 500 yards off until we re-calibrated our set. And once we did, we could accurately trace our steps up and down the Los Angeles freeway system and could even see exactly which side of the freeway we were on.

Out on the desert floor, you can switch over to plotting, and you could retrace your steps to within tire tracks of your trip out on the sand. Unbelievable position finding from the chain of orbiting GPS satellites!

So if you can't wait for highway cartography to catch up with what mariners now use on the water, take a look at the Lowrance unit at your favorite marine electronics dealer and see all the capabilities it has with internal highway cartography as well as precise position plotting.

Major dealer: All West Marine stores throughout the country, 800/538-0775 for nearest dealer. **WR**

FM & REPEATER

BILL PASTERNAK,
WA6ITF

I swore I'd never do it again!

It has been about three years since I bid farewell to writing a regular monthly column dealing with FM and repeater related matters. When I departed after almost two decades authoring a monthly column, I swore to myself that I would never, ever do it again. The time it took was just not available; and besides; FM and repeaters had matured to a point where a regular column dealing with happenings in that part of the hobby was no longer needed. Or so I thought. Was I ever wrong.

For those of you not aware, I began writing "Looking West" for *73 Amateur Radio Today* magazine in 1971, when it was known simply as *73 Magazine*. The original thrust of this monthly outing was to try to share with the rest of the nation some of the wondrous technological developments in Amateur Radio relay technology that was taking place on the "left coast" and that never seemed to wander any further east than Las Vegas or Phoenix! But as the years wore on, the technological aspect of FM and repeaters gave way to the political side as this area of ham radio entered its "appliance phase."

As less and less was happening on the technological development front the reverse was true in the political arena. With regard to FM the first politics was really the establishment of a national calling frequency. In the mid 60s this was 146.94 MHz, and all was well until the first repeaters came along. They also wanted to be noticed, so they too selected 146.94 as a transmit frequency, and in short order simplex ("direct" for those of you East of the Continental Divide) got shuffled elsewhere. First to 146.76 and eventually to 146.52, 146.55 and several other channels under the first ARRL National 2 meter bandplan (which was actually the Texas 2 Meter Bandplan and adopted by ARRL).

My personal entry to the world of FM was in 1962 or 1963 when my buddy from 6 meter AM; Larry Levy WA2INM; came up with a set of old Link Corporation FM high-band radios. These were three large gray boxes tied together on a kind of a rail assembly. One box housed a two channel transmitter, the next a receiver and the third a power supply. Obviously these were base-station radios as the power supplies were of the 110 VAC mains power variety.

It took a few weeks to find a company that could grind us crystals for these radios, but once converted to 2 meters and put on the air, Larry and I had our own "private intercom" on 145.237 MHz that we used for years. And it was great. No TVI. No static. No having to turn the radio off and on. Just let it sit there, squelched, and hit the transmit switch to make a call. Until Larry went off to college, those old Links got one heck of a daily work-out. Especially coordinating DX contacts when 6 meters was open. Kind of an audio precursor of todays' DX PacketClusters.

By 1962, Larry was off to Marlboro College and I was out living on my own. AM was dying on 6 meters, being replaced by SSB. The "status radio" was the Swan 250C and I had one along with a home-built 4-400As in push-pull linear service. This fed a pair of stacked gain 6 element yagis putting out one mean signal from atop a seven story apartment house. And there I stayed quite happily until the mid 60s when circumstances would bring me west on business.

Now in those days there were no handie-talkies or mini-mobile radios like we have today. If you wanted to operate portable, you toted along an entire station or settled for something a bit less than state-of-the art. I tended to choose the latter, so for out of town junkets I had stashed in the closet a pair of "Benton Harbor Lunch Boxes." One a Heathkit "Sixer" and the other a Heathkit "Twoer." These were "barest essential" transceivers that combined a sensitive though broad-as-a-barn tunable super-regenerative receiver and a 5 watt in, single channel controlled transmitter and AC main power supply. They cost $39.00 each in kit form, were easily assembled and tuned up and weighed in at less than three pounds. Together with an optional outboard 12 VDC power pack (a vibrator feeding a step-up transformer and a 6x4 tube type rectifier — tubes were cheaper than silicon devices back then) and a pair of dipoles and you had the "VHF travel station" of the era.

Anyhow, when my employer offered to send me to California to meet with the techies of a Japanese supplier of consumer electronics I jumped at the chance. It was early February, there was 5" of snow on the ground and the lure of a warm couple of weeks was just to much to resist. Not knowing anyone in Los Angeles other than the one ham I had worked on 6 meters a few years earlier, I opted to bring along the pair of "Lunch Boxes." After a day of searching with little success for six meter contacts from a hotel room in Santa Monica, I decided to try my luck on 2 meters. As soon as the "Two" warmed up, I heard a signal. In fact, it was the strongest signal that I had ever heard on any VHF band! Even stronger than WA2INM had been on 6 meters in New York!

What I had encountered was my very first "repeater" although I was not aware at the time such devices existed. And as time would prove, this encounter totally changed my life. More on this part of the story next month. Right now its time to become more contemporary.

A need that has to be filled

Other than the FM/RPT column in *QST* there is little written in mainline ham radio publications of direct interest to the ham whose primary or perhaps only interest is FM. And, for the most part, the *QST* offering is many times nothing more than reprints of articles out of club newsletters. Very little is original; most is not newsworthy.

When I departed from *73*, I had hoped that they would get someone to take my place and continue a regular FM oriented column dealing with topical matters. That never materialized nor has any other magazine seen fit to pick up the ball and run with it. In fact, a few weeks ago I was discussing the idea of a column such as this with yet another publisher who commented back that it would amount to the same thing as having a monthly offering dealing with telephone conversations! We were joined by several other people in the ham radio business community who seemed to echo the same sentiment.

As the conversation continued, I began to understand the shortsightedness reaching my ears. The fact is that VHF-FM gear outsells everything else in the market combined. Every active ham probably owns at least one VHF

FM transceiver or at least a handheld. That we are getting somewhere between 4000 to 6000 new hams a month who are starting their Amateur Radio careers with a VHF FM transceiver — many of whom will never leave VHF — and yet there seemed no interest on the part of the publishing community to properly service this burgeoning market except now, here in ***Worldradio***.

Having grown up and in the world of FM and repeaters I knew this was far from reality. That as the largest subcommunity in ham radio that the FMer have a right to be represented in the mainline press. So as the American DC-10 winged westward, I sat with my laptop putting some notes together on what a good column for FMers might be like. The two key words that came to mind were topical and "newsworthy."

A week later both of these terms came into very sharp focus when I got a phone call from the attorney for a local radio club to tell me of his success in barring what the radio club consider as an undesirable operator from its repeaters. During the conversation, it was mentioned that the FCC agreed that a repeater licensee could bar anyone from a repeater that the system license holder deemed unfit to be there. When I finally was faxed a copy of a letter from the FCC to the radio club it hit like a bombshell and I knew that this, rather than the court ordered expulsion of a user from a repeater was the story. That's because it affects each and every ham who keys up and operates through a repeater!

FCC says repeater trustees can ban users

The Federal Communications Commission has issued a letter of interpretation that validates the authority of repeater system licensees to ban duly licensed radio amateurs from operating over an open repeater. The interpretation comes as the result of a request for clarification sought by Attorney Sidney Radus, N6ØMS of Orange, CA. Radus is the attorney representing the Claremont Amateur Repeater Association in its fight to regain total control over the way that its club repeater systems are used and who can have access to them.

In preparation of a civil complaint against one unwelcome user, Attorney Radus wrote to the FCC's Private Radio Bureau to find out exactly where his client stood in regard to operation of a repeater station as outlined under Part 97.205(e) of the Amateur Radio rules. His fax was answered by Personal Radio Branch Chief, John B. Johnston, W3BE. Johnston is well versed in Part 97 regulatory matters in that he was the guiding hand that crafted the latest version. Here is Johnston's response:

Feb. 1, 1994

Dear Mr. Radus,

This is in response to your fax dated January 14, 1994 in which you request further response to your previous correspondence. Specifically, you request whether Section 97.205(e) permits owners of "open" repeaters to limit the use of their repeaters to certain users.

Section 97.205(e) states: ... Limiting the use of a repeater to only certain user stations is permissible. The rule section applies whether a repeater is coordinated as an "open" or "closed" repeater. Further, the rule applies without regard as to whether a repeater is coordinated at all. Rule 97.205(e), without qualification, permits the individual responsible for proper operation of a repeater to limit the use of a repeater to certain user stations.

I trust this is responsive to your concerns.

Sincerely,
John B. Johnston
Chief, Personal Radio Branch

Attorney Radus used this federal regulatory interpretation in evidence at a civil restraining order hearing against a former member of the Claremont Amateur Repeater Association. It was accepted as evidentiary material by an Orange County California Superior Court which sided with the radio club and granted its restraining petition that banned Tim W. Seawolf, KJ5KE, from operating on any CLARA repeater for the next three years.

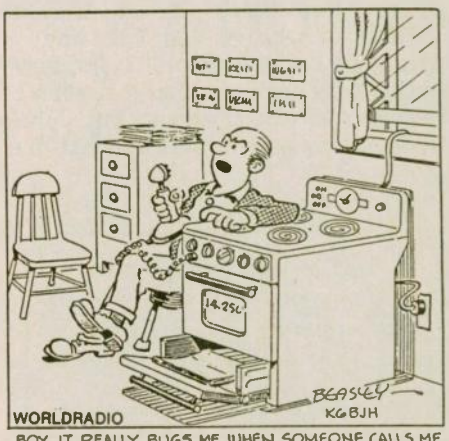
But looked at on a much broader scale, this latest interpretation of Section 97.205(e) says in the strictest sense that there is no such thing as either "open" or "closed" repeater. Rather, it says that a radio amateur who operates a repeater is permitted under FCC regulations to take whatever steps he deems necessary to insure that his repeater will be operated in full accord to all applicable Part 97 rules, even if this means banning certain other radio amateurs from having their signal repeated.

In essence, this re-reading of Section 97.205(e) by Branch Chief Johnston means that any ham who enjoys the use of a repeater; regardless if it is open, closed, coordinated or uncoordinated; does so by the authority of the repeater station licensee. Further, a repeater license holder has the authority to ban any radio amateur from operating through his relay device, and that those so banned have no recourse or right to appeal.

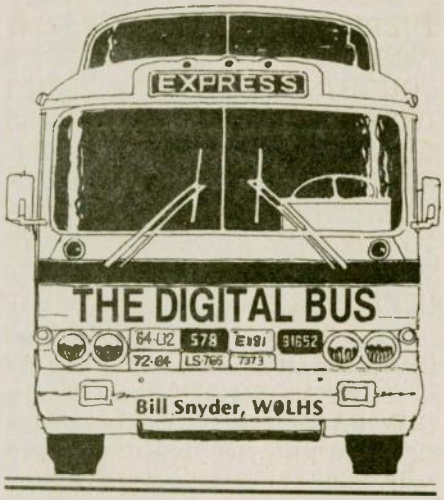
This is truly a precedent setting regulatory interpretation by the FCC and one that will forever change the way in which all repeaters are operated. It definitely changes the way in which a repeater licensee is required to police the user base of such device. Moreover, it alters the standing of any ham who wants to use a repeater. If the license holder of that repeater says "go away — you are not wanted" he or she has the power of the federal government to back up those words.

And who said that there was not much new happening in the area of FM and repeaters anymore? de WA6ITF

WR



BOY, IT REALLY BUGS ME WHEN SOMEONE CALLS ME "JUST AN APPLIANCE OPERATOR!"



In the February issue, I asked for help with a non-scientific test of our packet system. My idea was to have a number of volunteers around the country send me one packet message a day for 10 days and I would keep statistics on how many got lost, etc. Well, packet fans, I wasn't impressed with the efficiency of the system. I'm still looking for a lot of missing messages.

Twenty hams in various parts of the nation took me up on the test; so, if the system operates at 100 percent efficiency, I should have 200 messages in a neat little pile in back of my BBS printer; however, I only have 110, or 55% of what should be there.

The first message in response to the request arrived on 12 January, a few days after ***Worldradio*** hits the mail. I'm writing this on 21 February, the day I finally received all ten messages from one sender. Actually, I received all ten from two stations on the same day. The first one to complete it was John Weiss, KD3YU, a fellow railroad fan in Elliot City, Maryland. John's first packet had arrived here on 3 February, but it was not message number one, it was number two. Here is the sequence that John's messages arrived in Fargo: 2, 3,1, 5, 4, 6, 8, 7, 10 and 9. Message #1 was filed on 31 January and actually arrived in Fargo first on 1 February after 11 relays, but John made a simple typo that delayed my reading it for almost a week. What did he do? Well, he addressed me as follows: WOLHS @ WØLHS. Instead of a zero, John put the letter "O" in the first call sign in the address. It got here okay because the second WØLHS was correct, but I didn't catch it right away when I scanned for my traffic because only those with zeros are printed on the screen. Using the letter instead of the numeral is a common typographic error in the zero district. I accidentally do it myself because I have fat fingers.

I logged each message in on the day I read it, not the day it arrived in my board. This was because I was gone for a few days during the test. I printed all messages in order received and answered them the same way. Even with John's error, the messages would not have arrived in sequence. Here is something that amazed me: none of the participants had their messages arrive in sequence.

Out of sequence

I enjoyed the exchange of messages with many of the test stations. A few didn't use the link to gossip, but those who did were a lot of fun with whom to correspond. John and I, for example, discovered that we were both railroad fans and members of the same railroad historical society. John's QSL has a picture of an antique steam locomotive unit: he's a real rail fan!

The second station to complete the ten messages was N7LMX, Norton Heath, in Willits, California. Here is the sequence of his messages: 1, 4, 6, 2, 3, 5, 7, 9, 8, 10. Number one went through 18 relays in about one day to get to me. It bounced around northern California for seven relays and then went to Colorado for two, Wyoming for three, South Dakota for two, and North Dakota for four. Days enroute for the individual ten were approximately: 1, 2, 2, 6, 5, 5, 3, 2, 5, and 10.

So the packet system ain't Western Union; it's part of a great hobby, but it needs improvement. I realize that every forwarding station owner is a volunteer and BBS SYSOPs spend a lot of money just to let others enjoy the hobby, so I salute them all!

All volunteers

During the test I happened to notice in message headers that my traffic had been stuck for days in the middle west. So, I commented on that fact in a message to Chip Purchase in Houston, TX. This drew a message from SYSOP Shelton McAnelly, KD5SL, in Baton Rouge, Louisiana. Shelton is the NCS of a HF net that handles bushels of packet messages. Here is an extract of what he had to say:

"I saw your message. . . about the holdup (week) at Iowa. The information given to me about 10 days ago was because a node in the Dakotas went down. "And for your info, I downloaded the 50 or so messages that had accumulated at the (Iowa station), many of which were your pollster reply messages, using the telephone ports of the Iowa station and this one. And I did it at my expense so that I could reroute them to ND and elsewhere." Shelton then went on to tell of the problems of being a SYSOP and getting the blame for forwarding problems. He cited propagation problems due to solar phenomena, wind destroying antennas, lightning hits destroying thousands of dollars of equipment, power failures, etc. as causes the SYSOP gets blamed for, but has no control over.

Shelton also listed other SYSOP problems: faulty addresses on messages, foreign language messages that a SYSOP cannot read, but has to take the blame for if they are improper, and obscene language in messages that pass through the system.

A big responsibility

Operating a BBS in the packet system is a big responsibility and I salute those guys and gals, like Shelton, who operate the complicated backbone of our system. When I say the system is poor, I do it from my own experiences, and under no circumstances am I shooting "at the messenger" for the problems. I had the first packet station in North Dakota, and I grew old with a packet BBS running in my shack. The very day I was typing the previous paragraph into the computer, I got a message from the SYSOP in Iowa responsible for the long delay. I imagine that Shelton told the SYSOP about the problem, otherwise how would he have heard of my comments? The Iowa SYSOP is a computer engineering

major at Iowa State University and here is part of his message to me: "I had a port go down for about a week without my knowledge. Next time I get to work on the system I will be changing the route ND messages take."

In my answer to the Iowa lad, I sent the header of his message to me so he could get an idea of how it was relayed. The SYSOPs around the country are deluged with junk mail, stupid mail, and useless mail. I no longer read the junk mail circulating in the system. I don't have 40 hours a week to spend reading "humor," "for sales," harangues on "what's wrong with ham radio and the ARRL," and requests for "an instruction book for a ABC-345 Widget" There ain't enough hours in the week to read everything that is flashing back and forth across the system. I used to have 700 to 1,000 messages stacked in my BBS that very few users ever read. I once sent a "quit-it" message to a couple of guys who were loading the packet BBS stations with Bible verses for the unwashed to hopefully read. I don't think ham radio is the place for that kind of stuff.

I used to check the "read" count of messages in my BBS because the BBS software keeps count. I'll tell you, packet fans, there were many thousands of messages that were not looked at by anyone except me. At this moment, my BBS only gets AMSAT and personal messages to me, the rest go into our local club BBS.

Some statistics

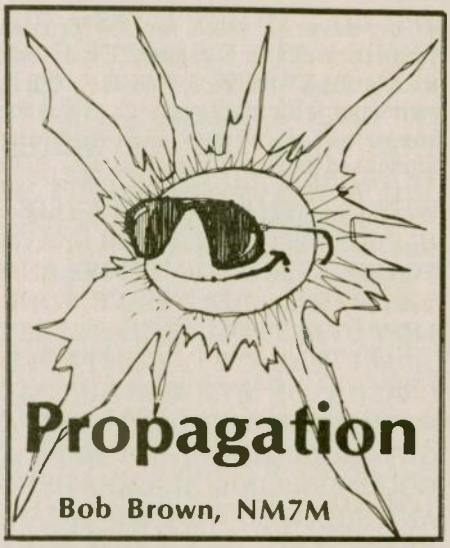
Here are some figures from the computer statistical log of WØILO, the Red River Radio Amateurs club multi-ported station. It was taken from a busy week in January: 1,439 messages received of which 1,262 were from the USA and 177 of foreign origin. 68% of the messages were bulletins and 32% were classified as personal. During the week there were only 67 users, 40 of which read 611 of the 1,439 messages. The SYSOP accounted for 195 of that total, and the user stations reading the most messages were all "flea market operators" who looked at 76, 52, and 30 respectively. 985 messages were forwarded on during the period. Those statistics would easily make the "Brass Pounders League" if it was on CW.

I'll have more to say about the test in the future, but when I say our system needs help, I'm trying to point out its problems, not shoot at the messengers.

EAVESDROPPINGS

WHEN I WAS AN ADVANCED WITH THE CALL KGØAN I IDENTIFIED MYSELF ON SSB AS "KING GEORGE ZERO AFTER NOON" — AND A GUY CAME BACK WITH THE CALL "KING GEORGE ZERO P-M" . . . I'M CURLED UP AROUND THE LINEAR AMPLIFIER TRYING TO KEEP WARM. . . OKAY ON YOUR ROUND PLANE ANTENNA — HOW DOES IT GET OUT? . . . THIS BAND SEEMS HALF WAY OPEN AND OVER HALF WAY CLOSED. . . WILL HOOK FOR YOU AGAIN, OLD TIMER. . . I'VE GOOT A TWOO FOR OONE KEYBOOARD OON THE LETTER OO. . . WHEN I WAS A KID THERE WAS A CIGARETTE COMPANY THAT ADVERTISED "NOT A COUGH IN A CARLOAD" — I'LL BET THEY FIRED THE COPYWRITER THAT DREAMED THAT ONE UP. . . WHY IS IT THAT WHEN I NEED A CAPACITOR OR RESISTOR I HAVE TO BUY A PACKAGE OF FIVE AND THEN FIND OUT I HAVE FOUR LEFT OVER FROM THE LAST TIME . . . I HAD TWO COMPUTER CRASHES ON MY BBS IN ONE DAY — THAT'S ENOUGH TO SEND A GUY BACK TO CW. . . I HAVE A GOOD SPELLING CHECKER HERE AND SHE ALSO WORKS IN A BAKERY. . . . MY DAD WAS A SHIPBOARD RADIO OPERATOR BACK IN THE SPARK TRANSMITTER DAYS AND HE SAID IT WAS A JOB THAT MADE YOUR HAIR STAND ON END. . . I GOT IN THE RTTY CONTEST AND THEN FORGOT TO SEND IN MY SCORE FOR THE SECOND TIME. . . IT'S HARD TO SEND 73 TO A GUY YOU HATE.

Thanks to K6VV, WV8B, KB6DJ, N2NHM, WH6DT, WB7OEM, AB4VJ, K2PGB, WD4LOO, WA3L, W6MEO, AL7MC, WA6PGA, N4GHI, KF8N, N7LMX, KD3YU, N7VWF, WB9CWE, W2WCE, WØXK, KD1NE, N5NPR, N8AYY, WØML, KAØCHX, and AA7AJ for help with this column. My mail address is 1514 South 12th Street, Fargo, ND 58103, and my packet address is WØLHS@WØLHS.# SEND. ND.USA.NA. 73 de Bill. DIT DIT. WR



Propagation

Bob Brown, NM7M

I've often said that when it comes to the ionosphere, the 10.7 cm solar flux is no threat. Its wavelength is too long; it's as simple as that. That view is based on what Einstein said in 1905: a beam of radiation can behave like a wave or small bundles of energy called quanta or photons and their energy is directly proportional to their frequency or inversely to wavelength. That was Einstein's explanation of the photo-electric effect, discovered by Heinrich Hertz in 1887, and while it was controversial for almost 11 years, Robert A. Millikan of Cal Tech proved it conclusively by experiment.

The constant of proportionality is a universal one, Planck's Constant h, and one can find the expression E=hf in all the physics books of the last 50 years. Chemists know it, engineers appreciate it, astronomers use it constantly; in short, it's common knowledge.

But unlike Einstein's Mass-Energy Relationship, it doesn't seem to appear in graffiti very often; perhaps it hasn't captured man's imagination to the same degree, at least those who wield spray cans of paint. Given that, let's talk about the 10.7 cm solar flux and why it fails to provide ionization by the photo-electric effect in the high atmosphere.

Before getting down to cases, we need to mention the various units of energy, the erg in the c.g.s. system, the joule in the M.K.S. system and the electron-volt for things atomic or electric. They're all related, of course, one joule of energy being ten million ergs, i.e., 1 joule = 1E+7 ergs, and one electron-volt being a small fraction of a joule, 1 eV = 1.6E-19 joule.

Having established systems of units, we can identify the units for Planck's Constant in Einstein's expression E=hf. Given that the units of frequency (f) are cycles per second and cycles are just a number, it's clear that the units of Planck's Constant h are those of energy-time, i.e. ergs-sec or joule-sec. In the M.K.S. units used nowadays by most scientists and engineers, the value of h is 6.63E-34 joule-sec. Okay?

The next thing to do is find the frequency for the 10.7 cm solar flux. That's easy as it just involves dividing the speed of light by the wavelength and gives 2,800 MHz, a quantity seen about as often in the literature as its wavelength. From that result, Einstein's E=hf relation shows that the energy of 10.7 cm photons is 1.86E-24 joule or 1.16E-5 eV.

Now that we know the energy associated with photons in the 10.7 cm solar flux, the next thing to do is compare it with the energy that's required to ionize atoms and molecules, adding electrons to the ionosphere. For atomic oxygen, the principal species at F-region altitudes, the energy required for ionization is 13.6 eV and the energy of 10.7 cm photons, given above, fails by more than a factor of a million (1E+6); essentially the same result is obtained for the other species in the upper ionosphere. As I said at the outset, 10.7 cm solar radiation is no threat, adding nothing to the ionosphere by way of photoionization.

So why the "Big Deal", people hanging on the announcements of the 10.7 cm flux from WWV? Myself, I think there's some basic misconceptions involved. Either, at worst, people don't understand that it is non-ionizing radiation or else they're trying to connect the 10.7 cm flux directly, on a day-by-day basis, to the solar ultra-violet radiation which actually has sufficient energy to add electrons to the ionosphere, the link being through sunspot numbers.

What's the old saying, "Oh what a tangled web we weave when first we practice to deceive?" In either case, I think there's deception involved but it's self-imposed. Let me explain what I mean. The association of sunspot numbers and the ionosphere got started back before WWII. A study was carried out over a 12-year period, comparing 13-month or smoothed averages of ionospheric critical frequencies for the E-, F1- and F2-regions with the smoothed Zurich sunspot numbers. That study involved data from three widely-separated sites: Washington, D.C., Peru and Australia. The conclusion from that study was, in effect, that ionospheric critical frequencies "may well be our most precise measure of general solar activity."

Sit back and think about that for a minute or two! Is that statement right or wrong, forwards or backwards? At the time, it was right but nowadays, in amateur radio circles, it's backwards. What amateurs want is critical frequency or MUF information from "a precise measure of general solar activity." And there's the rub, the phrase "precise measure." In this problem, the word "precise" is out of place and the question is more like "what can we use as a measure of solar activity?" Let that question sit on the back-burner for a bit while we talk about other things.

As you know, with all the technical advances during WWII, the sun was found to be a source of radio emissions, even at microwave frequencies. As a result, a program monitoring the 10.7 cm solar noise flux was initiated in 1947. By November '47, a three-month study showed a correlation between the 10.7 cm flux and sunspot area. Take note, I said AREA!

At the time, sunspot areas were favored over sunspot numbers as indicators of solar activity in correlation studies. Such was the case as the relation between sunspot area and number is not a close one with daily values but better with yearly averages. That results from larger spots dominating area measurements and smaller spots in the sunspot numbers, and of the two, area is less dependent on what astronomers call "seeing."

The problem with sunspot area is that it requires measurements, lots of them. And, of course, the quality of "seeing" affects what one can do with small spots. They probably don't con-

tribute much to the total area on the solar disk at any one time but it seems that all those measurements were a burden and sunspot numbers came to be the dominant indicator or index of solar activity.

To get around the problem of resolving spots for counting when within a group, a formula was agreed on: R = (10*g + s) where R is the sunspot count for "g" different groups of spots and "s" is the number of individual spots. But there are complaints about this formulation as it gives large R-values for low group/spot situations.

For example, one fuzzy spot could count as a group making R equal to 10 and another distinct spot would bring the count up to 11. Two fuzzy spots makes R equal to 20 and away you go. But this is the way it's done and about 25 solar different observatories contribute data for the international committee to mull over before issuing its final count for the month.

Meanwhile, back at the ionosphere, things are changing too. To show you what I mean, let me put before you one of my favorite plots for the critical frequency of the F-region. Thus, look at Figure 1 which shows the hourly values of foF2 at Slough, England for the month of January 1969 when the smoothed sunspot number was 110. That figure is priceless, a classic and should be on every DXer's wall. I say that as it would serve to keep them humble, aware of the variability of the ionosphere and something not to be taken for granted.

But humble or not, a DXer wants to know what to expect on the bands, a

prediction of some sort. But just what sort depends on what his/her interests happen to be: long-term prediction, short-term forecast or a nowcast, as the TV weatherman says. I won't argue over the terminology, long- or short-term as when it comes to some DXers, long-term is next week, short-term is tomorrow.

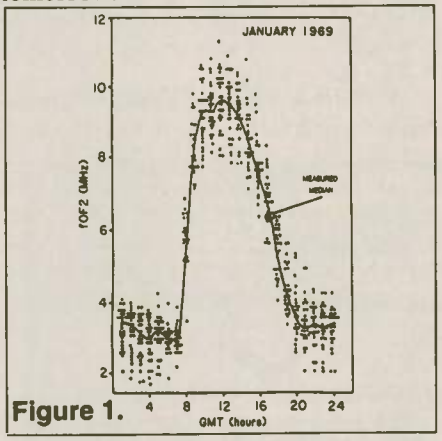


Figure 1.

But predictions and forecasts differ in that predictions look more to long-term variables, say the trend in smoothed sunspot numbers, while forecasts use more current information, the number and location of active regions on the sun or persistent coronal holes. But "nowcasts" amount to something like the TV weatherman looking out the window and saying what to expect from what he actually sees.

In my own case, I do some long-term predicting, at least mentally, every time I see another update of NOAA's comparison of Solar Cycle 22 with previous cycles. Of course, in the back of my mind, I have a intuitive feeling for what kind of DXing to expect at any point in a solar cycle. But I don't do any short-term forecasting of dates and times of solar activity when I look in the *Weekly Boulder Report*.

Instead, I think more about the types of activity that might occur — a solar proton event from a big spot group on the western limb of the sun, a magnetic storm from a large, recurrent center of activity, a SID from a developing spot group, etc. The forecasters at Boulder do about the same thing but they are a bit more specific, at least giving dates of possible events and remarks on the growth or decay of solar activity.

It should be recognized, however, that the real professional forecasters, be they in NOAA or DOD, have quite a range of on-line information right at their fingertips. These would include optical observations of active regions or flares on the sun, satellite data on the solar wind, recordings of geomagnetic field variations, perhaps ionospheric absorption up near the North Pole, data from vertical or oblique ionosondes and signal strength data for propagation to/from other fixed stations. All of those are the tools of the serious, professional forecaster.

But "nowcasting," that's another matter. For that, details of the physics involved are not really considered; it's the results that count. So one might hear the ZS beacon on 14.1 MHz; if so, chances are that the countries in southern Africa could be contacted then and the operator responds accordingly. That's the old saying, "If you can hear 'em, you can work 'em!"

Nowadays Amateur Radio has a new form of "nowcasting," the DX Packet Cluster. If you're tied into that kind of system, the DX that's currently available on the bands is right there on your computer screen. While that can be helpful, it all depends on one's set up.

For example, a report of a long-path contact with Kenya (5Z) may come from an operator running a kilowatt into a 5-element monoband Yagi on 20 meters. If you're running 100 watts into a dipole, that sort of information may not be all that useful. True, it would be worth a try but you'd have to be prepared for coming up empty-handed.

As you might expect, this entire discussion can be formulated in an elegant fashion and given a sophisticated sounding name, Real-Time Channel Evaluation, or a terse abbreviation, RTCE. The original such formulation took place back in '78 and was due to a Professor Darnell. The idea was to find ways to deal with real-time frequency management (RTFM) problems in HF communications, particularly for the Allied forces in NATO.

The usual problems in government or commercial radio have to deal with fixed paths and the methods were developed for choosing the right time and frequency to maintain contact or pass traffic. As you well know, Amateur Radio operators, more often than not, have a different agenda. Thus, the casual operator turns on the rig and spins the dial, looking at what's on the band. Of course, some aspect of long-term predicting is involved, the operator usually knowing what to expect at the given time and conditions. And that might be tempered a bit by what has been heard over WWV, especially magnetic activity.

The more designing operator, say one trying to make it up into the DXCC Honor Roll, will get pretty specific about DX paths and go as far as using HF propagation programs to do some advance planning. When an operator is at that stage of the game, another trick of the pro's might be employed. Here, I'm thinking of the "pseudo-sunspot number."

The idea is to use a good propagation program like IONCAP on a path that is open and then empirically adjust the value of the sunspot number used as input data to match the band conditions. After that, the same sunspot number, now termed "pseudo" as it's not the real thing with an international committee endorsement, is used on the path of interest. Interesting approach! I can't say that's a precise method and it does take some time to work out but it probably gives a lower limit on the SSN and that's about all our hungry DXer needs.

So there you have it, the way we try to make sense out of what's going on overhead and use it productively for our purposes. With radio now something like 100 years of age, things are getting quite neat and sophisticated in professional circles. But some amateur operators are doing a pretty good job of staying on top of the developments, leaving the "Stone Age of Radio" behind and moving ahead smartly, as the Marines would say. And I see that you're one of them by the hunch of your shoulders and the squint of your eyes, signs by which a computerwhiz can be picked out of a crowd. Right? I thought so! WR

Lorraine S. Matthew, N4ZCF
MARS call AAA9PR

In last month's column, I mentioned several "firsts" that have occurred for Army MARS in 1994. As early as it is in this relatively new year, Army MARS members witnessed a new first with the inclusion of a non-Army MARS member as a guest speaker in the Army MARS Chief's Net held on 11 February, 1994. The Chief's Net is one in which Chief Army MARS meets with the Area Directors and his Special Staff every Friday evening.

This non-Army MARS member was Mrs. Jill Stevens Johnson, head of the Seismic Resource Center at the Center for Earthquake Research and Information located in Memphis, TN. Her topic was earthquakes, their origins, development and characteristics, what to expect when an earthquake strikes, and how to cope with it and its aftermath.

It was fitting that her presentation was made under real emergency communication conditions. No, the cause of the emergency was not an earthquake. It was the devastating ice storm that struck the Tennessee area. Mrs. Johnson was scheduled to broadcast from the Earthquake Center with Pat Lane/AAA9CE as the radio control operator. The antenna at the center had collapsed under the ice load and was unusable for the presentation.

"In the true spirit of Army MARS, and the ability to succeed under emergency conditions, Pat was able to connect Mrs. Johnson to his home station via telephone. Her presentation was delivered flawlessly to our net via phone patch. But wait, there is more to the story. Pat Lane's station was also without commercial power and he was operating on a back-up generator. . . . Would you believe Mrs. Johnson gave her remarkable presentation under candlelight?" This quotation is from Bob Sutton, Chief Army MARS.

Much was learned about earthquakes and Mrs. Johnson experienced first hand the capability of Army MARS and the reason for its existence — effective communications under emergency conditions. Pat Lane's transceiver was keyed continuously throughout the complete 40 minute presentation — on emergency generator power. That's working the equipment very hard under adverse conditions. That's Army MARS and its willingness to serve in any way possible.

Somalia

Army MARS came home from the Operation Restore Hope mission in Somalia in January, 1994. Those dedicated military Army MARS operators came home with the many troops who served so well in that effort.

On 13 January, 1993, the 5th Signal Command was tasked by USAISC to deploy, establish, operate and maintain a dedicated Army MARS Gateway Station (AEM6USA) in Somalia, manned for 24 hour operation.

The tasking included the responsibilities of the Somalia Army MARS Director and the operators who would work with him. The MARS operators and those who served as MARS Directors did a truly outstanding job often under very difficult conditions. I had the pleasure of interviewing via phone patch SSG James "Mitch" Mitchum.

As I have written in other articles, he contacted every soldier who passed through his sector in order to inform them about the Army MARS services that were available. The AEM6 prefix became familiar to all of us as identifying Somalia stations. Eighteen call signs, in addition to the AEM6USA, were issued. Except for the gateway, these assigned stations moved throughout the country with their units and relayed into the gateway from the field.

The real value of the support provided by Army MARS lies in the impact on the morale factor of the soldiers and their loved ones. In addition to morale and welfare traffic, the Army MARS network was utilized for communications coordination and logistical matters by deployed units from Germany.

MARSGRAM #1 — sent from Somalia:

R 020753Z FEB 93
FM MARS GATEWAY SOMALIA/AEM6USA
TO MG LEFFLER HQ USAISC FT HUACHUCA AZ 85613
GR 40
BT
THIS IS THE FIRST MARSGRAM SENT FROM SOMALIA VIA AEM6USA GATEWAY. WE ARE UP AND OPERATIONAL. SOMALIA STATIONS BEING OPERATED BY 181ST AND 327TH SIG COMPANYS OF 5TH SIG CMD. SFC LITTLETON HHC 10TH SIG UNIT APO AE 09896-0612.
BT
NNNN

The final message carried the news of the MARS operations ceasing in Somalia as most of the troops were ordered home. That closure date became effective on 28 December, 1993. Between January, 1993 and December, 1993, 11,000 phone patches enabled soldiers and their families to talk directly and 7,650 MARSgrams enabled messages to be passed as well.

This was a job well done and the USAISC and the 5th Signal Command and all the other deployed units who operated MARS stations are to be congratulated. Welcome home to all soldiers and especially those who served MARS in Somalia itself.

This is Army MARS. This is what we do. You, too, can be a part of this team. Army MARS has a new Recruiting Coordinator. You may write to: Joseph Pavelchak/AAA9MR, 1501 Larchmont Ave., Lakewood, OH 44107-3403.

Army MARS — Proud. . . Professional. . . Ready. WR

QUARTER CENTURY WIRELESS ASSOCIATION INC.

John G. Troster, W6ISQ

We get letters

A nice letter from Blaine Berg, KL7TG. Blaine wanted to join QCWA but couldn't remember whether he got his license in '67 or '69 and asked if we could help find his proper year. Yes, we could. QCWA Generally Manager Jim Walsh, W7LVN, at HQ in Eugene, Oregon, has a complete file of old call books and can answer such questions. Anyone else having a similar problem, write the Old GM Jim in Eugene, and ask. He's our answer man.

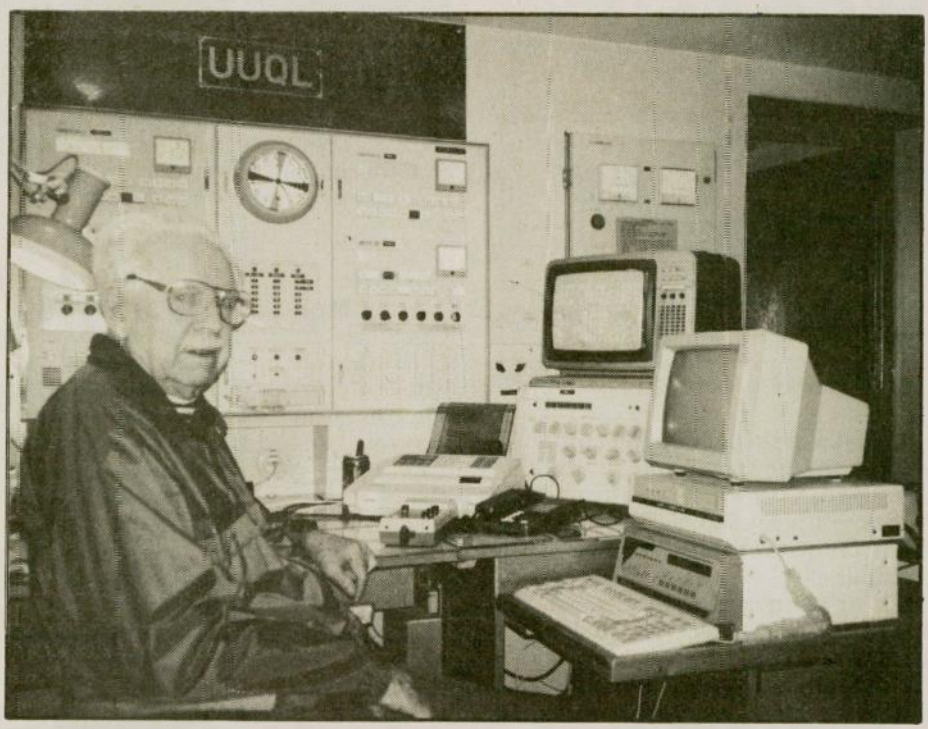
Midwinter mini meeting

The February informal QCWA Mini-Convocation in Bermuda Dunes, CA, hosted again this year by indefatigable Don Doughty, W6EEN, and Leo Meyerson, WØGFQ, occasioned a notable gathering of QCWAers, including of course, YF KC6NFE and myself. The Arizona contingent beat out the San Diego folks for the largest group from any one area. As advertised last month, sure enough, QCWA President Emeritus, Leland (tench-hut) Smith, W5KL, and YF Helen, W5WAR, flew in from Arkansas. Lew McCoy, W1ICP and YF Martha drove their RV over from New Mexico, and Jim Walsh, W7LVN, with assistant Jan Hayter, drove down from Headquarters in Oregon.

Festivities opened Friday afternoon at W6EEN's with a bountiful patio buffet, created by Phyllis, Don's talented and gracious wife. Delicious hors d'ouevres, each more tempting than the last. Lots of good conversation, and a first hand look at Don's dauntingly effective contest station with four, or is it five, awesome towers topped with every ham's dream of beams.

Luncheon meeting, Saturday brought out 210 of the faithful. Leo entertained again at the piano and made me promise to take a better photograph of him this year. Then Lew McCoy, W1ICP, who is running unopposed for QCWA president, gave what Leo described as "the shortest speech of his life," less than 15 minutes. Believe it — Don had his stopwatch out! Just kidding. Lew's a great speaker. He spoke of his desire to strengthen the scholarship fund and increase the number of scholarships. He also talked about our new *QCWA Journal* editor, Joe Lynch, N6CL, and his plan to print more articles of general interest. If that call, N6CL, sounds familiar, it's because Joe is the VHF/UHF Editor of *CQ Magazine*. Lew also declared there would be no new taxes... errr, increase in dues! He promised to send us his "Pork Surprise" recipe, together with the story that goes with it for the next ***Worldradio*** column. So begin collecting hot Mexican peppers.

Principal guest speaker was fellow QCWA member Bob Rose, K6GKV, now retired and living in San Diego. Bob was co-developer of the MINIMUF propagation forecast program. He was also ARRL Technical Advisor and rewrote the ARRL Handbook propagation section. His talk brought out some impressive facts and numbers.



W3KW/MM at the North Pole. — ***photo submitted by W6ISQ***

He's particularly interested in solar flares and the huge amount of energy they throw off. These flares can completely disrupt high altitude satellites and power lines on earth. Just recall the September-October 1989 flares which destroyed satellites and disrupted power grids. He pointed out that if astronauts had been flying during that period they may not have survived. Amateur satellites are relatively safe because they are low flying. Bob said that present estimates are for a sun spot low in 1996-1997 and the next high about the year 2000. His fund of pertinent, interesting information will make him a popular speaker for amateur club meetings and conventions. We all listened with great interest.

The weather was all that perfect stuff people go to the desert for — balmy, just right warm, first spring flowers. Don and Leo gave us all a perfect time too. Thanks and many thanks more, for hospitality, for a good meeting and an enjoyable good gathering. Y'all come next year.

Return to the Arctic

In my Fall/Winter 1993 edition of *The Polar Times*, I spied an article by Robert Gleason, W3KW, titled "Return to the Arctic and on to the Pole."

It's quite unusual to find an amateur writing in the *Polar Times*, so I was intrigued. The story told about the author's return tourist trip to the Siberian Arctic where, in 1929, he had been the radio operator on the three-masted schooner *Nanuk*, searching for a downed Arctic airplane pilot. The ship was frozen into the ice and forced to winter over at North Cape (Cape Schmidt), south of Wrangell Island. I learned later that when the ship's 500 watt converted spark transmitter would not get through to the outside world, he had used his amateur rig to relay information to Alaska. He built the rig on the ship, using a UX210 transmitter and two tube receiver!

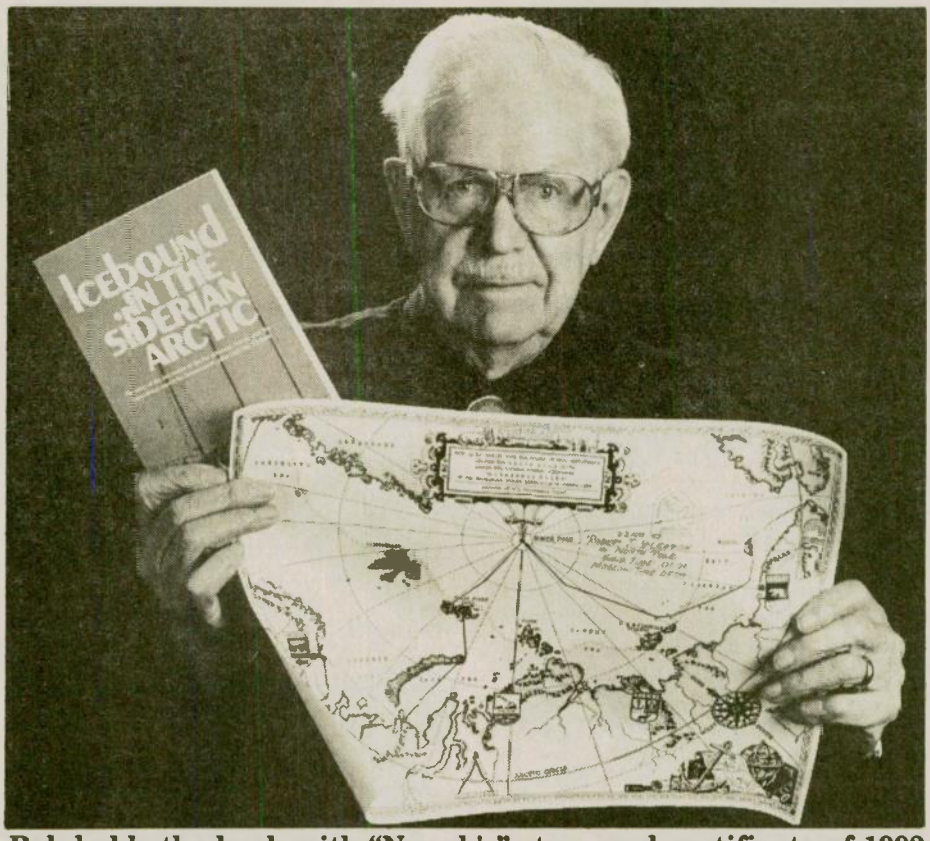
This story had a familiar ring to it, so I got in touch with Jules Wenglare, W6YO, who was mentioned in the article. With his prompting I recalled that I had seen the article when it was first published in the March 1993 *QST*. The whole story of his 1929 trip is in his book, *"Ice Bound in the Siberian Arctic."*

An adventure like that suggested that the author likely would be a QCWA member. So I got in touch with Bob Gleason, and sure enough, he was indeed a QCWA life member!

Bob became interested in radio when he learned the code for Boy Scouts in Seattle. He got his amateur license, 7OY, in 1923 and his commercial license in 1925. His first transmitter was 5 watts to a UV202 followed a few years later by a 50 watt rig. By 1926 he was working for the U.S. Engineers in Alaska as radio operator. In 1927-28 he worked as radio operator for the salmon fishing fleet in Alaska. Later he used his salmon money to attend to the University of Washington from which he graduated in 1932 with a degree in electrical engineering. In between he went off on the *Nanuk* only to be trapped in the arctic ice over the winter months.

In 1932 he began work for Pan American Airways in Alaska as chief operator in Fairbanks where he was kept busy installing radio equipment at the small arctic airfields Pan Am served. During World War II, Bob was drafted into the Army Air Force in 1942 and put in charge of the Regional Control Center Air System in Anchorage which handled communication and navigation work from Alaska through the Aleutians and into Siberia.

He requested transfer to Europe in April, 1944, so naturally he was sent to India, where he was in charge of the Army Air Corps Communication System Tactical Group which handled B-29s flying into China. Six months later he was dispatched to New Hampshire as Deputy Commander of the North Atlantic Wing of the AACS facilities for Canada, Greenland and Iceland.



Bob holds the book with "Nanuk's" story and certificate of 1992 revisit. — *photo by Bob Gilbert*

When the war ended, he went back to Pan Am as communications superintendent of the combined Pacific and Alaskan communications system. Later he moved to Miami and supervised installation of radiotelephone in the Pan Am aircraft to replace the CW system. In 1949 Bob left Pan Am and went with Aeronautical Radio Inc., as director of operations and later vice president. Retired since 1972, he now lives in Annapolis, Maryland.

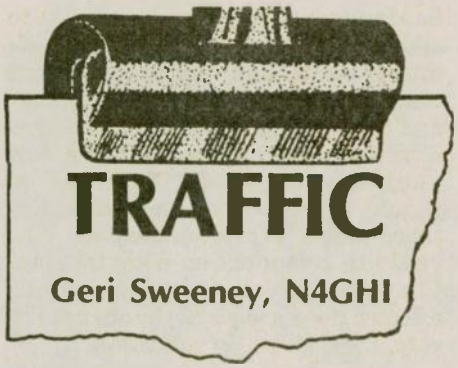
A friend alerted Bob to the Arctic trip planned by a Soviet ice-breaker. Bob made a reservation through a travel agent and went off to return to the area where he had spent that unusual winter season in his youth, and then on to the geographic North Pole as a tourist. The Soviet ship was the 500 foot, 75,000 horsepower (nuclear) icebreaker, Soviesky Soyuz. He took along a Sony receiver, and made skeds with amateur friends including Jules, W6YO, to listen for contact at 0000Z on 14.010 MHz daily. As the icebreaker neared the north pole, he was invited to visit the ship's radio shack and, on schedule, he heard Jules calling. The Ship's Chief Operator then said he would give Bob a transmitter to answer W6YO. Next day as the ship stopped at the North Pole for the tourists to walk around a bit, Bob worked W6YO right on schedule!

Bob's Amateur Radio activities continue unabated. He uses a TS-930 barefoot on CW and adds a L4B for phone, feeding a TH5MK2 beam. His principal interest is talking with old friends on the International Association of Airline Hams, IAAH, two days per week on 14.280 MHz beginning at 1500Z.

He also checks in to the Old China Hand Network (for those who worked in China during WWII) on 14.255-260 on Monday and Thursday at 1520Z.

QCWA members are indeed a group of extraordinarily accomplished and interesting operators.

73 + 25 Jack, W6ISQ WR



TRAFFIC

Geri Sweeney, N4GHI

RAC convention

Radio Amateurs of Canada hold their first convention in Calgary, Alberta, on 29-31 July. Ken, VE6AFO, RAC Field Services Manager, sent a packet out to "all North America" inviting any Field Leaders from the US and Canada to attend and to let him know. He has yet to hear from anyone. Perhaps the invitation should have been extended in other modes as well.

This would be a great time to see the Calgary area. Send Ken a message if you plan to attend. If we can get a few traffic handlers together, we could have a traffic lunch forum. Meeting fellow traffic handlers is one of our perks.

What radio do you use?

My Kenwood 930 quit again. It's the 19th time in 10 years. Once you invest several thousand dollars in a radio, it's hard to junk it, especially when you have another several thousand dollars invested in fixing it. And, it's hard (morally), to sell such a lemon. Traffic handlers use their radios a lot. Mine is turned on several hours a day. When I invest next time, I hope to get a winner. Thus, I'm requesting information from you. Who has a radio that has worked well on a daily basis over some period of years? Information received should prove useful for all of us. Send me a message — N4GHI, Mt. Vernon VA; or SP N4GHI @ WA3TAI.

Digital matters

HXC: An experiment was run last Christmas to determine how reliably traffic was being delivered when sent on packet. The Virginia Beach Amateur Radio Club (using WA4TGF) operated its annual Christmas message center at a local mall from 12-19 December. 1400 messages were originated by mall customers. Most of this traffic was put on WD4MIZ PBBS. HXC was randomly added to 57 of these messages. HXC requests the delivering station to report the date and time to the sending station. Five replies were received. Conclusions: Either we can't depend on packet (about 9% delivery), or PBBS traffic handlers might need a little more training so that they better understand handling instructions.

Software

A PBBS in Pennsylvania was forwarding the same message to several PBBS in Maryland. The trustee of the PBBS in PA forwarding the dupes came up with this answer. He feels that it may be useful for others. "The BBS currently runs the F6FBB BBS software. We have previously run software by WA7MBL and AA4RE. Because of the instability of packet paths in Central PA (we were running MBL and RE), our sysop set up multiple forwarding paths for all messages of all types.

By doing this, he hoped to insure that messages would keep moving even if one or more paths were down. When he switched to the F6FBB software, he retained this multiple path forwarding strategy. The 'problem' is in the way the F6FBB BBS software handles T-type messages. It uses the same forwarding rules for T-type messages as it does for B-type messages. If multiple paths are set up, it will forward a B- or T- type message to ALL BBSs listed to receive that message.

This is in contrast to the handling of P-type messages where if multiple paths are set up, it will discontinue forwarding of a message when it successfully passes it to any ONE of the BBSs listed to receive it. It would be preferable to use this P-type handling for T-type messages and I intend to urge F6FBB to make this change in a future version of his BBS software. I don't think it can be more than a few lines of source code that need to be changed. In the meantime, I have rewritten all of our forwarding files so that T-type messages should never be listed for forwarding to more than one BBS. The danger in doing this is that some messages may be delayed because of path disruptions."

ARRL digital policy

About three years ago, Rick Palm, Field Services Manager, at ARRL, appointed three area digital coordinators. They met last December and agreed on some recommendations (action items). It seems that those ideas are about to become ARRL digital policy. Having had a chance to view these action items, I called Rick to ask him what his thoughts were on this plan. He said he was sending copies to the three area chairmen; and, "if they could come to consensus, he would implement them." He further mentioned that while he wouldn't publish the plan in *QST*, he would put an announcement of it in the March issue. I called my area chairman, W2MTA, and got the same story.

After this conversation, I received a copy of the plan from Bill with a few changes in wording and a statement that "It is now your job to review the 'Accords' and to either endorse them or to suggest improvements." I called my area digital coordinator, N4SS, and was told that he hoped the plan would be sent to all Section Traffic Managers to get their input.

One would think that the merits of this plan should be considered by a broad range of NTS leadership, as the Digital Coordinators intended. Whether the plan is good, bad, or something in between, some discussion as to its benefits should be allotted traffic handlers, before its implementation, if just to make them feel part of the process, and to insure that informed volunteers can make it work. Section Traffic Managers, and Region Net Managers are being given "requirements" (not just custody of, as in previous pronouncements from ARRL) for digital activities of which they may have no control. I include these "action items" for your information:

"The following is a summary list of action items stemming from the Lake Limestone meeting, as developed by the group, and compiled by Rick Palm, K1CE.

"1) Digital stations appointed by the Area Digital Coordinators will perform a liaison function to each Region

Net as supplemental back-up to 'normal' functions. Digital stations should be 'ambi-modal,' e.g., capable of operation on HF AMTOR, VHF packet, CW and phone. Digital station certificates (specifying specific function assignment) will be presented to Digital stations by Area Digital Coordinator. (Assigned to: Area Digital Coordinators).

"2) The above function shall be incorporated in the NTS Terms of Reference. (Assigned to: Rick Palm, K1CE).

"3) A letter will be sent to Region Net Managers notifying them of the policy as outlined above. (Assigned to: Rick Palm, K1CE).

"4) A letter will be sent to Section Traffic Managers calling their attention to the requirement that the NTS function on sections' packet bulletin boards must be managed by them, through Net Managers assigned to those functions, and Official Relay Stations who must be assigned to clear traffic daily. (Assigned to: Rick Palm, K1CE).

"5) An inquiry (survey form) will be sent to Section Traffic Managers seeking information on their section's NTS-packet system; e.g., a roster of such NTS-PBBS stations and ZIP codes supported by each. (Assigned to: Bud Thompson, NØIA).

"6) The roster shall be included in the ARRL Net Directory. (Assigned to: Rick Palm, K1CE).

"7) A letter will be sent to Section Managers and Section Traffic Managers informing them of the developing traditional/digital NTS relationship, and seeking their support at the section level. The letter will address the need for greater levels of message originations to fuel the system, and promotion of the League's public service awards program. (Assigned to: Nick Zorn, N4SS; Rick Palm, K1CE).

"8) A list of NTS HF scanning frequencies will be developed and published in the ARRL Net Directory. (Assigned to: Nick Zorn, N4SS, Rick Palm, K1CE).

"9) PBBS software is to be incorporated on NTS-cooperative boards to prompt/teach users on how to originate/send a message in radiogram format. A separate, stand-alone program will also be developed for use 'off-line', to accomplish the same function. (Assigned to: Bud Thompson, NØIA).

"10) Basic NTS educational/motivational articles need to be published in QST to promote/fuel the system. The focus must be on getting new hams involved, and more messages originated. (Assigned to: Rick Palm, K1CE).

"11) The Health-and-welfare traffic handling policy must be promulgated more widely. (Assigned to: Rick Palm, K1CE).

"12) BBS software writers will be encouraged to incorporate a priority schedule for forwarding of different types of messages. (Assigned to: Bud Thompson, NØIA).

Long range planning

"13) A report is to be developed on the possibilities of incorporating a public service message system on the Phase III-D satellite project. (Assigned to: Tom Comstock, N5TC).

"14) An investigation is to be undertaken to look at the possibilities of land-line modem access to Amateur Radio MBOs and consequent enhancement of our public service capabilities. (Assigned to: Bud Thompson, NØIA, in consultation with Hank Oredson, WØRLI)."

As these "action items" may be modified a bit, why not include those who will be involved in the implementation of this plan in the decision making process? The plan, as finalized, should be published in *QST*, inviting comments. Further, Section Managers (the only people elected by you) and their appointed STMs, should unquestionably be surveyed as to how it could affect their section. As the Section Traffic Manager of Virginia, I would like to address questions to the digital committee as to how my requirements could be implemented; rather than try and red line their proposal and return it to my area chairman. PBBSs, currently executing good NTS procedures, should be asked to comment before these items are implemented. Who better to give input on a digital plan? Change is necessary, but those being affected need a voice in the change if it is to work. What do you think?

A new one!

A new radiogram was added a few months ago. It's ARL sixty nine. The translation is: "Welcome to the ——. We are glad to have you with us and hope you will enjoy the fun and fellowship of the organization." Many groups, like the QCWA, OOTC, and SOWP, as well as non radio organizations (SSA, Kiwanis), have traffic handlers who review their rosters and send out a radio message welcoming new members.

Ted Sharp, K6UYK, in Hollywood, CA, does that, and also welcomes new members to another of his interests — soaring (SSA). He promoted the new ARL message. Now, all you need do is say: "ARL sixty nine QCWA." WR

OLD-TIME RADIO

GLEN H. CHAPIN, W6GBL

W6SEJ tuned across the 20 meter band to see if anyone would like a QSO. It was Sunday morning and the band seemed quiet. Hal Hamilton liked to get on at these times for there was less competition.

He heard a station calling from Schofield Barracks on Oahu in the Hawaiian Islands and soon was in QSO with him.

Suddenly the ham at Schofield interrupted his conversation and then came back with a comment about "another exercise." Once again he paused. Then excitedly came back telling Hal, "It's no exercise... we're under attack, we're being bombed."

Hal shut his rig off immediately and rushed to tell his parents what he had heard. A short time later the reports of the Japanese attack on Pearl Harbor and the Hawaiian Islands were being broadcast on local radio stations.

W6SEJ closed down that 7 December 1941 like all of the other Amateurs for the duration.

Young Hal Hamilton enlisted a few days later in the US Army. Because of his ham background, he ended up in the Signal Corps. He did a stint with the Army in the South Pacific and Philippines. When the war ended, he pursued his studies towards a degree in physics.

Family and career kept him occupied throughout the following years with little thought of ham radio. Then he found himself once again remembering his former hobby.

The desire to become a ham was rekindled after fifty years of silence. Soon he received a new call sign, AB6PF and after some fleeting moments of doubt, tuned his rig to 20 meters.

A strong signal made his speaker rumble as a W6 called "CQ." Hal decided that it was now or never and even though the bands were much more crowded now than back before the war, he gave the local guy a call.

The reply was prompt and Hal was surprised to find that this W6 actually was on the "Big Island" of Hawaii. After the contact ended, Hal entered the QSO in his log book. He thought it quite strange that his previous QSO was also from Hawaii, but separated by 50 years of history.

Now as AB6PF, Hal will find a new world on the ham bands. The equipment is so much more sophisticated then in the "old days" and the bands have changed, but hams are hams. Not even five decades of inactivity can change that. **WR**

Visit Your Local RADIO CLUB

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

ALABAMA

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

ALASKA

North Pole Hamsters ARC. Meets 1st Mon./monthly, 7 p.m., VFW Bldg., Old Rich Hwy. & VFW St., P.O. Box 56424, North Pole, AK 99705.

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 146.37/146.97 PL 103.5 Hz.

ARIZONA

Central Arizona DX Assoc., (CADXA). Meets 1st Thurs./monthly, 7 p.m., Salt River Project Pera Club, 1/2 mi. West of 68th & Continental Dr., Scottsdale, AZ. Rptr. K5VT 147.32/92. Packet Cluster nodes (S): 145.09, 144.93, 145.03. Info: (800) 283-4319 or (602) 876-2718.

Cochise Amateur Radio Assn., (CARA). Meets 1st Mon./monthly, 7:30 p.m. at club facility on Moson Rd., Sierra Vista, AZ. WA7KYT/R 146.16/76 rptr.

Tucson Repeater Assoc., P.O. Box 40371, Tucson, AZ 85717-0371. Meets 2nd Sat./monthly, 7:15 p.m., Pima Co. Sheriff Bldg., 1750 E. Benson Hwy. Net Thurs. 7:30 p.m. 146.22/82 (146.88-, 147.08-, 448.550-, & 145.15 Packet).

CALIFORNIA

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

Amateur Radio Club of El Cajon, WA6BGS. P.O. Box 50, El Cajon, CA 92022. Meets 2nd Thurs./monthly, 7 p.m., La Mesa Church of Christ, 5150 Jackson Dr., La Mesa, CA. Rptrs. 147.675(-), 224.08-. PL 107.2. Nets 147.570 Wed./Sat., 7 p.m. Info: (619) 697-2700.

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

Conejo Valley Amateur Radio Club, (CVARC). Meets 2nd Thurs./monthly, 7:30 p.m. Thousand Oaks Elks Lodge, 158 Conejo School Rd., Thousand Oaks, CA 91360.

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.

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 (-600). Info: Bob Hastings, K6PHE (714) 990-9203.

Golden Empire Amateur Radio Society, (VEC). P.O. Box 508, Chico, CA 95927. Club call W6RHC, rptr. 146.25/85. Meets: 3rd Fri./monthly, 8 p.m. at 1528 Esplanade, Rm. 110B, Chico.

Kern River Valley Amateur Radio Club. P.O. Box 2611, Lake Isabella, CA 93240. Meets 4th Sat./monthly, 4 p.m. with potluck supper following. Talk-in on 144.50 Simplex.

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

Livermore Amateur Radio Klub, (LARK). Meets 3rd Sat./monthly, 9:30 a.m., City Council Chamber, 3575 Pacific Ave., Livermore, CA. Net Mon. 1900 on 147.12+. For info: LARK Secretary, P.O. Box 3190, Livermore, CA 94551-3190. (510) 447-3815.

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

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

Motorcycling Amateur Radio Club. Meets 2nd Sat./monthly, 8 a.m., Denny's Restaurant, 2314 17th St., Santa Ana, CA, (100 yds. west of the 55 Fwy.) Info: Ray Davis, KD6FHN, (714) 551-2010 or (714) 551-1036.

Mount Diablo Amateur Radio Club. P.O. Box 23222 Pleasant Hill, CA 94523. Meets 3rd Fri/monthly, 8 p.m., Our Savior's Lutheran Church, 1035 Carol Ln., Lafayette, CA. Net Thurs. 7:30 p.m. on 147.06(+). Info: George KI6YK, (510) 837-9316.

North Hills Radio Club. Meets 3rd Tue./monthly, 7:30 p.m., Elks Lodge, on Cypress at Hackberry in Carmichael, CA. (P.L. 162.2) Net K61S Thurs., 8 p.m. 145.190. 220 Net, Tue. 8 p.m. 224.40(-).

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

River City A.R.C.S. Meets 1st Tues./monthly, 7 p.m., SMUD Bldg., Don Julio at Elkhorn, Sacramento, CA. License classes offered. For info contact Lyle, AA6DJ, (916) 483-3293.

Sacramento Amateur Radio Club. Meets 2nd Wed./monthly, 7 p.m. Sac. Blood Ctr., 32nd St. + Stockton Blvd., Sacramento, CA. Info net every noon on rptr. W6AK/R 146.910. Jim L. White, N6UGO, (916) 773-5890.

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.

San Fernando Valley ARC. Meets 3rd Fri./monthly, 7:30 p.m., Red Cross, 14717 Sherman Way., Van Nuys, CA. Net every Thur., 8 p.m. KB6C/R 147.735.

Santa Clara County Amateur Radio Assoc., (SCCARA) W6UW & W6UU. P.O. Box 6, San Jose, CA 95103-0006. (408) 249-6909. Meets 2nd Mon./monthly, 7:30 p.m., United Way, 1922 The Alameda, San Jose. Net all other Mon., 7:30 p.m. W6UU/R 146.385+/442.425(+) PL 107.2

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

Santa Monica—Westside Amateur Radio Club. Meets 3rd Thurs./monthly, 7:30 p.m., Santa Monica Red Cross, 1450 11th St., Santa Monica, CA. Info Net every Tues., 8 p.m., 146.67(-).

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

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

South Bay ARC. P.O. Box 536, Torrance, CA 90508. Meets 3rd Thurs./monthly, 7:30 p.m., Torrance Airport, 3301 Airport Dr., Torrance, CA. Talk-in on WB6MYD rpt. 244.38/78. Info: (310) 328-0817.

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

Stanislaus Amateur Radio Assoc., Inc. (SARA). Meets 3rd Tues./monthly, 7:30 p.m., Stanislaus County Admin. Bldg. (lower level conf. rm.), 11th & H St., Modesto, CA.

Stockton-Delta ARC. Meets 2nd Thurs./monthy, 7:30 p.m., Red Cross Bldg., 747 N. Pershing Ave., Stockton, CA Rptr. 147.165(+). Net Wed., 8 p.m. 146.655.

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.

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

West 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 Jacksol Dr., San Jose, CA. W6PIY/R. Net Tue., 8:30 p.m. 147.39(+), 223.96(-).

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.

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

CONNECTICUT

Shoreline ARC, (SARC). P.O. Box 256, Westbrook, CT 06498. Meets 3rd Thurs./monthly, 7:30 p.m., Westbrook Ingraham Sch., (203) 245-1969. Call-in: 145.29.

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

FLORIDA

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

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.

Orlando Amateur Radio Club. P.O. Box 3262, Orlando, FL 32802. Meets 1st Wed./monthly, Beardall Center, Gore St. & Orange Ave., Orlando. 146.76(-), 145.11(-), 146.82(-), 147.015(+), 443.275. CTCSS 103.5 Hz on all except 146.76.

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

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

GEORGIA

Dalton Amateur Radio Club, Inc., (DARC). Meets 4th Mon./monthly, 7:30 p.m., Magistrate Court Bldg., corner of Waugh St. & Thornton Ave., Dalton, GA. Info: Bill Jourdain, N4XOG, (404) 226-3793.

HAWAII

Big Island Amateur Radio Club. P.O. Box 1938, Hilo, HI 96721-1938. Meets: 2nd Tue./monthly, 7 p.m., HELCO Auditorium, 1200 Kilauea Ave., Hilo. Talk-in on 146.68(-), 146.76(-), 146.88(-), 147.02(+) & 147.04(+).

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(-), 148.80(-), 148.88(-), 148.98(-) 146.94(-). Info: (808) 621-5916.

IDAHO

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

Kootenai Amateur Radio Society, (KARS). P.O. Box 5222, Coeur d' Alene, ID 83814. Meets 2nd Mon./monthly, 7:30 p.m., Sheprock Bldg., Coeur d'Alene Airport.

ILLINOIS

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 145.250. W9DUP repeaters 145.250(-) (107.2PL), 442.550(+) (114.8PL), 224.680(-).

Fox River Radio League. Meets 2nd Tue./monthly, 7:30 p.m., Old Bank Bldg., 900 No. Lake St., lower level, Northgate Shopping Ctr. & Rt. 31, Aurora, IL.

Hamfesters Radio Club, W9AA. P.O. Box 42792, Chicago, IL 60642. Meets 1st Fri./monthly, 8 p.m., Crestwood Civ. Ctr., 139th & Kostner, Crestwood, IL. Nets: Sun. (local) 0100 UTC, 28.41 MHz; Mon. 9 p.m. 146.43 S., Packet Mailbox 145.07. Info: (312) 974-3291.

Peoria Area Amateur Radio Club, (PAARC). Meets 2nd Fri./monthly, 7 p.m., 1401 N. Knoxville Ave. Info: (309) 685-6698. Rptrs: 146.25/85 & 147.675/075.

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

The Starved Rock Radio Club, W9MKS. P.O. Box 22, Tabor St., Leonore, IL 61332. Meets 1st Mon./monthly, 7:30 p.m. Rptr. net 7 p.m. Wed./wkly., 147.72/.12.

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

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

MICHIGAN

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

Oak Park Amateur Radio Club. Oak Park Comm. Ctr., 14300 Oak Park Blvd., (same as 9 1/2 Mile Rd., west of Coolidge) Oak Park, MI 48237. Meets 2nd Mon./monthly, 7:45 p.m. Talk-in on our 224.36 MHz or 146.64 MHz.

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

MINNESOTA

Minneapolis Radio Club. P.O. Box 583281, Minneapolis, MN 55458-3281. Meets 3rd Fri./monthly, Mpls. Red Cross Bldg., 11 Dell Place, Mpls, 7:30 p.m. Making waves since 1916.

MISSISSIPPI

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

MISSOURI

Central Missouri Radio Assoc. P.O. Box 283, Columbia, MO 65202. Meets 2nd Tues./monthly, 7 p.m., Boone Electric Coop, 1413 Rangeline Rd., Columbia, MO. Talk-in 146.76.

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.

NEBRASKA

The Ak-Sar-Ben ARC of Omaha, NE. Meets 2nd Fri./monthly, 7:30 p.m., Omaha Red Cross near 38th & Dewey St. 146.34/94. Contact Jim Miller (NØORV), (402) 253-8272.

NEVADA

Frontier Amateur Radio Society, (FARS). Meets: 3rd Mon./monthly, 7 p.m., Denny's Restaurant across from Nevada Palace, 5318 Boulder Hwy, Las Vegas, NV. Net Mon. 7:30 p.m., 145.39 Rptr. on Black Mountain. Club info: Jim Frye, NW70, 456-5396.

NEW HAMPSHIRE

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

NEW JERSEY

10-70 Repeater Assn., Inc. 235 Van Emburgh Ave., Ridgewood, NJ 07450. Meets 1st Wed./monthly (except July & Aug.), 8 p.m., VFW, Valley Rd., Clifton, NJ. Rptrs.: 146.10/70, 223.24/224.84, 449.15/444.15.

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

NEW 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/.355 rptr. W2PVL.

Hall of Science Amateur Radio Club. P.O. Box 131, Jamaica, NY 11415. HOSARC, 2nd Tue./monthly, Hall of Science Bldg., 47-01 111 St., Flushing Meadow Park, 7:30 p.m. Info: Charlie, WA2JUJ, (518) 420-0046.

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

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

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

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

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

Westchester Emergency Comm. Assoc., (WECA). Meets 2nd Mon./monthly, 7:30 p.m., Westchester County Ctr., White Plains. Contact WB2VUK or call WECA INFORLINE (914) 962-9666 or WECA landline BBS (914) 738-6857 for details. Talk-in WB2ZII/R 147.66/06 MHz.

Yonkers Amateur Radio Club, (YARC). Meets 2nd Sun./monthly, 10 a.m., 1st Pct., Yonkers Police Station, E. Grassy Sprain Rd., Yonkers, NY. Info: P.O. Box 378, Centuck Sta., Yonkers, NY 10710. (914) 963-8995. 146.865-, 445.15/440.15.

NORTH CAROLINA

North Carolina Chapter TSRAC. Meets Mondays, 28.35 on the air, 8:30 p.m. local time, Sat. 10 a.m. on 7240 and Wed. 9 p.m. on 7259. "The Alligators" — all mouth, no ears.

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

OHIO

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

Clyde Amateur Radio Society (CARS). Meets 2nd Tue./monthly, 7:30 p.m., Municipal Bldg., Clyde, OH 44811. NF8E rptr. 145.35 and 442.625 MHz. Net Sun. 9 p.m. Info: E. Remaley, KA8CAS.

Firelands Area Rptr. Assn., (FARA). Meets 4th Tue./monthly, 7 p.m., Ohio Veterans Home, Sandusky, OH. WB8LLY rptr. 146.805-/205. Net Sundays, 8 p.m. Info: Rob Harshbarger, N5XRB.

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 (613) 563-7373.

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

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.

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

Triple States Radio Amateur Club. Meets Wed./weekly on 28.48 at 8:30 p.m., 7260 at 9 p.m. Rptrs. 146.91- & 146.115/715-. P.O. Box 240, Rd. #1, Adena, OH 43901. (614) 546-3930.

Van Wert Amateur Radio Club, Inc. 1220 E. Ridge Rd., Van Wert, OH 45891. Call-in: 25/85. Meets 1st & 3rd Sat./monthly, 8 p.m.

OKLAHOMA

Enid Amateur Radio Club, Inc. W5HTK, WA5QYE, WA5OUB. P.O. Box 261, Enid, OK 73702. Meets 4th Thurs./monthly, OK Hwy. Patrol Stn.

OREGON

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

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

Salem Amateur Radio Club, (SARC). Meets 4th Tues./monthly, 7:30 p.m., McKay High School, 2440 Lancaster Dr., NE, Salem, OR. Talk-in 146.86. Info: (503) 390-1386.

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

PENNSYLVANIA

Butler County Amateur Radio Assn. P.O. Box 1787, Butler, PA 16001-1787. Meets 1st Tues./monthly, 7:30 p.m., Boy Scout Cntr., 830 Morton Rd., Butler, PA. Call-in W3UDX/R 147.96/36. Net 10:10 p.m. nightly.

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

TEXAS

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

VIRGINIA

Southern Peninsula Amateur Radio Klub, (SPARK). Meets 1st & 3rd Tue., Salvation Army Community Bldg., Hampton, VA. Repeaters 146.13/73 & 449.55(-5). VE Exam Info: (804) 898-8031, W4RTZ

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

WEST VIRGINIA

Jackson County Amateur Radio Club. Clark Stewart, W8TN, Pres., 104 Henrietta St. Ravenswood, WV 26164. Meets 1st Thurs./monthly, 7:30 p.m., United Nat'l Bank of Ripley. Net Mon. 9 p.m. on 146.67/.07 WD8JNU/R.

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

WYOMING

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

MEXICO

Lake Chipala Amateur Radio Group. Meets Fri./weekly, 10 a.m., St. Andrew's Episcopal Church, Chipala, Jalisco, Mexico (30 mi. so. of Guadalajara). Simplex 146.49. Info: W4AFW/XE1. Charles C. Leonard, APDO 381 Ajijic, Jalisco, Mexico.

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

The Youth Forum

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

What is it that causes thousands of people each year to put tremendous amounts of time and energy into becoming Amateur Radio operators? For many amateurs, especially young ones, the answer is public service communications. Public service and emergency communications were probably the aspect of the amateur service which I looked forward to most as I was studying for my license, and are still some of my favorite Amateur Radio activities.

So, in this edition of the "Youth Forum," I'd like to try to explain some of the public service communications the amateur service provides. Many new hams are eager to help, but not sure how. Hopefully this column will give you a better idea of what public opportunities exist and how they are organized.

When most people think of Amateur Radio communications, they think of emergency communications, so let's begin with this aspect of the hobby. Amateur Radio emergency communications can be defined as everything from severe weather drills to search and rescue operations.

There are three major organizations in the United States which coordinate such activities.

RACES (Radio Amateur Civil Emergency Service) is an organization of Amateur Radio communicators coordinated by local governments. RACES is considered to be the organization which is most closely connected to the government. In the event of a declared communications emergency (A declared communications emergency is an event such as war or serious natural disaster during which the federal government prohibits communications) RACES members would be the only Amateur operators which would be allowed to operate on specific, or all, amateur frequencies. Because RACES is coordinated by local authorities, membership and certification requirements vary from county to county. Some counties may require that RACES members simply hold an Amateur Radio license. Other counties may require special training courses.

Skywarn is an organization sponsored by the National Weather Service which includes Amateur Radio operators. Skywarn members are known as "weather spotters" because they monitor weather conditions and operate special nets for the purpose of reporting severe weather and issuing warnings during severe weather.

Becoming an official Skywarn member requires weather spotter training. This training is usually sponsored by the National Weather Service and teaches amateur operators what to look for and what to report during severe weather conditions. Even though weather spotter training is encouraged, any licensed amateur may participate in Skywarn activities.

ARES (Amateur Radio Emergency Service) is an organization of Amateur Radio operators which is coordinated by the American Radio Relay League (ARRL). ARES members participate in severe weather communications, search and rescue operations, and many other types of public service and emergency communications. Members of ARES are not necessarily members of the ARRL and most ARES organizations do not require special training for membership.

It is important to realize that these organizations are not the only groups devoted to emergency and public service communications. The Civil Air Patrol, Red Cross, and other groups also coordinate public service communications involving Amateur Radio operators.

Public service communications activities are different in every community. Some cities may have several public service groups and coordinating bodies. Others have a combination of RACES, ARES, Skywarn and other groups. Some communities may not have organized emergency communications at all.

Here in St. Louis, for example, all of these organizations cooperate and even have joint activities, but each group has separate memberships.

One of the best things about Amateur Radio public service communications is that everyone can usually be involved somehow. Some young amateurs are concerned that they are not old enough to be useful, but this is not the case. Young amateurs can and have been emergency net control operators, provided emergency communications and even saved lives during natural disasters and other emergencies.

As you can see, there is plenty of room for everybody in public service communications. So don't be afraid to jump in with both feet. You can find out about these activities in your area by attending club meetings and checking into public service nets. Chances are, you'll find someone who will be more than happy to answer your questions. Good luck and have a great summer!

Attention Scouts and Scouters! I will be spending the summer working on the St. Louis Area Council, B.S.A's camp staff at Camp May near St. Louis. I am hoping to be able to include a few Amateur Radio demonstrations for campers each week. If you're interested in scheduling pre-arranged contacts, please drop me a note or give me a phone call via the address above. (My address from 12 June through 21 August will be: Sammy Garrett, Staff, Camp May, 6480 Beaumont Reservation Dr., High Ridge, MO 63049.)

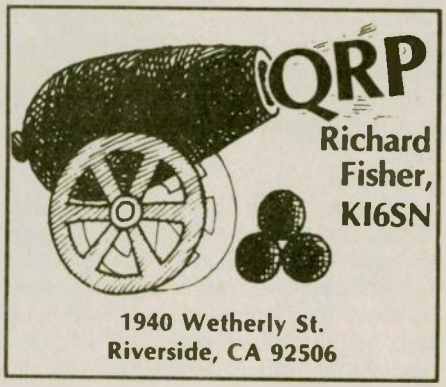
I will do my best to answer all inquiries. No demonstrations are definitely scheduled yet, but keep your fingers crossed!

73 and Good Scouting. — AAØCR.

WR

Exhilaration is that feeling you get just after a great idea hits you, and just before you realize what's wrong with it.

— Unknown



TEN-TEC kits for the QRP homebrewer

Many QRP homebrewers were tremendously disappointed with the news that the Heathkit Co., long a staple of popular transceiver and station accessory kits, had chosen to get out of the Amateur Radio business.

The HW-7, 8, and 9 QRP transceivers had become fixtures in thousands of radio shacks around the world as the Benton Harbor, MI-based company made its mark as a top flight source for quality kits.

So when Heathkit pulled the plug, it was not surprising to see a lot of long faces among those of us who have made low power operation and construction their passion.

Fortunately, TEN-TEC, Inc., the longtime manufacturer of Amateur Radio gear in Sevierville, TN, peered into the void and decided to fill it.

Its T-Kit division is picking up where Heathkit left off.

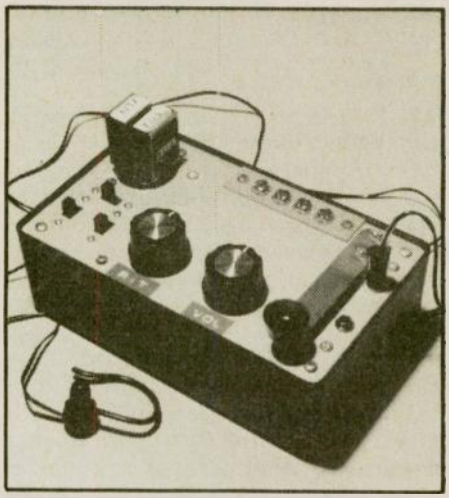
"While the ham-electronics world has been lamenting the grand old days of kit building, the TEN-TEC team of hams, engineers and technicians has been working to bring those days back to you," announces the company's new kit catalog distributed earlier this year.

The TEN-TEC name may be new to many radio amateurs when it comes to homebrewing, but it's certainly no newcomer to the world of QRP. Indeed, the company is widely recognized as a leader and pioneer in QRP equipment design, and many old-timers may recall its line of QRP kit modules which were quite popular more than 20 years ago.

T-Kit's inaugural catalog carries a broad range of reasonably-priced kits that could find a home in just about any QRPer's shack.

More than 25 kits are listed. Here's a sampling:

"Any Band" Direct-Conversion SSB/CW Receiver. According to T-Kit, "this is your best buy, by far, in a ham band direct-conversion receiver kit." The catalog description hints that the "Any Band" design is on the order of the now-classic "Neophyte" DC receiver, but T-Kit's receiver "has better audio and filtering than the others, and we supply the parts and instructions to let you build it for any band of your choice." The kit comes with parts for 160, 80, 75, 40, 30, 20, 17, 15, 12 or 10 meters,



The popular "Spider" transceiver, by Mike Agsten, WA8TXT.

and features separate "bandset" and 20 kHz "bandspread" tuning controls. Price: $27. You supply the enclosure.

SSB-CW-FM 6-Meter Transverter. If you've ever been interested in trying the 6-meter band QRP, T-Kits may have a reasonably inexpensive and simple route to get there. This transverter can turn just about any of today's HF transceivers into a 50 MHz VHF station.

All you need is the kit, and a rig capable of working 20 meters at 3 to 5 watts. "It's simple," the catalog says. For example, "to operate SSB on 50.200 MHz (the national calling frequency), simply switch (the transverter) to 6 meters, tune (your transceiver) to 14.200, keep transmit RF output under 5 watts, and just go for it."

T-Kit assures that the 50-54 MHz receiving input is low noise and quite sensitive. The kit is complete and includes the enclosure. Price: $95.

All-Band Argonaut II RF Deck. The kit features the Argonaut II 5 watt power amplifier board, the filter board, and "the Model 1204 control board for easy front panel control of all features," according to the T-Kit catalog. "Use the built-in variable-frequency crystal oscillator (VXO), or experiment with your own VFO or digital synthesis designs."

The deck will operate all bands from 160 through 10 meters, and has a built-in SWR bridge. It also features T/R switching.

"This leaves you free to pursue the essence of QRP design: receiving, frequency control, modulation methods, power supply efficiency, antenna design — and getting on the air," T-Kit says. Price: $95.

On the drawing board

Among some of the kits in the works, but not yet available, is a SSB/CW handheld transceiver for selected HF bands for under $100; a microprocessor-based CW memory keyer; Ultra-Compact Antenna Solutions for travelers and apartment dwellers; and a range of "classic but very compact test equipment."

T-Kit's catalog is available free by calling 800/833-7373. The division's mailing address is: 1185 Dolly Parton Parkway, Sevierville, TN 37862-3710.

Calling all "Spiders"

"I recently completed building Lectrokit's SP-1 'Spider' QRP rig," writes Charlie Gunther, N2KTH, of Wayne NJ. "Building the rig was a pleasure, thanks to a detailed and informative manual. I've had more enjoyment and satisfaction with it than with my megabuck TS-450S. The unit is an excellent first project for a new ham or kit builder, and should be more widely promoted."

"Spider" kit designer Mike Agsten, WA8TXT, of Sandusky, OH, "should be commended for providing a fine product at a reasonable price," Charlie says.

The simple, one-watt CW transceiver was featured in the July 1993 ***Worldradio*** QRP column. Since then, many "Spiders" have popped up on the airwaves. And many builders have put their own "spin" on building this neat little kit.

If you've built a "Spider" and would like to share your success or challenge with ***Worldradio*** QRP column readers, please drop me a line. A "Spider Roundup" is in the works, and your

story and a photograph of your rig would be a fitting addition to "the web."

Introducing the Colorado QRP Club

The *Worldradio* QRP Organization Survey, featured in the magazine's January 1994 edition, was testimony to the tremendous growth of QRP in recent years. Fourteen QRP organizations from around the country and the world were listed, with membership numbers ranging from handfuls to thousands.

Now comes word of formation of the Colorado QRP Club, whose membership flier reminds us that "Life's too short for $800 finals!"

Based in Aurora, the club was formed in January "to bring together amateurs interested in low power in an effort to expand their interests and have a common place to discuss problems and accomplishments."

The CQC publishes a bimonthly newsletter called "The Low Down," featuring product reviews, technical items, member news, upcoming activities and an events calendar.

The club is open to all radio amateurs interested in QRP. Colorado residency is not required.

In eastern Colorado, the club has a QRP information net Monday evenings at 0200Z on the 147.225 repeater (145.160 in Colorado Springs). It also uses 146.445 simplex.

On HF, members are urged to call "CQ CQC" on 80 meters any evening at 0200Z on 3.710 MHz.

"If you are interested in CW, SSB, DX, contests, RTTY, AMTOR, Pactor, packet, rag chewing, satellite communications, propagation, transmitter and receiver design or construction, antennas (mobile or portable), you should consider the Colorado QRP Club," the club flier says.

Dues are $10 per year (or $1 per month for the remainder of 1994).

For a brochure, or to join, write: Colorado QRP Club, 14261 E. 4th Ave. No. 161, Aurora, CO 80011-8711.

Look for great things out of the Rockies from the Colorado QRP Club.

MFJ 90's Radio Club's first contest

Joseph Falcone, AA8HV, writes from Southfield, MI, that the MFJ 90's Radio Club this month is hosting its first contest.

It's an all-CW competition from 0000Z on 21 May to 2400Z on 22 May, and is open to all radio amateurs. Work stations once per band. There are three entry categories: all band, high-band (20, 15 and 10 meters), and low band (160, 80 and 40 meters).

The exchange is signal report, state/province/DXCC country, and MFJ 90s' number if you're a member. Non-members send output power.

Suggested contest frequencies are 1.810, 3.560, 3.710, 7.040, 7.110, 14.060, 21.060, 21.110, 28.060, and 28.110 MHz. No 12, 17 or 30 meter QSOs will be permitted.

Score five points for a QSO with an MFJ 90s' member. Others count two points for the same continent and four points for a different continent.

Multiply QSO points by states/provinces/DXCC countries worked per band and by the power multiplier (1-5 watts output, times 7; below 1 watt, times 10).

If 100 percent solar, natural or battery power is used, multiply the final score by 1.25.

Certificates will be awarded. Entries must be postmarked no later than 30 days after the contest.

Mail entries to Joseph Falcone, AA8HV, MFJ 90's Radio Club, 3000 Town Center, Ste. 2370, Southfield, MI 48075. WR

County Hunter

Ace Jansen, N3AHA

51 Kenbrook Circle, San Jose, CA 95111

Okay, so it's not original, but it's about time you just did it. If you read the last couple County Hunter columns, you know I've been pumping you up to go on a county expedition. Well, why haven't you yet? Hook up your mobile rig and antenna and plan your trip. Now do it!

Checking in

Here we go. Ignition started. Full tank of gas. All your auto/radio/navigation supplies are in the car with you. You're ready! Time to check in to the County Hunter Net. If you're a SSB operator, tune your dial to 14.336 MHz; CW operator, 14.0565 MHz. You may hear the net control or assistant net control, but chances are you'll hear another mobile "running" a county. You could make contact with the mobile and ask for a relay to net control that you'd like to be added to the list. When the mobile is calling for contacts, say your call, "N3AHA mobile." When the mobile gives you a report, respond by saying, "QSL the 59, you're 57 in (your county) Santa Clara, CA — please ask net control to add me to the list." If net control is asking for check-ins, then give your call and ask what number you are on the list. If each mobile runs for 10 minutes, you can figure out about how long it will take net control to call you to run your county. If you don't want to wait that long, tell net control you'd like to move off frequency Net control will ask for a volunteer to take you off net frequency so you can run your county.

On code, it's a little different. Since there's not as much activity there, you might not hear anyone sending. If a mobile is running, wait until the end of the run. When net control, usually WA6VJP, asks for "any mobile QRV" (ready to run), "please QNI" (check-in), send your call; "N3AHA/M." If there are other mobiles ready on CW, net control will tell you your number "NR2" and ask you if you want to QRX QSX (standby) or QSY (move off net frequency). IF you decide to QSY, net control will tell you to move up or down 2 KHz to run the county.

It's your turn

Now what? The first thing that will happen is net control will ask you what's your county. Net control and the assistant net control will announce to the county hunters that they are about to run you; for example, "we're going to run N3AHA mobile in Santa Clara county, CA." Net control will give you a start time — for your records and also so you know when your 10 minutes are up — and may also exchange signal reports with you. Now, it's all up to you. Picture yourself all alone on a deserted island, and a massive storm of RF is heading your way. You're DX! (wake up, you're really in your car and there's snow on the ground and you're in the middle of nowhere). If this is your first time running counties, it might be easier to stop along the side of the road, with pencil and paper in hand. As stations call you, jot down their call and the signal report you sent and received. Since you're stopped, you could take a short list of calls. Whichever works out to be the quickest and most effective method for you to make the maximum number of contacts in your allotted 10 minutes.

Dos and don'ts

Here are some tips to consider while you're operating. There is no right way to operate on the county hunter's net, but if you want to be effective, use their suggestions. Other mobile operators may suggest different operating techniques or only use some of these, but since it's my column, you have to put up with my operating philosophy (quirks).

Do announce your call and county often. For some reason, mobiles don't announce their call and county often enough. I have several CW contacts in my log with a signal report only — no call or county. Don't depend on the station getting that information from net control because not everyone can hear net control. Give your call and county often, at least every two minutes or several contacts.

Do use standard phonetics. Until your call is well known, give phonetics each time you say your call.

Do cut down on conversations. The more you talk, the fewer contacts you'll make. The whole idea is to make as many contacts as possible, right?

Do announce your next county at the end of the run. This alerts the net so they'll be listening for you when you get to the next county.

Do use a tape recorder if you're driving. This helps you to concentrate on driving first and radio second. The contacts will all be recorded on tape for transcription later.

Do try to listen for two calls at the time if you're driving. If callers spread out their calls, you can probably remember two calls and make contacts with each of them, saving time over making one contact when calling for

other takers. This becomes easier when you get used to callsigns on the net. I've called people I heard say "uh" before giving their call or only hearing one letter of their call, because I was used to their voice or audio.

Don't shorten signal reports, i.e. "Got the 9!" This is very common on the SSB net, but the signal report is a 59, not 9. When the ARRL recommends ham operators only exchange strength reports, then we'll just give one number. You certainly don't hear CW ops sending "QSL NN," although I have heard "a 599" in place of "also 599." Yes, it's an operational shortcut, but it's also one of my pet peeves. You'll hear some guys give unusual reports just to be humorous, "you're a 56 and a 1/2" or "you're a 22 when they're obviously 59." Why not give semi-real reports? Are we that rushed or bored? Typical SSB reports are 59, 57, 55, 44, 33 and 22.

Don't ask for mobiles and DX to call you first at the beginning of your run. A good operator will work all stations calling, weak or strong, in the 10 minute time frame. Concentrate on good operating techniques and you won't have to worry about helping the little guy first.

Don't depend on relays. Make as many contacts as possible before asking net control for relays. If you're mobile, use relays to help more county hunters.

Maximum contacts

In the January column I wrote about why mobiles make county contacts on the County Hunter's Net and concluded there are lots of reasons. If we just assume the only reason is to help others achieve their own county hunting goals, then to help others we have to give them what they want. What they want is as different as their fingerprints. One county hunter may only want SSB contacts, another may want only CW contacts, others may want county contacts on multiple bands. What this means to the mobile operator is flexibility; be prepared to meet the county hunter's request. If they need a CW contact, have a key or keyer in the car with you. If they want a contact on 40 meters, have a multiple band antenna or resonators for several bands. Since the county hunters are chasing counties on all five of the major amateur bands, be prepared to have the capability of making contacts on 10-80 meters.

Still others may collect counties from YL operators. For most of you reading this column, this mode of operation is a little tougher to accommodate. Unless, of course, your wife (XYL to some) is 1.) a ham, and 2.) enjoys county operating, or 3.) doesn't mind you taking another female ham with you (warning: this may lead to XOM status!).

If you have multiple antennas and a key with you, make county contacts on one of the nets first, either CW or SSB, then announce where you'll be going next (county and frequency). For example, "I am now going CW, then 15 and 10 meter SSB. My next county will be. . ." When you do this you are helping those county hunters with mode/band fetishes, plus alerting others to a possible needed county you'll be traveling through next.

Of course, I'm not so naive to think that helping others is the only reason you may want to go mobile and make county contacts on the net. It really doesn't matter what your reason is for doing it, just do it! One thing's certain — we'll appreciate your efforts.

Until July, happy hunting! WR

Search And Rescue Communications

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

When we talk about decision making and the processes involved, a key element is "information." The best decisions are made when we have complete and accurate information. As is more often the case, there is some element of risk involved when we make a choice but don't have all the facts.

This thing called information is hard to explain, other than saying you know when you don't have it. When we explore the process of communication, it boils down to exchange of information or gathering facts. The point of communications is to allow good decisions to be made.

Take, for example, a health and welfare message. The message intent is to discover how Aunt Susie did during the great flood. When we obtain this information, we can make a decision: we can relax and not worry, we can send aid or we can head out to help Aunt Susie.

If you read many of the current books by Tom Peters, Max Depree or Peter F. Drucker you may note that the most sought after leaders are those that lead with expertise and information. (Trust is also one of those MUST have qualities of leadership!) What does this mean to communications?

Help others lead

Good leaders need information. They have expertise to know what information they need and how to use it to make good decisions. Here's the catch. Good leaders know that their main task is developing experts and leaders — and they do this by sharing information. They communicate.

Let me draw in the Incident Command System. One concern I've felt is the placement of communications under logistics. In the often structured response of a fire department, this may work well. One could even assert that the science of firefighting has evolved to where ICS was a natural outgrowth.

What about SAR or other emergency response? In the aftermath of the World Trade Center bombing there were a lot of response issues discussed. Communications got a lot of positive attention. The FDNY incident command chart put communications at the same importance level as planning, operations, and logistics. Communications was important.

What do you think?

As I've pondered the issue I become more convinced that we ask a lot from communications during SAR and depend a great deal on information that communications provides. It follows that the communications chief should be heavily involved in the incident and not just directed by a logistics person.

If you have any thoughts on the issue, let me know. I know that during complex emergency responses, it is critical that communications take place and be reliable and flexible. If I were in the command element and making decisions, I would sure want to know that the comm people were in place and providing good information. It could be disastrous if command assumed comm were supporting a disaster site and learn later they couldn't get into an area — i.e. they were assigned an unrealistic task.

My gut feeling is that the planning and operations folk must treat comm as an equal and consider (and include) input from the people that link it all together. What do you think? Consider that this implies a higher level of involvement and understanding on the part of the comm chief. Do you have experiences to support this level of importance? Let me know, let's explore this in future issues.

Joint exercises

The latest issue of the Idaho Mountain Search and Rescue newsletter continues to mention exercises between various SAR groups. This is sure impressive! When units such as Mountain Rescue and Civil Air Patrol interact they learn to trust each other and depend on each other's skills.

I'm struck with the impression that these sessions are educational and not an excuse to take advantage of the other group. I hate to see one group just want warm bodies to do unpleasant tasks rather than respect group talents and expertise. This often happens when someone like the Civil Air Patrol or Red Cross have Amateur Radio operators install antennas or provide operators but fail to recognize the skill (and monetary savings) involved.

It's great when groups can plan activities and responses together and

share trust, rather than get called to fix broken gear or install technology often without much thanks.

Fewer surprises

In the July/August 1993 issue of *911 Magazine*, an article was headlined: "The more you plan, the fewer the surprises." The article mentioned some pretty good points about testing backup procedures in case of system failures.

Another mention was to consider that during an emergency, our "normal" systems are not going to be in place, i.e. telephones and commercial power. The author talked about perspective and how it changes once you're involved in a particular situation. I have never been in an earthquake and I don't have the desire to experience one.

But I, as a SAR person, must listen to those of you who have been through the quakes, floods, hurricanes, mountain searches, airline disasters, etc. Your thoughts, your experience, your input will prepare me to avoid surprises. It is impossible for me to experience every event and plan a suitable response — but I can learn from those who have been through it and I can prepare.

As I've advocated in past columns — play the "what if" game with your SAR group. You may not anticipate everything, but you'll be far better prepared than if you simply sit and hope it won't ever happen to you!

Read the manual

Wouldn't it be great if we had a "people instruction manual" to help us understand each other? You're right, we probably wouldn't read that manual either. When my radio goes "blip" and the display resets, my usual reaction is to experiment until I get the commands right to reprogram it. Sometimes I call a friend and once in a while I read the manual.

But what about people skills. Do we really want to experiment? I certainly don't want to be a test animal for someone else and you probably don't either. So let's talk people skills for a few paragraphs.

Want to improve? Call friends. Ask them to give you some feedback on how you can do better. Too shy or insecure? Here's some areas you might want to consider.

You might be wrong. Heaven forbid, but yep, each of us makes mistakes. And so do others. Once we accept the fact that we make as many mistakes as others, we are easier to get along with. Think of this next time you get the urge to berate someone over the radio.

You measure performance in others, they do the same with you. Before you chew out someone for failing to do something they promised, consider the example you set.

Offer praise. People love to get positive attention. Look for it and make it part of your leadership effort.

Enemies accumulate. Whew, isn't this the case. Everyone is a critic. Given a chance they'll find something wrong with how you do things. Would you like a secret on dealing with difficult people? Ask them to help you. Get them involved. Put them to the task.

A quick observation. I was listening to a traffic net passing quake messages in January. There was one fellow that just couldn't resist the urge to complain about how it was going. I burst out laughing when the net control asked him to handle the net for a few moments while a potty break was taken. What a change in the tune — once the complainer got a chance to do the job.

Bad days abound

And remember we all have bad days. Moods come and go. You can't let another's mood ruin your good feelings. Every day isn't going to happen as you've outlined it in your daily calendar. Expect it. Deal with it and move on. Don't let crabby people make you crabby. It's not your job to solve everyone's personal problem. If you can be a friend and listen, great. If not, don't let them affect your day — you have a life too.

That's about all from Salt Lake this month. I continue to appreciate your letters and comments.

In an ever-increasing effort to make it easier to share ideas, you can now get me via the Internet. Feel free to send comments to me at this address: Jerry.Wellman@m.cc.utah.edu (yes the periods are important). Packet mail is also welcome: WB7ULH@WB7ULH.SLC.UT.NOAM. I am listed in the phone directory and always enjoy letters (the old fashioned way). My time on the air has decreased while I complete some post-graduate work but I try to hang around the upper parts of 40 and 75 meters.

Drop me a line and let me know how SAR communications is meeting (or not meeting) your needs. Send war stories, suggestions, training ideas or questions. Best wishes and my thanks for your past help. See you next month! **WR**

DX contest calendar for May

7, 8 May — A.R.I. (Italian) DX Contest
14, 15 May — CQ M(Russian) DX Contest
21, 22 May — A.R.A.L. (Portuguese) DX Contest
28, 29 May — CQ Worldwide WPX CW Contest

May is an interesting month for contesters with important national contests on each of the first 3 weekends, followed by the *CQ* Worldwide WPX CW contest which is one of the top 4 CW events in the DX contesters year. The rule highlights are as follows:

A.R.I. contest

This is a worldwide competition beginning at 2000 UTC, Saturday, 7 May 1994 and ending at 2000 UTC, Sunday, 8 May, 1994. The six regular DX contest bands 160, 80, 40, 20, 15 and 10 meters will be used, but not the WARC bands. Italian stations will send RS(T) plus two letters to identify their province. Non-Italian stations send RS(T) and a progressive serial number beginning 001. Award hunters have the opportunity to earn the WAIP — Worked all Italian Provinces Award — by making written application in the log with a separate list of contest QSOs valid for the award. QSL cards will not be required but it will be necessary to include a certificate fee of 10 IRCs. An RTTY category has been added this year for the first time. For an official A.R.I. copy of the complete rules send SASE to K4IIF.

CQ M Contest

This is the annual contest sponsored each year on the second full weekend in May by our friends at the Central Radio Club, Box 88, Moscow. This year's event will begin at 2100 UTC, Saturday, 14 May, 1994 and will end at 2100 UTC, Sunday, 15 May, 1994. The exchange is RS(T) plus QSO number beginning 001. Use the Russian R-150-5 list for multipliers. This list is similar to the ARRL Countries List.

The Central Radio Club also provides award qualifications, through *CQ* M contest logs, without submitting QSL cards, for the following certificates: R-150-5, R-100-0, W-l00-U, R-15-R and R-6-K.

K4IIF can provide copies of rules from earlier years, but we do not have the current rules.

A.R.A.L. contest

The A.R.A.L. contest was a new event last year sponsored by the Amateur Radio Association of Leiria, Portugal. The operating hours are split into 2 periods: 1600-2300 UTC, Saturday, 12 May and 0700-1400 UTC, Sunday, 22 May. The exchange is RS(T) and serial number beginning 001. As yet we do not have official copies of the rules so do not send an SASE for one.

CQ WW WPX CW contest

Little needs to be said. This is a major milestone each year for the CW contester and is well covered by *CQ Magazine*.

Results of the 1993 U.B.A. (Belgian) contest

The top 5 stations in the single operator, multi band category during the SSB weekend were UH8EA, OH4YR, RW3RQ, UBØJZ and EI7M The winner of the 6th European Community trophy (CW) was EI7M.

In the CW weekend, the top five stations in the single operator, multi band category were UT4UZ, UT5GR, UB7VA, UA4WGU and DL8OBD. CW, The winner of the 6th European Community trophy (CW) was DL8OBD.

Representing the U.S. were John Kanode, N4MM in the SSB category and Gordon Durk, KA1DWX in the CW category.

Results of the 1992 R.E.F. (French) Contest

Thanks to M. Thietard, F6HSV, we now have the results of the 1992 contest. In the CW weekend, the top l0 scores worldwide in the single operator class, in order of descending score, were EA8AB. UB5QMA, SMØCCE, WG3U, VL7CU, K2SZ/1, Y88VO, LZ1ZP, A6NI and YU1SB. Other competitive scores from the US Stations were entered by W8KV, KF9FU, and KA1DWX.

In the SSB weekend the top scoring stations in descending order were TU1QW, TRØD, 3A2HN, UZ3DXW, UZ3NWD, UA9JK, UB5EDU, K2PS, YO7KAJ and SP5YQ.

Results of the 1993 Championnat de France

Top SSB stations in 1993 were ON5GQ, ON6BV, ON6SI, HK5JJH, VB5EDU, HB9AOF, OH3OJ, SM4SET, 5U7M and SP7LZD U.S. entries included Frank Hoose, K4RZ, and John Kanode, N4MM.

The leaders on CW were UQ5QN, RB5QDP, DL7VOG, OK1BLC, OK2QX, OK1ARN, HA8ZO, DL4BQE, SP2FOV, and DL4JYT.

Reviewing the SOLAR MAX

Our friend and colleague, Bob Brown, NM7M, has an interesting new computer game, SOLAR MAX for DX contesters. It will challenge your contesting ability and hone your skills for the contest ahead.

In essence, the game player has the ionosphere as his adversary and you try to score as many points as possible in a 24-hour period. The program runs like the CQWPX contest in that total

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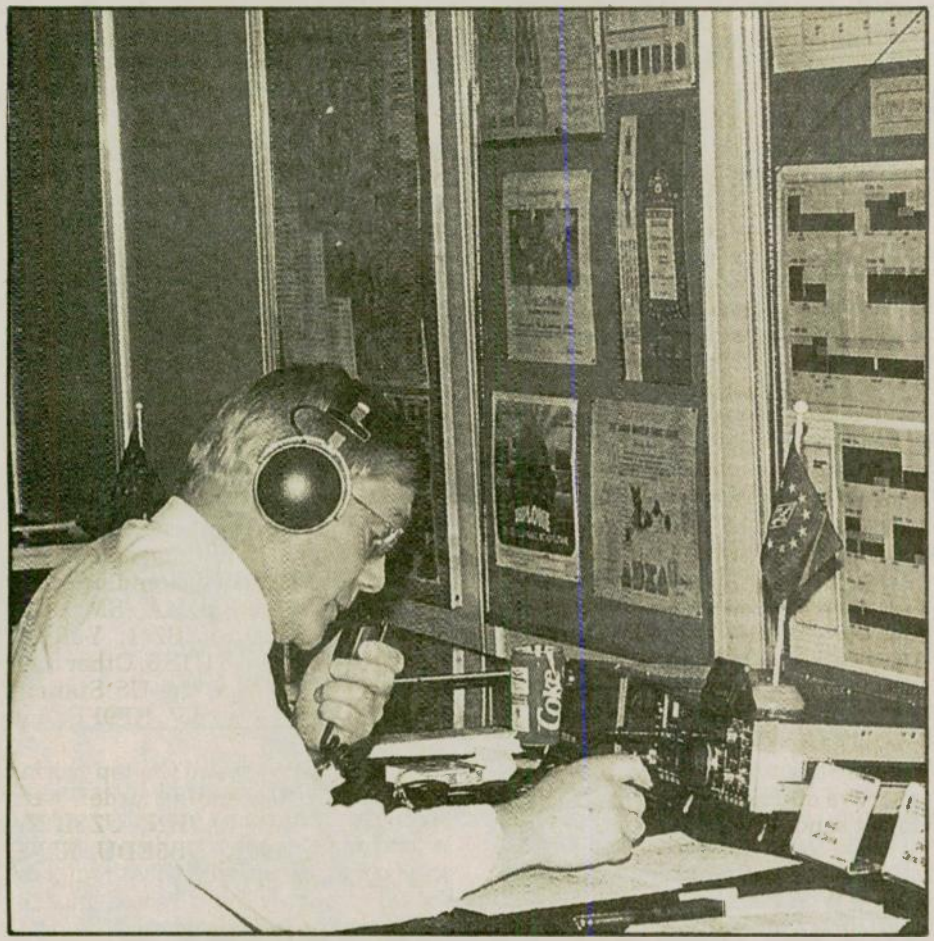
You know you are really hooked on Amateur Radio when all of your VISA and MasterCharge reports list "Ham Radio Outlet" as the prime source of charges.

—Western ARC, Cerritos, CA



Jan Galicia, ON6JG, is the long term manager for the U.B.A. Contest Committee. Each year Jan puts out a full color brochure with complete results of the Contest including lists of trophy winners and photos of participants.

contacts and prefix multipliers are the basis for your score. If you are a contester who knows how to use the ionosphere you should be able to make 1,600+ contacts and 600 multipliers for an all band score of over 2,000,000 points. Bob says that "a superior score would be 3,000,000 points and that a 4,000,000 point score should get you a plaque and a free lunch from somebody."

The program is available for $10.00 U.S. postpaid in the U.S. and $11.00 to Canada for the domestic model, and $13.00 for overseas air mail of the export model. Specify disk size (360K or 720K MS-DOS) when ordering from Bob at 504 Channel View Drive, Anacortes, WA 98221.

Contesting from the islands

Tonga, A35 — Janet Robidoux, KØJE sent a nice letter reporting on a trip to Tonga with her sister Janice, KØJA. Before traveling to Tonga, they had consulted with Pete Hoover, W6ZH/A35ZH, who they described as "the best authority on Tonga." The address for the proper person at the licensing authority on Tonga is: Mr. Hama Na'ati, Tonga Telecommunication Commission, P.O. Box 46, Nuyku'Alofa, Tonga.

The license fee was $20 Tongan which is about $17.00 U.S. One should expect to pick up the license in Tonga as responses by mail will be slow, if not impossible.

The main difficulty for the Robidoux's was Customs would not let their equipment into the country because they had not requested a temporary import permit in advance. This required leaving collateral as cash — $500 Tongan — or leaving part of the equipment. They could not provide the address for the Tongan Customs Department but one might assume that a letter addressed to that agency in Nuku'Alofa would be delivered. However, assumptions can lead to disappointments. This sounds like an area where a good local contact would be helpful.

Aside from Amateur Radio, Janet and Janice recommend a tour of the island to view Ha'amonga'a Mui Trilithon, the blow holes and the flying foxes. They did not provide hotel information as they had private housing related to their duties with a Global Volunteer Team.

Grenada — Harry Flasher, W8KKF/J37K writes that most of the hotels in Grenada are on the beach with a bad angle toward Europe due to high mountains, but a good shot in the direction of W/K/VE. The license cost has been about $14.00 US in past years, but with inflation, the cost may have gone up. With large groups his local contact has handled any deposit needed on equipment, but on solo trips with everything in suitcases there was not a problem. On the other hand, do not use boxes, as boxes lead to questions and possible problems. Use as few suitcases as possible. In case there is a problem, it is good to have a license, or at least the phone number of the licensing officer. In the Bahamas, Harry has had to put up a deposit even with license in hand. (I had the same experience in 1967, 1968 and 1978 — K4IFF).

Regarding the future, Harry indicates that he and Ron Hesselbrock, WA8LOW will be back to Grenada for the October 1994 *CQ* Worldwide Contest, possibly for a major multi-multi effort if a suitable QTH can be arranged. WR

CONSTRUCTION

Why radials?

Part III

DON NEWCOMB, WØDN

Consider standing wave ratio, or SWR. Doesn't a low value of SWR ALWAYS mean that an antenna is operating efficiently? No, it means nothing of the kind. Over the last 30 years or so low SWR has become an end in itself, especially since most no-tune solid-state transceivers won't deliver full power into 50 ohm lines that aren't almost perfectly matched to the antenna circuit. But what about line losses because of high SWR? The truth is that even a perfectly matched 100-ft. length of good coax will have a built-in loss of approximately one decibel at 30 MHz, and increasing the SWR to 3:1 or so would cause only negligible additional loss that would be even more negligible at lower frequencies.

But what about line losses because of high SWR?

How can we account for all the superstitions that have grown up around SWR? We've all heard of the fellow who raised and lowered his beam until he found the exact height that produced the lowest SWR reading in the shack. That his beam might have worked much better at a slightly greater height with only a slight increase in SWR didn't interest him at all because SWR was the only thing that mattered.

Similarly, some poor misguided souls have ripped up excellent radial systems because they found that increased SWR was too great a price to pay for greatly improved performance. Silly? It certainly is, but it points up a dirty little "secret" that most manufacturers would rather not reveal, namely, that they depend on your having a fair amount of ground loss for their verticals to operate with tolerable SWR on some or all bands.

We said a bit earlier that a vertical antenna's radiation resistance depends almost entirely on its physical height or length. For obvious practical reasons, this height is usually between 25 and 30 feet, much shorter than the 60-odd feet needed for a quarter wave length on 80/75 meters or even on 40 meters, so the antenna radiation resistance never reaches the 35 ohms that we read about in the literature. In fact, the multiple-trap design approach most often means that the radiation resistance won't reach 35 ohms on ANY band except 10 meters where only the lower eight feet or so of the antenna is being used. Feed such an antenna with 50 ohm cable over a good ground system and the SWR should be no better than 1.5 on any band — barely acceptable in these days of no-tune solid state finals. But if we can count on a few dozen ohms of ground loss resistance the total feedpoint impedance comes closer to 50 ohms and the SWR moves closer to 1.1! All is right with the world, at least if you don't worry about efficiency. One final example to illustrate:

A popular multiband trap vertical has a total height of some 25 feet, all of which is used on 80 meters. On 40 meters, however, only about 20 feet of it is used because a 40 meter trap is inserted at that point to block current flow on that band and to provide enough inductance for resonance on 80 meters.

The normal physical length for a resonant quarter wavelength on 40 meters is still approximately 33 feet, so the fact that this antenna needs to be only 22 feet tall suggests that the trap circuits for the higher-frequency bands contribute a fair amount of loading on 40 meters. But, as we've seen, shortening the antenna can lower the antenna's radiation resistance quite a bit, to maybe 20 ohms on 40 meters in this instance. When a 50 ohm feed line is connected what will the SWR be? Absent significant ground and loading losses it should be roughly 50/20 or 2.5:1 at best.

Happily, however, most people will drive a stake in the ground, run out a short radial or two, accept another 25 ohms or so of ground loss resistance and end up with a SWR of 1.5 or less, not realizing that more than half their power is being lost in the ground connection.

Luckily for all concerned, very little radiated power is required for effective communication over great distances under most conditions, as the QRP crowd has amply demonstrated over the years, so no one is the wiser.

How can we account for all the superstitions that have grown up around SWR?

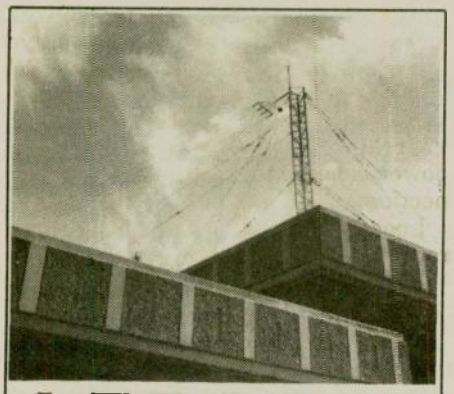
When you hear someone describe a vertical antenna as a "dummy load on a stick" or as "one that radiates equally poorly in all directions" these remarks should probably be directed at the whole installation, including the ground system rather than at the vertical radiator and its circuits.

But what about the poor fellow who read the *ARRL Antenna Book* and installed a good ground system? Is he stuck with his 2.5 SWR or must he remove radials until his SWR (and his signal) drop below some magic number? Must he buy an expensive "antenna tuner?" Not at all! It's a simple and inexpensive job to come up with a "cheap and dirty" matching device that will cover all the HF bands, and one is included with every Butternut HF vertical.

Radiation resistance, remember, is not a real resistance, but we have to account for any power fed to the antenna circuit that disappears through useful radiation as well as any loss resistance that simply consumes power to no purpose, but there's no harm in treating it as "lost" for our simple calculations so long as we recognize what's happening in the real world.

Remember too that our various calculations, simple as they are, don't begin to explain in detail just what is happening in all cases with all antennas, useful as they might be for a general understanding of what is involved. WR

(to be concluded next issue)



AERIALS

KURT N. STERBA

Possibly there may be a better way to do things. Right now there's a lot of campers taking wires to the wilderness. The antenna is usually an end fed quarter-wave fed through a tuner. Even at home stations there's a lot of wires that come right into the shack to the tuner. The books show these wires to be about 67 feet for 80M, 130 feet for 160, 33 feet for 40M, etc. These are the 1/4 wave figures that we have all come to know and love. Howsomever, some slight modifications may improve things a worthy amount.

For an example the 20M, 1/4 wave is about 16-1/2 feet. The maximum current is right at the feedpoint. Should that be tied right into the tuner, the radiated power is fighting to try to get out of the house. Add 3 feet, 4 inches to the wire. This will move the point of maximum current (one-quarter from the top of the antenna) outside the house and you'll have more of a fighting chance. And less RF floating around in the shack.

For the camper, and that 40M wire heading for the tree limb, instead of 33 feet, make it 40 feet instead. This gets the highest radiating portion of the antenna up in the air a little higher.

For 80M, instead of 67 feet, make it 80 feet and 5 inches. For 160M, go from 120 up to 158 feet. What we've done is add 1.2X the length of a quarter-wave wire. We've gone from .25 of a wavelength up to.30 of a wavelength.

In doing some reading I came across someone telling that he came up with some wire configuration that actually worked out much better than his Yagi up about 60 ft.

How does he really know that? Did he, possibly, swap the feedlines between the two antennas? Maybe the coax to the Yagi just had a lot of loss. Maybe the Yagi was misadjusted. Things are not always as simple as they seem in this game.

Here is something else to think about. Let's say you have a bad news story where the feedline meets the antenna. Low-loss coax tells you the truth back at the station's SWR meter. Coax with some loss will disguise the situation and lead you to believe things are better than they really are. Really lossy coax will totally mask the bad situation (SWR wise) and you will be no wiser.

In some other reading a QRPer was saying that an HF Yagi "does not buy enough in performance to justify the high cost in dollars."

Well, while I feel there is a great deal to the "wires and pliers," the beam is well worth it. If more had beams, we'd all be better off. Let's look at two stations in a QSO both with dipoles. They are struggling away. If they both (in a flash) went to three-element Yagis, they would gain 12dB on that path, or 2 "S" units.

Yes, the transmitting station went up 6dB and the gain of the receiving antenna pulled it up another 6dB. Path gain is additive. But there is even more to consider in the beam's virtues. And I'm surprised to see that this QRPer, (since they all seem to be environmentalists) is anti-beam. The beam does indeed radiate far less off the back and far, far less off the ends than the dipole does. Really way, way down. Thus things are pleasanter for others using that frequency elsewhere.

Speaking of Yagis: I see some hams saying such to the effect that they did well in a contest because they had a "Cutting Edge" beam and "it really plays". Hmmmmm. Does anyone ever ask "Why?" Just what is it that seems to imbue this particular antenna with a special magic? What have its designers discovered that was beyond the reach of all the others? Length? Spacing? Taper? Matching? Just what is the factor that makes it so much better? Analysis please.

We hear "I believe it works better." That's nice. Magic does have its place I suppose but it isn't very scientific (measurable). This beam, with its proponents believing they did better because of its usage, must obviously have a better pattern than all of its competitors. How does it get that pattern?

Is it really so much better than any other? Will the commercial (industrial) (NOT-amateur) manufacturers be copying the design of the ham antenna? That is, if their highly educated and experienced engineers can figure out what makes it so different?

Hmmm, maybe instead of being hallow tubes the ends are closed and the elements are filled with liquefied copper. There are more electrons to get excited. Or maybe they are filled with Hadacol.

To another matter. There does seem to be some swill circulating. And as always the true answer will come from measuring. First, we'll set the stage. Transceiver with short coax to SWR meter with short coax to antenna tuner to coax fed antenna.

Knobs are twisted back and forth until a perfect 1:1 is seen. "Yea, I can get my antenna perfectly flat with my tuner." And it is. At that spot. The spot where the SWR bridge is. Yes, there is a match there. What more can one ask for? Well, put another SWR bridge AFTER the tuner. You will see the condition that exists on the line. By seeing the SWR there and consulting the charts, you can see that actual loss on the line.

I did have a great time in the ARRL DX Contest on the first weekend in March. I used just the odd bit of wire, but, knowing what I was doing, I could qualify for another Worked All Continents award. I worked the big stations, the 100 watt stations and the 50 watt stations.

Moving up and down the bands I heard a conversation in which one ham said verticals were "air cooled dummy loads." Hey, if verticals are so bad, why do broadcast stations use them? And, can you hear Pittsburgh on the crystal set?

Do not disparage the vertical. It does a very fine job of what it is intended for. It indeed radiates equally well in all directions. In a big circle. For the newcomers we'll explain that what the Yagi or Quad do is take some of the power going off in an unwanted direction (you want to work Europe, but a whole lot of your power is going to New Zealand) and pours the heat where you really want it to go.

The less and less that goes off to the wrong way, the more and more that will go where you want it to.

Right now, go get an envelope! Address it to: Skyware Communication Technology, 1942 Como Lake Ave., 64590, Coquitlam, BC V3J7V7. Put a dollar in the envelope and 40 cents postage on it. Do it!

You will receive a catalog, mostly antenna stuff. But a catalog with a difference! While they do sell 9913, they also write in the catalog, "It is generally a complete waste of time at HF to use anything better than RG213 for runs less than 250 ft." Then how 'bout this: "There are no magic antennas, the laws of physics that govern antenna engineering were essentially documented by the 1930s." They sell the B&W folded dipole for 3.5-30 MHz but report, "On the lower frequency bands, when compared to a resonant dipole, the AC 3.5-30 radiates a signal approximately 2 S-units below such a dipole cut to that frequency." Have you ever seen such a statement in your whole life? What candor!

Besides product data on a huge variety of antennas there are many pages of very serious antenna talk that was obviously written by a highly knowledgeable person. I AM impressed.

Besides theory and practical you are given this: "If a manufacturer cannot provide SWR curves, Polar Diagrams and/or Free Space performance figures in dBd you are probably paying $$$ for a bundle of aluminum with some imaginary specifications."

The catalog has an inexpensive Field Strength Meter. But, the half page explanation on SWR is worth a dollar by itself. I like the spreaders and termination connector kit to make 600-ohm line. There's also the up-to-date version of the Webster Bandspanner.

Don't let your eyeballs roll at the prices in this catalog. Quick, let me point out that when you see, say, $150, that really translates to $100 in Yankee dollars. And, what a pleasure it is to look at VHF verticals and NOT see gain figures that are at the moonbounce level.

This is indeed a "straight arrow" outfit. They even have "The Kansas Dipole." I've been meaning to do some work on that. Here you can have a 40/20 antenna that is only 32 ft. long. I'd like to work out (or see somebody else do it), with the same principle, an antenna for 20/10, 16ft. long. I'd mount it vertically and center feed it. Bet that it, and the normal ground mounted and fed 16 foot (for 20M) with lots of radials, would be having an even-steven battle.

The catalog also has some suggestion for clandestine antennas. I do pity those with the neighborhood Volpos hunting down any infraction. To digress for a moment. I heard of one ham, suffering under oppression, who came up with a novel solution. He bought a rusted out old heap of an ancient car, put a vertical on it, and left it in the driveway. It never moved and its only purpose was to support the mobile-type antenna. To the neighborhood NKVD, antennas were an eyesore but the car was not. So go figure?

I leave the Canadian catalog with one last quote, "A 3-element Yagi has lots of gain over a rotten carrot at ground level." There really is lots of serious stuff in it too.

And to Fuddy Duddy who took after me for bopping an antenna: He said it wasn't as bad as I made it sound. Working it out, he related, he figured maybe it was 3dB down from a dipole. Well, I look at a $400 antenna and a $300 box to make it work. That's $700. Hey, I'm old enough to remember when $700 was real money. Like this morning.

And Lil thinks their advert with "someone sitting in the loo is absolutely tasteless."

(Kurt goes by his nom de E-H so he may (1) stand at Dayton and accept silly specification sheets at the booths of perpetrators and (2.) speak highly of some and thus avoid (if they were so inclined) some imagined reciprocity in the form of a box of his favorite fine ten cent cigars.) **WR**

HE WAS TALKING TO ME ON HIS HANDHELD FROM RIGHT IN THERE WHEN HE FADED OUT---YOU DON'T SUPPOSE ———

California

The CSUS STUDENT ARC is sponsoring a swapmeet on the campus of California State University, Sacramento on 15 May from 7 a.m. to noon. Features include free parking, free admission for buyers, $10 for sellers. Set-up and refreshments available at 6 a.m. Talk-in on 145.23(-) PL 162.2. Contact CSUS Student Activities Office #140, 6000 J St., Sacramento, CA 95819-6009; 24-hour information line 916/381-5167 or Gary, KC6URB, 916/381-6602 evenings.

THE LIVERMORE ARK is sponsoring an Amateur Radio/Electronic/Computer Swap Meet on 1 May from 7 a.m. to 12 noon at Las Positas College. Features include refreshments, free parking and covered spaces in the event of rain. Admission is free. Sellers pay $10 space fee. Talk-in on 147.045(+) from the west and 145.350(-) PL 100Hz from the east. Contact Noel Anklam, KC6QAK, at 510/447-3857 eves. or leave message days at 510/783-2803.

The NORTH HILLS RADIO CLUB will sponsor a hamswap on 21 May from 8 a.m. to 3 p.m. at the Carmichael Elks Lodge in Carmichael. Features include food and refreshments, free parking, door prizes, commercial vendors, indoor tables and outdoor tailgate spaces $10. Admission for entry is $1. Admission is free for outdoor tailgate area. Talk-in on 145.190(-). Contact NHRC, P.O. Box 41653, Sacramento, CA 95814-0635.

The VALLEY OF THE MOON ARC, WB6DWY, is sponsoring a hamfest on 30 April starting at 8 a.m. at the Sonoma Veteran's Memorial building. Features include a "ham" and egg breakfast, swapmeet, special event station, ATV and packet radio demonstations. VE exams will begin at 11 a.m., with registration beginning at 10 a.m. Free admission. Swap spaces will be $10. WB6DWY will be set up and operating throughout the day on the General phone portions of 10, 20, and 40 meters. QSL with SASE for a nice parchment certificate. Talk-in will be on 147.47 simplex, 145.35(-) and 146.205(+) repeaters PL 88.5. Contact Darrel, WD6BOR, at 707/996-4494.

Colorado

The WESTERN COLORADO ARC will hold a Hamfest on 7 May from 9 a.m. to 2 p.m. at the Mesa County Fairgrounds. VE testing and seminars will be available. Talk-in on 146.94. Contact Percy, NG6N, 252 W. Fallen Rock Rd., Grand Junction, CO 81503; 303/245-2973 or Jim at 303/243-9427.

The PIKES PEAK RADIO AMATEUR ASSOCIATION will hold a ham swapfest on 21 May from 8 a.m. to 3 p.m. at Liberty High School. Features include radio gear, computers, electronics and refreshments will be available. VE exams start at 9 a.m. Admission is $3. Vendor's cost is $10 for the first table, $8 for additional tables. Talk-in is on 146.97 and 146.52. Contact Al, N2IWZ, Pikes Peak Radio Amateur Association, 5562 Dunbar Ct., Colorado Springs, CO 80918; 719/594-9288.

Illinois

The KISHWAUKEE ARC will sponsor a hamfest on 1 May beginning at 8 a.m. at the Sandwich Fairgrounds. Features include overnight camping (no hook-up), refreshments and tailgating. Admission is $4 in advance and $5 at the door. Tables are $10. Talk-in on 146.73(-), 146.52. Send SASE to Howard, WA9TXW, P.O. Box 264, Sycamore, IL 60178.

The LEWIS & CLARK RADIO CLUB of Godfrey, IL will sponsor a hamfest on 21 May beginning at 8 a.m. at the Lewis & Clark Community College. Features include vendors, forums, ARRL booth, no charge for paved flea market, food and refreshments. VE exam registration is at 10 a.m., testing at 11 a.m. For pre-registration, contact Rich Morgan, KF9F, at 618/466-2306. Vendor tables are $10 each. Talk-in is on 145.230 repeater. For more information, contact Lewis & Clark Radio Club, P.O. Box 553, Godfrey, IL 62035; Harold, KC9GL, 618/466-1909.

The CHICAGO ARC will hold a hamfest on 29 May from 8 a.m. to 3 p.m. at the DeVry Institute of Technology. Admission is $3 in advance, $4 at the door. Refreshments available. License exams in the morning. Indoor tables $1 per foot. Vendor set-up is 6 a.m. Talk-in 147.255(+) or 444.825(+). Contact CARC, 5631 W. Irving Pk. Rd., Chicago, IL 60634; 312/545-3622 or 312/666-1606.

Iowa

The VALLEY EMERGENCY COMMUNICATIONS ASSOC. will sponsor a hamfest on 1 May from 7:30 a.m. to 3 p.m. at the Burlington Drive-In Theater. Features include free parking, refreshments available, radio, computer and electronic equipment. Admission is $4 at the gate, children under 12 free with adult. Tailgate space is free, but must pay admission. Vendor set-up time is 6 a.m. No AC available. Talk-in 146.79(-) or 146.52. Contact Chuck, N2DUP, P.O. Box 911, Burlington, IA 52601-0911; 319/752-3000.

The NORTH IOWA ARC will be hosting a tailgate swapfest on 22 May from 8 a.m. to noon in the lower parking lot of Southbridge Mall, one block north of the junction of Highways 18 and 65. There is no admission or set-up fee. Talk-in on 146.760(-). Contact NIARC, Jim, NØOKI, 920-11th N.E., Mason City, IA 50401; 515/423-7310 after 5 p.m.

Kentucky

The PADUCAH ARA will sponsor a hamfest on 21 May from 8 a.m. to 2 p.m. at Noble Park Civic Center. Features include VE exams, concessions, mall and craft shops just across the bridge. Talk-in on 147.06(+). Contact David, KQ4IU, 5715 Blandville Dr., Paducah, KY 42001; 502/554-7999 or Paul, N4FFO, 229 Nickello Hts., Paducah, KY 42001; 502/898-6834 packet address is @W4NJA.WKY.KY.USA.NA.

Louisiana

The BATON ROUGE ARC will sponsor a hamfest on 21-22 May at The Great Hall.

Features include ARRL State Convention, vendors, flea market, forums, Cajun cooking and free parking. Special guests include Sister Alverna O'Laughlin, WAØSGJ from Handi-Ham HQ in Golden Valley, MN and Linda Reeder, N7HVF, from Salt Lake City, UT. Admission is $3 in advance and $4 at the door. Talk-in is on 146.79(-). For more information, there is a special hamfest hotline number 800/256-FEST, or contact BRARC, 4079 Florida Blvd., Baton Rouge, LA 70806; Herb Ramey, KB5AQ, 504/346-0000 days or 504/654-6087 evenings.

Maryland

The ANTIETAM RADIO ASSOCIATION, INC. will sponsor a hamfest on 22 May from 8 a.m. to 3:30 p.m. at the Hagerstown Jr. College Athletic & Recreation Center Arena. Features include indoor and outdoor selling spaces. VE exams will be given at 9 a.m. Pre-registration is recommended. Contact Pat, KQ8E at 304/289-3576 for exam information. Admission is $5, children under 12 free. Tables are $15 in advance, $20 at the door. Outdoor spaces will be $5 and must also pay general admission. Vendor set-up time is 6 a.m. Talk-in on 146.94(-) repeater. Contact Antietam Radio Association, P.O. Box 52, Hagerstown, MD 21741; 301/714-0688.

Michigan

The WEXAUKEE ARC will hold their annual Swap and Eyeball QSO on 14 May at the Cadillac Middle School. Admission is $4. Tables are $6. Talk-in on 146.98 repeater. Contact Wexaukee ARC, P. O. Box 163, Cadillac, MI 49601 or call Dan, KE8KU, at 616/775-0998.

Minnesota

The PAUL BUNYAN ARC of Bemidji will hold a hamfest on 1 May from 8 a.m. to 2 p.m. at Bemidji Middle School. Features include dealers, and flea market. Admission is $5. VE exams will be from 6:30 a.m. to 8 a.m. Pre-registration is required. Tables are $5 each. Vendor set-up time is 6:30 a.m. Talk-in on 146.73(-). For more information, contact Steve Hake, 4331 Pincherry Rd., Bemidji, MN 56601; 218/751-9558.

The TWINSLAN ARC will sponsor a tailgate swapfest on 21 May from 7 a.m. to 1 p.m. Refreshments will be available. Vendors sell from vehicles for $6. Vendor set-up time is 6:30 a.m. Admission is $2. Talk-in on 146.76(-) repeater. Contact Bill, NØBSN, 18025 Cynthia Dr., Minnetonka, MN 55345-4206; 612/474-0118.

Missouri

The PHD AMATEUR RADIO ASSOCIATION, INC. will sponsor a convention on 21 May from 8:30 a.m. to 4 p.m. at the KC Market Center. Features include over 60,000 sq. ft. of exhibit space, all on one level, fully accessible to the handicapped and free parking. Display space is $100 for the first booth, each additional booth is $50. Booths are 10 ft. wide and 9 ft. deep and include one draped table, 2 chairs, 115 volt AC, curtains on rear and sides. Vendor set-up time is 1 p.m. to 8 p.m. on Friday, 20 May and 7:30 a.m. to 8:30 a.m. on Saturday, 21 May. There will be security from 3 p.m. on Friday until closing on Saturday.

Nebraska

The 39 HUNDRED CLUB and SOOLAND ARA will sponsor the Nebraska State Convention and Hamboree on 13-14 May beginning at 11 a.m. on Fri. and at 8 a.m. on Sat. at the Marina Inn in South Sioux City. Features include a get acquainted dinner on Fri., banquet on Sat., special guests, flea market, VE exams on Fri. night and Sat. afternoon. Admission is $6. Talk-in on 146.91(-). Contact Dick Pitner, WØFZO, 2931 Pierce St., Sioux City, IA 51104; 712/258-1520.

New Jersey

CHERRYVILLE REPEATER ASSOCIATION II, Inc. is sponsoring a hamfest in Phillipsburg on 21 May from 8 a.m. to 2 p.m. at the Warren County Farmers Fairgrounds. Features include DXCC checking, new and used radios, computers and other electronics, free parking and handicapped accessible. Food & drinks are available. VE exams at 10 a.m. (pre-registration at 9 a.m.), contact Marty Grozinski, NS2K, at 908/806-6944. Admission is $6. Indoor tables are $15 and tailgating at $10/space. Vendor set-up is 6 a.m. Contact Keith Burt, KF5FK, at 908/788-4080. Talk-in on 147.375(+) and 146.820(-). Contact CRA II Inc., P.O. Box 308, Quakertown, NJ 08868.

New York

The METRO 70CM NETWORK will sponsor a flea market on 1 May from 9 a.m. to 3 p.m. at Lincoln High School. Features include free parking, indoor flea market, unlimited free coffee, VE exams, and food will be available. Admission is $5, kids under 12 free. Vendor cost is $18 for the first table, $13 each additional table. Talk-in on 440.425 PL 156.7, 223.760 PL 67.0, 146.910, 443.350 PL 156.7. Contact Metro 70 CM Network, 53 Hayward St., Yonkers, NY 10704; Otto, WB2SLQ, 914/969-1053.

The SOUTHERN TIER ARC is sponsoring a hamfest on 7 May from 8 a.m. to 4 p.m. at the Marvin Park Fairgrounds in Owego. Features include banquet, VE testing, seminars, ARRL forum, vendor exhibits, indoor & outdoor flea market, refreshments and tailgating. Admission is $3 in advance and $4 at the door; tailgate $2 extra; banquet (includes general admission) $20 per person in advance. Tables $15. Talk-in on 146.76(-) and 146.52. Contact STARC, P.O. Box 7082, Endicott, NY 13761-7082.

The ROCHESTER AMATEUR RADIO ASSOCIATION will sponsor the Atlantic Division/New York State ARRL Convention/Rochester hamfest and computer show on 20-22 May at the Monroe County Fairgrounds. Features include outdoor flea market (opening at noon on Fri., 20 May), 150 indoor exhibitors (opening at 8:30 a.m. on Sat., 21 May and Sun., 22 May), programs, VE exams and awards. Admission is $6 in advance and $8 at the door. Flea market is $5 per parking space plus admission. Vendor cost is $175 per booth. Vendor set-up time is Fri., 20 May, 1 p.m. to 9 p.m. Talk-in is on 146.88(-). Contact Harold, K2HC, Rochester Hamfest, 300 White Spruce Blvd., Rochester, NY 14623; 716/424-7184 or fax 716/424-7130.

The GREAT SOUTH BAY ARC and SUFFOLK COUNTY RADIO CLUB, INC. will sponsor the Long Island hamfest on 22 May from 9 a.m. to 4 p.m. at the Plainedge Senior High School. Features include seminars, discussions, VE exams, indoor flea market and outdoor tailgating. Admission is $7. Vendor cost for a table is $25. Vendor set-up time is 7:15 a.m. Talk-in 146.685 (PL 4Z-136.5 Hz) and 223.86. Contact Andy, WB2FXN, 3 Walton Way, Coram, NY 11727;

or telephone 7 p.m. to 10 p.m. Andy, WB2FXN at 516/928-3868 or Walt, KA2RGI, at 516/957-5726.

Ohio

The ATHENS COUNTY ARA will hold a hamfest on 8 May from 8 a.m. to 3 p.m. at the City Recreation Center. Admission is $4, and in honor of Mother's Day, women will be admitted free. Talk-in on 145.15(-) MHz. For more information, contact Carl J. Denbow, KA8JXG, 63 Morris Ave., Athens, OH 45701-1939.

The HENRY CO. ARC, DEFIANCE CO. ARC and FULTON CO. ARC are sponsoring the North-West Ohio Tri-County Hamfest on 15 May from 8 a.m. to 4 p.m. at the Fulton Co. Fairgrounds. Features include overnight camping spots available at $10 per unit, inside tables are $10 each with one vendor pass per table, outside flea market is $3 per vehicle space. Admission is $3 in advance, $4 at the door, children under 12 are free, drawing at 1 p.m., VE exams are by appointment only. Contact Tom Hay, 419/542-6192 before 8 May. Talk-in on 147.195(+). For more information send an SASE to 126 Muntz St., Holgate, OH 43527.

The TWENTY OVER NINE RADIO CLUB INC. will sponsor a hamfest on 22 May from 8 a.m. to 3 p.m. at the Canfield Fairgrounds. Features include dealers, flea market, free parking, handicapped parking and facilities available. Admission is $3 in advance and $4 at the door, children under 16 admitted free with adult admission. Vendor cost is (indoors) $8 per 8 ft. table and outdoor flea market space is free with admission. Vendor set-up time is 6:30 a.m.

Oklahoma

The ENID HAMFEST GROUP will have a Tail Gator swapmeet on 7 May from 8 a.m. to 5 p.m. at Meadowlake Park. Features include free admission, free parking, coffee and doughnuts in a.m., and hot dogs and soda at noon will be available. Limited table space available. For more information, contact Fred, N5QJX, 405/242-3551 or Tom, N5LWT, 405/233-8473.

Oregon

The KENO ARC will sponsor a hamfest on 7 May from 9 a.m. to 3 p.m. at the National Guard Armory in Klamath Falls. Features include dealers, flea market, snack bar, free parking, free RV parking, VE exams. Admission is $4 in advance and $5 at the door. Vendor tables are $10 each and includes one admission. Vendor set-up time is 7 a.m. Talk-in is on 146.85. Contact Keno ARC, P.O. Box 653, Keno, OR 97627.

Pennsylvania

The WARMINSTER ARC will sponsor a hamfest on 15 May from 7 a.m. to 2 p.m. at the Middletown Grange Fairgrounds. Features include radio equipment, computer hardware and software. VE exams will be at 11 a.m. (pre-registration at 10:30 a.m.) Admission is $5, wives and children admitted free. Vendor cost is $12 per 8 ft. table, tailgating space is $8 each. Vendor set-up time is 6 a.m. Talk-in on 147.09(+) reapter and 146.52 simplex. Contact Woody, N6XES, 665 St. Davids Ave., Warminster, PA 18974; 215/672-8482 between 9 a.m. and 9 p.m.

Rhode Island

The RHODE ISLAND AMATEUR FM REPEATER SERVICE, INC. will sponsor an auction and flea market on 21 May at the VFW Post 6342, Main St. in Forestdale. The flea market opens at 8 a.m. and the auction begins at 11 a.m. Coffee, doughnuts, food and beverages will be available. Flea market spaces are $5 each. Talk-in 146.76. For more information, contact Rick Fairweather, K1KYI, 106 Chaplin St., Pawtucket, RI 02861; 401/725-7507 (between 7 and 8 p.m.).

Utah

The OARC will sponsor UTAH HAMFEST '94 on 21 May from 8 a.m. to 5 p.m. at the Weber State University Student Union Building. Features include free parking, seminars, swap meet, dealers, transmitter hunt, QLF contest (CW left foot), dinner ($9), women's and children's activities. Admission is $10 at the door. For more information, contact Utah Hamfest, Inc., c/o OARC, P.O. Box 3353, Ogden, UT 84409.

West Virginia

The TRIPLE STATES RADIO AMATEUR CLUB will sponsor a hamfest on 15 May from 8 a.m. to 3 p.m. at the White Palace in Wheeling Park. Features include dealers (radio and computer), flea market, free parking, overnight RVs free, two restaurants on the ground, antique car display, 1912 Beechy Plane model on display and police security. Admission is $3, women and youths (under 17) free. Talk-in on 146.910 and 146.715 repeaters. Contact TSRAC, Box 240, RR#1, Adena, OH 43901; phone/fax 614/546-3939.

Wisconsin

The OZAUKEE RADIO CLUB will sponsor a swapfest on 7 May from 8 a.m. to 1 p.m. at the Circle-B Recreation Center, Highway 60 and County I. Food and refreshments available. VE exams start at 9 a.m. Admission is $2 in advance, $3 at the door. Vendor cost is $3 for a 4 ft. table. Vendor set-up time is 6:30 a.m. Talk-in is on 146.97(-) and 146.52. For more information, send an SASE to Jerry, KB9IMH, W70 N1018 Hampton Ct., Cedarburg, WI 53012; 414/377-7468.

The MANCORAD RADIO CLUB of Manitowoc will sponsor a hamfest on 7 May beginning at 8 a.m. at the Manitowoc County Expo Center. Features include a flea market, VE exams and refreshments. Admission is $2 in advance and $3 at the door. Vendor cost is $3 for an 8-ft. table ($8 with electric outlet). Vendor set-up time is Friday night until 10 p.m. and early Saturday morning. For more information send an SASE to Mancorad RC, P.O. Box 204, Manitowoc, WI 54221-0204 or call Red, 414/684-9097 days or Ron, 414/793-4733 evenings. WR

CONTESTS

Michigan QSO Party

The 1994 Michigan QSO Party will be sponsored by the Oak Park Amateur Radio Club. Phone and CW are combined into one contest. Michigan stations can work Michigan counties for multipliers. A station may be contacted once on each band/mode. Portable/mobiles may be counted as new contacts each time the county changes.

Two periods, both dates and times are in GMT:

1800Z Sat. 21 May - 0300Z Sun. 22 May
1100Z Sun. 22 May - 0200Z Mon. 23 May

Exchange: RS(T), QSO#, QTH, county for Michigan; state or country for others.

Scoring: Multipliers are counted only once. Michigan stations: 1 point per QSO times (states + countries + Michigan counties) on phone. Each CW contact is 2 points per QSO. Alaska and Hawaii count as states. VE counts as a country. Maximum multiplier is 85. Five (5) points for each W8MB contact. Non-Michigan stations: QSO points times Michigan counties. 1 point for each Michigan phone QSO and 2 points for each CW contact. Five points for each club station contact with W8MB/W8MB/mobile. Maximum multiplier is 83. VHF only entries: same as above except multipliers per VHF band are added together for total multipliers. No repeater contacts are allowed.

Suggested Frequencies: CW — 1.810, 3.540, 3.725, 7.035, 7.125, 14.035, 21.035, 21.125, 28.035, 28.125.

Phone — 1.855, 3.905, 7.280, 14.280, 21.380, 28.580.

VHF — 50.125, 145.025, 146.52

Awards: Michigan — Plaques - high multi-operator/single transmitter score, high Michigan score, high Michigan (Upper Peninsula) score, high aggregate club score and high QRP only entry (Minimum of 100 QSOs) and high Michigan Mobile score. Certificates: high score for each county (Minimum 50 QSOs). Out-of-state: High out-of-state plaque and certificates for high score each state and country.

A log and summary sheet is requested showing the scoring and other pertinent information, name and address in block letters and a signed declaration that all rules and regulations have been observed. Michigan stations include club name for combined club score. Party contacts do not count toward the Michigan Achievement Award unless one fact about Michigan is communicated. Members of the Michigan QSO Party Committee are not eligible for individual awards. Decisions of the Contest Committee are final. Results will be final on 30 July, 1994 and will be mailed to all entries that have sent in an SASE. Mailing deadline is 1 July, 1994. Send logs to: Mark Shaw, K8ED, 27600 Franklin Rd, #516, Southfield, MI 48034.

Earn an Achievement Award

1994 will be the thirty-sixth year that hams have had their own program to publicize Michigan and its products. Just as for the past thirty-five years, the Governor will award Achievement Certificates to hams who take an active part in telling the world of Michigan's unlimited resources, opportunities and advantages.

Certificates are awarded on the following basis:

1. A Michigan ham submits log information and names and addresses (if possible) of 15 or more contacts made to out-of-state or DX hams with information regarding Michigan.

2. An out-of-state ham, including Canada, submits log information and names and addresses (if possible) of at least 5 Michigan hams who relate facts to him about Michigan.

3. A foreign ham, excluding any resident of Canada, submits the call letters and name/address plus log information for at least (1) Michigan ham who has told him about Michigan.

4. Only QSOs made during Michigan Week, 21-28 May, will be considered valid.

All applications for certificates must be postmarked by 1 July, 1994 and mailed to Governor John Engler, Lansing, MI 48902.

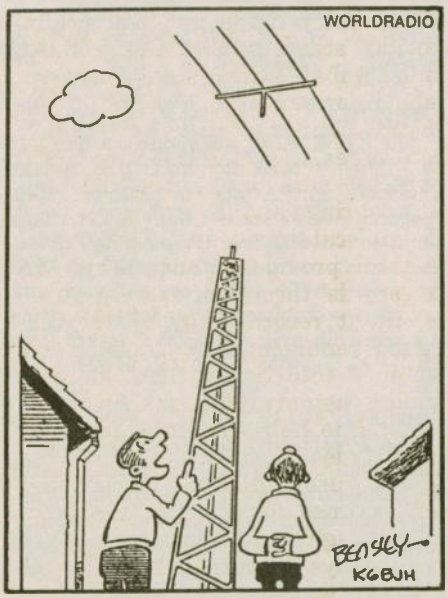
MFJ 90's Radio Club

CW, sponsored by MFJ 90's Radio Club, 00:00Z 21 May, to 24:00Z 22 May. Work stations once per band. All-band, high-band (20, 15 and 10 meters), and low-band (160, 80 and 40 meters) entries.

Exchange: Send signal report, state/province/DXCC country and MFJ 90's number. If member, power output, if non-member. 1.810, 3.560, 3.710, 7.040, 7.110, 14.060, 21.060, 21.110, 28.060 and 28.110. No 12, 17 or 30 meter QSOs.

Scoring: Score five points for QSO with MFJ 90's member. Others count two points for same continent and four points for different continent. Multiply QSO points by states/provinces/DXCC countries worked per band and by power multiplier (1-5 W output x 7; 0-1 W output x 10). If 100% solar, natural or battery power is used, multiply final score by 1.25.

Certificates: Postmark entry no later than 30 days after the contest and mail to Joseph Falcone, MFJ 90's Radio Club, 3000 Town Center, Suite 2370, Southfield, MI 48075. WR



I THOUGHT HERB'S TOWER WAS TALLER THAN THAT!

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

Skywave Analysis Package

CAPMAN — Computer Assisted Prediction Manager.

At last, a professional-quality IONCAP package that allows anyone to use the most advanced propagation routine interfacing with the ELNEC and MININEC antenna analysis gain patterns.

CAPMAN is the versatile menu/mouse driven IONCAP propagation package developed for hams by Kangaroo Tabor Software and the prime author of IONCAP. CAPMAN delivers IONCAP input file construction and management, two integrated execute functions, the ability to view and manipulate huge output files and display of multicolor output graphs. The package allows you to customize it for your own ham station — painlessly. A full-featured location database, indexed on both country name and call prefix, provides access to over 490 prefixes. Each database entry establishes associated information such as prefix, continent, country, city, geographic coordinates, CQ zone, ITU zone, a 900 character note pad, short and long path bearings and distances, and the current local sunrise and sunset times. CAPMAN provides management of "input records" through the use of libraries. Input records may be created, revised, renamed, copied, deleted and combined into "input files" for performing custom predictions. An extensive on-line help system is provided and includes documentation from the IONCAP user's manual. Sunset and sunrise times, for any day, are accessible through the use of a calendar that also displays the current Local Mean, Local Civil and Greenwich Mean times.

The predicted Smoothed Sunspot Number may be configured and automatically set for the coming 12 months, providing quick one-step predictions. Many more features are provided in a "friendly" yet powerful "HF Analysis" package at a fraction of the commercial price.

CAPMAN is completely fool-proof for the most advanced or beginning amateur. Your contacts and friends may be added to the library and run any time with a few keystrokes. A wide choice of antenna routines is available, to be configured for your station, or use the antenna analysis computed using ELNEC or MININEC. Numerous output methods, including a "Long distance" model for the DXer, are easily accessible.

The choices of output include MUF, FOT, S/N, Reliability, Service Probability, angles of take-off and arrival at receiver, field strength and modes of propagation — many more — using the Es, E, F 1 and F2-layers for the HF bands. Graphs of the predicted vertical ionogram, MUF, FOT and LUF are available.

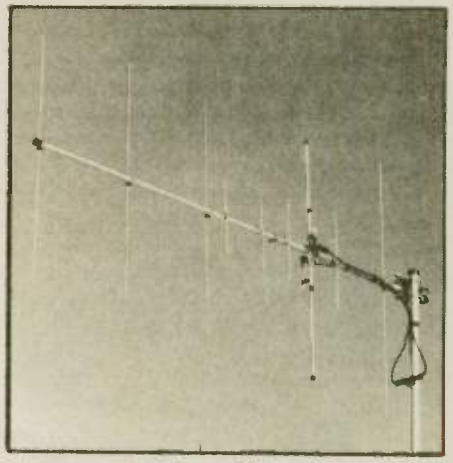
This menu driven package features the newest "updated" full commercial version (LU9307) of IONCAP used by over 450 government agencies and commercial communications departments in the USA and more than 100 other countries.

The IONCAP+ program is provided with the purchase of CAPMAN. This CAPMAN is a 32 bit version and requires an IBM compatible 80386 or above.

The CAPMAN package is $89.00 shipped in the USA postage paid. Overseas add $3.50 s/h. You may pay by check or money order; or telephone or fax requests with MC or VISA card to: LUCAS Radio / Kangaroo Tabor Software, 2900 Valmont Road, Suite H, Boulder, CO 80301; 303/494-4647 fax 303/494-0937.

A270-10S Dual Band Yagi

The new Cushcraft A270-10S dual band yagi for 2 meters and 70 centimeters is the latest innovation in dual band yagi antennas.



The A270-10S is the perfect beam for the ham on a budget. This beam was designed to provide the gain and directional characteristics of a yagi and the convenience of a single antenna. Its low cost, compact size and good performance make it a great compliment to today's dual band rigs. With a list price of only $99 the A270-10S is two antennas for the price of one.

The A270-10S boom is 6 feet 2 inches (1.9m) long and weighs less than two

pounds (.81 kg.). Its wind load of only .725 square feet (.07 sq. m.), allows the use of even the lightest duty rotors.

This new antenna covers 144-148 MHz and 430-450 MHz bands. One antenna with one feed line saves both money and tower space.

For further information contact: Ken Albertson Cushcraft Corporation, 48 Perimeter Rd., Manchester, NH 03103; 603/627-7877 or fax 603/627-1764

JPS wide band noise reduction

JPS Communications, Inc. is pleased to announce a new noise reduction product designed primarily for the short wave listener and the discriminating Radio Amateur: the NTR-1 Wide Band Noise and Tone Remover. Two

front panel-selectable bandwidths provide optimum noise and tone reduction for AM/FM broadcasts, as well as SSB, CW or data broadcasts. An internal jumper provides further adjustment of the level of noise processing in the wideband mode to suit various types of listening habits. One of the main advantages of this device is its ability to provide noise reduction and tone removal for wide band (6.6kHz) as well as narrow band (3.4kHz) signals. This feature is particularly important to SWLs and hams who like to listen to AM or FM shortwave broadcasts and are bothered by noise and/or heterodynes (tones).

Four easy-to-use pushbuttons on the front panel provide 1) power on/off, 2) noise reduction on/off, 3) notch filter on/off and 4) wide/narrow bandwidth. All functions are independent and may be used separately or together, as desired. A companion LED indicates the mode in use.

The noise reduction method used is JPS' dynamic peaking, which is very effective at reducing white atmospheric noise and other similar noise types. The notch filter automatically removes any number of interfering tones, whistles or heterodynes and does so in 3 to 5 milliseconds. These functions are all performed in "real time," so there is virtually no delay between input audio and output audio.

The new NTR-1 operates from 12VDC, requires 500 mA peak current, and uses the same power pack used by other JPS Amateur Radio products. The unit is 1.7" high, 6.5" wide, 5.1" deep and weighs 2 pounds. The NTR-1 is priced at $169.95 and is available from the factory and from selected dealers. The unit, like all JPS Amateur Radio products, has a one year warranty.

For more information or a data sheet. please contact: JPS Communications, Inc., P.O. Box 97757, Raleigh, NC 27624; 919/790-1011.

Visual TNC™

Visual TNC™ is a new Windows™ software product for the AEA PK-232MBX. It supports all digital modes in a graphical user interface (GUI point and click environment. The most impressive characteristic of Visual TNC is the access to functions.

Visual TNC's GUI display a main window with menu, tool, and status bars. The main menu uses additional pull down menus so that all choices are accessible by point and click. Buttons on the toolbar display the more frequently used functions such as CQ, QRZ, AR, SK, and LOG. Completely eliminated is the need to memorize commands and arcane key combinations to operate the INC. Short Cut command keys and function keys are available for the more keyboard-entry oriented user.

Copy and paste capability is an advantage as you enter QTH and other comments in the LOG.

Copy Text in the Morse mode gives you the option to type received copy and display it on the window. Once it is an the window, just copy and paste the information to the LOG.

Even though Visual TNC is straightforward, HELP is available by pressing 171 or selecting HELP from the Main Menu. HELP includes a table of contents and SEARCH function. In addition to the SEARCH function, Visual TNC HELP includes a copy of each window.

The LOG is available at the click of a button or press of an F1 key. The LOG features automatic entry of fields such as Call Sign, Name, Start and Stop Time, and Mode. It provides full navigational power with FIRST, PRIOR, NEXT, LAST, AND SEARCH on log entries. At the press of a button you add, edit or delete an entry.

BobCat Enterprises took a complex task and made it easy and straight forward. In amateur radio digital modes, interactions among user, TNC, computer, and radio are complex. AB6KO, an experienced GUI designer, created Visual TNC to provide the best possible interface for the operator.

Visual TNC is available from BobCat Enterprises, P.O. Box 2113, Thousand Oaks, CA 91358. The price is $84.95 plus $5.00 shipping and handling. California residents add 7.25% tax.

Windows™ is a trademark of Microsoft Corporation

Visual TNC™ is a trademark of BobCat Enterprises. WR

No photos? Before submitting a plain-text story to ***Worldradio,*** see if other local amateurs or club members happen to have photos available.

When will AMSAT-OSCAR-13 be in range?

ROSS FORBES, WB6GFJ

Those just starting out in the world of OSCAR communications would like to know when they can hear a satellite. The following charts are produced to give you a rough idea as to when OSCAR-13 will be within range of your location. The three charts as printed are centered on the following geographic locations East = New York City; Mid = St. Louis, MO; West = Reno, NV.

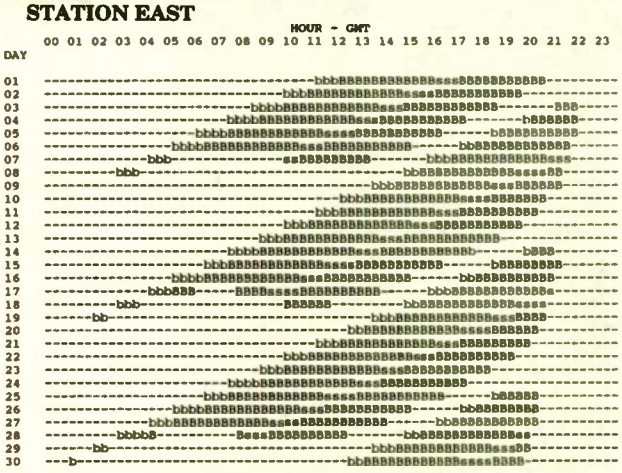
As you read the chart nearest your location, keep in mind the following details — all dates and times are given in UTC. The date is printed on the left hand column and the UTC hour along the top.

A dash mark indicates the satellite is out of range and therefore not able to be heard. The letter "B" indicates OSCAR-13 is audible at that location and signals should be heard between 145.810 and 145.880 MHz (SSB and CW). A letter "O" indicates the satellite is audible, but the only signal you will hear is the telemetry beacon on 145.810 MHz. the letter "L" indicates the satellite is audible but will hear signals between 435.650 and 436.000 MHz (SSB and CW).

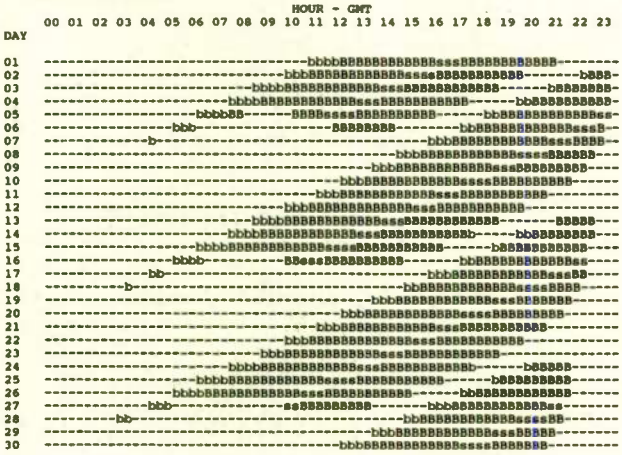
Remember, if a letter is printed on the chart, you should be able to hear OSCAR-13.

For more information about OSCAR, please send an SASE to either of the following: Project OSCAR, P.O. Box 1136, Los Altos, CA 94023-1136; AMSAT-NA, P.O. Box 27, Washington, D.C. 20044. WR

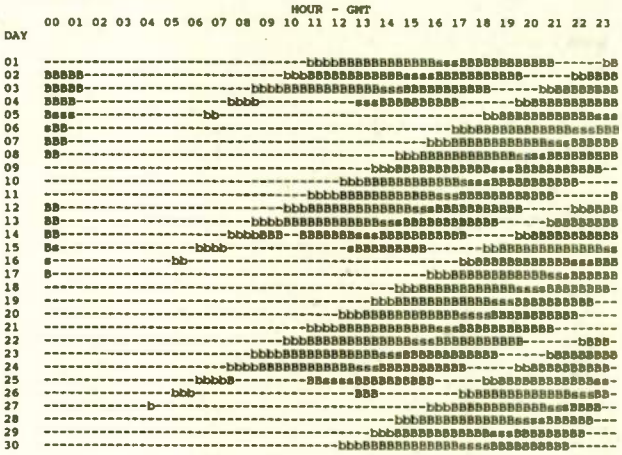
STATION EAST



STATION MID



STATION WEST



VE exam schedules

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

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

Please mark the envelope "VE Exams."

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

p/r=pre-register w/i=walk-in

Date	City	Contact	Notes
Alaska			
6/11/94	Anchorage	Jim, KL7CC 907/338-0662	p/r; w/i
Arizona			
6/11/94	Tucson	Joe, K7OPX 602/886-7217	w/i
6/18/94	Tucson	Micki, AA7RR 602/883-8305	p/r
California			
6/1/94	Sacramento	Jim, AB6OP 393-8839 or Earl, AB6CN 331-1115	p/r pref.; w/i OK
6/4/94	Novato	415/883-9789	w/i OK
6/5/94	Chico	W6YKU 916/342-1180	p/r pref.
6/7/94	Fremont	KJ6EP 510/791-6818	w/i only
6/11/94	Camarillo	George, KN6LA 805/388-2488	p/r pref; w/i OK
6/11/94	Merced	KI6PR 209/383-2166	w/i OK
6/11/94	San Pedro	N6DYZ 310/325-2965	p/r pref.; w/i ltd.
6/11/94	Sunnyvale	408/255-9000 24-hr.	
6/11/94	Torrance	Joe, WB6MYD 310/328-0817	w/i
6/11/94	Willits	Don, WA6ACX 707/459-3980	w/i OK
6/16/94	Fountain Valley	Tom, N6XKY 714/778-1542	p/r
6/18/94	Long Beach	Ken Newkirk, KN6EC 310/431-8998	p/r pref
6/18/94	Sacramento	Lyle, AA6DJ 916/483-3293	
6/18/94	Stockton	Mark, W6DKI 209/465-7496	w/i
6/25/94	Culver City	Scott, K6PYP 310/459-0337 or Dave, N3BKV 818/559-2572	w/i
6/25/94	Fairfield	Jerry, AA6NO 916/662-0801	w/i OK
6/30/94	Long Beach	W6LRF 714/847-6370; N6LUH 310/592-1713	w/i OK
Colorado			
6/11/94	Denver	Glenn,WØIJR 303/360-7293, 24-hr. message	w/i OK
6/18/94	Westminster	Phil, NP2X 303/421-2795	p/r or w/i
Connecticut			
6/11/94	Hampton	Dick, WE1Y 203/423-6420	p/r pref.
6/14/94	Shelton	WJ1T 203/283-1044	w/i pref.
Florida			
6/4/94	Orlando	Lou, AC4GB 407/898-0429	p/r pref
6/18/94	Melbourne	WB9IVR 407/724-6183	w/i OK
Idaho			
6/11/94	Boise	W7JMH 208/343-9153	w/i
Illinois			
6/11/94	Oak Forest	David, NF9N 708/448-9432	w/i
6/18/94	Loves Park	Dennis, W9SS 815/877-6768	p/r; w/i
Indiana			
6/5/94	Terre Haute	K9EBK 812/466-2122	w/i OK
Iowa			
6/10/94	Sioux City	KØTFT 712/239-1749	w/i OK
6/18/94	Council Bluffs	Lorraine, AAØBS 712/322-1454	w/i OK
Maine			
6/24/94	Alfred	N1KMZ 207/985-4825	w/i OK
Maryland			
6/18/94	Laurel	WB3GXW 301/572-5124 after 6 p.m.	p/r pref; w/i OK
6/28/94	Annapolis	Lois, KA3VVQ 410/647-4178	p/r pref; w/i ltd.
Massachusetts			
6/11/94	Braintree	Phil, K1UPY 617/326-6446	
Michigan			
6/4/94	Harvey	Richard, N8GBA 906/249-3837	
Missouri			
6/4/94	Kimberling City	NQØG 417/739-2888	w/i OK
6/12/94	Belleville	Eric Koch, NFØQ 314/946-0948	p/r
6/25/94	Creve Coeur	Ron Lemons, KBØDIY 314/647-3223	p/r
6/25/94	HighRidge	James Berger, WAØFQK 314/942-2268	p/r
New Jersey			
6/16/94	Bellmawr	WA2VQG 609/933-1500	w/i
6/11/94	Cranford	24-hr. hotline: 201/377-4790	
6/8/94	Fort Monmouth	MARS 908/532-5354	w/i
New York			
6/4/94	North Tonawanda	Vern, AA2AC 716/634-5276	p/r only
6/5/94	Yonkers	AC2V 914/237-5589	w/i OK
6/6/94	Manhattan	VE 24-hour hotline 212/456-5224	w/i OK
6/11/94	Hamburg	Norm, KD2KK 716/824-1148	p/r only
6/14/94	Hicksville	Bob, W2ILP 516/499-2214	w/i
6/15/94	Lancaster	Chuck, WD2AIK 716/937-3592	p/r only
North Carolina			
6/5/94	Hendersonville	W2YTO 704/891-4359	p/r pref; w/i OK
Ohio			
6/4/94	Cincinnati	Herb, WA8PBW 513/ 891-7556	w/i OK
Oklahoma			
6/4/94	Vinita	Jimmie, KA5DVT 918/256-2716	w/i OK
Oregon			
6/8/94	Roseburg	KB7CMB 503/672-5997 or AA7GD 503/672-7564	w/i OK
6/14/94	Pendleton	Mike, AA7SL 503/566-3597	w/i OK
Pennsylvania			
6/3/94	Nazareth	John, WX3C 215/767-4778	w/i
6/4/94	Erie	W3CG 814/665-9124	w/i OK
6/18/94	Hermitage	WM3H 412/347-5960	w/i
Rhode Island			
6/4/94	Middletown	Jack, N1HYA 401/683-2250 or Jim, KC1SD 401/847-5239	w/i
6/9/94	Providence	Judy, KC1RI 401/231-9156 or Al, NN1W 401/454-6848	w/i OK
South Carolina			
6/18/94	N. Charleston	Ed, KC4OOZ 803/871-4368	
South Dakota			
6/11/94	Rapid City	NUØF 605/348-6564 p/r 30 days prior	w/i OK
Texas			
6/11/94	Houston	Jim, KB5AWM 713/488-4426	w/i only
6/11/94	McGregor	AB5BA 817/859-5374	w/i OK
6/14/94	Houston	Harold, ND5F 713/464-9044	p/r pref.; w/i OK
6/18/94	Austin	Jim, AB5EK, 512/327-6184	w/i
Virginia			
6/4/94	Virginia Beach	Judy, KD4JMA 804/468-9166	w/i OK
Wisconsin			
6/11/94	Appleton	KD9IA 414/788-3823	w/i

THE MART

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The MART (cont.)

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CAYMAN DO-IT-YOURSELF DXpedition. Stay at ZF8AA on Little Cayman Island. 2 br. cottage, beach, beam, rig. Fish or dive if bands fold. Write RON SEFTON, ZF8AA, P.O. Box 1107W, Poulsbo, WA 98370; 206/779-5418. 1193-1094

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WANTED: HAM EQUIPMENT AND OTHER PROPERTY. The Radio Club of Junior High School 22 NYC, Inc. is not only the Big Apple's largest ham club but also the nations only full time, non-profit organization, working to get ham radio into schools around the country as a theme for teaching using our EDUCOM-Education Thru Communication-program. Send your radio to school. Your donated amateur or related property, which will be picked up or shipping arranged, means a tax deduction to the full extent of the law for you as we are an IRS 501(c)(3) charity in our fourteenth year of service. Your help will also mean a whole new world of educational opportunity for children around the country. Radios you can write off, kids you can't. Get ready for summer by helping someone else and yourself. Please, write, phone or fax the WB2JKJ "22 Crew" today: The RC of JHS 22, P.O. Box 1052, New York, NY 10002. Telephone 516/674-4072 or fax 516/674-9600. Young people, nationwide, can get high on ham radio with your help. Meet us on the WB2JKJ CLASSROOM NET: 7.238 MHz 1200-1330 UTC and 21.395 MHz 1400-2000 daily also at HAM-COM 94, the ARRL National Convention in Texas, June 10-12. 594

ROSS' $$$$ New May (only) specials. Save time and money, have model number and manufacturer ready when you call or write. Kenwood TH-22AT — $260.50, TR-751A — $615.00, YK-88A — $62.50; TH-205A — $250.00; AEA PK-6A/HFM — $145.00, PM-1 — $125.00; Alinco call; Yaesu SP-5 — $145.00, FT-530 — $416.00, FT-416 call; ICOM call; ASTRON call; MFJ call; Kantronics call; Barker & Williamson call; Bencher call; Butternut call; Cushcraft A3WS call; Telex Hy Gain call; KLM call; RFConcepts call; Mirage call; Larsen call; Limited time offers. Looking for something not listed or hard to find? Call or write. Over 9000 ham-related items in stock for immediate shipment. Mention ad. Prices cash, FOB Preston. Hours Tuesday - Friday 9:00 - 6:00, 9:00 - 2:00 p.m. Mondays. Closed Saturday & Sunday. ROSS DISTRIBUTING COMPANY, 78 South State, Preston, ID 83263, 208/852-0830. 594

1994 CALLBOOKS. "FLYING HORSE." North American — $25.95; International — $25.95. Both — $49.95. 1994 ARRL Handbook — $23.95. ARRL Repeater Directory — $6.95. Postpaid. (California residents: add 7%). Check to D. Heise/AA6EE - CALLBOOK DISTRIBUTOR, 16832 Whirlwind/W5, Ramona, CA 92065. 619/789-3674. 2-494

FINALLY HEAR THOSE UNREADABLE SIGNALS buried in noise, heterodynes, tuneruppers. Revolutionary JPS audio filter, Digital Signal Processing. Multitudes now hearing signals they otherwise would not. Their proof? They turn the processor on/off! NIR-10: for CW/SSB white, ignition, steady static and multiheterodyne noises; $329.95 delivered continental U.S.! (list $350.). See October '93 ***Worldradio***. Don't settle for JPS clones! Authorized dealer, discounted prices. Accessories catalog, send 3 stamps DAVIS RF CO., P.O. Box 230-W, Carlisle, MA 01741; 24-hour orders: 800/328-4773. 594

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FLAMEPROOF KEY, U.S.N., (NDS, original packing 1955) $60.00. Telegraph, other electricals, 15 pages, $2.00 plus 2 stamps. J. JACOBS, 60 Seaview Terrace, Northport, NY 11768. 4-594

CLOSEOUT! Copyrighted ham software for IBM, Commodore, others, $4.95 each. Send legal-size SASE for free catalog; EPO SOFTWARE, 7805 NE 147th Ave., Vancouver, WA 98682. 594

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ECONO CHARGE 3 amp battery charge controller. You supply enclosure & DC. $39.95 + $3.00 S&H. Write for information. CHARGE PLUS, P.O. Box 505, Mountlake Terrace, WA 98043-0505. 4-594

IC-781 FOR SALE. Used very little. Possible delivery MA, NH, VT. B/O $4,500. BILL WELCH, K1CLN, 508/653-2347 evenings. 4-594

WANTED ELECTRON TUBES, ICs, semiconductors. ASTRAL P.O. Box 707WM, Linden NJ 07036. Call 800/666-8467. 1193-1194

NIR-10 OWNERS: 3.0 version factory update, $33; simple install. Authorized JPS dealer, DAVIS RF CO., P.O. Box 230-W, Carlisle, MA 01741; 508/369-1738 until 9 p.m. EST. 594

BEAM HEADINGS 1200+. Your QTH, DXCC, Canada, USA. Also their return headings, latitude, longitude, distance. $7.95. ADDIS, K4UAR, 2291 Midvale Circle, Tucker, GA 30084. 5-694

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WANTED: Western Electric Electron tubes. All types wanted new or used. Paying prices like 300 A/B — $250; 274 A/B — $120; Tennis Ball — $100. TIM METZ, 221 Wheatland, Fairview OK 73737; 405/227-2456. 594

GREAT HAM LOCATION with Telrex TB 6; 55 ft. and 35 ft. towers plus antennas. High-quality 2300 sq. ft. 3-bdrm., 2-bath home with gorgeous views from every room. $196,500, by owner, HOULAHAN, 2480 Ridge Rd., Prescott, AZ 86301; 602/778-3370. 5-794

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WANTED: Instruction book or diagrams for Collins 75-A3 receiver. Norm Brooks, K6FO c/o *Worldradio*. 594

WANTED: Non-working Collins 30L1, 30S1 amplifiers, 75A?, microphones, 312B5, etc. Donations accepted and will refund UPS charges. Thanks! CLIFF, 5224 Morris Ave., Columbus, GA 31904; 706/327-9512. 5-694

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Signal intelligence experts, public safety agencies and people with inquiring minds that want to know, have asked us for a world class *handheld* scanner that can intercept just about any radio transmission. The new Bearcat 2500XLT has what you want. You can program frequencies such as police, fire, emergency, race cars, marine, military aircraft, weather, and other broadcasts into 20 banks of 20 channels each. The new rotary tuner feature enables rapid and easy selection of channels and frequencies. With the AUTO STORE feature, you can automatically program any channel. You can also scan all 400 channels at 100 channels-per-second speed because the Bearcat 2500XLT has TURBO SCAN built-in. To make this scanner even better, the BC2500XLT has AUTO SORT - an automatic frequency sorting feature for faster scanning within each bank. Order your scanner from CEI.

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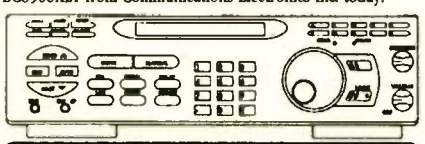

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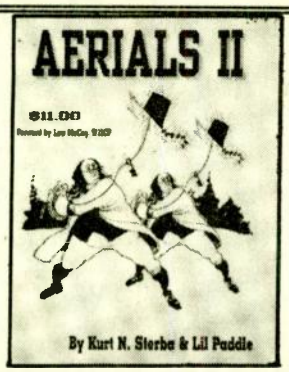

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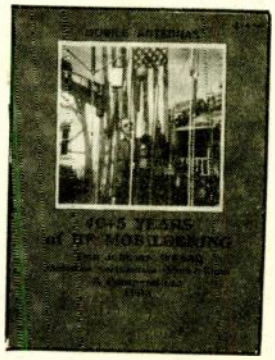

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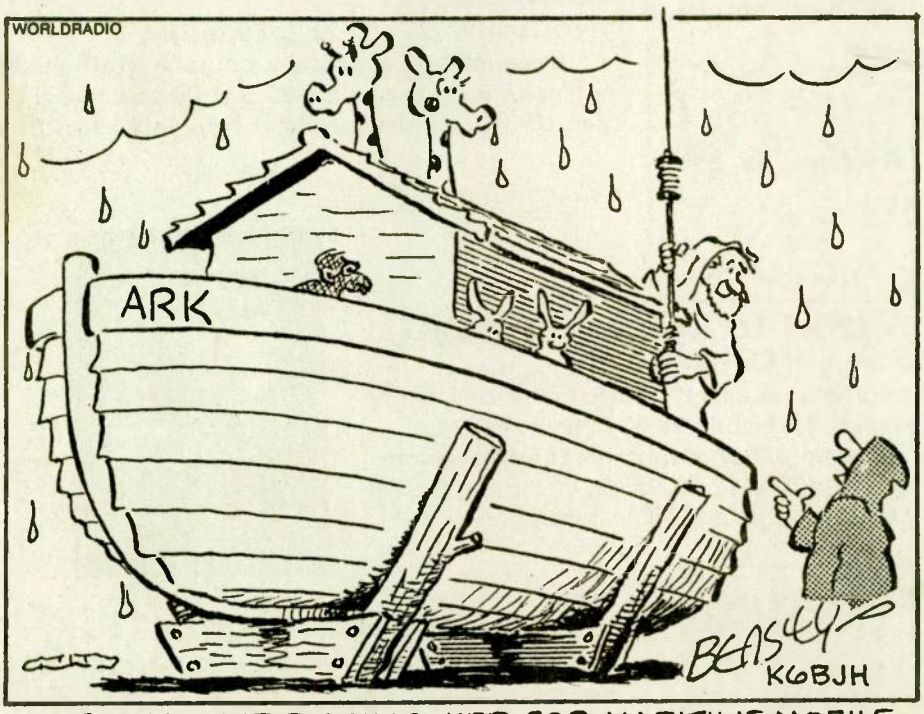

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